

**DRAFT SUPPLEMENT TO THE RESTORATION PLAN AND
ENVIRONMENTAL ASSESSMENT FOR THE NYANZA CHEMICAL
WASTE DUMP SUPERFUND SITE –**

Talbot Mills Dam Restoration Implementation

Town of Billerica, Middlesex County, Massachusetts



United States Fish and Wildlife Service
National Oceanic and Atmospheric Administration
Commonwealth of Massachusetts

March 2026

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1. Introduction

This document, the *Draft Supplement to the Restoration Plan and Environmental Assessment for the Nyanza Chemical Waste Dump Superfund Site – Talbot Mills Dam Removal Implementation* (Draft Supplement to the RP/EA, or Draft Supplement) was prepared by the U.S. Fish and Wildlife Service (USFWS), the National Oceanic and Atmospheric Administration (NOAA), and the Commonwealth of Massachusetts, on behalf of the Nyanza Natural Resource Damages (NRD) Trustee Council (Trustees). This Draft Supplement was prepared in compliance with the Comprehensive Environmental Response, Compensation, and Liability Act of 1980 (CERCLA), as amended, commonly known as Superfund (42 United States Code [USC] § 9601, *et seq.*) and the National Environmental Policy Act of 1969 (NEPA, P.L. 91-190; 42 U.S.C. § 4321, *et seq.*). This Draft Supplement evaluates alternatives to improve diadromous fish passage on the Concord River and analyzes the environmental impacts of the preferred alternative, partial removal of the Talbot Mills Dam in Billerica, MA.

The original *Final Restoration Plan and Environmental Assessment for the Nyanza Chemical Waste Dump Superfund Site* (Final RP/EA) can be found online at the following address: https://www.doi.gov/sites/doi.gov/files/migrated/restoration/news/upload/MA_Nyanza_RPEA_08-06-2012.pdf (Stratus Consulting Inc., 2012).

1.1. Incident and Natural Resources Injured

From the original Final RP/EA:

The Nyanza Chemical Waste Dump Superfund Site (Site) is a 35-acre parcel of land located in an industrial area of Ashland, Massachusetts south of the Sudbury River (Figure 1). From 1917 to 1978, companies that operated on the Site produced textile dyes and intermediates and generated large volumes of industrial wastes that contaminated soil and sediments, groundwater and surface water, wetlands, and the Sudbury River. The principal contaminant of concern is mercury; other contaminants are chromium, arsenic, lead, and organic compounds such as dichlorobenzene and chlorobenzene...

Of particular concern to the Trustees and the basis for much of the NRD claim is the Site's impact on the Sudbury River, its floodplain, and associated natural resources... Mercury contamination of open-water habitats, as well as surface soils and exposed sediments downstream from the Site, reduced the quality of the habitat for fish, amphibians, reptiles, other aquatic organisms, birds, and mammals. In 1986 the Massachusetts Department of Public Health imposed a Freshwater Fish Consumption Advisory for the Sudbury River from Ashland to its confluence with the Assabet and Concord rivers because of elevated levels of mercury in fish tissue. This advisory has continued until the present day.

To compensate for natural resources impacted as a result of mercury contamination, the Trustees seek to restore habitats and species similar to those [impacted by the Site]. Specifically, the Trustees focus on restoring wetland, floodplain, and riverine habitats and species that would utilize these habitats, particularly birds and riverine fish, as well as other aquatic organisms, amphibians, reptiles, and mammals.



Figure 1. Location of the Nyanza Superfund Site.

1.2. Trustees

Trustees responsible for developing and implementing plans to restore natural resources injured by the Site are the Commonwealth of Massachusetts, acting by and through its Executive Office of Energy and Environmental Affairs (EEA), and its Department of Environmental Protection (MassDEP), the U.S. Department of the Interior, acting by and through the U.S. Fish and Wildlife Service (USFWS), and the National Oceanic and Atmospheric Administration (NOAA).

1.3. Settlement and Original RP/EA

In 1998, the Nyanza NRD Trustee Council entered into a settlement, recovering approximately \$3 million in damages as compensation for natural resources and resource services injured, destroyed, or lost by the release of hazardous substances from or at the Site and to reimburse the Trustees' past assessment costs. Pursuant to the court-entered Consent Decrees, the NRD settlement was allocated as follows: \$2.8 million to be expended jointly by the state and federal Trustees and \$230,769 to the Commonwealth of Massachusetts for injuries to groundwater at the Site. At the time of the original RP/EA, interest earned on the settlement funds had increased the total amount of funding available for restoration activities to approximately \$3.7 million. The original RP/EA was developed in 2012 to identify restoration projects that restore the injured natural resources of the Sudbury River, including the adjacent wetlands and floodplains, and that also restore the species which are present or were historically present, including fish, amphibians, reptiles, other aquatic organisms, birds, and mammals. It was finalized in August 2012, and a Finding of No Significant Impact (FONSI) was signed on July 24, 2012.

The original Final RP/EA allocated \$3,595,000 toward 12 Tier 1 restoration projects (one of which had already been implemented in the period between the release of the Draft and Final RP/EAs) (Table 1). The remaining approximately \$105,000 in settlement funds were designated for restoration implementation oversight by the Trustees and, if possible, Tier 2 projects. As of the drafting of this Supplement, remaining funds left over from completed restoration projects, unused settlement funds, and interest earned, total approximately \$525,000.

Table 1. Proposed Tier 1 projects and funding amounts listed in the original Final RP/EA

Project Name	Funding Amount
Removal of Tire Dump in Forested Wetlands	\$ 0
Control of Aquatic Weeds in the Sudbury River Watershed	\$ 1,098,000
Habitat Restoration to Benefit Coldwater Fish	\$ 300,000
Concord River Diadromous Fish Restoration	\$ 425,000
Sudbury River Schools Program	\$ 90,000
Greenways North Field Restoration	\$ 34,000
Neotropical Connections	\$ 75,000
Sudbury River Corridor Land Acquisitions	\$ 720,000
Creation of Stearns and Brackett Reservoirs Wildlife Preserve	\$ 540,000
Sudbury River Public Access: Aikens Road	\$ 145,000
Sudbury River Access Improvements: Great Meadows Marsh NWR Headquarters	\$ 7,000
Red Maple Trail Boardwalk and Wildlife Observation Platform	\$ 161,000
	\$ 3,595,000

This Supplement evaluates allocating unspent funds from the original Tier 1 projects to implement the construction phase of a project that enables fish passage at the Talbot Mills Dam. Since fish passage at the Talbot Mills Dam was a critical component of one of the original Tier 1 projects, we considered this prior to allocating funds to Tier 2 projects. If for any reason the Talbot Mills Dam removal does not use all unspent funds, any remaining unspent funds will be used to advance other projects specified in the Concord River Diadromous Fish Restoration project, as described and analyzed in the original Final RP/EA, through design and permitting.

1.4. Purpose and Need for Restoration and Rationale for Supplement

The original Final RP/EA selected preferred restoration projects to restore, replace, or enhance the values of the natural resources injured, or acquire the equivalent of similar resources or services injured.

The preferred alternative included funding for a feasibility study, project design, and permitting for diadromous fish passage at the Talbot Mills Dam. The goal of restoring diadromous fish access to upstream areas of the Concord River remains consistent with the purpose and need for this restoration. The Trustees have prepared this Draft Supplement in compliance with CERCLA and NEPA to evaluate modifications to (i.e., expanding) the original project scope, consider alternatives, and evaluate potential environmental impacts from these modifications that may differ from the impact analysis of the original project scope described in the original Final RP/EA. Specifically, the Draft Supplement evaluates whether the implementation (construction) phase of the Talbot Mills Dam fish passage project should be included in the preferred restoration alternative. This Draft Supplement will inform decision-makers and the public regarding the proposed project modifications.

The CERCLA and NEPA evaluations of the new alternative are presented in sections 2 and 3 of this Draft Supplement.

1.5. Public Involvement

During development of the original RP/EA the Nyanza Trustee Council met with citizens, community and environmental groups, local and regional officials, and state and federal agencies to explain the restoration planning process and identify restoration projects that address the natural resource injury and meet project selection criteria. In addition to conducting two formal public meetings, Trustee Council representatives participated in several meetings hosted by community groups as well as numerous site visits and consultations. The public had the opportunity to review and comment on the original Draft RP/EA as stipulated under CERCLA and NEPA before the document was finalized. The Trustees reviewed and considered all comments received. Summaries of the comments, the Trustees' responses to comments, and any clarifications and/or revisions were noted in Section 7 of the original Final RP/EA.

For the past 10 years, in partnership with multiple state and federal agencies and local partners, the owner of the Talbot Mills Dam has been seeking removal of the dam, and the public has had numerous opportunities for meaningful review and comment on the potential project. A list of public meetings and events can be found at <http://merrimack.org/talbotmills/>.

In the years since, a multitude of engineering, geologic, hydrologic, and hydraulic assessments and studies have been completed to inform the design of this project. In 2023, as part of the Massachusetts Environmental Policy Act (MEPA) review, the Massachusetts Division of

Ecological Restoration (DER) published an Expanded Environmental Notification Form (EENF) for public comment on the dam removal. The majority of comment letters received supported removal of the dam based on the potential for significant ecological benefits. However, some public comments identified concerns regarding potential impacts to water supply and historic resources. The project management team acknowledged and responded to those concerns.

In 2024, DER published a Single Environmental Impact Report (SEIR) for the Talbot Mills Dam Removal. The public also had an opportunity to comment for 30 days on this and subsequently, the Secretary of Energy and Environmental Affairs issued a final Secretary's Certificate for the project on April 1st, 2024, which certified that the project properly and adequately complied with MEPA.

All MEPA documents related to the Talbot Mills Dam Removal can be downloaded at <https://eeaonline.eea.state.ma.us/EEA/MEPA-eMonitor/project/e66e4f1c-9caf-44d5-a74b-5254220d0492>.

This Draft Supplement considers the use of Nyanza NRD settlement funds for implementation of fish passage at the Talbot Mills Dam and will be publicly available for a 60 calendar-day review and comment period. The Trustees have issued a press release to local and regional newspapers to announce the document's availability. Members of the public can view and download at the following Trustee websites:

- NOAA Damage Assessment, Remediation, and Restoration Program: <https://darrp.noaa.gov/>
- NOAA – Coastal Recovery News and Updates: <https://public.govdelivery.com/accounts/USNOAAFISHERIES/signup/37758>
- USFWS New England Ecological Services Field Office – Latest News: <https://www.fws.gov/office/new-england-ecological-services>
- MassDEP – PCB and Mercury Settlements <https://www.mass.gov/info-details/natural-resource-damages-program-pcb-and-mercury-settlements-massdep>

The Trustees will review and consider all comments prior to finalizing the Supplement.

1.6. Restoration Planning Record

The administrative record containing all documents related to the Nyanza NRD case, including those pertaining to the restoration planning effort, is available online at <https://darrp.noaa.gov/hazardous-waste/nyanza>.

2. Alternatives Considered and Evaluated

This section summarizes the criteria used in the development of the RP/EA to screen for eligibility and evaluate each proposed alternative in accordance with CERCLA and the Natural Resource Damage Assessment (NRDA) regulations at 43 C.F.R. Part 11. This section also identifies modifications to the project scope of the original Final RP/EA's preferred alternative as new proposed alternatives that will be evaluated in Section 2.3 of this Draft Supplement.

2.1. Eligibility and Evaluation Criteria

While CERCLA and its implementing regulations require that restoration activities restore, rehabilitate, replace, or acquire the equivalent of the resources and services that were injured or lost, they do not prescribe criteria to be used by the Trustees to determine which restoration projects are preferred. The natural resource Trustees are provided discretion in identifying and selecting restoration projects. The CERCLA NRDA regulations identify 10 factors to be considered in the evaluation and selection of proposed alternatives (43 C.F.R. §11.82). Using those factors as a guide, the Trustees developed the following set of 5 eligibility and 19 evaluation criteria to assess restoration projects and select a preferred alternative:

The project eligibility criteria are as follows:

- A proposed project will not be considered eligible for Trustee consideration unless it:
 1. Demonstrates significant nexus to the restoration, rehabilitation, replacement, and/or acquisition of the equivalent of natural resources or, if natural resource restoration is not possible or feasible, restoration of natural resource services that were injured by the release of mercury or other hazardous substances from the Nyanza Federal Superfund Site
- A proposed project will not be considered eligible for Trustee consideration if it:
 2. In terms of cost, limits the ability of Trustees to expend funds in a manner that accomplishes Trustee restoration goals and/or limits the Trustees' ability to serve a wide geographic area that benefits the restoration priority categories
 3. Is not protective of health or safety or is prohibited by federal, state, or local law, regulation, or policy
 4. Is subject to an independent, prior obligation to perform the project pursuant to statute, regulation, ordinance, consent decree, judgment, court order, permit condition or contract, or if it is otherwise required by federal, state, or local law, including but not limited to enforcement actions
 5. Is inconsistent with or will be undone or negatively impacted by EPA's future remediation work or will interfere with any ongoing or anticipated remedial actions in the Sudbury River Watershed.

The project evaluation criteria are as follows [criteria importance in brackets]:

1. Priority will be given to projects within the geographic location of the impacted environment or projects that benefit the resources within that environment. Restoration projects shall be located within or adjacent to the Sudbury River mainstem, within the Sudbury River Watershed, or outside the Sudbury River Watershed, but have a positive impact on the injured natural resources or their services that are located within, do utilize, or historically utilized the Sudbury River Watershed. [High]

2. Relationship to injured resources (nexus): Projects that restore, rehabilitate, replace, enhance, or acquire the equivalent of the same or similar resources or services injured are preferred to projects that benefit other comparable resources or services. Consider the types of resources or services injured at the location, and the connection or nexus of project benefits to the injured resources. [High]
3. Magnitude of benefits: Project addresses a demonstrated need and maximizes the level of restoration, rehabilitation, and/or acquisition of the natural resources equivalent to those that were injured. For example, ecological benefits could be measured in terms of an increase to fish, wildlife, or rare species populations; an increase in native or rare plants in the Sudbury River environment; or an increase in prey species provided for a predator species or the number of acres of habitat to be restored, enhanced, or protected. [High]
4. Natural recovery: Project will clearly provide restoration benefits to injured natural resources or services more quickly than the “natural recovery period.” The natural recovery period is the length of time it would take for the injured resource or service to recover to an optimal condition in the absence of human intervention. [High]
5. Sustainability of benefits: Project will result in long-term, self-sustaining, and comprehensive benefits to injured natural resources and the services they provide. Project will require only periodic maintenance or management that represents a relatively small investment to provide continuing benefits. [High]
6. Technical/technological: Project will employ well-known and accepted techniques to achieve stated ecological, engineering, economic, and social objectives. Likelihood of success in proposed project location and expected return of resources and resource services is high. [High]
7. Reasonableness of costs: A project’s costs are commensurate with the benefits it provides to injured natural resources or services. [High]
8. Implementation-oriented: Project has a high ratio of Nyanza NRD [settlement] funding dedicated to implementation (e.g., on-the-ground habitat restoration, rehabilitation, replacement, or land acquisition) compared to general program support and operation. [High]
9. Leveraging of additional resources: Project demonstrates a strong commitment by partners representing a broad range of community and other interests to provide matching funds and in-kind services and to involve volunteers. This leveraging of non-Nyanza NRD resources is preferred because it extends the availability of restoration funds and increases the resource benefits provided by the funds. [High]
10. Generation of measurable results: Project delivers tangible and specific ecological, economic, social, or human use results that are identifiable and measurable, or that may be evaluated using quantitative or professionally accepted methods, so that changes to the Sudbury River Watershed can be documented and evaluated. [High]

11. Multiple benefits: Project will provide benefits to the greatest number of species, natural resource types, and services. [Medium]
12. Avoidance of adverse impacts: Project has little or no potential for adverse environmental impacts, or modifications to the project would considerably decrease benefits to injured natural resources and/or services. Adverse environmental impacts can be short or long term, direct or indirect, and include those affecting resources that are not the focus of the project. [Medium]
13. Community goals: Project complements one or more community goals, needs, or recommendations as expressed in existing plans that incorporated public input and involvement in their development. [Medium]
14. Avoidance of adverse impacts: Project has little to no potential for adverse socioeconomic impacts, or modifications to project would considerably decrease benefits to injured natural resources and/or services. Adverse socioeconomic impacts can be short- or long-term, direct or indirect, and include those affecting resources that are not the focus of the project. [Medium]
15. Stewardship and public education: Project will result in an “informed citizenry” that will help ensure ongoing environmental stewardship of restored natural resources and their services. Project provides a critical foundation for public involvement in ongoing and future restoration activities in the Sudbury River Watershed. Project provides increased opportunities for public use, appreciation, and enjoyment of natural resources in the Sudbury River Watershed. [Medium]
16. Level of difficulty: Obstacles that may be faced for project implementation (e.g., coordination with multiple outside parties, regulatory permits required, complex design and engineering, and public support) will not interfere with the likelihood of success. [Medium]
17. Pilot projects: Project employs innovative approaches and techniques but includes clear performance criteria, measurable endpoints, and a monitoring and contingency plan appropriate to the project. [As Appropriate]
18. Enhancement of remediation/response actions: Project clearly complements and enhances completed, ongoing, or planned remediation or response actions by concurrently or subsequently implementing restoration projects. [Supplemental, As Appropriate]
19. Coordination and integration: Project is clearly coordinated and integrated with other ongoing or planned restoration activities that enable synergistic benefits to injured natural resources and their services. [As Appropriate]

2.2. Proposed Alternatives

2.2.1. Fish Passage at Talbot Mills Dam

The preferred alternative selected in the original Final RP/EA consisted of a suite of 12 projects including the *Concord River Diadromous Fish Restoration Project: Feasibility and Stewardship* (Concord River Project). This alternative included funding to assess fish passage conditions and potential for fish passage restoration at three dams on the Concord River (Middlesex, Centennial Island, and Talbot Mills). Since preliminary investigations and analyses had yet to be implemented, fish passage options had not been studied in detail at the Talbot Mills Dam. Therefore, there was not enough information available for the Trustees to fully evaluate and recommend proposed fish passage approaches described in the preferred alternative. This Draft Supplement builds upon the original Final RP/EA using information from the feasibility study and subsequent design and permitting activities to evaluate alternatives that expand upon the original scope of work to incorporate fish passage construction options for the Talbot Mills Dam.

Providing fish passage at the Talbot Mills Dam remains a critical component to restoring diadromous fish populations to over 135 miles of mainstem and tributary habitat on the Concord, Assabet, and Sudbury Rivers (SuAsCo, Figure 2). The remnants of the Middlesex Dam, the lowest potential obstacle to fish passage in the Concord River, are not thought to be much of an impediment to fish passage at most flows. The next obstacle, the existing fishway at the Centennial Island Dam, provides passage but has limited effectiveness and only serves a limited number of target species. Designs are currently being developed for an upgraded fishway at the Centennial Island Dam intended to improve passage effectiveness for a wider range of diadromous and resident fish species. Without passage at Talbot Mills, the vast majority of habitat in the SuAsCo watershed will remain inaccessible to diadromous fish.

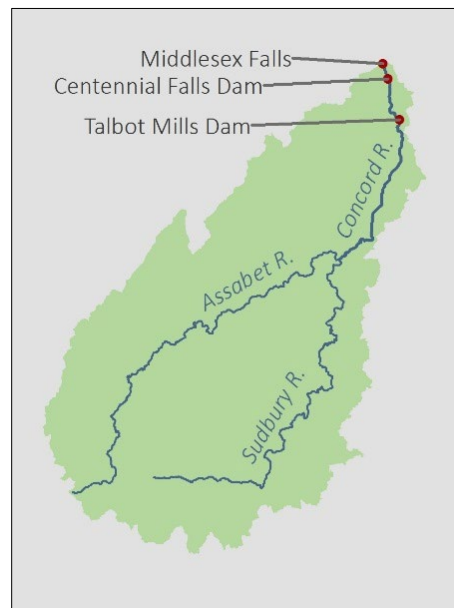


Figure 2. Locations of the Middlesex Falls, Centennial Falls, and Talbot Mills dams within the SuAsCo Watershed (Gomez and Sullivan Engineers Inc., 2016).

The feasibility study completed in 2016 considered a range of alternatives for improving fish passage on the Concord River and their ability to meet the project's purpose and need (Gomez and Sullivan Engineers Inc., 2016). Several fish passage alternatives were considered at the Talbot Mills Dam, the primary obstacle to fish passage on the Concord River. The alternatives considered included dam repair with various technical fish passage options, dam repair with a nature-like fishway, partial dam removal, full dam removal, and no action. The list of alternatives was narrowed to those with the highest likelihood of being both ecologically effective and feasible to implement. Those fully evaluated were:

- Partial dam removal
- Technical fishway
- No action

2.2.1.1. Talbot Mills Dam Project Site

The project site is located on the Concord River, 4.76 miles upstream of its confluence with the Merrimack River. The Talbot Mills Dam (NID ID MA00774) is a privately-owned structure located at latitude N42.589° and longitude W71.277° (Figure 3). The site is within an urbanized section of Billerica with multiple river crossings in the vicinity of the dam.



Figure 3. Map of the Talbot Mills Dam and surrounding area in Billerica, MA.

While the dam impacts water levels along the entire length of the Concord River upstream of the dam as well as into the Sudbury and Assabet Rivers, the anticipated area of significant changes resulting from the proposed project extends from the Faulkner Street bridge just downstream of the dam to the Pollard Street bridge about 0.6 miles upstream of the dam.

The Talbot Mills Dam (NID ID MA00774) is an approximately 127-foot-long, 10-foot-high, granite masonry former mill dam built in 1828 (Figure 4). The spillway has a crest elevation of approximately 108.2 feet (North American Vertical Datum of 1988, NAVD88)¹. The dam was previously used for industrial waterpower but no longer serves an operational purpose. The current dam was built just downstream of a previous dam at the site, built in 1798. The 1798 dam was approximately 150 feet long and 8 feet high and is believed to be submerged in the impoundment approximately 8 to 12 feet upstream of the current dam, with rock/gravel fill between the two dams.

The spillway is flanked by small granite block masonry abutments that tie into retaining/training walls for the river and impoundment. The left and right abutments have lengths of approximately 17 and 20 feet and average crest elevations of 110.5 and 110.8 feet NAVD 88, respectively. The left abutment contains two small former low-level outlets with downstream inverts at approximately 99.8 feet NAVD88 (Geotechnical Consultants Inc., 2021). The outlets are partially blocked, although there is significant leakage through them. There is no operational low-level outlet for the dam. A section of the right abutment is constructed of cast-in-place concrete, which is reportedly the location of a former fishway that was filled with concrete sometime after the 1960s (Ingraham, 1995). An approximately 12-foot-wide, mortared stone masonry and concrete sluiceway just east of the right spillway abutment, historically known as the Faulkner Canal, diverts water to the Faulkner Mill complex located on the right bank of the river just downstream from the dam. The sluiceway contains a concrete weir with a movable sluice gate. The gate is in poor condition and leaks through large gaps in the wood. Water in the sluiceway passes under a small bridge supporting Faulkner Street and into a stilling basin located between the road and the Faulkner Mill complex. From the stilling basin, water flows through an outlet gate locked in the open position to a former turbine under the mill, which reportedly has not been in service since 1972 (Geotechnical Consultants Inc., 2021). Water from the sluiceway is discharged back to the river approximately 150 feet downstream of the Faulkner Street bridge.

A small park is located adjacent to the right abutment of the spillway. The park contains a gazebo, benches, and a historic marker dedicated to the employees of the Faulkner Mills. Access to the park is available from a paved parking lot just east of the river and south of Faulkner Street by crossing a pedestrian bridge over the sluiceway. The Faulkner Mills complex currently houses the Middlesex Canal Museum and Visitor Center. In 2014, the Middlesex Canal Association (MCA) acquired the old Talbot cloth warehouse building adjacent to the dam, which it is currently renovating to become the new home for the museum.

¹ All elevations in feet NAVD88 unless otherwise specified. To convert from the National Geodetic Vertical Datum of 1929 (NGVD29), subtract 0.827 feet.



Figure 4. Talbot Mills Dam in 2022 (photo by USFWS).

The Talbot Mills Dam is classified as an Intermediate sized, Significant (Class II) Hazard potential structure by the Massachusetts Department of Conservation and Recreation (DCR) Office of Dam Safety (ODS). A Significant (Class II) Hazard potential dam is one located where failure may cause loss of life and damage to homes, industrial and commercial facilities, secondary highways or railroads, or cause interruption of use of service of relatively important facilities (see: [302 CMR 10.00 Dam Safety](#)).

Talbot Mills Dam was previously classified as High (Class III) Hazard potential but was reclassified in 2009 (Geotechnical Consultants Inc., 2015). Significant hazard-potential dams must be inspected every five years. The most recent Phase I dam safety inspection was conducted on April 30, 2021, by Geotechnical Consultants, Inc. According to the 2021 inspection, the Talbot Mills Dam was found to be in “fair” condition. The following deficiencies were noted:

- Lack of an operation and maintenance plan
- Lack of routine oversight of the dam, particularly during storm events
- Lack of working controls
- Lack of a functional low-level outlet
- Leaks and inability to control water at sluiceway gate and weir
- Trees located just downstream of the primary spillway and on the upstream face of the left embankment near the former intake gates to the Talbot Mills complex

2.3. Alternatives Evaluation

2.3.1. Alternative #1 - Partial Dam Removal (Preferred)

A partial dam removal would consist of removing most of the dam structure, including the spillway and left abutment down to bedrock, as well as the former 1798 dam (if found). The structures that will not be removed are integrated with Faulkner Street and other adjacent structures. Leaving these structures in place improves the feasibility of this alternative. Approximately 1,640 cubic yards (CY) of material will be dredged throughout the project corridor. Excess sediment and rock fill would be managed according to federal, state, and local regulations for reuse and disposal; and where possible, a portion of this material will be beneficially reused on site. The remainder will be transported to an appropriate facility off site. In addition, approximately 1,500 CY of sediment is expected to mobilize during future storm events and settle in depositional areas downstream. Soil erosion and sedimentation control would be conducted in accordance with MassDEP guidelines and applicable National Pollutant Discharge Elimination System (NPDES) standards. A water control plan will be in place and comply with all environmental permit requirements and conditions. For any work conducted in the riparian zone, the restoration activities ultimately would stabilize and revegetate stream banks and result in a long-term decrease in erosion and an improvement in water quality.

Partial dam removal will provide numerous benefits. Fish passage will be fully restored under this alternative for all aquatic species and target fish passage thresholds will be met. It will restore open access to over 35 miles of diadromous fish habitat on the mainstem Concord, Assabet, and Sudbury Rivers and over 100 miles of habitat on its tributaries. This alternative would be expected to improve water quality and aquatic habitat by restoring depth, temperature, dissolved oxygen, and velocities associated with free-flowing rivers. Removing the dam would also reduce the current flood risk and the presence of invasive plant species that grow in stagnant water behind the dam. Aging infrastructure would be decommissioned, eliminating ongoing operation, maintenance, and liability costs.

The project is being proposed by the dam owner, CRT Development Realty, LLC (the Proponent), in partnership with NOAA, USFWS, the National Park Service (NPS), the Massachusetts Department of Fish and Game's (DFG) Division of Marine Fisheries (DMF) and Division of Ecological Restoration (DER), OARS For the Assabet Sudbury and Concord Rivers (OARS), the Merrimack River Watershed Council (MRWC), the Lowell Parks and Conservation Trust (LPCT), and others. The Proponent has moved this alternative to near-final design, and many permits have already been obtained.

As noted, this alternative represents implementation of a project that was included in the original Final RP/EA, meets the Trustees' eligibility criteria, and rates favorably with respect to the evaluation criteria. Implementing diadromous fish passage at the Talbot Mills Dam is necessary to restore the populations in the majority of the SuAsCo watershed, including the Sudbury River. Table 2 summarizes the evaluation of the partial dam removal alternative with respect to the evaluation criteria.

Table 2. Evaluation of Talbot Mills Partial Dam Removal versus the Trustee criteria. Numbers in parentheses refer to the numbered list of criteria provided in section 2.1.

Evaluation Criteria	Description
Proximity to injured resources (1)	While the Talbot Mills Dam is located outside the Sudbury River Watershed, it is part of the larger SuAsCo Watershed and blocks the migration path for species that once thrived in the Sudbury. Fish passage will have a positive impact on the injured natural resources that historically utilized the Sudbury and could restore diadromous fish in the Sudbury up to Framingham, MA.
Relationship to injured resources (2)	Freshwater fish were an injured resource in the Sudbury River. Diadromous fish are an important part of the freshwater fish community during the portion of their life cycle that they spend in freshwater.
Magnitude of benefits and demonstrated need (3)	Addresses a demonstrated need to restore diadromous fish to historic habitat in the Concord River Watershed, thus benefiting the greater SuAsCo Watershed. The goal of restoring historical runs of fish in the herring family to the Concord River is noted in the Great Meadows NWR Comprehensive Conservation Plan (USFWS, 2005). The Sudbury, Assabet and Concord Wild and Scenic River Study River Conservation Plan Update (SUASCO Wild and Scenic River Stewardship Council, 2019) notes the need to promote projects that promote diadromous fish restoration. The Merrimack River Comprehensive Plan for Diadromous Fishes identified the Talbot Mills Dam as a top priority for fish passage due to its position in the watershed and the amount of available upstream habitat (Merrimack River Technical Committee, 2021).
Natural recovery (4)	This project will provide benefits to diadromous fish passage and riverine habitat more quickly than the time it would take to recover to optimal conditions in the absence of human intervention.
Sustainability of benefits (5)	Dam removal will result in a permanent restoration of fish passage at the Talbot Mills Dam. This will restore natural passage for all species of diadromous fish that reach the site as well as a wide range of resident species of fish and wildlife. No maintenance will be necessary for these benefits to persist.
Technical/technological (6)	While both technical fishways and dam removal are well-known and accepted techniques to provide fish passage for target diadromous fishes, dam removal is widely accepted to be the best and most effective option in almost all cases where it is possible.
Reasonableness of costs (7)	The project's costs are commensurate with the benefits it provides to natural resources and services.
Implementation-oriented (8) and leveraging of additional resources (9)	Nyanza settlement funding is planned to be used for implementation-related tasks including construction, engineering oversight, and related regulatory compliance. The partial dam removal leverages considerable funding from other sources including the MA Division of Ecological Restoration and the USFWS Fish Passage Program. The project team includes a wide range of federal, state, NGO, and local partners.
Generation of measurable results (10)	Open access will be restored to over 35 miles of diadromous fish habitat on the mainstem Concord, Assabet, and Sudbury Rivers and over 100 miles of habitat on its tributaries. Measurable improvements can be through beneficial changes in depth, temperature, dissolved oxygen, and velocities associated with free-flowing rivers.

Evaluation Criteria	Description
Multiple benefits (11)	The partial dam removal will provide full, natural passage for the complete suite of diadromous and resident species. This approach is also expected to provide a range of other ecological, infrastructure, and safety benefits. A free-flowing river will be restored through the current impoundment, water quality is expected to be improved, upstream flooding will be reduced, downstream flood risk due to dam failure will be eliminated, and maintenance/operation costs for the dam owner will be eliminated. Removing the historic structure and draining the impoundment will have an adverse effect on historic resources which will be mitigated through the Section 106 consultation process.
Avoidance of adverse impacts - ecological (12)	The proposed dam removal and associate channel reconstruction; sediment excavation, placement, and transport; plantings; invasive species management; and implementation of best management practices, such as erosion control measures would have both adverse and beneficial impacts on the environment in the project area but would ultimately have net benefits.
Community goals (13)	The public has had numerous opportunities for meaningful review and comment on the dam removal. A list of public meetings and events can be found at http://merrimack.org/talbotmills/ .
Avoidance of adverse impacts - socioeconomic (14)	The removal of the historic dam will have a long-term adverse effect on historic and cultural resources but will ultimately have net benefits.
Stewardship and public education (15)	None anticipated.
Level of difficulty (16)	Project implementation may be affected by coordination with multiple parties, obtaining permits, and public support. However, no impacts to the likelihood of success are anticipated.
Pilot projects (17)	None planned.
Enhancement of remediation/response actions (18)	None at this location.
Coordination and integration (19)	Providing fish passage at the Talbot Mills Dam remains a critical component to restoring diadromous fish populations to over 135 miles of mainstem and tributary habitat on the Concord, Assabet, and Sudbury Rivers. The remnants of the Middlesex Dam, the lowest potential obstacle to fish passage in the Concord River, are not thought to be much of an impediment to fish passage at most flows. The next obstacle, the existing fishway at the Centennial Island Dam, provides passage but has limited effectiveness and only serves a limited number of target species. Designs are currently being developed for an upgraded fishway at the Centennial Island Dam intended to improve passage effectiveness for a wider range of diadromous and resident fish species.

Nyanza settlement funds will be combined with other secured state and federal funding sources and together will meet funding targets necessary to implement the project.

2.3.2. Alternative #2 - Technical Fishway (Non-preferred)

A technical fishway, or fish ladder, is a specialized, water-filled structure designed to help migrating fish navigate around obstacles such as the Talbot Mills Dam. It acts as a series of ascending pools, or steps, resembling a ladder or staircase, that allows fish to jump or swim upstream to reach their spawning grounds. Installation of a technical fishway to allow fish to migrate upstream of the Talbot Mills Dam would provide some passage for some of the target species with the strength and swimming ability to utilize the structure. However, passage of other aquatic species that lack these abilities as well as overall connectivity of the river would be minimal. None of the ecological and community benefits associated with dam removal (e.g., improved water quality, reduction in flooding, elimination of a dam safety hazard, new recreational opportunities, eradication of invasive species, etc.) would be achieved with a fish ladder. This alternative would result in minor impacts to cultural resources and aesthetics, as well as temporary impacts to wetland resources during construction when compared to dam removal. Before installing a fishway, the dam would first need to be brought into compliance with dam safety regulations, which would require a significant cost and construction effort. The dam owner would continue to be responsible for ongoing operation, maintenance, and liability associated with the dam, in addition to the new costs associated with operation and maintenance of the fish ladder.

The technical fishway alternative shares a number of relative strengths with the partial dam removal alternative. The technical fishway is strong in proximity to resources and its relationship to injured resources. Technical fishways are also a well-known accepted approach to providing fish passage and the project would be similarly implementation-oriented. The partial dam removal significantly outperforms the fishway with respect to the overall magnitude of expected benefits and broader ecosystem and multi-species benefits. A fishway is also much less sustainable as it would take active, ongoing operation and maintenance to stay functioning. Much of the funding that partners have secured is specific to dam removal, so a fishway would not leverage as much outside support. Perhaps most importantly, the current dam owner has stated to the project team and to the public that they are not interested in pursuing a fish ladder alternative and do not want to pass on the burden of maintaining a dam and fish ladder to the next generation.

This alternative could be a viable option if dam removal was not possible though it would provide less ecological benefit than dam removal. Since dam removal is an option and the dam owner does not want the dam, a technical fishway is not a preferred alternative. Table 3 summarizes the evaluation of the partial dam removal alternative with respect to the evaluation criteria.

Table 3. Evaluation of Installing a Technical Fishway versus the Trustee criteria. Numbers in parentheses refer to the numbered list of criteria provided in section 2.1.

Evaluation Criteria	Description
Proximity to injured resources (1)	While the Talbot Mills Dam is located outside the Sudbury River Watershed, it is part of the larger SuAsCo Watershed and blocks the migration path for species that once thrived in the Sudbury. Fish passage will have a positive impact on the injured natural resources that historically utilized the Sudbury and could restore diadromous fish in the Sudbury up to Framingham, MA.
Relationship to injured resources (2)	Freshwater fish were an injured resource in the Sudbury River. Diadromous fish are an important part of the freshwater fish community during the portion of their life cycle that they spend in freshwater.
Magnitude of benefits and demonstrated need (3)	Partially addresses a demonstrated need by restoring those diadromous fish species with the capability to successfully utilize a fishway, to historic habitat in the Concord River Watershed. This alternative would provide limited benefits to the greater SuAsCo Watershed when compared to the partial dam removal. Water and habitat quality, flood storage capacity, and recreational opportunities would remain unchanged. The Sudbury, Assabet and Concord Wild and Scenic River Study River Conservation Plan Update (SUASCO Wild and Scenic River Stewardship Council, 2019) notes the need to promote projects that promote diadromous fish restoration.
Natural recovery (4)	This project will benefit diadromous fish that can successfully utilize the fish ladder more quickly than the time it would take to recover to optimal conditions in the absence of human intervention, but slower than if the dam were partially removed. No net benefits to habitat are expected.
Sustainability of benefits (5)	A fish ladder will restore diadromous passage for some species of fish. Ongoing operation and maintenance will be necessary for the ladder to remain functional and for benefits to persist.
Technical/technological (6)	Technical fishways are well-known and accepted techniques to provide fish passage for target diadromous fishes; however, they are not considered the best and most effective restoration option in most cases when compared to dam removal.
Reasonableness of costs (7)	The project's costs are commensurate with the benefits it provides to natural resources and services.
Implementation-oriented (8) and leveraging of additional resources (9)	Nyanza settlement funding is planned to be used for implementation-related tasks including construction, engineering oversight, and related regulatory compliance. Much of the funding that partners have secured is specific to dam removal, so a fishway will not leverage much outside support.
Generation of measurable results (10)	Measurable results include estimating the size of the diadromous fish population downstream of the obstruction and comparing it with the number of migrators using the fishway via counting or marking techniques.
Multiple benefits (11)	The installation of a fish ladder will only benefit diadromous fish species that can successfully locate, enter, and navigate through the structure to upstream habitats.
Avoidance of adverse impacts - ecological (12)	The proposed project will result in temporary impacts to wetland resources during construction.

Evaluation Criteria	Description
Community goals (13)	Fish passage at the Talbot Mills Dam has been a priority of state and federal agencies as well as local partners.
Avoidance of adverse impacts - socioeconomic (14)	This alternative will result in impacts to cultural resources and aesthetics associated with the historic Talbot Mills Dam.
Stewardship and public education (15)	None anticipated.
Level of difficulty (16)	Project implementation may be affected by coordination with multiple parties, obtaining permits, and public support. However, no impacts to the likelihood of success are anticipated.
Pilot projects (17)	None planned.
Enhancement of remediation/response actions (18)	None at this location.
Coordination and integration (19)	Providing fish passage at the Talbot Mills Dam remains a critical component to restoring diadromous fish populations to over 135 miles of mainstem and tributary habitat on the Concord, Assabet, and Sudbury Rivers. However, the current dam owner has stated to the project team and to the public that they are not interested in pursuing a fish ladder alternative and do not want to pass on the burden of maintaining a dam and fish ladder to the next generation

2.3.3. Alternative #3 - No Action Alternative (Non-preferred)

The CERCLA NRDA regulations require consideration of a no action alternative premised on “natural recovery” (43 C.F.R. §11.82(c)(2)). The selection of this alternative by the Trustees would mean that no actions would be taken by the Trustees to restore injured natural resources, that existing natural resource losses would continue to occur, and that the public would not receive compensation for losses that occurred in the past or are ongoing. This alternative may be used as a benchmark to evaluate the comparative benefit of other actions. Because no action is taken, this alternative has no cost. This alternative also provides no economic benefits to the population in Ashland, the SuAsCo Watershed, and surrounding areas.

2.4. Alternatives Considered but Not Evaluated Further

In addition to the alternatives listed above, the feasibility study initially considered full dam removal, a nature-like fishway, and retrofitting the existing sluiceway through Faulkner Mills as a fishway. Neither of these options were explored in detail because technical considerations rendered them clearly less feasible than the other options explored above. A full dam removal would provide limited (if any) additional ecological benefit while being much more expensive and difficult than the partial dam removal because of the dam’s ties with the adjacent bridge and other infrastructure. Similarly, the site does not lend itself well to a nature-like fishway in part because of space constraints at the spillway and downstream. There were significant unknowns surrounding existing conditions and property access for the Faulkner Mills sluiceway. Additionally, the location, length, and underground nature of the sluiceway raised significant concerns over how efficient it would be at attracting and passing fish, even if it were retrofitted as a fishway.

2.5. CERCLA Conclusion

The original Final RP/EA for the Nyanza NRD settlement only included funding for a diadromous fish passage feasibility study and the design/permitting for future implementation. The feasibility study was completed in 2016 (Gomez and Sullivan Engineers Inc., 2016). A targeted impact analysis was performed in 2021 in response to technical questions raised in a review conducted for the Town of Billerica (Gomez and Sullivan Engineers Inc., 2022). Conceptual designs for dam removal were completed in 2022 based on the owner’s decision to remove the dam. Using this additional information, the Trustees have evaluated the alternatives to provide diadromous fish passage at the Talbot Mills Dam in Billerica, MA using the original screening criteria. The Trustees recommend Alternative 1, funding the implementation of a partial dam removal at this site as the preferred alternative.

3. NEPA Compliance

Actions undertaken by the Trustees to restore natural resources or services under CERCLA, and other federal laws are subject to the National Environmental Policy Act, (NEPA), 42 U.S.C. § 4321, *et seq.* The original Final RP/EA demonstrates the Trustees’ compliance with NEPA requirements for selection of a suite of diadromous fish restoration projects and concluded with a Finding of No Significant Impact (FONSI) under NEPA. This Draft Supplement addresses NEPA compliance for the Trustees’ new proposed action—partial dam removal at Talbot Mills Dam—and alternatives to the proposed action.

The USFWS is the lead federal agency for the Talbot Mills Dam Removal project for NEPA and is therefore responsible for ensuring that the project complies with all relevant federal laws and regulations. NOAA is acting as a cooperating agency and intends on adopting the Final Supplement in accordance with its agency-specific NEPA procedures. This Draft Supplement has been developed in accordance with NEPA, which requires federal agencies to analyze the effects of their actions on the environment. The federal Trustees will be relying on the NOAA Restoration Center’s “Programmatic Environmental Impact Statement for Habitat Restoration Activities Implemented throughout the Coastal United States” (RC PEIS) to avoid duplication of effort and to streamline the NEPA analysis in this Draft Supplement (NOAA 2015).² The RC PEIS will be incorporated by reference and summarized in each section in accordance with DOI’s Handbook of NEPA Implementing Procedures, 516 Departmental Manual (DM) 1.

In 2015, the NOAA Restoration Center developed the RC PEIS to evaluate coastal habitat restoration and related technical assistance activities routinely funded or implemented through its existing programs. The Record of Decision (ROD) was signed on July 20, 2015. The USFWS documented their adoption of the RC PEIS with a Record of Decision, dated August 20, 2019 (84 Federal Register 45515).

² [The Fiscal Responsibility Act of 2023 \(Public Law 118-5\)](#) amended NEPA to require that when a federal agency relies on a programmatic environmental document more than five years old, the federal agency must reevaluate the analysis and any underlying assumptions in the programmatic environmental document to ensure the analysis remains valid (42 U.S.C. § 4336b). The analysis and underlying assumptions in the RC PEIS were reviewed by NOAA, and it was determined they remain valid and are relevant to the proposed action.

The RC PEIS is available at: <https://www.fisheries.noaa.gov/resource/document/restoration-center-programmatic-environmental-impact-statement>.

The RC PEIS provides a program-level environmental analysis of NOAA habitat restoration activities throughout the coastal and marine environment of the United States. Specifically, it evaluates typical impacts related to a large suite of projects undertaken frequently by the RC, including, but not limited to: Coral Reef Restoration; Debris Removal; Beach and Dune Restoration; Signage and Access Management; Fish Passage; Fish, Wildlife, and Vegetation Management; Levee and Culvert Removal, Modification, and Set- Back; Shellfish Reef Restoration; Subtidal Planting; Wetland Restoration; Freshwater Stream Restoration; and Conservation Transactions. These analyses may be incorporated by reference in subsequent NEPA documents, including tiered NEPA documents, where applicable. For example, a project-specific NEPA document may evaluate a restoration project where all potential impacts were addressed in the RC PEIS. In that instance, the project-specific NEPA document would, in effect, incorporate by reference the full impacts analysis from the RC PEIS. In those cases where the RC PEIS determined that none of the potential impacts would be significant, the project-specific NEPA document could incorporate that conclusion by reference as well. In short, no further NEPA analysis may be necessary so long as the proposed activity is within the range of alternatives and scope of potential environmental consequences analyzed in the RC PEIS and would not cause significant adverse impacts.

3.1. Affected Environment

The affected environment includes the SuAsCo watershed and is discussed in detail in Section 2 of the original Final RP/EA (Stratus Consulting Inc., 2012). That information is incorporated here by reference. The mainstem Sudbury and Assabet rivers join to form the Concord River, which flows into the Merrimack River in Lowell, draining a watershed of 377 square miles. Including tributary streams, there are an estimated 260 named river miles in the watershed. MassDEP (2001) has identified 125 lakes, ponds, and impoundments with a total surface area of 7,147 acres.

The implementation project being evaluated in this Draft Supplement is on the Concord River in Billerica, MA. The Talbot Mills Dam (NID ID MA00774) is the third and primary obstacle to fish passage in the Concord at river mile 4.76. The drainage area at this location is approximately 370 square miles. The dam is privately owned by CRT Development Realty, LLC (CRT). It is approximately 316 feet long with a maximum height of about 15 feet. The primary spillway is approximately 127 feet long with a height of about 10.2 feet.

The Talbot Mills Dam creates an impoundment that is evident from the dam upstream to the Pollard Street bridge (Figure 3), though it has some hydraulic influence up to the confluence of the Sudbury and Assabet. Downstream of Pollard Street, the dam artificially raises the water level, creating an artificial lacustrine environment that is largely covered with a dense mat of invasive water chestnut (*Trapa natans*) during the summer months which reduces dissolved oxygen and limits paddling and other recreational access to much of the impoundment.

Since the original Final RP/EA was completed, a number of documents have been prepared as part of the dam removal design and environmental compliance process that provide more context regarding the affected environment in the vicinity of the Talbot Mills Dam. An Historic and Archaeological Reconnaissance Survey (Banister et al., 2016) and a Cultural Resources

Assessment Update (Public Archaeology Laboratory Inc., 2023) were prepared by the Public Archaeology Laboratory (PAL) as part of the Section 106 consultation process. As part of the Massachusetts Environmental Policy Act (MEPA) compliance, a Single Environmental Impact Report (SEIR) was prepared for the project which summarizes design phase findings including those related to sediment quality and threatened and endangered species (Gomez and Sullivan Engineers Inc., 2024). The above reports are incorporated here by reference.

Threatened and Endangered Species

The Talbot Mills Dam is within the range of the Tricolored Bat (*Perimyotis subflavus*), which is currently proposed for listing as endangered. There is no designated Critical Habitat, habitat deemed essential for listed species' conservation and recovery, within the area of project implementation. Section 7 consultation, under the Endangered Species Act (ESA), will be conducted as needed prior to project implementation to ensure all actions do not jeopardize listed or proposed species.

The project is not located within any mapped Priority or Estimated Habitats of Rare Species designated by the Massachusetts Natural Heritage and Endangered Species Program (NHESP). Consultation with NHESP indicated that there are no Priority or Estimated Habitats upstream or downstream of the project that would raise concerns (Gomez and Sullivan Engineers Inc., 2024).

Cultural, Historic, and Archaeological Resources

Excerpted from (Gomez and Sullivan Engineers Inc., 2024):

The Talbot Mills Dam is an historic property listed in the National Register of Historic Places as a contributing resource to both the Middlesex Canal Historic and Archaeological District and the Billerica Mills Historic District. The dam is also within the North Billerica Mills Local Historic District.

The [project's area of potential effects (APE)] contains two National Register-listed historic districts and one local historic district that overlap and extend outside of the Project APE:

- Middlesex Canal Historic and Archaeological District/Middlesex Canal Historic District (MHC Nos. BIL.T, BIL.K, BIL.P)
- Billerica Mills National Register Historic District (MHC No. BIL.O)
- Billerica Mills Local Historic District (MHC No. BIL.E)

Properties that contribute to one or more of these historic districts in the project APE consist of:

- Middlesex Canal Dam and Locks (aka Talbot Mills Dam) (MHC Nos. BIL.900/BIL-HA-09)
- Middlesex Canal Segment 24 (MHC Nos. BIL.P, BIL.T, BIL.929/BIL-HA-08)
- Middlesex Canal Floating Towpath Peninsula (MHC No. BIL.953/BIL-HA-39)
- Middlesex Canal Floating Towpath Anchor Stone (MHC No. BIL-HA-40)
- J.R. Faulkner Mills (MHC No. BIL.77)
- Faulkner Kindergarten (MHC No. BIL.78)
- Talbot Mills (MHC No. BIL.80)
- William Rogers House/Toothaker Tavern (MHC No. BIL.273)

- Talbot Woolen Mills Worker Housing (MHC No. BIL.274)
- Warehouse (MHC No. BIL.317)
- Faulkner Street Bridge over Concord River (MHC No. BIL.935)

The site of the current Talbot Mills Dam has a long and controversial past, with several exhaustive studies of the river system and upstream impacts associated with the “Flowage Controversy” of 1858-1862. Multiple dams have been constructed, removed, and rebuilt throughout the years (Thorson, 2017). Prior to the damming of the river at this location, the area was used by generations of Native Americans as an encampment and fishing grounds. A map of Billerica circa 1700 documents the existence of a series of falls in the Concord River between the present-day Pollard Street and Faulkner Street bridges. A large Native American village is reported to have been located along the Concord River in proximity to the Talbot Mills Dam. The Native American occupation in the area of the dam was focused on natural falls, which would have afforded an abundance of diadromous fish resources and wildlife. The first dam was erected at the location of the current Talbot Mills Dam in 1710-11.

Sediment

Based on field surveys conducted in 2014 it is estimated that the impoundment holds at least 18,200 CY of sediment, with up to about 9,500 CY of that being potentially mobile if the dam were removed (Gomez and Sullivan Engineers Inc., 2016). As currently designed, the partial dam removal project (Alternative #1) will involve active dredging of 1,640 CY of material from the existing impoundment. A portion of the dredged material may be beneficially used on-site as part of channel restoration while the remainder will be transported to an appropriate off-site facility. Approximately 1,500 CY of sediment will be allowed to naturally mobilize settle downstream after removal.

Per 314 Code of Massachusetts Regulations (CMR) 9.07(2)(b), Gomez and Sullivan Engineers collected sediment cores from the impoundment as well as reference samples upstream and downstream for contaminant analysis. Laboratory analysis included the following chemicals:

- Heavy metals (Arsenic, Cadmium, Chromium, Copper, Lead, Mercury, Nickel, and Zinc)
- Polycyclic aromatic hydrocarbons (PAHs)
- Polychlorinated biphenyls (PCBs)
- Extractable petroleum hydrocarbons (EPH)
- Organochlorine pesticides
- Volatile organic compounds (VOCs)
- Total organic carbon

From the Talbot Mills Dam [Combined Chapter 91 Dredge Permit/401 Water Quality Certification for Fill/Excavation and Dredging](#):

The results of the chemical analysis were compared to MassDEP’s *Interim Policy for Sampling, Analysis, Handling and Tracking Requirements for Dredged Sediment Reuse and Disposal* ([COMM-94-007](#)). All of the results were either non-detect or below the Reportable Concentration (“RC”) S-1 criteria³ of the [Massachusetts Contingency Plan](#)

³ [MCP Numerical Standards](#) have been derived for three categories of soil that were designed to address a broad range of potential human exposures (Categories S-1, S-2 and S-3). The applicability of a particular soil category

(“MCP”), except for chromium, which exceeded the S-1 threshold in four of the impoundment samples. One of those samples was also at the S-1 level for lead. The levels of chromium, as well as that of lead, in these samples also exceeded the threshold above which the sediment must be tested for both leachable chromium and lead using the [Toxicity Characteristic Leaching Procedure](#) (“TCLP”). The resulting concentrations from that test were less than the TCLP [limits] for each metal in every sample. As a result, they can be classified as non-hazardous waste. In addition, two of these impoundment samples were either at or slightly above the S-1 criteria for arsenic.

3.2. Environmental Consequences

3.2.1. Alternative #1 - Partial Dam Removal (Preferred)

The Trustees propose to address NEPA compliance for the proposed restoration alternatives by tiering from the original Final RP/EA and incorporating by reference the analyses from multiple documents, as discussed below and consistent with DOI and NOAA NEPA implementing procedures.⁴

The original Final RP/EA outlined the use of funds for a Talbot Mills Dam removal feasibility study and the design/permitting for implementation. The feasibility study was conducted in 2016 by Gomez and Sullivan (Gomez and Sullivan Engineers Inc., 2016). Talbot Mills Dam Removal Targeted Impact Analysis was conducted in 2021, with conceptual design completed in 2022 (Gomez and Sullivan Engineers Inc., 2022). A Massachusetts Environmental Policy Act (MEPA) Expanded Environmental Notification Form (EENF) was submitted in 2023 and a Single Environmental Impact Report (SEIR) for the project was submitted to MEPA in 2024.

This Draft Supplement analyzes the information regarding the project design to evaluate the potential effects of the Talbot Mills Dam Removal project on the human environment. The human environment, as defined under NEPA, includes the physical, biological, socioeconomic, historical, and cultural environment in which the project is occurring. In order to reduce redundancy and duplication, this Draft Supplement incorporates by reference several previous analyses for this project, including:

MEPA

- Expanded Environmental Notification Form (EENF) and Single Environmental Impact Report (SEIR) for the Talbot Mills Dam Removal Project (Gomez and Sullivan Engineers Inc., 2023, 2024).
- The Secretary’s Single Environmental Impact Report Certificate for this Talbot Mills Dam Removal Project, which states that the Talbot Mills Dam Removal

depends upon both the accessibility of the soil (measured primarily by depth) and the human activities that take place (or may take place) at the surface. Within a soil category there are further sub-categories identified by groundwater type: the soil standards within these subcategories have been modified by the potential for a contaminant to leach and degrade the site groundwater. The MCP S-1 soil standards (310 CMR 40.0975(6)(a)) apply to soil associated with unrestricted use. Activities commonly associated with the S-1 soil category include residential use, parks, playgrounds and schoolyards. The criteria that define the S-1 soil category are found at 310 CMR 40.0933. The S-1 soil standards consider incidental ingestion of the soil, dermal contact with the soil and ingestion of produce grown in the soil.

⁴ 516 DM 1 – U.S. Department of the Interior Handbook of National Environmental Policy Act Implementing Procedures; Companion Manual for NOAA Administrative Order 216-6A, “Policy and Procedures for Compliance with the National Environmental Policy Act and Related Authorities.”

project adequately and properly complies with the Massachusetts Environmental Policy Act (MEPA).

These documents can be accessed on-line at, <https://eeaonline.eea.state.ma.us/EEA/MEPA-eMonitor/project/e66e4f1c-9caf-44d5-a74b-5254220d0492>.

NEPA

To avoid duplication of effort and streamline the NEPA analysis in this Draft Supplement, the Trustees are using the RC PEIS to satisfy NEPA compliance for the proposed restoration actions. The Trustees have determined that the proposed fish passage alternative for the Talbot Mills Dam (partial dam removal) is consistent with the alternative in Section 2.2.2.3.1 and the associated impacts described in Section 4.5.2.3.1 of the RC PEIS (Dam and Culvert Removal, Modification, or Replacement).⁵ That information and those analyses are incorporated by reference and summarized here (Table 4).

Table 4. Summary of impacts from dam removal, modification or replacement activities⁶.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude/Intensity	Quality
<i>Geology and Soils</i>	Direct & Indirect	Short-term & Long-term	Localized	Minor & Moderate	Adverse
	Direct & Indirect	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Water</i>	Direct	Short-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct & Indirect	Short-term	Beyond Project Site	Moderate	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Beyond Project Site	Moderate	Adverse
	Direct	Long-term	Beyond Project Site	Major	Beneficial
<i>Cultural and Historic Resources</i>	Direct	Long-term	Localized	Moderate & Major	Adverse
	Direct	Permanent	Localized	Major	Beneficial
<i>Land Use and Recreation</i>	Direct	Long-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Socioeconomics</i>	Indirect	Long-term	Localized	Moderate	Beneficial

The proposed dam removal and associate channel reconstruction; sediment excavation, placement, and transport; plantings; invasive species management; and implementation of best management practices (BMPs), such as erosion control measures would have both adverse and beneficial impacts on the environment in the project area but would ultimately have net benefits.

⁵ Some activities associated with dam removals—i.e., invasive species control and management; sediment excavation, placement, and transport; and vegetative plantings—are also described in sections 2.2.4.1, 2.2.2.11.3, 2.2.2.11.4, and 2.2.2.11.5 of the RC PEIS.

⁶ Sections 4.1 - 4.4 of the RC PEIS provide the definitions for type, duration, geographic extent, and magnitude/intensity of potential impacts.

Potential adverse impacts from activities to be conducted would be direct and indirect, mostly short-term, minor to moderate, and a mix of localized and beyond the project site for geology and soils, water resources, living coastal and marine resources, threatened and endangered species, and land use/recreation. The removal of the historic dam will have a long-term adverse effect on historic and cultural resources. NOAA, as the lead federal agency for Section 106, is leading the consultation process and developing an MOA to mitigate these impacts. There shall be no dam removal construction prior to the MOA being signed by the Consulting Parties.

These expected impacts are within the scope of the analysis in RC PEIS section 4.5.2.3.1. Overall, the project is expected to result in direct and indirect, long-term, and moderate to substantial beneficial impacts both local and beyond the project site to these same resources when the project has been fully implemented. Cumulative impacts from this and other fish passage projects in the SuAsCo Watershed could include direct and indirect, mostly long-term, minor to substantial benefits for living coastal and marine resources and threatened and endangered species. However, it is expected that although this project and others may provide a cumulative positive effect, these cumulative benefits would not be significant at a larger (regional) level.

3.2.2. Alternative #2 - Technical Fishway (Non-preferred)

Installing a technical fishway at the Talbot Mills Dam would allow passage of some, but not all, fish species across the dam. This alternative would provide none of the ecological and community benefits associated with dam removal (e.g., improved water quality, reduction in flooding, elimination of a dam safety hazard, new recreational opportunities, eradication of invasive species, etc.). This alternative would result in impacts to cultural resources and aesthetics, as well as temporary impacts to wetland resources during construction.

This alternative was not evaluated in detail because, as noted in section 2.3.2, the dam owner has no intention to move forward with the installation of a technical fishway at this location for a variety of reasons including operation and maintenance costs for a fishway and liability associated with continued dam ownership. However, NEPA requires agencies to consider the environmental impacts of the proposed action and any alternatives to the proposed action (42 U.S.C. § 4332(C)(iii)).

To avoid duplication of effort and streamline the NEPA analysis in this Draft Supplement, the Trustees are using the RC PEIS to satisfy NEPA compliance for the proposed restoration actions. The Trustees have determined that the proposed technical fishway alternative for the Talbot Mills Dam is consistent with the alternative in Section 2.2.2.3.2 and the associated impacts described in Section 4.5.2.3.2 of the RC PEIS (Technical and Nature-like Fishways). That information and those analyses are incorporated by reference and summarized below (Table 5).

Table 5. Summary of impacts from technical and nature-like fishways⁷.

Resource	Type of Impact	Duration of Impact	Geographic Extent	Magnitude/Intensity	Quality
<i>Geology and Soils</i>	Direct	Short-term	Localized	Minor & Moderate	Adverse
<i>Water</i>	Direct	Short-term	Beyond Project Site	Minor & Moderate	Adverse
<i>Air</i>	Direct	Short-term	Localized	Minor	Adverse
<i>Living Coastal and Marine Resources and EFH</i>	Direct & Indirect	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Direct & Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Threatened and Endangered Species</i>	Direct & Indirect	Short-term	Beyond Project Site	Minor & Moderate	Adverse
	Direct & Indirect	Long-term	Beyond Project Site	Major	Beneficial
<i>Cultural and Historic Resources</i>	Direct	Long-term	Localized	Moderate & Major	Adverse
	Direct	Permanent	Localized	Major	Beneficial
<i>Land Use and Recreation</i>	Direct	Short-term & Long-term	Beyond Project Site	Minor	Adverse
	Direct	Long-term	Beyond Project Site	Moderate	Beneficial
<i>Socioeconomics</i>	Indirect	Long-term	Localized	Minor	Beneficial

The proposed fishway construction would have both adverse and beneficial impacts on the environment in the project area. Beneficial impacts would occur for fewer resources and to a lesser degree than with the dam removal construction alternative. Potential adverse impacts from activities to be conducted would be direct and indirect, mostly short-term, minor to moderate, and a mix of localized and beyond the project site for geology and soils, water resources, living coastal and marine resources, threatened and endangered species, and land use/recreation. Construction near the historic dam will have a long-term, moderate to substantial adverse effect on historic and cultural resources.

These expected impacts are within the scope of the analysis in RC PEIS sections 4.5.2.3.1 Overall, the project is expected to result in direct and indirect, long-term, and moderate to substantial beneficial impacts both local and beyond the project site to these same resources when the project has been fully implemented. Cumulative impacts from this and other fish passage projects in the SuAsCo Watershed could include direct and indirect, mostly long-term, minor to substantial benefits for living coastal and marine resources and threatened and endangered species. However, it is expected that although this project and others may provide a cumulative positive effect, these cumulative benefits would not be significant at a larger (regional) level.

⁷ Sections 4.1 - 4.4 of the RC PEIS provide the definitions for type, duration, geographic extent, and magnitude/intensity of potential impacts.

3.2.3. Alternative #3 - No Action Alternative (Non-preferred)

The No Action alternative serves as a basis for comparison of potential environmental consequences of the action alternatives(s). The No Action analysis presents the conditions that would result if the Trustees did not elect to undertake the proposed restoration for injured natural resources or to compensate for lost services at this time.

By definition, the No Action alternative lacks physical interaction with the environment. Accordingly, the No Action alternative would cause no direct impacts to any of the elements of the affected environment described above. However, if the Trustees undertook no action, the environment would not benefit from the ecological uplift created by active restoration, and the vast majority of habitat in the SuAsCo watershed would remain inaccessible to diadromous fish. Water quality and aquatic habitat associated with free-flowing rivers would not be improved, and the current risk of flooding would continue. Conversely, the active restoration with the proposed action would restore the types of resources and services that were injured by the Nyanza Chemical Waste Dump Superfund Site. The No Action alternative would have no beneficial effect and minor to moderate indirect adverse effects on the environment.

3.3. NEPA Conclusion

The Trustees have selected to implement the preferred alternative, Partial Dam Removal, and find that the net effects of the Talbot Mills Dam Removal will be overwhelmingly beneficial. Many potential adverse effects are being minimized due to the project design and implementation of the appropriate BMPs. Adverse effects on historic and cultural resources will be minimized and mitigated through an MOA being developed by NOAA, the lead federal agency for the Section 106 consultation process. The USFWS will conduct an effects analysis regarding any listed or proposed listed species and an intra-service Section 7 consultation to minimize adverse effects, as needed. The Trustees have determined that the scope of the proposed project and potential impacts were described and evaluated adequately in the RC PEIS, and no additional NEPA analysis is needed.

4. Other Environmental Compliance

In addition to this Draft Supplement, which ensures compliance with NEPA, the following permits and/or consultations are required by state, tribal, local, and federal agencies (Table 6):

Table 6. List of required regulatory submittals/reviews/permits with status shown

Permit	Agency	Status
Massachusetts Endangered Species Act Review	Natural Heritage and Endangered Species Program (NHESP)	Complete
National Historic Preservation Act Section 106 Historical Review	MA Historical Commission (MHC)	Consultation process ongoing – NOAA LFA – developing MOA.
Fish and Wildlife Coordination Act (FWCA, 16 U.S.C. § 661 <i>et seq.</i>)	USFWS	The Trustees have concluded that proposed restoration action would have either a positive effect on fish and wildlife resources or no effect.
Endangered Species Act (ESA, 16 U.S.C. § 1531 <i>et seq.</i>)	USFWS	Coordination with the USFWS will be completed prior to implementation. If a listed species may be potentially affected, further consultation with USFWS will be required, in accordance with Section 7 of the Endangered Species Act.
Migratory Bird Treaty Act of 1918 as amended (MBTA, 16 U.S.C. §§ 703-712)	USFWS	The Trustees have concluded the proposed restoration action would not result in the taking, killing, or possession of any migratory birds.
Executive Order 11990 – Protection of Wetlands		The Trustees have concluded that the proposed restoration action would fulfill the goals of this executive order.
Executive Order 11988 – Floodplain Management		The Trustees will work to ensure that any floodplain impacts are minimized.
Expanded Environmental Notification Form (EENF) & Single Environmental Impact Report (SEIR)	MA Environmental Policy Act (MEPA) Office	EENF Certificate issued 9/1/23 SEIR Certificate issued 4/1/24
401 Water Quality Certificate (WQC) / Ch. 91 Dredge Permit (Joint Application)	MA Dept. of Environmental Protection (DEP)	401 WQC issued 4/25/25 Ch 91 Under Review
Chapter 253 Dam Safety Permit	DCR Office of Dam Safety	Application to be submitted
Clean Water Act Section 404 Preconstruction Notice (PCN)	US Army Corps of Engineers (USACE)	Under Review
Wetlands Protection Act & Billerica Wetlands Protection Bylaw Notice of Intent (NOI) for Ecological Restoration Projects	Town of Billerica	Under Review
Building (Demolition) Permit	Town of Billerica	Under Review
Fishway Construction Permit	MA Div. of Marine Fisheries	Application to be submitted

5. Preparers

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Appendix 1. Trustee Agency Approvals of the Draft Supplement to the Restoration Plan and Environmental Assessment for the Nyanza Chemical Waste Dump Superfund Site – Talbot Mills Dam Removal Implementation, Town of Billerica, Middlesex County, Massachusetts

**U.S. Department of the Interior
U.S. Fish and Wildlife Service
Approval of the Draft Supplement to the Restoration Plan and Environmental
Assessment for the Nyanza Chemical Waste Dump Superfund Site – Talbot
Mills Dam Removal Implementation
Town of Billerica, Middlesex County, Massachusetts**

FOR THE UNITED STATES DEPARTMENT OF THE INTERIOR
Authorized Official:

Sharon Marino, Acting Regional Director
Northeast Region
U.S. Fish and Wildlife Service
U.S. Department of the Interior

Date

**National Oceanic and Atmospheric Administration
Approval of the Draft Supplement to the Restoration Plan and Environmental
Assessment for the Nyanza Chemical Waste Dump Superfund Site – Talbot
Mills Dam Removal Implementation
Town of Billerica, Middlesex County, Massachusetts**

FOR THE NATIONAL OCEANIC AND ATMOSPHERIC ADMINISTRATION
Trustee Representative:

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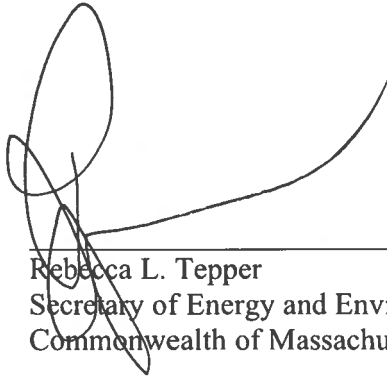
Brian Kelder
NOAA Restoration Center
U.S. Department of Commerce

12/16/2025

Date

**National Oceanic and Atmospheric Administration
Approval of the Draft Supplement to the Restoration Plan and Environmental
Assessment for the Nyanza Chemical Waste Dump Superfund Site – Talbot
Mills Dam Removal Implementation
Town of Billerica, Middlesex County, Massachusetts**

FOR THE COMMONWEALTH OF MASSACHUSETTS
Authorized Official:



Rebecca L. Tepper
Secretary of Energy and Environmental Affairs
Commonwealth of Massachusetts

1/21/2026
Date