

West Harbor Pond Siphon Examined Underwater (Joseph Charpentier, *Boothbay Register*, October 3, 2017)

Members of the West Harbor Pond Watershed Association and Jim Lord of Dirigo Engineering assembled at the location of the 1880 siphon on the Highway 27 causeway which dams off the freshwater West Harbor Pond from the seawater, to take the first step in finding a solution to deteriorating water quality of the Pond. The WHPWA has contracted with Dirigo to evaluate the options for repairing or replacing the old siphon in order to restore the water quality of the Pond.

They were there to watch Chuck Fuller of Fuller Marine Resources, in diving gear, assess the condition of the underwater portions of the old siphon. To assist Fuller's exploration, a crew from the Boothbay Harbor Sewer District used a jetter to attempt to clear the blockage in the intake portion of the siphon. The Boothbay Harbor Public Works Department provided flagmen to ensure that traffic flowed smoothly during the two hours that one lane of traffic was closed over the Highway 27 causeway.

The siphon's essential purpose is to evacuate the saltwater from West Harbor Pond which, due to its denser nature as compared to freshwater, rests at the bottom. The farther down Fuller went, the darker the water became. At a certain point, Fuller encountered what he called "blackwater," "so dark that I couldn't see my glove in front of my mask."

The "blackwater" that Fuller encountered is consistent with the results of the WHPWA's sampling of the Pond's water column that it has carried out since 2013. "Beginning at the surface, there is about twelve feet of clear water with high dissolved oxygen readings," said Merritt Blakeslee, member of WHPWA. "From twelve to fourteen feet, the oxygen drops and the water becomes increasingly murky. At fourteen feet and below, the dissolved oxygen is nearly 0%, and the water is extremely murky with a strong smell of hydrogen sulfide, which is produced as organic material decays."

Blakeslee said that five years of water sample tests have consistently shown a sharp fall off in water quality in the lower portions of the Pond.

After working for more than half an hour, using various nozzles on its jetter, the Sewer District crew was still unable to clear the blockage in the vertical siphon pipe on the Pond side of the dam. Instead, the water pressure breached the side of the 10" cast iron pipe, weakened by the effects of 137 years of submersion in the Pond.

Nor was Fuller able to find the underwater end of vertical pipe, which appeared to be embedded in the body of the dam. Fuller reported that he attempted to remove several feet of rip-rap, by hand, but was still not finding any end in sight.

Blakeslee also mentioned that the end of the vertical pipe on the harborside could not be found.

When asked where Monday's activity left the WHPWA in its efforts to fix the siphon, Blakeslee replied: "There is nothing final so far— how we will end up repairing or replacing the siphon is still very much in the planning stage," Blakeslee said. "We do not want to get ahead of

ourselves and begin discussing options we do not yet fully understand. But it is important to note that what we found out about the old siphon today – blockage and a breach – do not preclude the possibility that the siphon can be repaired and restored to operation. However, with Dirigo Engineering’s assistance, we are also exploring the option of placing an entirely new siphon at a different point in the causeway.”

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