

Weir gates - Lowering the pond

Pond Level control

When the pond was dredged the council also replaced the wooden weir gates with aluminium boards in stainless steel tracks. The remains of the lower wooden boards can be seen on the right in the photo along with silt that is lodged between these and the new boards. It is also seen that mussels cover the boards and the walls of the chamber.

The gates control the height of the pond level and currently this is slightly too high as it right to the edge of the path, and often over it.



There is always water running over the gates except when there is a very long dry period during summer. When there is no changing of the water the pond will become stagnant, the oxygen level will fall and it will likely get algae.

In previous years it was arranged for the flap valves to leak and this brought the pond level up a couple of inches each tide, dropping down again during low tide. The amount of water changed over a week, 13 tides, was equivalent to the total volume of the ponds. This kept the pond from stagnating, kept the oxygen level adequate, though the fountains also were used to do this, and raised the salinity to keep the algae down.

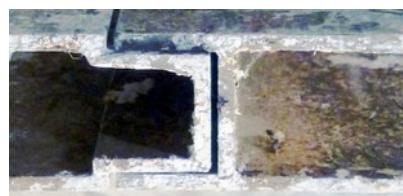
Without lowering the weir gate the pond will too often flood over the paths.

Weir gate Boards



The weir gate boards are aluminium extrusions that clip together. Each board raises the level by 3 inches (75mm).

The Problem



Over the years the gap between the boards has become invaded by some material, perhaps a form of algae, that has glued the boards together. This prevents the top board being removed. If excessive force is applied it may lift all the boards together and this would be a significant problem as it may let material lodge under the lowest board and then be impossible to get the lower boards to seat back to a reasonable seal.

The Plan

When the boards were changed the council made the weir far too high. The top board was removed to drop it to the current level. This board has been cut in half and the lower half will be used to replace the current top board. If this is still too high then the half board will be removed too.

In order to remove the top board it needs to be levered from the board that it sits on.



A set of spring compressors has been obtained cheaply at the local market and one (lower) modified to be an expander. It is planned to drill through the top two boards and tread wire through these and make them into loops. The expander can then be used to force these apart.



In order to deflect the water from the work area during drilling the half board will be added on top to raise the weir level and a piece of wood can be wedged in to deflect any overspill to be either side.

Richard Plinston - NZRYS President.

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Part 2 - Executing The Plan



As usual the weir gate was overspilling some excess water as it had been raining during the last 24 hours.



Adding the half board to the weir gate was sufficient to stop the overspill and keep the south face of the weir clear to work on. A flexible cable on the battery powered drill meant that the drill could stay on shore and it reduced the weight that needed to be held while the drilling was done.



Wire was looped through the holes and the expander was tried. The first attempts failed as the wire stretched and the device reached its limit. New holes were made that were closer together and the wire rethreaded through these.



Finally there was some movement, enough that I could get a bar into the gap in order to use a hammer to drive it apart.



With the top board replaced by the half board a torrent of water was released.

Richard Plinston - NZRYS President.

12 November 2018



With a southerly wind the scrut is blown to the north end of the ponds.

15 November 2018



A northerly blows the scrut to the south end.

State of the Pond - 18 November 2018



During the week I made some adjustments to the pond controls. I put a piece of stainless steel chain (donated by Wayne Carkeek) on green rope to prevent the flap valves from closing fully (photo left). This will let in about 100mm of estuary water each high tide bringing in more salt and helping keep the oxygen levels up to prevent the pond becoming stagnant. It should also help with keeping the water cooler. I then removed the top half-board from the weir gate (about 40mm) so that the lower water level is lower to prevent the high level flooding the paths.

Mid-week the wind was from the north and this blew all the scrut down to the south end and left the sailing pond nice and clean.

Carol and I are also asking the council to get the fountains working as this oxygenates the water to keep the smell down in the hot summer. They also help control the weed growth.