



Town of Arrowsic Alewife Restoration and Wildlife Crossing

"It is gratifying to see the fish returning in ever increasing numbers, and the water phosphorous levels slowly subsiding. Sewall Pond is in the center of town, and is a resource enjoyed year-round by a large portion of the town's inhabitants in all seasons of the year, for swimming, boating, fishing, skating and socializing. The overall health of the pond affects many people."

Phine Ewing, Arrowsic Conservation
Commission Chair and monitoring
volunteer 2012



In a Town of 427 residents, nearly 50 have participated in this project.

PARTNERS

Kennebec Estuary Land Trust, Maine Department of Marine Resources (DMR), U.S. Fish and Wildlife Service Gulf of Maine Program and Maine Department of Transportation

PROJECT DESCRIPTION (completed December 2012)

The Arrowsic Conservation Commission designed a roadway stream crossing to replace a culvert at Rt. 127 that will fully restore alewife passage at the outlet of Sewall Pond and improve the pond's water quality. In the 1980's Arrowsic closed the alewife fishery to commercial harvest due to an extreme drop in the number of fish. In spring of 2006, Maine DEP issued a Phosphorus Control Action Plan for Sewall Pond with a goal of reducing the total phosphorus from 34 to 16 ppb in non-bloom conditions. (Maine DMR has identified alewives as potential net exporters of total phosphorus.) In 2007 the Arrowsic Conservation Commission and resident volunteers began working to increase the numbers of alewives using Sewall Pond as spawning habitat. Annual monitoring, started in 2007, will continue at least seven years after the last barrier to passage is removed.

APPROACH

The 2012 Maine Coastal Program grant was used to finish bathymetric mapping, bedrock mapping, support preliminary hydrological design, and to coordinate with Sagadahoc County Emergency Management Agency. The grant afforded a historical review of the existing culvert and its performance. This resulted in the addition of the culvert to the County's Five Year Hazard Mitigation Plan. Volunteers were also able to obtain a Section 106 Letter of Permission from the Maine Historic Preservation Commission.

COASTAL COMMUNITY GRANTS: Coastal Habitat Restoration

RESULTS

Preliminary analysis of the total phosphorus versus the numbers of returning alewives shows a trend toward lower phosphorous loads with more alewives returning, indicating that passage restoration could lead to improved water quality. Outreach efforts to Arrowsic residents have led to an increase in their willingness to volunteer time to support this project. In a town of 427 residents, nearly 50 people have participated, an indication of a “vibrant coastal community”. Additionally, there is greater willingness to use town fiscal resources to replace the existing culvert with an enhanced fish and wildlife passage structure.

NEXT STEPS AND OPPORTUNITIES

We will vet the preliminary culvert design for a pre-cast concrete box culvert with a series of v-notch weirs along its length. Arrowsic and its partners will work closely with Region 2 MDOT staff to complete the final design and create a final bid package during the next MDOT work cycle, moving the project into the implementation phase using MDOT protocols. One volunteer has been MDOT certified as a Local Project Administrator, ensuring appropriate and timely local support. We also received a small 2012 Gulf of Maine Council-NOAA grant (Kennebec Estuary Land Trust as the lead applicant) to do the structural engineering for the final design.

LESSONS LEARNED

Project partners have learned the value of reaching out to collaborating agencies (County Emergency Management, Maine Coastal Program, DMR Sea Run Fisheries Division, and Region 2 MDOT) early on. Other lessons: keep all stakeholders up to date as information is collected and be willing to look outside the Mid Coast region to access information and take advantage of lessons learned on similar projects located anywhere in the Gulf of Maine.

APPLICABILITY FOR OTHER MUNICIPALITIES

Arrowsic has approached the challenge of a phosphorus impaired pond and a declining alewife fishery from an ecosystem prospective. We encourage others to think about systems as whole entities and to remember, even if a dollar amount has not been attached to the ecosystem function of a species or habitat, real service is provided. This project is an example of how supporting a species can improve water quality and how the health of smaller water bodies is integral to the resilience of a total estuary and its ability to respond to change.

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3.8.17.

ADDITIONAL INFORMATION

Contact: Karen M. Robbins, Arrowsic Conservation Commission
See KELT website for *The Cool Little Culvert* video of this project at <http://kennebecestuary.org/the-cool-little-culvert>

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