



COASTAL COMMUNITY GRANTS: Coastal Habitat Restoration

City of Augusta Final Design for the restoration of a historical Alewife Run of Significance to the Lower Kennebec



Worromontogus Lake Association volunteers and DMR staff lifting Alewives into Togus Pond.

PARTNERS

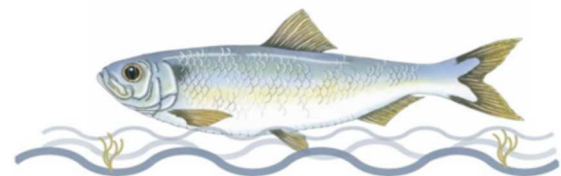
Several organizations have been involved to date in the reintroduction of alewives into Togus Pond, and planning for the construction of a fish passage. These organizations include: the Worromontogus Lake Association (WLA), Town of Chelsea, Maine Department of Marine Resources (DMR) and Maine Outdoor Heritage Fund.

PROJECT DESCRIPTION (completed December 2015)

This project provides the initial steps toward the construction of a fish passage on Worromontogus Lake (Togus Pond) – the design of a fish passage and identification of suitable property for construction of the passage at the southern end of Worromontogus Lake. This is to support the reintroduction of various indigenous species to the Worromontogus Watershed, whose passage was blocked in 1804 with the construction of the Togus Dam.

The construction of the Worromontogus Dam and creation of Worromontogus Lake (aka Togus Pond) in 1804 served many constructive purposes at the time: allowing the operation of fabric and lumber mills that greatly improved the economy of the Kennebec region near Augusta, and of course creating the beautiful lake that provides recreation and residence for hundreds of Mainers, and habitat for myriad species.

In the process, however, the dam has completely cut off access to nearly 1,200 acres of spawning habitat in the Lower and Upper Togus Ponds, to beneficial migrating fish, including alewives, salmon, wild eastern brook trout, eels, and other anadromous species that had historically used the Togus Stream for spawning. Over the centuries, this lack of spawning rely on these fish for their sustenance.



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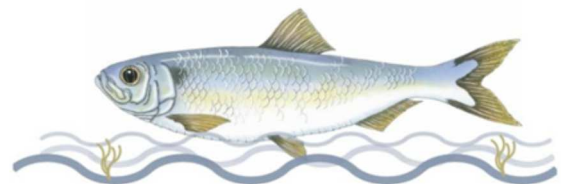
Reintroduction of alewives and other species via a fish passage would greatly improve the overall ecology of the lake area, boost sagging populations of associated species, and potentially also improve lake water quality. The annual surge of in- and out-migrating alewife provide an important seasonal food source to a wide variety of predators including resident gamefish, eagles, osprey, herons, mink, otters, and others. Healthy alewife runs can also generate revenue for harvesters and towns, and support the State's lobster industry because alewives are a highly prized bait source. Other species with recreational and/or commercial value, like American eel, eastern brook trout, and white sucker will also benefit from restored connectivity between habitats resulting from the project. The participants of this project, at the local, state, and national level, deem the reintroduction of alewives and other anadromous species to the Togus Pond as a high priority necessity. This project provides the first phase in construction of a fish passage: development of a viable design and identification, survey, and permitting of suitable property upon which to construct that passage.

APPROACH

There were few engineering challenges involved in developing the design for the fish passage. The few that emerged were preparatory in nature: determining the optimal fish passage type, identifying and contracting for engineering services, and obtaining a legal easement for use of the property upon which to build.

Fish Passage Type. The terrain in the vicinity of the Togus Dam presents some difficulties, being somewhat narrow, boggy, and constrained by the stream on one side, and a state road on the other. In 2008 the DMR funded a Feasibility Study ("Fish Passage Improvement Alternatives Lower Togus Pond Chelsea, Maine"), concluded an Alaska steep pass fishway would be the most cost-effective and that the appraisal study report should be in sufficient detail to compare the costs of a concrete Denil fish ladder and a pool and weir nature-like fishway to the steep pass option. Three designs were recommended and accompanied by along with their 2010 cost estimates. The recommendations were presented to the Togus Pond residents and the group supported the re-introduction of Alewife into Togus Pond and Stream. Further review and analysis by the DMR resulted in the pool and weir style passage being selected.

Easement. The primary challenge we faced during this project was determining the optimal area for constructing the fish passage and, subsequently, in obtaining an unencumbered easement for construction on the property. The desired build area has both wetlands and a potential vernal pool, which required clearance and permitting in order to move forward. More challenging was that the putative owners of the property did not have clear title to the land, as was determined by Wright-Pierce, the project engineer, during property survey. It required the employment of lawyers both for the Worromontogus Lake Association (WLA) and for the putative owners, and considerable time – nearly a year – to identify and communicate with the actual owners, to clarify the title. This caused design activities to be put on hold pending resolution. The title holders of record were located, and all agreed to quitclaim the property to the WLA, who then signed the property to the putative owners in exchange for an easement for the fish passage. Once clear title had been established, design work recommenced. The design process, by necessity at that point, was accelerated in order to complete before the grant expired. A Preliminary Design Review was conducted in September, 2015, and the 95% Design Review was conducted in November, 2015. Final design was completed in December 2015.



RESULTS

The alewife reintroduction process on Togus Pond, to date, has been largely successful. The re-stocking of Alewife was eagerly supported by the community, and began with the introduction of nearly 10,000 mature fish into Togus Pond in the spring of 2010, continuing for four years with approximately the same number of fish each year.

April 2014, four years since re-stocking, Alewife returned to Togus Pond and Stream. This return was observed at Togus Stream and at the base of Togus Pond Dam. Enthusiastic residents gathered to help returning mature adult Alewife over the dam and back into the stream to spawn and rekindle a cycle interrupted by nearly 200 years. Paul Koenig (Kennebec Journal) documented the Alewife return. In 2014, nearly 30,000 spawning alewives were lifted over the dam; in 2015, that number increased to over 66,000.

Also in 2014, an FY14 Coastal Community Grant was secured. The DMR, the WLA, and the City of Augusta teamed with representatives of the Maine Coastal Program and NOAA to develop a Request for Proposals and select an engineering firm to produce the design of a pool and weir fish passage on the western side of Togus Dam. Wright Pierce was retained as project engineer. Despite setbacks incurred while straightening out the ownership of the property, the design was successfully completed and accepted in December 2015. The final product will be a showcase for the successful reintroduction of anadromous fish into their ancestral home.

NEXT STEPS AND OPPORTUNITIES

With a completed design in hand, and with cost estimates for conducting the engineering, administration, and construction of the fish passage project, the Worromontogus Fish Passage team will need to focus next on funding for the project. Once funds are obtained, the next steps involve obtaining contract support, building the fish passage, commencing operation, and managing and maintaining the fish passage.

The most crucial next steps are:

Obtain funding. This may involve multiple funding organizations, grant applications, procuring volunteers and in-kind contributions, and donated labor and materials. This will require coordination among the various members of the team to identify and pursue possible funding sources.

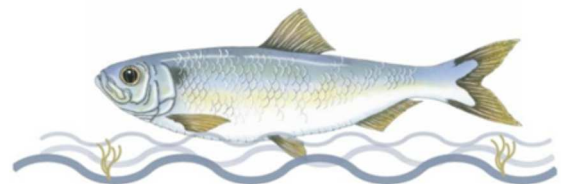
Obtain engineering support. An independent Project Engineer will be required, both to assist in pre-construction planning and preparation, and to oversee the actual construction. This will require a separate contract award process.

Develop a Request for Bids. The Togus Fish Passage team and the Project Engineer will need to work together to prepare the RFB, advertise it, conduct a bid review, and select an appropriate construction contractor.

Build the Togus Fish Passage. Construction is constrained to some extent, as any work involving interaction with the waters of Togus Stream needs to be conducted strictly between the months of July and October.

Activate, operate, and manage the completed Togus Fish Passage.

Excellent opportunities exist to engage local companies, land trusts, philanthropic organizations, and civic groups in furthering the construction and operation of this vital fish passage.



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NEEDS

Our needs at this point are fairly straightforward. We need funds in order to move forward with the construction. We need the support of the Maine DMR. We need to identify a contracting organization to conduct the follow-on contracting efforts. We need a solid and knowledgeable engineering firm to provide preparatory, contract administration, and post-contract support. And we need to nurture strong bonds among the volunteers, stakeholders, and interested parties associated with the Togus Fish Passage.

LESSONS LEARNED

Of particular note for our team was dealing with the complexities in obtaining property for a project such as this. Determining the suitability of, and clear title to, the land anticipated to be used for such construction, prior to contracting for engineering services, would have prevented sleepless nights.

APPLICABILITY FOR OTHER MUNICIPALITIES

Running down the ownership history of the property required close interaction with the Town of Chelsea and the City of Augusta while uncovering myriad property documents associated with the site. Such a process would of necessity pertain in other municipalities considering similar projects.

RECCOMENDATIONS FOR FOLLOW-UP

The Department of Marine Resources will continue to be a desirable and highly valued member of the Togus Fish Passage team through completion of the construction phase and well into the first few years of operation of the Togus Fish Passage. The WLA, at present the anticipated owner of the fish passage, will continue to require the tutelage and support of the DMR to ensure efficient and proper operation and management of this important structure.

For additional information

The Worumontogus Lake Association web site: www.togusponds.org
WLA President: J Gregory Jolda, gregjolda@hq.fbnintegrated.com

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