

July 13, 2020

Board of Directors,

A summary of the Water Quality Committee activities is presented below.

### **E. coli Sampling**

I am pleased to report that we have either 10 colonies/100 ml or <10 colonies/100 ml E. coli. The two that had 10 colonies/100 ml were at the outflow near Jack Kedian's and at the Carters River outflow. Generally, greater than 80 or 100 (depending on who you ask) are cause for concern. This is a good result.

While we (Don, Geri, Jerry) were out, we took a Secchi reading. It had decreased from 5 m in May to 2.5 m this time. There was a lot of suspended solids (probably not algae) that caused the reduction in clarity. The pond still looks pretty clear to me. We also took a dissolved oxygen sampling at the deep hole and even at 13 m, there was measurable oxygen. Looking good.

### **Additional Sampling**

Jim Smith has agreed to take samples at 2 more locations in LHP during the August and October GHP samplings. We are trying to locate where in LHP the "pollution" from nitrate and phosphorus starts -- nearer the spring or nearer the sluiceway. This information may suggest where to focus remediation efforts.

Also, there have been occasional high total phosphorus readings at the Little Herring Pond Spring. Discussions with Peter Schwartzman, a hydrologist and president of the Savery Pond Watershed Association, suggested that occasional ground water infusions into the spring might be the cause.

I had a look at the 3 high TP spring measurements (June 18 and October 8 2019 and February 27, 2020) and there was rainfall for each either early in the morning and/or the day immediately before. These were not massive rainfalls but they were rainfalls nonetheless. These dates yielded total phosphorus of 0.022, 0.016 and 0.018 mg/L, much closer to the LHP, Carters River measurements that I would have expected for the spring. I also looked at 4 spring samplings where the total Phosphorus values were 0.005, 0.006, 0.005, 0.005, respectively in August, September and December 2019 and January 2020. For these samplings there was no rainfall at all for the day of and at least 2 days before sampling for 3 of them and only 0.01" of rain for the August sampling 9AM the day before.

What this means to me is that the dormant cranberry bog uphill of the spring may be supplying the phosphorus via ground water.

I'm curious what the level of phosphorus is in that cranberry bog presently. I asked Jim Smith how hard it would be to take a sample there for both nitrate and total phosphorus? He offered a tour of the area. Are you interested in participating? We'll do it when I get back the week of the 13th of July.

I think it may be possible that a lot of the total phosphorus that ends up in Great Herring Pond may come from the dormant cranberry bog.

### **Elbow Pond**

John Foye informed me that the cost of the samplings for Elbow Pond was \$340 instead of \$215. It is disturbing that I was quoted \$215 and John got a bill for \$340 but this has happened before with Envirotech. Unfortunately, they are the only nearby sampling facility. I will ask the BOD for approval of this amount at our meeting.

I have written a letter for Tom Oertel to distribute to new residents of Elbow that the BOD has approved via email. Tom has had a death in the family and has not had a chance to review the letter. He has suggested that we mail this letter to the new residents (he will get the addresses). I plan to provide him with 20 stamped envelopes (my stamps) containing the letter and the membership brochure. I am awaiting his input.

### **Occasional High Total Phosphorus in Little Herring Pond Spring**

There have been occasional high total phosphorus readings at the Little Herring Pond Spring. Discussions with Peter Schwartzmann, a hydrologist and president of the Savery Pond Watershed Association, suggested that occasional ground water infusions into the spring might be the cause.

I had a look at the 3 high measurements (June 18 and October 8 2019 and February 27, 2020) and they all had rainfall either early in the morning and/or the day immediately before. These were not massive rainfalls but they were rainfalls nonetheless. These dates yielded total phosphorus of 0.022, 0.016 and 0.018 mg/L, much closer to the LHP, Carters River measurements that I would have expected. I also looked at 4 samplings where the total phosphorus values were 0.005, 0.006, 0.005, 0.005, respectively in August, September and December 2019 and January 2020. For these samplings there was no rainfall at all for the day of and 2 days before sampling for 3 of them and only 0.01" of rain for the August sampling 9AM the day before.

What this means to me is that the dormant cranberry bog uphill of the spring may be supplying the phosphorus via ground water.

I'm curious what the level of phosphorus is in that cranberry bog presently. Jim has agreed to show me the bog and give a tour of Little Herring Pond and will take any necessary samples in the future.

I think it may be possible that a lot of the total phosphorus that ends up in Great Herring Pond may come from that cranberry bog.

### **Water Quality Plan**

As many of you know, HPWA and the Town of Plymouth have been looking for grant money to fund a Water Quality Plan that will: 1) identify the sources of pollution in Great Herring and Little Herring Ponds and 2) suggest remediation strategies. We have not been successful. There seems to be no money available for planning. David Gould, director of the Department of Marine and Environmental Affairs, has long been a friend of HPWA. His department has provided money for pond testing over the years and has obtained grants to fund a study identifying runoff sites around GHP and to fund the remediations of 3 out of the 7 sites. The larger question remains -- where do we go next to clean up our waters enough so that cyanobacteria blooms are avoided and harmful algae blooms are stopped. Guidance will be given by a Water Quality Plan.

The plan costs \$80,000. It will be conducted by Ed Eichner's group at UMASS Dartmouth, the same group that conducted the runoff study. HPWA has been encouraged to provide a "match" to increase the chances of receiving a grant but that has not resulted in funding. Meanwhile, HPWA has raised a

substantial sum of money for the Town of Plymouth to purchase the Condon Tract, 53 acres of land southwest of GHP in our watershed's recharge area. At a meeting with David last fall on other matters, attended by Lee, Geri and I, David said that he was very grateful for this contribution and had some money (\$70,000) in his budget to help fund the Water Quality Plan and that he was optimistic that the WQP could be fully funded by the Town of Plymouth.

Yesterday, I got an email from David asking how much money HPWA could contribute toward the WQP. As you might imagine, town budgeting has been turned upside down by the coronavirus pandemic; town income has been drastically reduced and many cuts are being made. I told him that I would have to go to the BOD for any approvals but if pressed, I would venture that we could raise \$10,000. He said that was acceptable to him. Savery Pond received funding for \$30,000 of a \$40,000 WQP at last fall's Town Meeting. They had agreed to contribute the remaining \$10,000. I was put on the spot to come up with a number because David was already obligated to prepare for this fall's Town Meeting that will be held in September. The amount was chosen carefully. I thought that relative to Savery Pond, the amount of \$10,000 for HPWA's WQP was reasonable and took into account our large contribution to the Condon Tract purchase.

I also told David that the amount would have to be approved by the BOD and that we were having our next meeting July 13. He was OK with waiting for a definitive answer until then. I have included this in the meeting's agenda for discussion. It is a crucial step in charting our next actions for improvement of water quality. I believe it is a generous offer by the Town of Plymouth. I wanted to give you all time to think about it before the meeting and ask questions. I have been keeping Jed Smith, one of our major donors, apprised of progress being made in water quality and would be willing to ask him to support this effort. Our membership drive has been very successful thus far; we have not seen any reduction in giving due to the coronavirus.