

HERRING RIVER TIDAL RESTORATION: FREQUENTLY ASKED QUESTIONS

WHAT IS THE PURPOSE OF THE HERRING RIVER RESTORATION PROJECT?

The Herring River Restoration project will revive 1,100 acres of tidal salt marsh that was highly productive before the dike at Chequessett Neck Road, installed in 1909, impeded the tidal flow, decimated the herring run, and caused general ecological degradation.

WHY IS THIS PROJECT IMPORTANT?

Throughout the 1800s, salt marshes were viewed as wastelands, and half have been lost to coastal development. Now we know that salt marshes have social and economic benefits, including storm-surge protection, habitat and food production for fish, shellfish and migratory birds, pollution control including greenhouse-gas storage, and recreation.

HOW LONG WILL THE PROJECT TAKE?

Full restoration is expected to take 10-20 years, with the project implemented in phases. The first phase of the project, fully permitted and beginning the winter of 2022-2023, increases tidal flow in increments, but removes or replaces all existing impediments to tidal flow so that full tidal restoration can ultimately be achieved. Tides will be restored over 200 acres of former salt marsh within just the first three years after Chequessett Neck Bridge completion. Phase 2, reviving large expanses of wetlands outside the National Seashore boundary, will require additional permits, public consultations including with landowners, and coordination with the National Seashore and Towns.

HOW LONG WILL IT TAKE BEFORE WE SEE IMPROVEMENTS IN THE ESTUARY?

We anticipate seeing significant improvements in vegetation and water quality in the Lower Herring River basin shortly after tidal exchange is increased, following completion of the new bridge at Chequessett Neck Road and other construction activities. After that, the pace of bridge opening and tidal increase will be adjusted depending on the early response of the ecosystem, which will be closely monitored.

WHY ISN'T THE PROJECT MOVING MORE QUICKLY?

Planning for the project has been diligent but required many years of work. Numerous environmental studies, detailed modelling and extensive landowner coordination were needed to develop a detailed restoration plan; and many environmental permits and approvals had to be obtained before construction of the project could begin. The Project design takes into account ecosystem restoration, rare plants and animals, and the Wellfleet Harbor shellfishing industry. Project design also considers nearby residential and commercial development and public access.

HOW MUCH WILL THE PROJECT COST AND HOW IS IT BEING FUNDED?

The project will cost approximately \$70 million. Most of the funding is coming from federal and state sources with much of it already committed. The Town of Wellfleet will receive funding for an owner's representative, resident engineers, and contractors. There will be no direct cash cost to the Town, but some staff time will be committed as in-kind services.

HAVE ALL REQUIRED PERMITS BEEN APPROVED?

Most required permits have been obtained (Wellfleet and Truro Orders of Conditions, U.S. Army Corps of Engineers, DEP Section 401 Water Quality Certification, Cape Cod Commission DRI approval, and compliance with MEPA/NEPA). Several permit applications are pending and close to approval. They will be in place prior to construction.

HOW WILL THE PROJECT AFFECT THE MOSQUITO POPULATION?

Although the Chequessett Neck Dike was built to control mosquitoes, those that "bug" us in Wellfleet are most likely breeding in the diked Herring River marshes. As the water quality improves, there will be an increase in the fish population, and the fish will eat the mosquito larvae. Therefore, we should see a decline in the mosquito population. Natural salt marshes all around Wellfleet Harbor, which have normal tidal flushing and abundant estuarine fish, produce few nuisance mosquitoes.

HOW WILL THE PROJECT AFFECT THE SHELLFISH INDUSTRY?

Improved water quality throughout the Herring River estuary will benefit shellfish in Wellfleet Harbor, and is expected to extend oyster, quahog, and soft-shell clam habitat upstream of the new bridge. Reconnecting the river with the marine environment will reverse the processes that have degraded water quality and re-establish productive salt marshes that help feed shellfish in the river and harbor.

WILL TIDAL RESTORATION PRODUCE ODORS?

No, we do not expect the restoration project to produce unpleasant odors. Coastal muds that lack oxygen produce odors; most obvious to us is hydrogen sulfide gas—that rotten egg smell. However, when there is sufficient iron in the mud, as in Herring River, hydrogen sulfide becomes undetectable.

HOW WILL EXISTING PLANTS RESPOND TO TIDAL RESTORATION?

The gradual restoration of saltwater flooding will kill freshwater-wetland and upland plants, including trees that have invaded the floodplain since the dike was built in 1909. However, trees and shrubs will be cut just before this happens. The clearance of the existing shrub thicket will also open the marsh surface to the recolonization of salt-marsh plants.

HOW DO SALT MARSHES HELP TO PROTECT COASTAL ROADS AND HOMES FROM CLIMATE-CHANGE-INDUCED SEA-LEVEL RISE AND STORM SURGES?

Salt marshes stand between open coastal waters and human settlement, acting as a buffer between the two and thereby protecting infrastructure against accelerating sea-level rise and intensifying coastal storms. Wetland plants absorb and dissipate storm surges.

HOW DO SALT MARSHES HELP CONTROL GREENHOUSE GASES?

Salt marsh plants absorb more carbon dioxide, through photosynthesis, than they release through respiration, and are therefore a “sink” for this greenhouse gas. In fact, salt marshes store carbon dioxide faster and retain it longer than almost any other habitat on Earth. Also, unlike freshwater wetlands, salt marshes release very little methane, a potent greenhouse gas. Currently, the freshwater marshes in the Herring River emit large amounts of methane. The restoration of salt water onto the marsh will greatly reduce these emissions.

HOW WILL WILDLIFE RESPOND TO TIDAL RESTORATION?

Tidal restoration will benefit numerous estuarine species—including river herring, various shellfish, and finfish—that were severely impacted, and in some cases eliminated, when the river was diked. We expect to see rare diamondback terrapins and marsh birds extend their ranges well upstream of the new bridge. Because tides will be restored gradually, animals that cannot tolerate saltwater and flooding will have time to move to adjacent upland habitat.

WHAT IMPACTS REMAIN FOR PROPERTY OWNERS IN LOW-LYING AREAS?

In Phase 1 of the restoration project, three (3) freshwater supply wells and some utilities will be relocated, a small section of a few driveways will be raised minimally to connect with the elevated surface of adjacent roadways and a small berm will be installed adjacent to one dwelling. No other impacts to the built environment will occur. Friends of Herring River has worked with many property owners over the past decade and is always available to answer property owner questions.

HOW WILL THE CHEQUESSETT CLUB GOLF COURSE BE AFFECTED BY THE PROJECT?

The restoration project includes raising the elevation of portions of five fairways, built on former salt marsh, that are subject to flooding. The restoration project will pay for elevation of the low fairways, and the Chequessett Club will pay for other course reconstruction work including finish work on the low fairways. The Club will provide fill material for elevation of both the low fairways on the golf course and low-lying roads within the Herring River coastal flood plain. Friends of Herring River and restoration project partners have worked closely with the Club, which supports the project.

HOW WILL THE RESTORATION IMPACT FRESHWATER WELLS?

Several hydrologic studies have shown that nearly all residential wells near the river are drawing water from thick freshwater aquifers, which will not be affected by saltwater. Only three wells that have been installed on former salt marshes will be relocated and the relocation will be funded by the restoration project.

HOW WILL THE RESTORATION AFFECT WATER QUALITY?

The water quality of the Herring River and Wellfleet Harbor will be substantially improved. Just as we need fresh air to stay healthy, the fish and wildlife of the river need twice-daily infusions of oxygen-rich water from Cape Cod Bay and Wellfleet Harbor. In addition, stormwater runoff on Chequessett Neck Road that currently flows untreated into the harbor and river will be routed through new stormwater management systems to be built in the bridge deck as well as along the approaching roadway. Stormwater management will also be improved on Hopkins Drive to capture runoff that currently flows directly into the marsh. The restoration will result in a much cleaner environment for all the creatures that live in and around the river.

WHAT IF WE DO NOTHING?

With each passing year, the condition of Herring River worsens while the cost of restoration and mitigation rises. Doing nothing leaves the river water impaired. High bacteria concentrations will continue to require closure of extensive oyster beds. EPA requirements are likely unachievable without the restoration, making expensive new wastewater treatment systems necessary. The Herring River wetlands will continue to emit, rather than store, potent greenhouse gases contributing to climate change. The town will be faced with the imminent cost of replacing the dike, which is at the end of its serviceable lifetime, along with deteriorating roadways upstream of the structure. A one-to-one replacement of such a tidal-blocking dike is not permitted under environmental protection laws today.

WHERE CAN I LEARN MORE?

The final Environmental Impact Statement for the Herring River restoration Project is accessible via the Friends website at <http://www.friendsofherringriver.org/EID>). For a recent newspaper article see, for example: <https://www.bostonglobe.com/2022/07/27/science/century-later-resurrecting-river-vital-ecosystem/>.

Friends of Herring River is happy to respond to inquiries.

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Friends of Herring River, PO Box 565, South Wellfleet, MA 02663
508-214-0656 | info@herringriver.org | herringriver.org