



Fall Town Warrant Article 35 : Bartlett Watershed Assessment

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Town of Plymouth Public Health Director

On behalf of the White Horse Beach Working Group

So here we are...

- Initialized when the DEP tested the Pond based on health and environmental concerns from the public
 - Toxic non-visible cyanobacteria was found
 - It was flowing from the Pond to the Brook onto the beach
 - Took coordinated actions involving Public Health, DMEA, and DPW
- Formed a White Horse Beach Working Group with Board of Selectmen approval
 - Goal is to address a public health and environmental issue that is more than 30 years old

Environmental Rationale

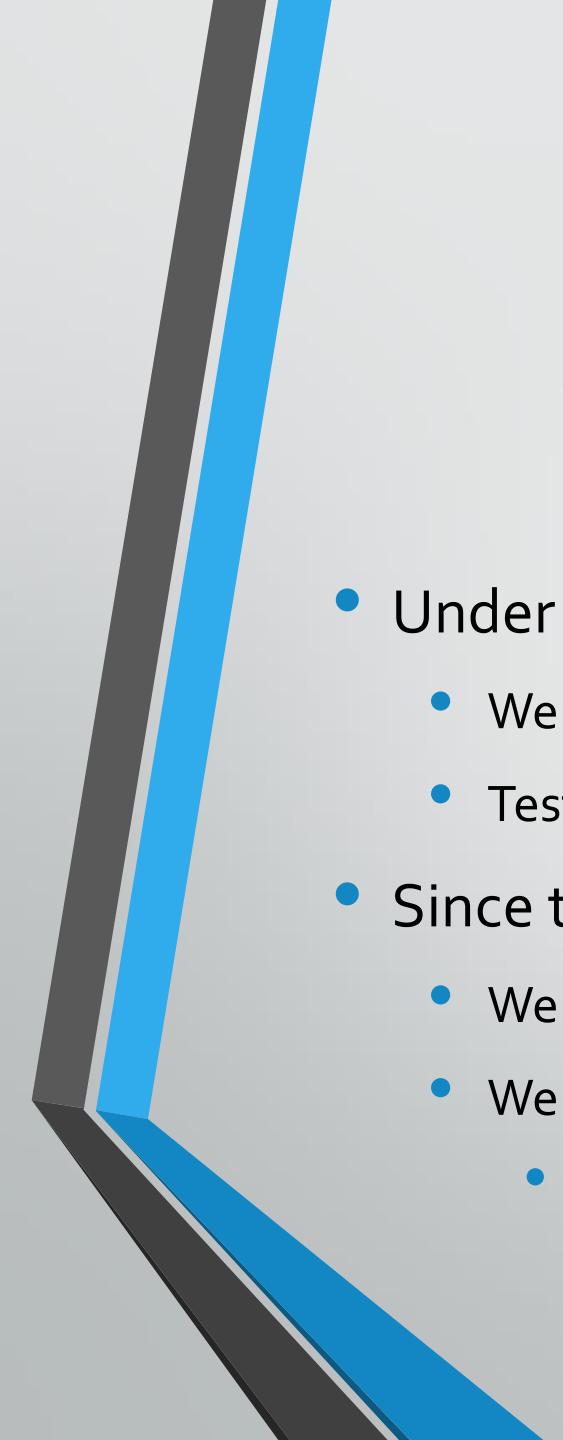
- The WHB area has experienced exponential growth since the 1970s
 - Has impacted the environmental conditions; changed Bartlett Pond formation
- Data from 2014 shows the Bartlett Pond to be highly eutrophic
 - Highly eutrophic = lots of nutrient pollution from nitrogen or phosphorous
- Leads to the possibility for the formation of algae or cyanobacteria
 - Algae or cyanobacteria can be non-toxic or toxic
 - Nitrates and primarily Phosphorous are contributors
- Common effect of nutrient pollution is death of fish or other aquatic/marine life

Public Health Rationale

- Historically people have been talking about this area for nearly 30 years
 - “I wouldn’t swim in the Brook if I were you” or “I can’t believe kids go in there”
- People have talked about their health concerns after being exposed to the Bartlett Brook or Bartlett Pond water in previous years and to this day
- This year, the Public Health Department has heard several anecdotal reports
 - People are often too scared because of retribution to officially report
 - Hear people ‘off the record’ talk about illness and symptoms after Brook exposure

So What?

- The Pond itself does not belong to the Town.
- However, we own the Beach and it is under Public Health jurisdiction
 - When bacteria levels are above the level of concern we close beaches
 - Locations for bacteria testing occur near beach life guard stations
 - Actions taken to advise the public to not swim on the Beach near the Brook
 - Did not know what else was in the Brook based on the public's concerns about their health
 - The Bartlett Pond's Brook empties onto the beach.....



....and, still so what!?

- Under my direction based on valid concerns from the public about the Brook
 - We tested the Brook-beach area for a basic panel of harmful bacteria to human health
 - Testing points along White Horse Beach (Hill Top & Full Sail) and this Brook-Beach area
- Since the people spoke and collaboration occurred
 - We have up-to-date reliable bacteria testing data
 - We can understand public's potential exposure if they visit this Beach/Brook area
 - Prevent Illness and disease development



What does our current evidence tell us?

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 31

Sample Received Date/Time: 7/25/18, 4:20 PM
Sample Collected Date/Time: 7/25/18, 4:30 PM
Sample Collected By: G & L Labs
Total Sample Received: 1 Water Sample
Mass. Certification Number: M-MA-1100

Sampling Location	Fecal Coliform (CFU/100mL)	E. coli (CFU/100mL)	Enterococci (CFU/100mL)
Bartlett Brook	100	70	210*
Maximum Contaminant Level	200	235	104
Analyzed Date/Time	7/25/18, 4:30 PM	7/25/18, 4:30 PM	7/25/18, 4:30 PM
Method Reference	SM 9222D	EPA 1603	EPA 1600

*: Exceeds MCL

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 31

Sample Received Date/Time: 7/31/18, 1:35 PM
Sample Collected Date/Time: 7/31/18, 9:31 AM
Sample Collected By: G & L Labs
Total Sample Received: 1 Water Sample
Mass. Certification Number: M-MA-1100

<u>Sampling Location</u>	<u>Fecal Coliform</u> (CFU/100mL)	<u>E. coli</u> (CFU/100mL)	<u>Enterococci</u> (CFU/100mL)
Bartlett Brook	800*	1600*	23
Maximum Contaminant Level	200	235	104
Analyzed Date/Time	7/31/18, 2:50 PM	7/31/18, 2:50 PM	7/31/18, 2:50 PM
Method Reference	SM 9222D	EPA 1603	EPA 1600

*: Exceeds MCL

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 31

Sample Received Date/Time: 8/7/18, 4:57 PM
Sample Collected Date/Time: 8/7/18, 1:59 PM
Sample Collected By: G & L Labs
Total Sample Received: 1 Water Sample
Mass. Certification Number: M-MA-1100

All Levels Below
Threshold

<u>Sampling Location</u>	<u>Fecal Coliform</u> (CFU/100mL)	<u>E. coli</u> (CFU/100mL)	<u>Enterococci</u> (CFU/100mL)
Bartlett Brook	123	85	73
Maximum Contaminant Level	200	235	104
Analyzed Date/Time	8/7/18, 5:45 PM	8/7/18, 5:45 PM	8/7/18, 5:45 PM
Method Reference	SM 9222D	EPA 1603	EPA 1600

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 31

Sample Received Date/Time: 8/14/18, 2:15 PM

Sample Collected Date/Time: 8/14/18, 12:13 PM

Sample Collected By: G & L Labs

Total Sample Received: 1 Water Sample

Mass. Certification Number: M-MA-1100

<u>Sampling Location</u>	<u>Fecal Coliform</u> (CFU/100mL)	<u>E. coli</u> (CFU/100mL)	<u>Enterococci</u> (CFU/100mL)
Bartlett Brook	360*	440*	330*
Maximum Contaminant Level	200	235	104
Analyzed Date/Time			
Method Reference	SM 9222D	EPA 1603	EPA 1600

*: Exceeds MCL

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 31

Sample Received Date/Time: 8/21/18, 1:59 PM
Sample Collected Date/Time: 8/21/18, 9:10 AM
Sample Collected By: G & L Labs
Total Sample Received: 1 Water Sample
Mass. Certification Number: M-MA-1100

Sampling Location	Fecal Coliform (CFU/100mL)	E. coli (CFU/100mL)	Enterococci (CFU/100mL)
Bartlett Brook	90	72	172*
Maximum Contaminant Level	200	235	104
Analyzed Date/Time			
Method Reference	SM 9222D	EPA 1603	EPA 1600

*: Exceeds MCL

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 28

Sample Received Date/Time: 8/28/18, 1:10 PM
Sample Collected Date/Time: 8/28/18, 9:28 AM
Sample Collected By: G & L Labs
Total Sample Received: 1 Water Sample
Mass. Certification Number: M-MA-1100

<u>Sampling Location</u>	<u>Fecal Coliform</u> (CFU/100mL)	<u>E. coli</u> (CFU/100mL)	<u>Enterococci</u> (CFU/100mL)
Bartlett Brook	160	240*	140*
Maximum Contaminant Level	200	235	104
Analyzed Date/Time	8/28/18, 1:40 PM	8/28/18, 1:40 PM	8/28/18, 1:40 PM
Method Reference	SM 9222D	EPA 1603	EPA 1600

*: Exceeds MCL

White Horse Beach - Bartlett Brook

Bacteria Testing Data

July 25 – August 28

During latter part of beach season:

- Enterococci was found 66% of the time
- E. Coli was found 50% of the time
- Fecal Coliform was found 33% of the time
- E. Coli is of high concern because of its disease causing impacts
 - Illness and disease manifestation isn't always apparent even if it is occurring
 - We do not know the particular strain or if it is antibiotic resistant

Town Warrant Article Language

- “To see if the Town will vote to raise and appropriate, transfer from available funds the amount of \$180,000 dollars. The funds will be used to fund a Water Shed Study of the Bartlett Pond and Beaver Dam River area to protect the public’s health and environment. The purpose of this study is to identify the sources of the bacterial contamination and nutrient pollution in the water shed area and recommend solutions to rectify the contamination and pollution sources identified. Said funds shall be under the direction of the Board of Selectmen.”

Advantage

- Get out in front of a problem that is over 30 years old with science and logic
- Assure the public that their health is a priority in addition to their economic prosperity
- If Town Meeting Members approve it during the Fall Annual Town Meeting
 - Availability of funding can allow commencement of the study in December/January
 - Will allow precision for public health and environmental monitoring and management
 - Can arrive at a quicker resolution to mitigate and resolve this problem

Policy Options

- Option 1 = Do nothing;
 - Leave the area unsightly with snow fence and signage
 - Risk illness to people when exposed to the Brook if they ignore signs and snow fence
 - Lingering stigma that might hamper economic prosperity in the area
- Option 2 = Move forward with this Article to begin to address public health and environmental concerns.