Memorandum

To: Shellfish Sub-committee
Shellfish Commissioners (Select Board)
From: Wayne Castonguay, Shellfish Subcommittee
Date: January 31, 2024
Subj: Ipswich Mills Dam Removal

As you recall, our committee recently submitted a list of comments and concerns to the Shellfish Commissioners (Select Board) regarding the Ipswich Mills Dam Removal Project as part of the MEPA review process. I have reviewed the response to comments and draft content in the Supplemental Environmental Impact Report (SEIR) which is required to complete the MEPA review and offer the following summary conclusions in the document which can also be used as talking points in addressing the shell fishing community's stated comments & concerns as the project enters its next phase.

Talking Points

- As a "Run of the River" dam, there will be no change in downstream conditions following dam removal that could affect shellfish except for a possible temporary change in sediment movement which may occur for a brief period immediately following construction.
- The only possible impact of the project on shellfish is from sediment mobilization either in terms of physical migration of sediment downstream or mobilization of potentially contaminated sediment currently trapped upstream of the dam.
- Although the risk of contaminated sediment is extremely low as indicated by the preliminary sediment sample results conducted during the feasibility study and lack of potential sources of contaminants in the upstream and adjacent watershed area, a comprehensive sediment sampling and management plan is required to be conducted as part of the permitting process. Since the permitting standard for project approval is *"no adverse impact,"* the sediment monitoring and management plan must meet the standard that there will be no impact on shellfish.
- Because every federal, state, and local environmental permitting agency supports removal of the Ipswich Mills Dam due to its clear environmental benefits (including the Division of Marine Fisheries which regulates and manages shellfish), the healthier river that will result from removal will indirectly benefit shellfish.
- We can point people to the Town's dam removal website: www.ipswichmillsdam.com which substantiates these points and will be updated as the project moves along.

Background

For ourselves and others who want further detail that led to the above summary conclusions, the following is more detail on the sediment issue pulled from the draft SEIR materials and the website:

Sediment mobilization is typically the most common issue to be dealt with in most dam removals and was a noted concern in some MEPA comment letters associated with this project. Sediment issues were addressed in both the initial EENF and supplemental information from two perspectives: (1) sediment quality and (2) sediment quantity.

Initial sediment testing was done in 2012 and the results concluded that none of the samples exceeded any of DEP's stringent thresholds for all potential contaminants of concern including metals, pesticides, VOCs, SVOCs, or EPHs. This is to be expected as most of the potentially mobile sediment trapped behind the dam flushed over the dam during the Mother's Day flood of 2006 (which is the largest flood on record) such that the current potentially moveable sediment behind the dam is relatively new.

During the upcoming permitting process, extensive sediment sampling will be performed as required by law to confirm if there is any contaminated sediment currently and if so, how it will be removed to meet the permitting standard of no adverse impact.

DEP requires a rigorous sediment sampling plan as part of their 401 Water Quality Certification process to ensure downstream waters (including those that include the clam beds) will not be impacted in any way. Sampling will occur across many areas above and below the dam, but with an emphasis on locations that were identified as having potentially mobile sediment because of dam removal. In the case that contaminated sediment is found, the project team will design an appropriate removal plan in consultation with DEP and other local, state, and federal agencies. Any contaminated sediment found must be completely removed before any dam removal project can proceed.

The amount of sediment impounded behind the dam is relatively small compared to both the tidal sediment dynamics that dominate the lower river where the clam beds are and to normal annual sediment loads from upstream areas. This is because low head, "run-of-river" dams like Ipswich Mills trap very little sediment, due to the periodic flushing provided by floods. If this relatively small amount of sediment is deemed to be clean following the execution of the sampling plan, the regulatory authorities prefer that sediment to be naturally dispersed slowly and sporadically downstream to help restore the natural beneficial sediment flux in rivers.

Areas below the dam have become sediment depleted due to the influence of the dam and passive release will help restore the sediment balance to these downstream reaches. Analyses conducted during the design and permitting process for dam removal indicate that the anticipated amount of potentially mobile sediment on an annual basis is very low (fractions of an inch) when compared to the vast area of clam flats and salt marsh over which it would be dispersed. The volumetric rate of mobile sediment released over time following dam removal is not significant enough to damage the clam beds in any way as coarse sands and gravels will settle upstream of the Green Street Bridge (which is well above the clam beds) and clean fine sediments that will disperse further are considered beneficial to the marsh and clam beds. Restoring the natural riverine sediment transport processes are beneficial to helping the clam beds stay healthy and is largely considered by restoration practitioners and scientists as the number one management tool to help make salt marshes and shellfish beds more resilient to climate change and sea level rise.