

The following questions (in bold) were submitted by Judith Stiles, a member of the Herring River Stakeholder Group (HRSG), in an email to Bill Biewenga, Chair of the HRSG. The responses provided below were prepared by members of the Herring River Restoration Committee along with John Portnoy.

**Question:**

**One member [of the business community] in particular who lives near the dump/landfill is waiting for an answer to his question that I raised on his behalf - regarding the Cape Cod Commission's directive to the Friends of The Herring River to conduct further (more thorough) studies about the impact on the plume in that area.**

**Response:**

The Project is in a regulatory process with the Cape Cod Commission and will not comment on information requests outside of that process. Once an application is filed with the Cape Cod Commission, all application materials will be available for public review.

The question about the potential impacts of landfill leachate has been addressed in previous public presentations and documents. Based on years of monitoring data, there is no indication that tidal restoration will have an effect on the location or movement of the landfill leachate, or result in the mixing of leachate water in Herring River. An updated fact sheet on this matter has been prepared by the Friends of Herring River and is attached.

**Question:**

**The second question I raised was the estimated cost of maintaining the proposed dike, an expense that will go to the taxpayers. It is incorrect to assume that a significantly larger and more complicated dike will not cost more to maintain than our current dike.**

**Response:**

An operation and maintenance plan is being developed as part of the design for the Chequessett Neck Road (CNR) bridge and tide gate. It is likely that the operation and maintenance costs for the new structure will be greater than for the existing structures, which is minimally maintained. The initial estimate for operation and maintenance of the CNR bridge and tide gates is \$50,000 for the first five years of tidal restoration.

When viewed in the larger context of the Project, overall costs to the town for maintaining infrastructure will be significantly less with the Project than without it. Consider:

- The Town will not pay for construction of the new bridge and tide gates (estimated at \$15 million), but otherwise would be responsible for any costs associated with repair or replacement of the existing structures.
- Wellfleet's DPW Director has stated that the road and culvert improvements included in the Project will save the town millions of dollars in road repair costs it otherwise would have had to pay, and will result in newer, more resilient infrastructure.



## **Herring River tidal restoration and the Wellfleet landfill**

Wellfleet began dumping domestic waste in a large isolated freshwater wetland on Coles Neck in 1938. This became the Town's "sanitary landfill" where waste was buried until 1992.

A 1988 study for the Town found groundwater contamination west-southwest of the landfill. Contaminants were as expected from domestic waste. Ammonium was high, likely leaching from lagoons where septic waste had been dumped for decades. Volatile organic compounds (VOCs), probably from paints and other household solvents, were also present but well below concentrations considered by the Environmental Protection Agency to be chronically or acutely toxic to freshwater or marine life, indicating little environmental risk. The 1988 study sampled for, but did not find, pollution indicative of landfill leachate in the surface waters of the Herring River flood plain.

In 2005, the landfill was covered with an impermeable cap to block the percolation of precipitation through the deposited waste. Subsequent monitoring (2008-2017) has shown that leachate generation has already decreased to nearly undetectable levels in deep wells downgradient of the landfill. This indicates that the landfill capping has been successful.

In addition, hydrodynamic modeling for estuarine restoration indicates that surface water flow will be limited to the Herring River flood plain and will remain at the present distance of at least 500 feet from the capped landfill. Therefore, tidal waters after restoration will be no closer to the landfill and transfer station than they are now. Modeling also shows little change in the average water level in Herring River wetlands; therefore, since water levels in the river influence the movement of groundwater, tidal restoration should have little to no effect on contaminant location or movement.

There is no evidence that landfill leachate currently reaches, or ever has reached, the river. Though it is difficult to prove a negative (no impact), recent analyses of stable nitrogen isotopes in Herring River water does not show the diagnostic signatures of landfill or septic leachate (A. Mittermyer, Provincetown Center for Coastal Studies, personal communication); nitrogen isotopic ratios are nearly the same upstream and downstream of the location of groundwater discharge from the landfill site. In addition:

- contaminant concentrations even in the 1980s, before landfill capping, were far below concentrations of concern to aquatic and marine life according to EPA standards;
- continued monitoring shows that contaminants have decreased even further since the 2005 capping; and
- tidal restoration will only act to dilute any residual contaminants, if they exist, to a much greater degree than those contaminants are diluted now. Model results show that the estuary above High Toss Road will flush about 20 times faster than it does today.