



# Possum Kingdom Lake WATER QUALITY MODELING PROJECT



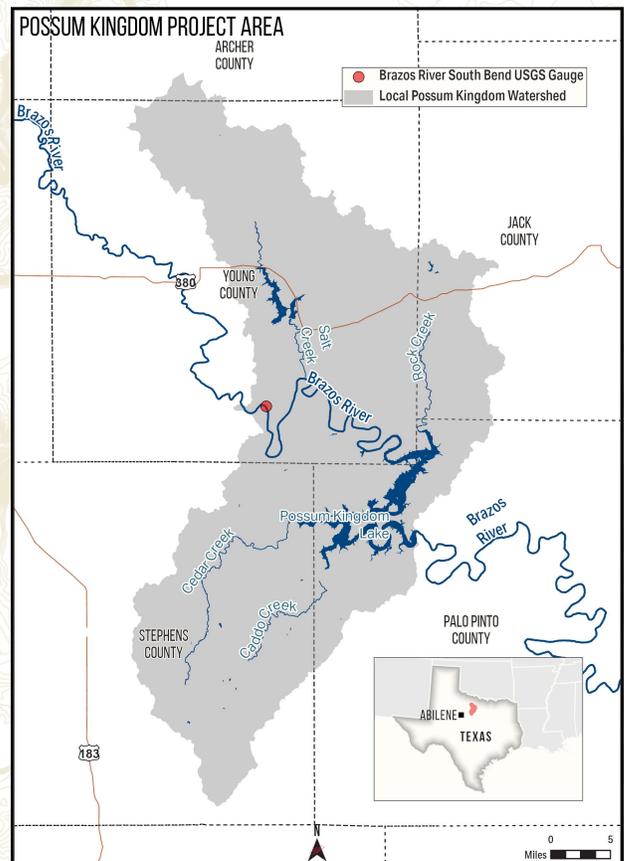
## Overview

Possum Kingdom Lake is a vital feature within the Brazos River Basin and the Brazos River Authority aims to protect the exceptional water quality of this reservoir.

Toward that end, the BRA launched a Water Quality Modeling Project in October 2024 to assess the lake's vulnerability to potential future development and anticipate how changes in the watershed might affect water quality.

## Purpose

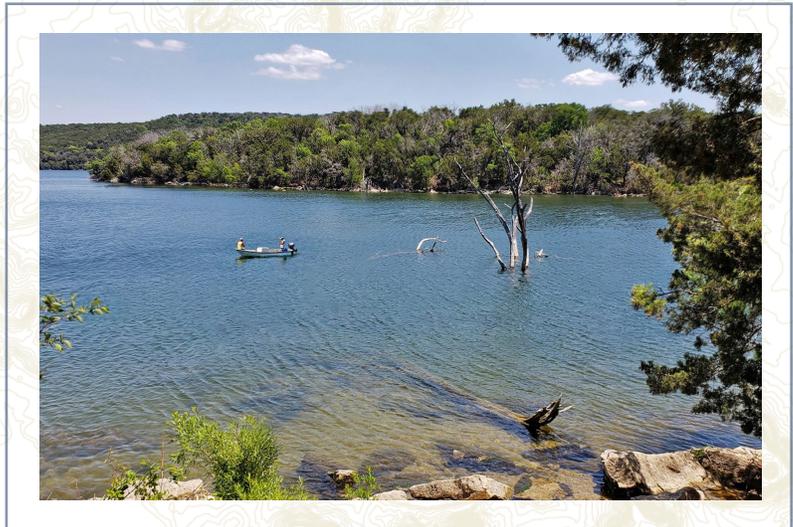
The project seeks to protect water quality in the lake so it remains a reliable water source for municipalities, industry and agriculture in the Brazos River Basin and an attractive public recreation destination.



## Goal

The goal is to develop a decision-support tool that predicts how water quality would respond to changes in the watershed, based on empirical data and digital modeling.

A set of digital models will be developed to assess the effects of potential changes in land use on surrounding terrain and on streams that feed the lake. The models will be calibrated so that estimated probabilities align with historical data and actual occurrences.



These advanced, decision-support modeling tools will allow BRA to take action to protect the historical water quality in Possum Kingdom Lake.

## Method

The project will start by assessing past and current water quality in the study area to use as a baseline.

Then two models will be developed:

- A **watershed model** to assess the results of potential changes in land use, such as ranch land being developed into residential areas.
- A **lake model** that will combine the watershed model results with other data such as river flow, water levels, temperature, and nutrients that have seasonal patterns.

The **combined model toolkit** will evaluate how future scenarios might affect the lake's water quality and whether planning efforts might reduce pollution risks.

Stakeholder feedback will be considered and incorporated as appropriate.

An External Science Advisory Panel will review and provide input on key assumptions, decisions, and recommendations from stakeholders and regulatory agencies.

## Three-Year Timeline

	2025				2026				2027			
	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4	Q1	Q2	Q3	Q4
Stakeholder Outreach and Agency Coordination	[Active]											
External Science Advisory Panel Review	[Active]											
Work Plan Development	[Active]											
Field Data Collection			[Active]									
Watershed Model Development			[Active]									
Lake Model Development			[Active]									
Toolkit Development									[Active]			