

BUCKEYE LAKE FEEDER CHANNEL

HISTORY AND FUTURE PERSPECTIVES

Prepared by The Watershed Committee of the Buckeye Lake Region Corporation.

Fact Sheet

INTRODUCTION

The Feeder Channel extends for approximately nine miles, beginning west of the Village of Kirkersville in Licking County and extending to its confluence with Buckeye Lake at the Village of Millersport, in Fairfield County. The Feeder Channel is a major tributary channel providing water to Buckeye Lake, maintaining recreational pool levels throughout the summer months and sustaining the aquatic environment. However, it is also the primary contributor of nutrient pollution to the lake. The Feeder Channel has become impaired by decades of bank erosion, sediment deposition, and lack of consistent maintenance. Without intervention to address decades of water quality impairments, the Feeder Channel will continue to contribute to the on-going degradation of Buckeye Lake.

Buckeye Lake for Tomorrow (BLT), and now the Buckeye Lake Region Corporation, with support from the Fairfield Soil and Water Conservation (FSWCD) and the Ohio EPA, have led an initiative to study the lake and surrounding watershed to identify solutions that will improve water quality in Buckeye Lake. The goal of this initiative is to allow the lake to remain a functional ecosystem and serve as a vital recreational resource to central Ohio and beyond.



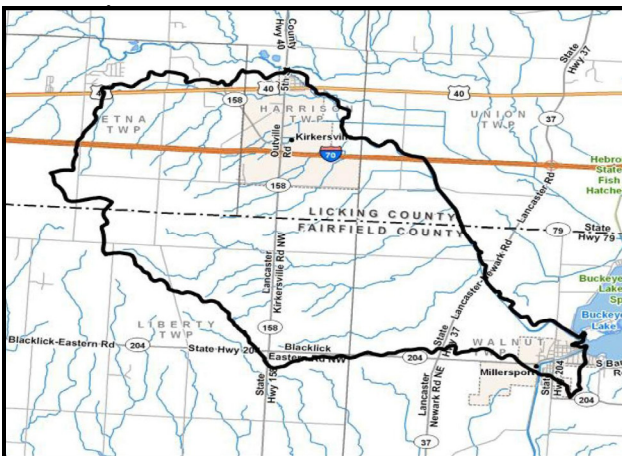
Nutrient-rich sediment deposits within the Buckeye Lake Feeder Channel

Without intervention to address decades of water quality impairments, the Feeder Channel will continue to contribute to the on-going degradation of Buckeye Lake.

THE WATERSHED

The Feeder Channel is the primary tributary feeding Buckeye Lake. It has a watershed area estimated to be between 12 and 17 square miles, comprising approximately 40% of the total watershed area to the lake. This includes a portion of Interstate 70, which has been exposed to flooding and also has contributed to the water quality impairments in the Feeder Channel and Buckeye Lake.

Approximate watershed boundary for the Buckeye Lake Feeder Channel



HISTORY OF THE FEEDER CHANNEL

1825-1830: The reservoir now known as Buckeye Lake was constructed as part of the Ohio and Erie Canal Project to help maintain canal water levels. The reservoir was created via construction of a four-mile long earthen dike that blocked drainage into the South Fork Licking River.

1839: The reservoir was enlarged and the Feeder Channel was constructed to divert a portion of the South Fork Licking River watershed to provide more water storage capacity to operate the canal system. The Feeder Channel included a channel to divert flow directly from the South Fork Licking River at the Village of Kirkersville toward Buckeye Lake.

1894: Use of the lake and the Feeder Channel for the canal system was abandoned and the lake was dedicated as a public park.

Today, the Feeder Channel still exists and is owned by the State of Ohio and is under the authority of the Ohio Department of Natural Resources (ODNR). However, the diversion channel connecting to the South Fork Licking River at Kirkersville has been abandoned. The Feeder Channel is surrounded by agricultural land, and is a key drainage feature for the farmers who own land along the channel.

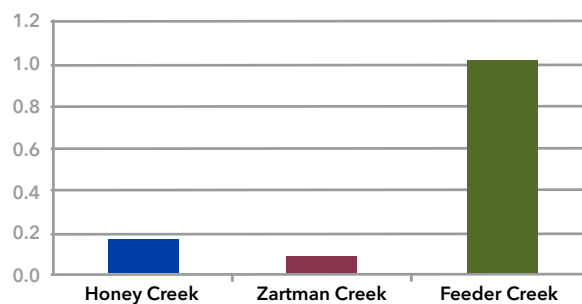
Please see the map provided on the last page.

THE PAST DECADE

With the careful oversight of numerous advocacy groups and stakeholders, several studies have been conducted to collect data that would identify the various sources of water quality impairments in the lake and the surrounding watershed. The Ohio EPA has been collecting data within the lake since 2008. BLT and FSWCD also received funding and contributed to a comprehensive survey of over 90 miles of channels which feed into the lake. This effort led directly to the publication of reports in 2013 and 2014, including the *Buckeye Lake Nutrient Reduction Plan* (2013) published by BLT. The published studies and the associated data now serve as a guideline for recommendations to improve water quality in Buckeye Lake. Some of the key findings from those efforts are:

- 1) Buckeye Lake is challenged by a lack of sufficient source water to support lake levels throughout the drier and hotter summer months. *Improvements to the Feeder Channel represent one of the few opportunities to increase source water to the lake.*
- 2) The Feeder Channel is a major external source of nutrients pollution to the lake. The graphic created by the Ohio EPA demonstrates measured Total Phosphorous (one of the primary nutrient pollutants) loading from the Feeder Channel compared to two other channels that contribute water to Buckeye Lake. Historically, the Feeder Channel is estimated to have contributed more than 20 percent of the annual phosphorous loading to the lake. *The abundance of phosphorous in the lake contributes to the growth of algae during the hotter summer months, representing a risk to aquatic organisms and a threat to human health.*

Unit Area Loads – TP (kg/d/mi²)
(2008-2012 average) *



* More recent samples have shown a decline in Phosphorous due to conservation practices in the watershed.

These findings point to the need to improve the channel so that it can continue to be reliable source of clean water to the lake, including the possibility of restoring the historical diversion of flows from the South Fork Licking River.

Improvements to the Feeder Channel would also serve the agricultural land users in the area who rely on the channel for their drainage. With guidance from the local SWCDs, these farmers have successfully initiated conservation practices to reduce pollutant loading from common farming activities. However, the legacy of nutrient-laden sediments deposited in the Feeder Channel contributes to the on-going water quality impairments in Buckeye Lake.

THE PROBLEM STATEMENT

Debris, such as sediment and log jams, and streambank erosion inhibit the Feeder Channel from safely carrying flows from the surrounding watershed to the lake. During periods of flooding, this poses a risk to the farmers who own land along the channel and results in significant sediment and nutrient loading to Buckeye Lake. The degraded condition of the existing channel also eliminates the possibility of restoring the diversion of flow from the South Fork Licking River to the lake. Because the Feeder Channel represents a significant portion of the entire watershed area contributing flow to Buckeye Lake, any restoration of the channel will have measurable benefits to the lake. In fact, beyond improvements within the lake itself, the restoration of the Feeder Channel is one of the single highest priorities of many Buckeye Lake stakeholders.



THE PLAN

ODNR is currently proposing to restore a portion of the Feeder Channel near the confluence with Buckeye Lake. The remainder of the channel extending for more than 8 miles upstream requires various restoration activities to reverse the effects of channel bank erosion, the transport of sediment and pollutants to Buckeye Lake, and the related water quality impairments that will eventually overwhelm the lake if not addressed.

DREDGING & LOG-JAM REMOVAL

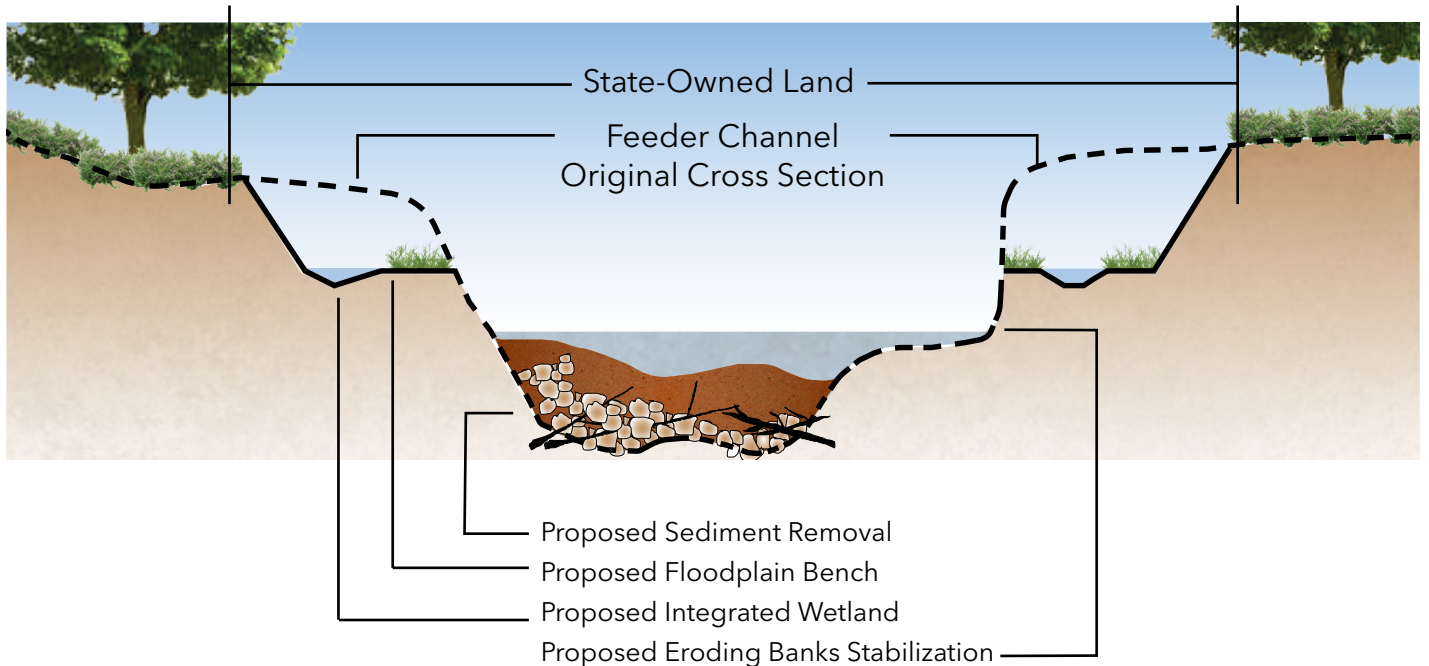
Removing legacy sediments and large debris in the Feeder Channel will reduce the threat of this pollutant-laden material being transported to the lake and improve the flood carrying capacity of the channel.

FLOODPLAIN BENCHING

Construction of a lowered floodplain bench adjacent to the existing channel will also improve bank stability and improve flood carrying capacity, as well as providing for future sediment capture before it reaches the lake.

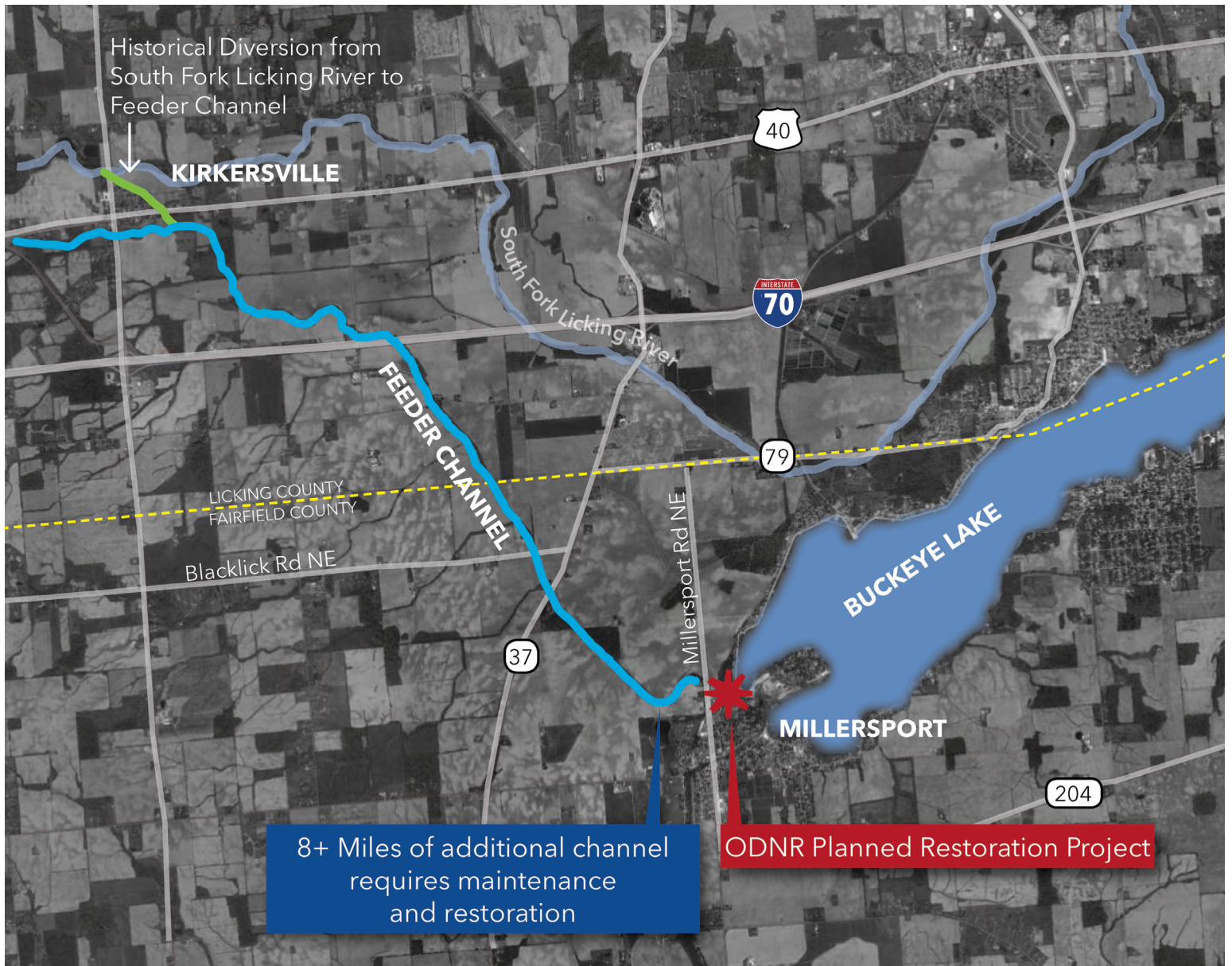
INTEGRATED WETLANDS

Constructed wetlands integrated into or adjacent to the Feeder Channel to capture and treat runoff from agricultural fields and urbanized areas, and the discharge from the Millersport wastewater treatment plant, will have a direct benefit toward reducing nutrient loading to the lake.

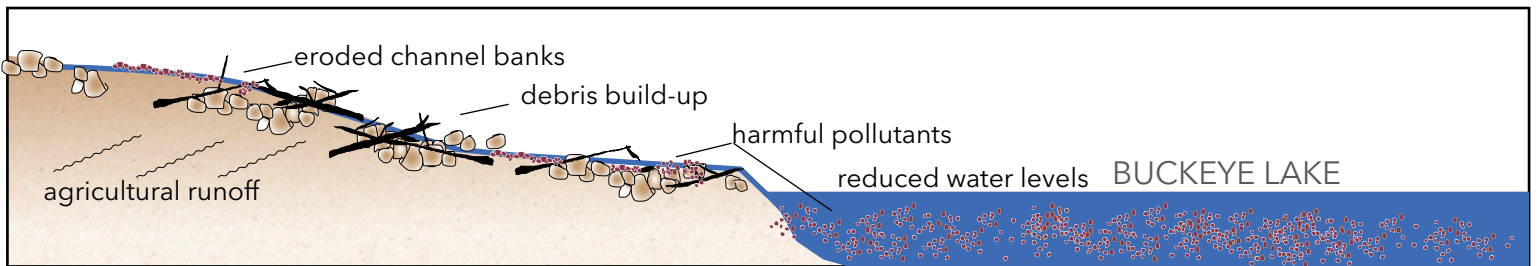


All of these restoration concepts will require the cooperation of the State of Ohio as the owner of the Feeder Channel, as well as private landowners along the channel. There is a strong incentive for property owner cooperation, driven by the need to improve the Feeder Channel as a drainage feature serving thousands of acres of agricultural land and the need to improve water quality in the Buckeye Lake watershed, while also creating the possibility of increasing the volume of source water to the lake.

With the support of local municipalities and State Legislators, the vision for Buckeye Lake created by BLT and other advocacy groups can be achieved. **An investment in the restoration of the Feeder Channel is an investment in the future of Buckeye Lake as a recreational amenity and as a functioning ecosystem.** There will also be a direct return on this investment in terms of the reduction in the cost of future sediment dredging and water quality improvements in the lake.



IMPAIRED CONDITION TODAY



Sediment build-up and harmful pollutant runoff in the form of nutrients via the Feeder Channel directly impacts the health of Buckeye Lake. Preserving the water quality of the lake is paramount to maintaining the health and safety of this public recreation amenity.

REPAIRED CONDITION

