

## Onepoto Lagoon

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Bob,

After the pond was drained completely for the installation of the new fountain pump some months ago, the flap valves have been set to allow an amount of leakage on each high tide. As the pond level is lower than the high tide level, the pond is about 2.2 metres above tide reference, there are about 5 hours during each tide, twice a day, where the water overflows into the pond. This raises the pond level by approx 100mm which then drains out again as the tide falls.

Given that the average depth of the pond is roughly 1.2 metres, this inflow and outflow is equivalent to about 8% of the total volume. With two tides a day this represents an equivalent of 100% change every week.

Of course there is a restriction between the ponds in the form of the old weir dam under the bridge which has only been partly removed, and this restricts the exchange of water in the upper pond. This should be rectified if the new fountains are ever completed as these are intended to cause a flow of water as well as aerate the ponds.

With the water change each tide the SG is currently 0.014 (approx half that of seawater) and this has prevented algae growth for the last few months. The oxygen levels and water clarity are also at acceptable levels.

The problem with the pond is that the silt has built up over many years and this has entrapped dead vegetation and algae which rots when the water temperature rises. The rotting causes gasses which sometime bring material to the surface which is unsightly as well as smelling badly.

The main areas of concern are at the northern (clubhouse) end where the culvert under the road is now almost blocked; along the eastern and south eastern sides of the upper pond where the silt is particularly fine, black and

smelly and well below the minimum depth set out in the management plan; and at the southern end where the banks of silt are almost up to water level.

The culvert from the Eastern Stormwater Channel is also blocked by silt and this does not exchange water with the ponds, resulting in algae growth along the channel as the water is not salty.

Flushing the pond will not shift the silt, the only solution to the offensive smell and black sticky silt is to dredge the ponds, as the management plan requires.

Flushing the pond will also not fix any problems with algae, as has been occurring in other ponds on the shore. The lagoon is comparatively free of algae, and where it does occur in the stormwater channel flushing will not change that because the culvert is blocked with silt.

In fact the pond water seems to be quite healthy, the mussels growing on the buoy anchor ropes get too heavy and require removing before they sink the buoys.

Dredging the pond to restore the depths, as required by the management plan, will remove the silt that is causing offensive odour as well as reducing the unsightly effects caused by the gas generation.

Richard Plinston  
Onepoto Lagoon Coordination Committee

Photos: Eastern Stormwater Channel over last two weeks showing algae growth. Flushing will not fix this as the culvert is silted preventing exchange of water with the pond.



P.S. Thank you for arranging the picnic table to be restored.