IPSWICH
MASSACHUSETTS
Bridging History

IPSWICH
MILLS DAM

FREQUENTLY ASKED QUESTIONS

NOV. 2023

History and Background of the Dam

The Ipswich Mills Dam is located in downtown Ipswich. In 1637 a dam was first built to help power grist mills. This early dam was considerably smaller than the granite block dam that we see today. The current structure was likely constructed around 1880, then significantly modified in 1908 to power adjacent mills, and was decommissioned from any industrial use by the 1930s. The dam remained privately owned until The Town of Ipswich bought it from Sylvania Corporation in 1982.

Responsibilities of Dam Ownership

The Town is responsible for all costs associated with liability, operation, and maintenance of the Ipswich Mills Dam and adjacent fish ladder. The Massachusetts Office of Dam Safety requires regular structural inspections to ensure the dam is in safe operating condition. Local, state, and federal laws dictate that all negative impacts be mitigated.

State and Federal law and legal precedent shields dam owners from all liability if owners proactively remove a dam.

Frequently Asked Questions

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1 Why explore dam removal?

The Town of Ipswich has been studying the feasibility of removal since 2013. Eliminating ongoing maintenance costs and long-term liability are appealing financial outcomes for the town. Additionally removing the dam aligns with the goals of the Ipswich Community Resiliency Building Report, Ipswich Community Development Plan, and The Town's Municipal Vulnerability Preparedness Plan. Improving the ecological health of the river and migratory fish passage are added benefits of dam removal.

Liability Dam owners are responsible for all liability and risks created by the dam, including damages if the dam were to fail. Removing the dam will reduce upstream flooding and eliminate any risk of a dam failure causing a flood downstream.

Operation and Maintenance The town is required to pay for a suite of annual costs for upkeep including maintenance, inspection and permitting. A 2020 inspection identified multiple deficiencies and detailed recommended maintenance tasks. As the dam ages it will require more maintenance with higher price tags.

Ecological Health Dam removal will restore full access to this section of the Ipswich River for a number of migratory fish species, many of which have severely depleted populations. It will also restore natural river processes. The dam causes an unnaturally ponded section of the river that drowns the natural river channel. This more stagnant water accumulates sediment, warms the water, and reduces oxygen concentrations during much of the year. Further, the dam's location at the head of tide is particularly damaging to the river as it prevents the gradual mixing of salt and freshwater.

2 Were alternatives to dam removal considered?

A full suite of alternatives, such as no action, partial dam removal, nature-like fish passage bypass and in-river, nature-like fishway alternatives, were explored during the partial feasibility study phase approximately a decade ago. These alternatives were ruled out early on as viable options by the Town and its Technical Advisory Committee (that included Ipswich Town Manager, Members of the Select Board, and Town staff) based on minimal resulting benefits and higher costs than full dam removal. This led to the full Feasibility Study focusing on all impacts of full dam removal.

3 Why aren't we exploring implementing a new or innovative fish bypass that would allow the dam to stay?

A new fishway was ruled out due to limited ecological benefit, limited space, and the needed alterations to existing downtown infrastructure - including private residences, commercial businesses, and the surrounding roads.

A new, large, nature-like fishway at this location may pass certain fish species at some level of effectiveness but will not have the full suite of passage improvements or other ecological benefits that dam removal would. No fishway will work for all species, and some species won't use them at all. Additionally the cost associated with building, operating and maintaining such a fishway would be prohibitively expensive.

4 Will migratory fish return after dam removal?

The Ipswich Mills Dam is the gateway to the river for all of the migratory species. Opening up migratory access past the Ipswich Mills Dam is a critical component of restoring healthier fish runs on the river. Migratory fishes typically begin utilizing upstream habitat soon after dam removal (often the first year). Access to more spawning and rearing habitat is likely to result in larger populations over a matter of years to decades, as demonstrated in other dam removal projects.

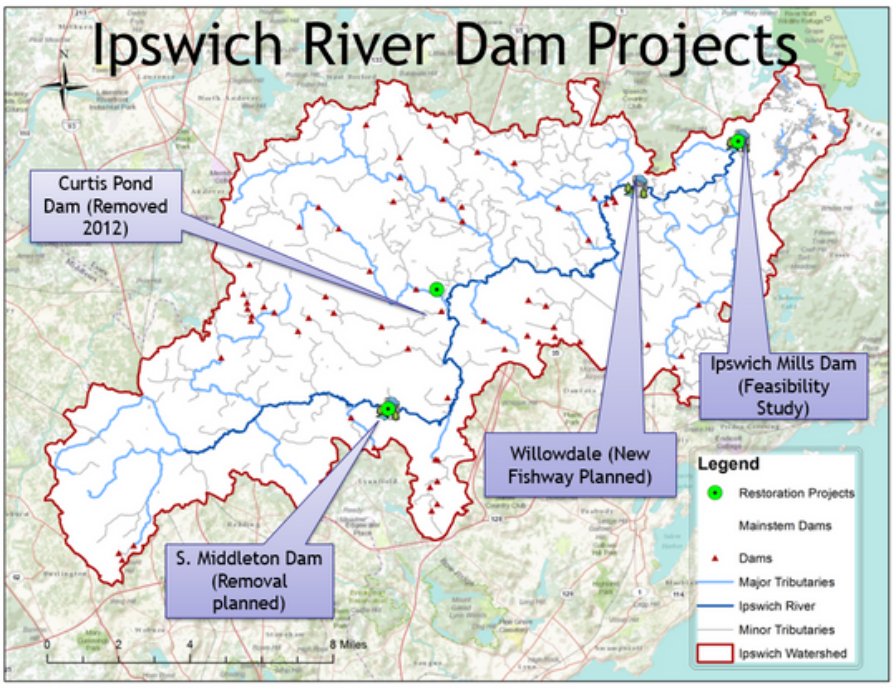
5 What are diadromous fish and why are dams so problematic for them?

A diadromous fish is a fish that must move between fresh and saltwater to complete its life cycle. Moving between these environments is very difficult on their bodies and they typically have a limited time frame to make that journey. Because of this, the delay a dam or a sequence of dams with fishways can cause as fish search for the fishway entrance or make multiple attempts to ascend or descend can have real effects on a population. Because of this fascinating life history diadromous fishes are especially vulnerable to infrastructure like dams and culverts. To have viable populations of diadromous fish, they need to get in and out of rivers and ponds quickly and safely in order to escape predation and other outside environmental threats.

6 How will fish get past dams further up the river?

For the first time ever, every dam on the main stem of the Ipswich River has a plan in progress to improve fish passage and the health of the river.

Momentum continues upstream with the completion of the new Howlett Brook Fishway in Topsfield, steady progress on the removal of the South Middleton Dam, and preliminary designs for a natural fish bypass at the Willowdale Dam.



7 Why not wait until water withdrawal issues on the river are improved?

In 2021 the Ipswich River was named one of America's Most Endangered Rivers® due to excessive water withdrawals threatening ecosystem health and regional water security. The North Shore Water Resiliency Task Force was formed in response to that designation and is winding down its work to improve water supply resilience and ecosystem health in the Ipswich River Watershed. It is anticipated that the Task Force's recommendations will be in place before the dam is removed.

8 Will dam removal affect existing water supplies on the river?

The question of impacts to existing water supplies on the river was extensively addressed in the full feasibility study. All public and private water supplies were inventoried and assessed. The study concluded that there will not be any negative impacts to current or future public or private water supplies, nor does the dam provide any potential water supply benefit.

9 What will the river look like after dam removal?

It may take 1-2 growing seasons for the newly exposed river bank to revegetate. After this period, the river will look similar to the 30 miles of the river upstream of the Railroad Bridge in Ipswich. Expect to see meandering channels and a series of deep pools and shallower riffle areas that are typical of all coastal rivers in Massachusetts.

10 How will dam removal affect flooding?

Like the vast majority of dams in Massachusetts, the Ipswich Mills Dam provides no flood control benefit. It does however increase flooding somewhat upstream of the dam and creates a risk of downstream flooding in the event of a dam failure. To address concerns over flood impacts of dam removal the feasibility study evaluated this and found the following:

Downstream: There will be no change to the amount of water flowing downstream. The Ipswich river Dam is a “run-of-river” dam, meaning that it does not provide upstream flood control and that the flow of water currently going over the dam will be the same following removal. There is more risk of flooding if the dam were to fail as opposed to if the dam were to be removed.

Upstream: The river’s natural flood storage capacity will be restored. Water levels upstream from the dam will lower, making available additional floodplain storage that can mitigate future flood events.

11 Does the project require an Environmental Impact Report (EIR)?

The Massachusetts Environmental Policy Act (MEPA) office issued a certificate in October 2023 stating that the project partners must submit a Single Environmental Impact Report (EIR). This EIR will address how sediment released from the project will be sampled and managed, so as to prevent the flow of potentially contaminated material into downstream areas. Project partners are creating a plan for sediment sampling and monitoring as part of the Single EIR. This EIR filing will include a project description, an alternatives analysis, an analysis of the existing environment, an assessment of impacts, permitting requirements, mitigation measures, and responses to public comments from the MEPA filing.

12 What permits are needed for the project?

A rigorous permitting process will ensure that all potential negative impacts will be addressed. Below is a list of regulatory reviews and permits that must be obtained for this project to happen.

Federal Regulatory Review

US Army Corps of Engineers

- Clean Water Act (sediment review)
- Rivers & Harbors Act (dredging, if applicable)

Commonwealth of Massachusetts Regulatory Review

MA Environmental Policy Act (MEPA) Office

- Certificate Issued 10/16/23
- Environment Impact Report (EIR) Feb/March 2024

MA Department of Environmental Protection (DEP)

- Waterways Program Dredge Permit
- Water Quality Program Certification

MA Department of Conservation & Recreation (DCR)

- Dam Safety Program Permit

Municipal Regulatory Review - Town of Ipswich

- Conservation Commission
- Building Department
- Historical Commission

13 How will the project affect my property value?

There are many factors which influence property values and there is not one adjustment that can be applied across the board due to the uniqueness of properties in the area. Removal of the Ipswich Mills Dam is not expected to affect property values. There is no evidence that removal of run of river dams affect property values.

14 Why now?

Since 2006 extensive studies have been done on the impacts of removing the Ipswich Mills Dam. Removing this dam is ranked as one of the highest priority restoration projects in Massachusetts by the Massachusetts Division of Ecological Restoration and The Nature Conservancy ranks it as one of the highest priority projects along the Atlantic Coast. No major environmental or technical issues have been identified and many ecological benefits will be gained. Right now an unprecedented amount of federal, state, and private dollars are available specifically for dam removal projects. They are available now and may not be available in the future. It would be a disservice to the taxpayers of Ipswich to not investigate the opportunity to remove liability, maintenance, and operational costs from the town budget while also improving climate resiliency of Ipswich and the ecology of the river.

15 What is the impact of dam removal on shellfish populations?

As documented in the feasibility studies, there are minimal impacts from dam removal to shellfish. The only potential impact could be due to accumulated contaminated sediments built up behind the dam. As part of the pre-feasibility study, extensive sediment sampling revealed that the possibility of contaminants in sediments behind the dam is extremely low, and another round of sediment sampling will be completed during the permitting process to confirm that finding.

Removing the Ipswich Mills Dam will restore the natural river process of sediment transport, which is critical to maintaining the health of the marshlands. Our region is experiencing stronger and more frequent coastal storms, making it even more critical that we restore the river's natural ability to enhance the marsh by transporting and depositing sediment downstream.

16 What happens to the ecosystem above the dam if it is removed?

The impoundment behind the dam will change after removal – water levels will decrease somewhat on average and will become more dynamic based on seasonal freshwater flow and tidal influence. Habitats will not disappear, they will shift. This section of the river will revert to its natural state where river-dependent plants and animals will dominate. Ecologists generally favor this change as they are more natural and resilient to climate change.

If the dam is removed the tide will extend another 1.5-2 miles upriver. A freshwater tidal wetland will be restored to this stretch of the river. This habitat is the rarest aquatic habitat in Massachusetts.

17 What are the implications for surrounding infrastructure and buildings?

Both the partial feasibility study (completed in 2014), the full feasibility study (completed in 2019) and subsequent mitigation studies concluded there were no significant technical, legal or infrastructure risks associated with dam removal. This includes risk to the nearby EBSCO facility, which is being actively studied. In 2023 an internal investigation of the EBSCO facility revealed a concrete pier support underlying the foundation. A full report on these latest findings is expected in 2024.

A comprehensive study was completed that investigated potential impacts to both upstream and downstream structures.

Structures identified as having no potential impacts with no further action needed:

- Pedestrian bridge
- Farley Brook outfall
- Sewer interceptor and siphon

Structures identified as having no potential impacts, but will need to be monitored:

- Building foundations and walls downstream of the pedestrian bridge
- Choate Bridge

Structures identified to have “moderate” potential impacts and will need reinforcement:

- Old fishway wall
- Pedestrian platform piers

18 Will the depth of the river upstream change?

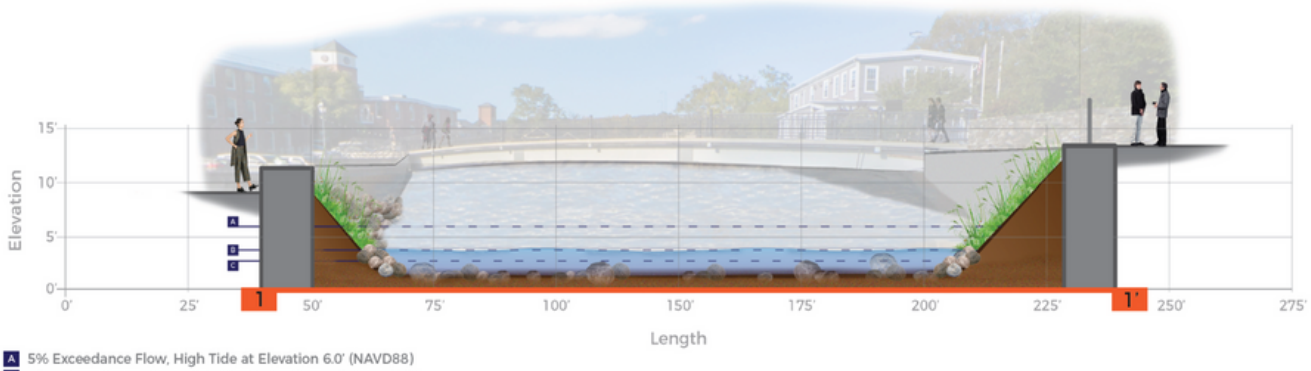
Hydrologic models show that the new water level will vary depending on the flow and tide, with significantly less variation as you move upstream. (Did I simplify this too much?)

Low flow conditions in the Ipswich River are exacerbated by municipal and private water withdrawals. These issues are complex and are currently being addressed by the North Shore Water Resiliency Task Force . The Task Force is a group of municipalities, water suppliers, and legislators working to make sure the river has the water it needs. This is expected to be improved along a similar timeline as dam removal, which will improve water levels in the river during periods of drought and regular summer low flow.

19 How will paddling and recreational activities be impacted by dam removal?

Paddling will noticeably change on the stretch between where the dam is currently located and the IRWA dock. Flatwater paddling will be reduced and this stretch will now offer a paddling experience that more closely resembles other upstream reaches of the Ipswich River. There will be twice daily tidal rises and falls that may not always be noticeable depending on the level of flow in the river. During periods of extreme low-flow, paddling may be difficult in some areas just as it is in upper sections of the Ipswich.

Ocean access will be easier. There is currently no easy way to portage over the dam. Removing the dam would allow uninterrupted paddling from upstream down to the marsh, beach, and ocean.



A 5% Exceedance Flow, High Tide at Elevation 6.0' (NAVD88)
B 50% Exceedance Flow, Low Tide at Elevation 3.8' (NAVD88)
C 95% Exceedance Flow, Low Tide at Elevation 2.8' (NAVD88)

20 Who can I contact about this project?

The Town and its project partners will continue to hold public informational meetings throughout the process. All project related reports can be viewed on the Ipswich Mills Dam project website: IpswichMillsDam.com.

Please feel free to contact:
Frank Ventimiglia, Ipswich Department of Public Works: frankv@ipswichma.gov
Neil Shea, Restoration Program Director, IRWA: nshea@ipswichriver.org

PROJECT SITE

SUPPORT DOCUMENTS