

RESERVOIR UPDATE

SUMMER 2022

PROPERTY OWNERS AND COMMUNITY STAKEHOLDERS NEWSLETTER



FIELD INVESTIGATIONS CONFIRM VIABILITY OF DAM AND RESERVOIR

The reservoir project team continues with the design and permitting phases. Most of the field investigation work is complete and is summarized below. Regulatory permitting with external resource agencies is ongoing to advance the project.

Southwest Missouri is known to be underlain by karst bedrock, a design consideration for a surface water reservoir. Karst topography is formed when soluble rock (limestone in this case) is dissolved in water; a process that occurs over millions of years. A significant portion of the field investigation was devoted to better understanding the limestone bedrock that underlies the reservoir footprint to help facilitate the design of a successful project. Reservoirs have been constructed in similar environments both in southwest Missouri and across the country. The construction means and methods required for this environment are well known in the industry and have been repeatedly and successfully time-tested and proven to work.

Based on review and analysis of the field investigation data collected (including sampling and testing of the bedrock, geophysical surveys to image the subsurface, dye trace testing to understand groundwater flow, and stream channel flow measurements), the project team presents the following findings:

- Karst conditions were identified in the Burlington-Keokuk Limestone that extends about 55 feet below the valley floor. Under the dam, a narrow band of the karst rock will be removed and replaced with concrete. This will minimize leakage along the dam alignment.
- Karst features are also present along the existing valleys and stream channels. These features are relatively narrow, as confirmed from drilling and sampling of the rock and geophysical testing. These drainage features will be sealed during reservoir construction with a cement grout to create a physical barrier and minimize leakage from the completed reservoir.
- Springs are evident throughout the drainage basin, including some with artesian flow. Any springs located within the reservoir footprint will be sealed to prevent the potential for reservoir leakage.

RESERVOIR DESIGN

Southwest Missouri is a particularly challenging geologic setting to construct a reservoir. Karstic rock and potential underground streams are to be expected. Following a review of multiple possible locations and through extensive site investigations at the selected location, we continue to believe that this is the best location for a water supply reservoir.

PROJECT WEBSITE

Information about the Reservoir Project can be found at missouriamwater.com > [News & Community](#) > [Reservoir Project](#)

- A project map, showing the highest lake level expected during normal conditions
- Past newsletter issues

Based on the six months of field investigations, design work, consultation with numerous dam and reservoir experts, and extensive site analysis, we conclude this is a suitable location for reservoir development. Other water supply reservoirs have been constructed and operated successfully in southwest Missouri (e.g., Fellows Lake, McDaniel Lake, Lake Springfield, Valley Water Mill Reservoir) in similar geological and hydrogeological settings. The reservoir design will be advanced following similar concepts and proven engineering methodologies.

ENVIRONMENTAL UPDATE

Numerous field surveys were conducted for threatened and endangered species, wetlands, and streams. Field studies confirm the feasibility of a surface water reservoir at this location. Field surveys followed established procedures for threatened and endangered bats and wetland and stream delineations. Additional coordination with US Fish & Wildlife Service (USFWS) and Missouri Department of Conservation (MDC) was completed to establish the best field methods for Ozark cavefish and mussels.

These studies will be used to develop and support appropriate mitigation measures, as required by the environmental permitting process. A summary of the environmental studies conducted is provided below:



BATS

Mist net surveys and acoustic monitoring were completed to identify bat species within the proposed reservoir footprint. The mist net surveys identified three bat species; gray bat, eastern red bat, and tri-colored bat. These bat species were also detected during the acoustic monitoring. The gray bat is a federally endangered species. Bats were temporarily captured for positive identification by licensed professionals and released without harm. During construction of the reservoir, special precautions will be developed to minimize impacts to all endangered species.



OZARK CAVEFISH

Ozark cavefish live underground in caves, springs, and wells. A single Ozark cavefish was identified within an artesian well within the reservoir footprint. The Ozark cavefish was identified by deploying camera equipment within the well following rainfall events. We intend to establish potential impacts to the Ozark cavefish and then work closely with various resource agencies to minimize impacts during the construction and operation of the reservoir.



MUSSELS

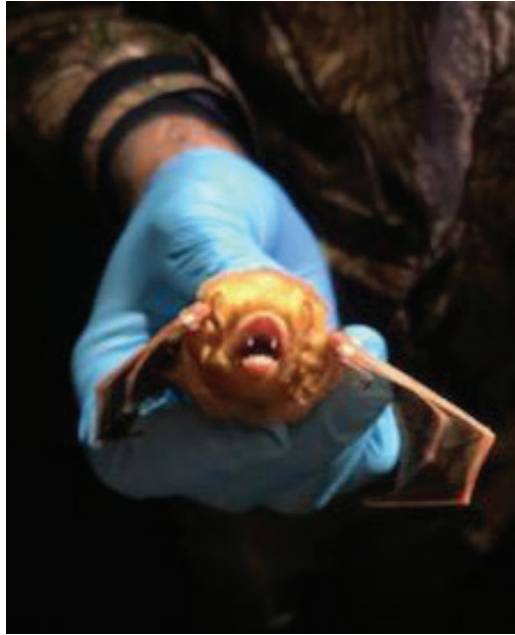
Baynam Branch and Shoal Creek were surveyed for Neosho mucket, rabbitsfoot, western fanshell, and purple lilliput mussels during low water conditions. None of these species were identified during the field survey. However, they may be present in Shoal Creek based on previous surveys completed by MDC.



WETLANDS AND STREAMS

The wetland and stream delineation identified 11.36 wetland acres and 34,728 linear feet of streams. Wetland and stream impacts require permitting through Section 404 of the Clean Water Act.

The U.S. Army Corps of Engineers (USACE) is the lead federal agency for the proposed reservoir. They are responsible for assessing the environmental impacts of the project in accordance with the National Environmental Policy Act (NEPA). Information has been provided to the USACE to draft an environmental assessment.



NEXT STEPS

The reservoir project team continues to coordinate with state and federal resource agencies to secure the necessary permits for construction and operation of a dam and reservoir.

Until the regulatory process is advanced further, we are unable to provide updates regarding timeline for property acquisition. Please contact the individuals listed below with specific questions or concerns.

CONTACT US

QUESTIONS REGARDING THE RESERVOIR PROJECT

Ben Teymouri, Missouri-American Water Company

Email: ben.teymouri@amwater.com

Phone: (314) 996-2335

QUESTIONS REGARDING LANDOWNER ACCESS AGREEMENTS AND ACQUISITIONS

Phil Erwin, Olsson Engineering

Email: perwin@olsson.com

Phone: (417) 438-9954



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