



# Lake Conroe – Lake Houston Joint Reservoir Operations Study

Public Meeting #1 – Study Background, Scope, and Goals

March 5, 2026



# San Jacinto River Authority



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- Created by Texas Legislature in 1937
- Boundaries include all or part of 7 counties
- Board of Directors: 7 members appointed by Governor
- Receives no dedicated funds from the state, nor does it collect any type of taxes

**Assure long-term water supplies**

**Protect water quality**

**Educate the public on water resources management topics**

**Provide raw water, drinking water, and wastewater services**

**Coordinate regional flood planning**

# Coastal Water Authority (CWA)



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- Created by Special Act of the Texas Legislature in 1967
- Conservation and Reclamation District of the State of Texas
- A partner with the City of Houston
- Board of Directors
  - 4 Appointed by City of Houston Mayor
  - 3 Appointed by Governor
- Located in Harris, Chambers, and Liberty Counties
- Largest Regional Raw Water Supplier (1 Billion Gallons per Day)

# Lake Houston - Watershed



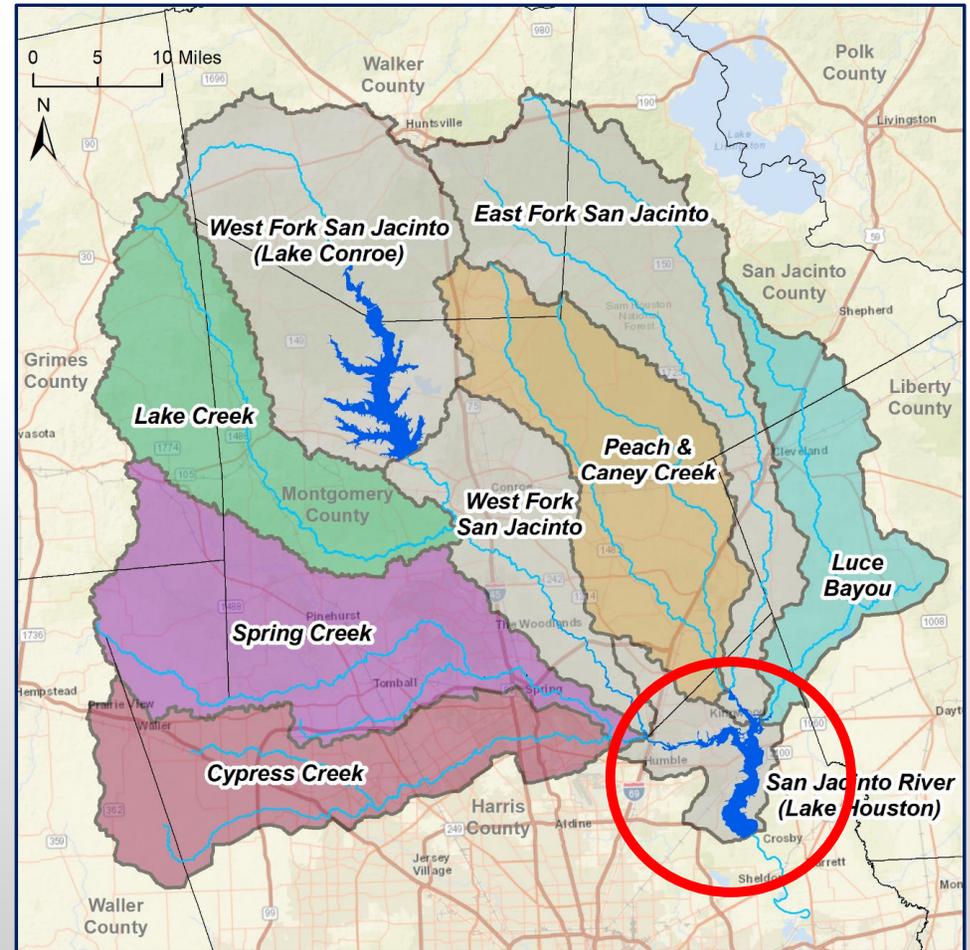
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~2,800 square miles

2 major reservoirs

Sub-watersheds

- San Jacinto River (E & W Forks)
- Cypress Creek
- Lake Creek
- Spring Creek
- Luce Bayou
- Peach/Caney Creek



# Lake Houston Facts

- Water Supply Reservoir
- 11,443 acres
- 136,119 acre-feet Reservoir Storage
- City of Houston (COH) owns Lake Houston Reservoir, Dam and Lake Houston Pump Station
- CWA under contract to operate and maintain facilities
- SJRA also owns and operates a pump station



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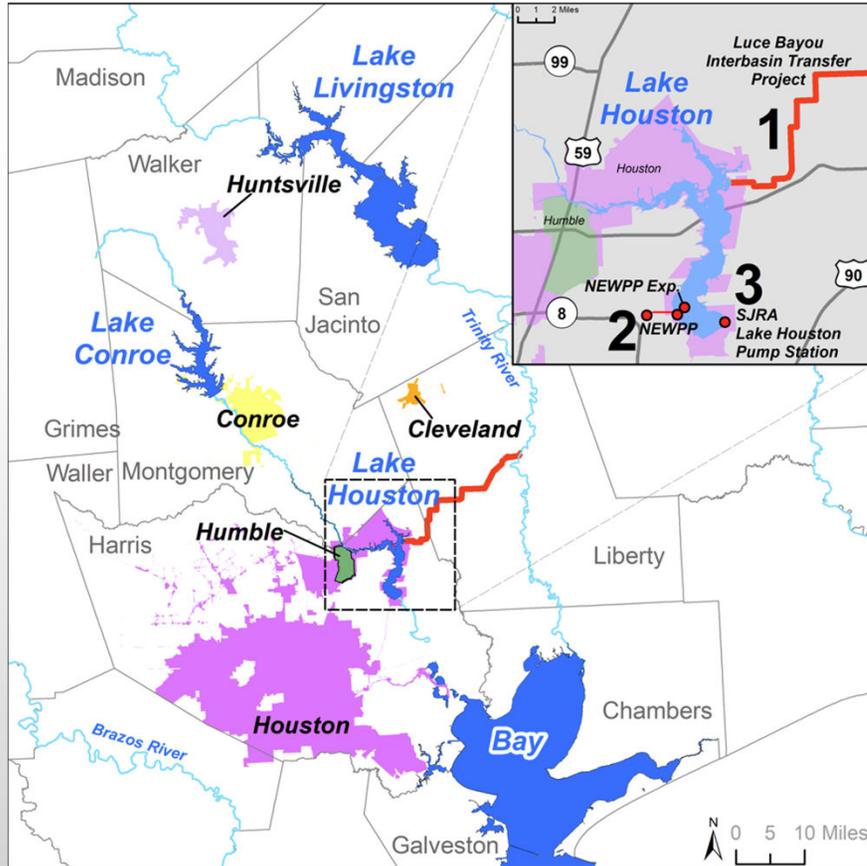


Lake Houston Dam was constructed in 1953

# Lake Houston Water Supply Operations



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## 1: Luce Bayou Interbasin Transfer Project



## 2: NEWPP and NEWPP Expansion



## 3: SJRA Lake Houston Pump Station



# Lake Houston – Historic Flooding



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## Recent Flooding Events (last decade)

Storm	Year
May Storms	2024
Tropical Storm Imelda	2019
Hurricane Harvey	2017
Memorial Day	2016
Tax Day Flood	2016



# Existing Lake Houston Dam



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## Uncontrolled Spillway

- 3,080 feet-long

## 4 Gates

- 2 Flashboard Gates
- 2 Tainter Gates
- Capacity ~10,000 cfs



# Lake Houston Dam Spillway Improvement Project (LHDSIP)



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## Project Objectives

- Improve operations of Lake Houston Reservoir
- Provide 11 additional spillway gates to support long term rehabilitation, repair, or replacement of the existing, aging spillway gates
- Provide additional discharge capacity to reduce upstream flooding
- Project is being joint funded by HCFCD



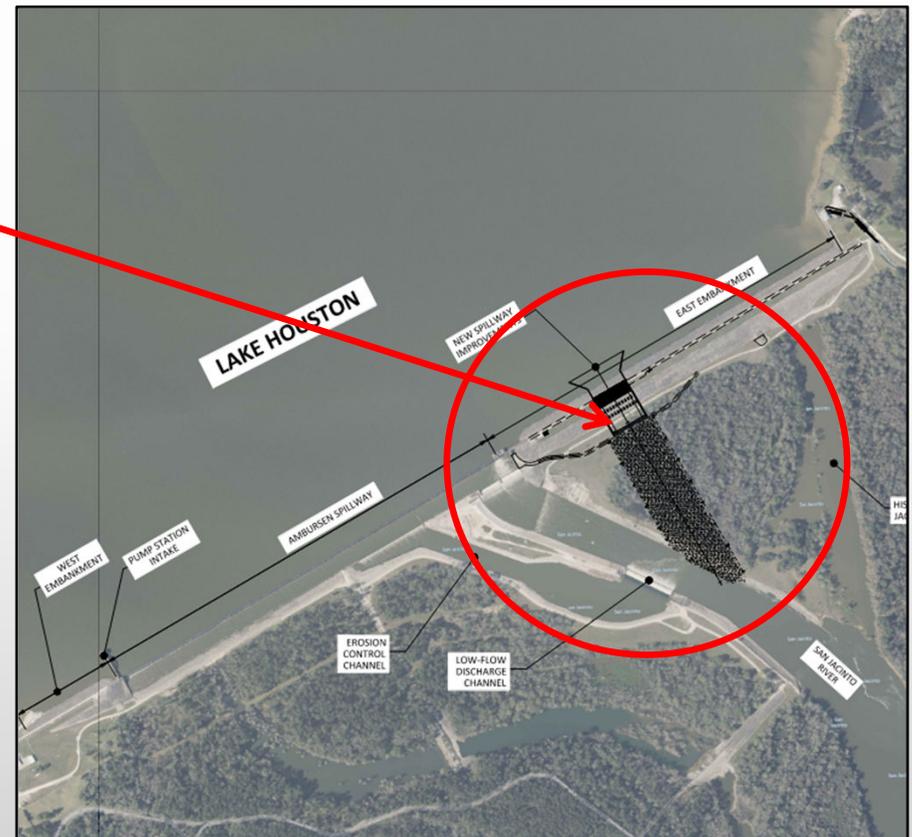
# Lake Houston Dam Proposed Improvements



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New controlled structure within existing east embankment:

- 11 new 20'x 20' radial gates
- Additional 78,000 cfs discharge capacity
- Reduced upstream flooding
- Benefits future dam rehabilitation or replacement project
- Project Status: Detailed Design (30%)



# Lake Conroe - Watershed

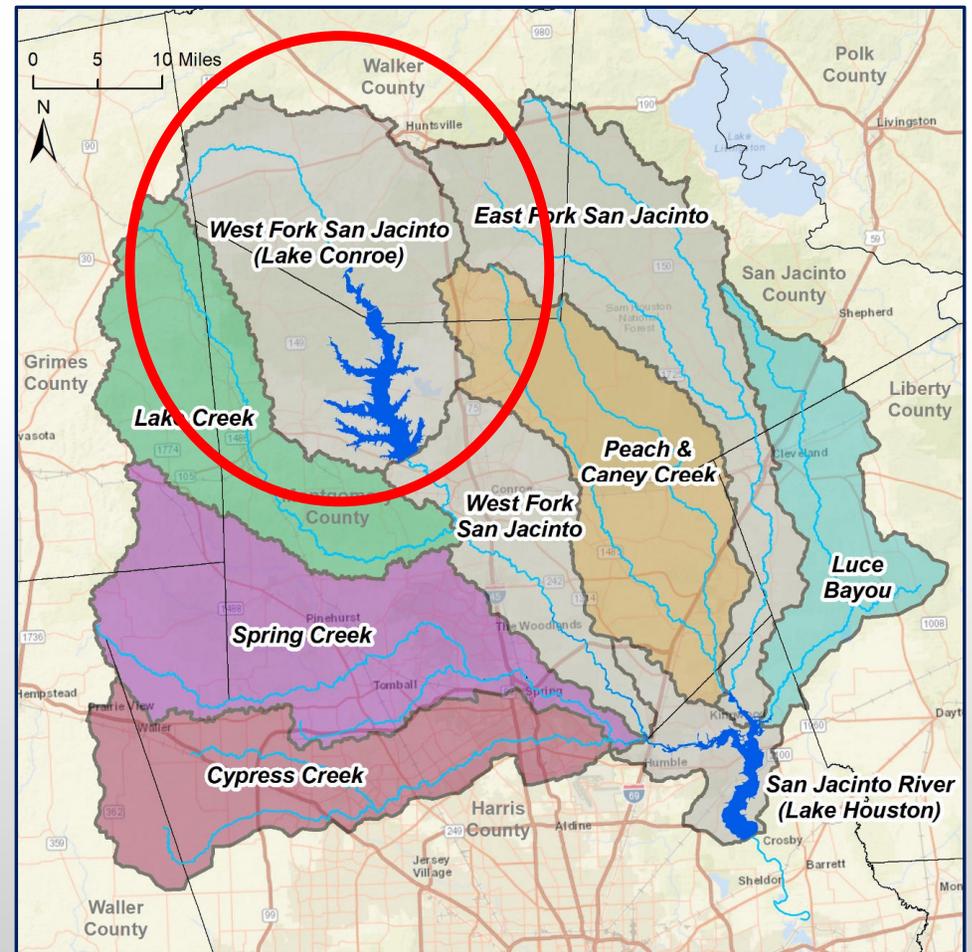


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Lake Conroe watershed is ~16% of total Lake Houston watershed

Lake Conroe is only major control structure upstream of Lake Houston

Lake Conroe mitigates runoff from rainfall in its watershed



# Lake Conroe Facts

- Water Supply Reservoir
- Completed in 1973
- Joint venture between SJRA and COH
- ~20,000 acres
- ~450 square mile drainage area
- > 400,000 acre-feet of storage
- Shared Water Rights
  - 100,000 acre-feet Annual Permitted Yield
    - 2/3 COH (66,667 acre-feet)
    - 1/3 SJRA (33,333 acre-feet)
- 5 gates (40'x30')
- Normal pool elevation: 201' msl



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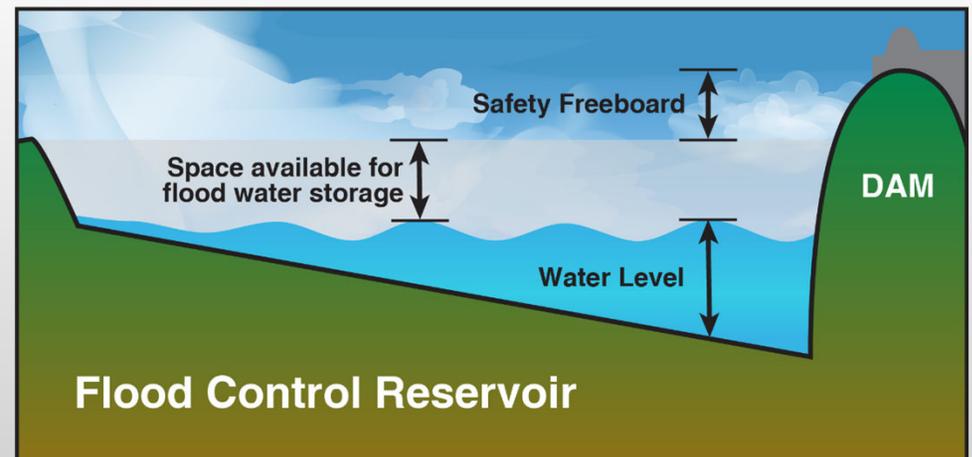
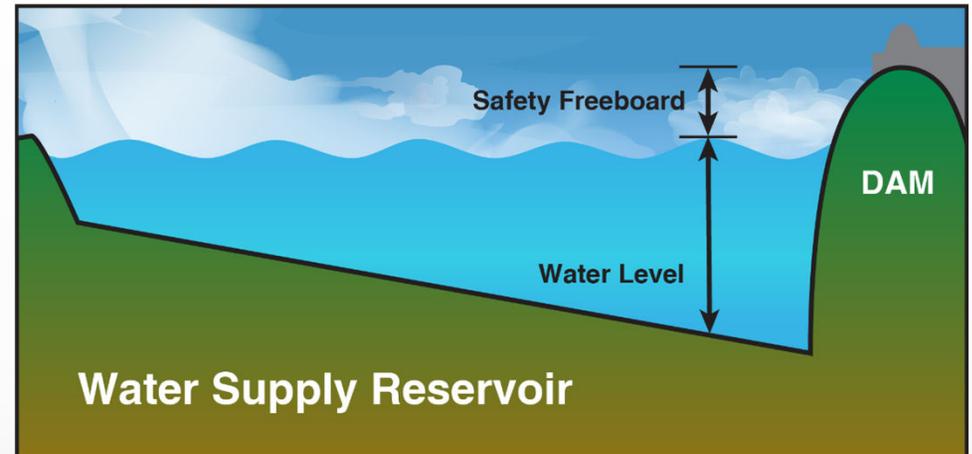
Milstead  
HOUSTON

# Lake Conroe - Purpose

- Water supply reservoirs (Lake Conroe) are designed to maximize storage
- Flood control reservoirs are designed to maintain space to absorb inflows



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# Lake Conroe – Gates Operating Protocol



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- Is engineered to protect the dam
- Safeguards against loss of life and excessive economic loss
- Preserves critical water supplies
- Prevents overtopping of the spillway gates
- Calculates Inflows to the lake
- Recommended openings are no more than 75% of Max Inflow
- Ensures that peak outflow < peak inflow

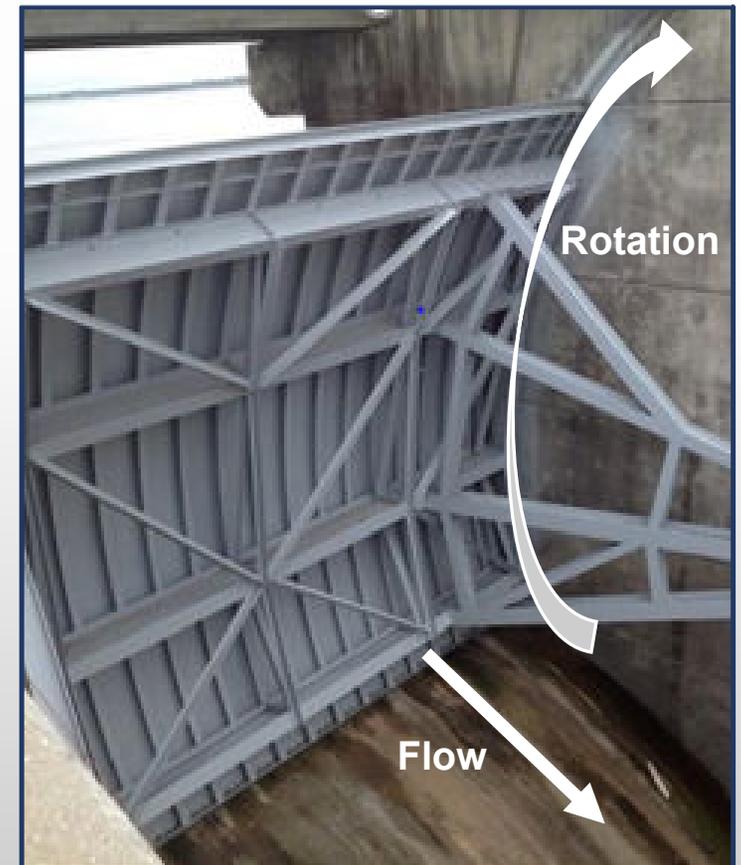


# Lake Conroe - Gates Not Designed to be Overtopped Upstream



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## Downstream



# Current Study



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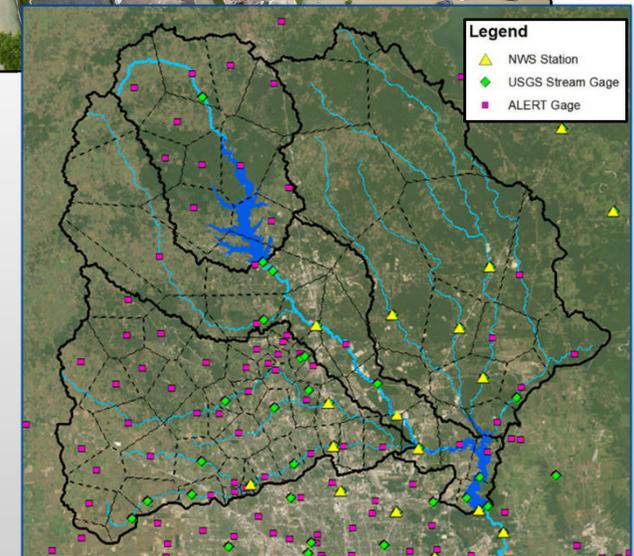
- Texas Water Development Board —————→ \$500k Grant Funds
- City of Houston —————→ \$450k Local Match
- City of Humble —————→ \$50k Local Match
- San Jacinto River Authority —————→ Project Management & In-Kind Services

# Study Description

1. Determine the most efficient and safe operation of Lake Conroe and Lake Houston
2. Evaluate the feasibility of prereleases including impacts on water supply
3. Develop a forecasting tool for Lake Houston and support development of the gate operations policy for the proposed Lake Houston dam spillway gates



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# Scope of Work Summary

- Project Management
- Data Collection
- Evaluation of Pre-Releases at Lake Conroe and Lake Houston
- Lake Houston Flow Forecasting Tool
- Lake Houston Gate Operations Policy Support
- Community & Stakeholder Engagement



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# Data Collection

- Weather/rainfall data
- Stream gage and lake level information
- Hydrologic and hydraulic Models
- Land cover data
- Previous studies/reports
- Lake Conroe and Lake Houston data/resources



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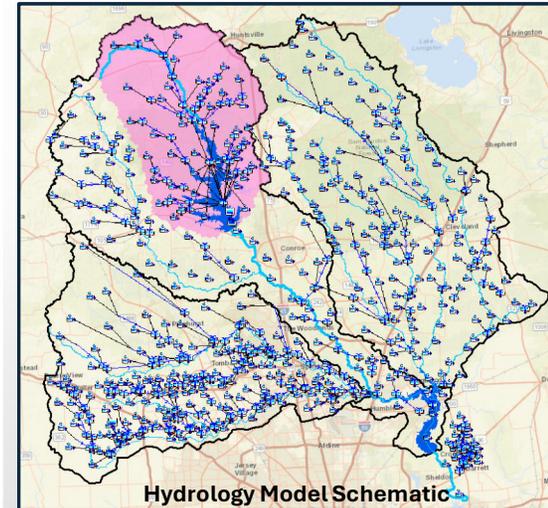
## SAN JACINTO

### REGIONAL WATERSHED MASTER DRAINAGE PLAN



Prepared for:  
Harris County Flood Control District  
San Jacinto River Authority  
Montgomery County  
City of Houston

REPORT



Lake Conroe (43306) USGS Bubbler (7)

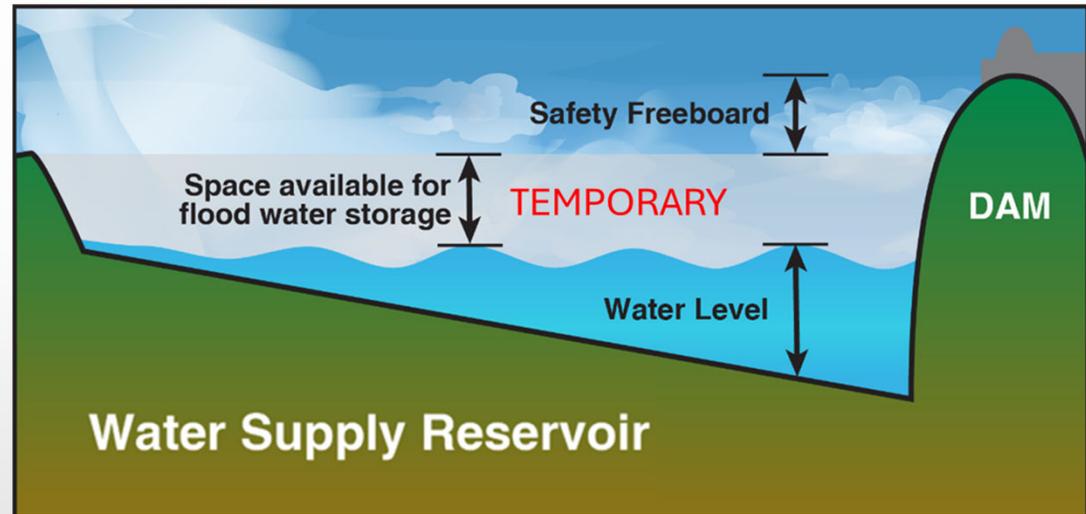


# Evaluation of Pre-Releases



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- 1) Develop Baseline Conditions Model
  - Update structures data
  - Incorporate survey data
  - Incorporate planned spillway structure at Lake Houston
- 2) Perform Pre-Release Evaluations
  - 20 different pre-release scenarios
  - Determine effectiveness
- 3) Evaluate consequence to water supply at both reservoirs
- 4) Develop communications plan related to pre-releases



# Lake Houston Flow Forecasting Tool

Forecasting Tool that incorporates:

- 1) Incoming rainfall (observed & forecasted)
- 2) Stream gage observed data
- 3) Lake Conroe outflow data
- 4) Watershed model(s)

Predicts:

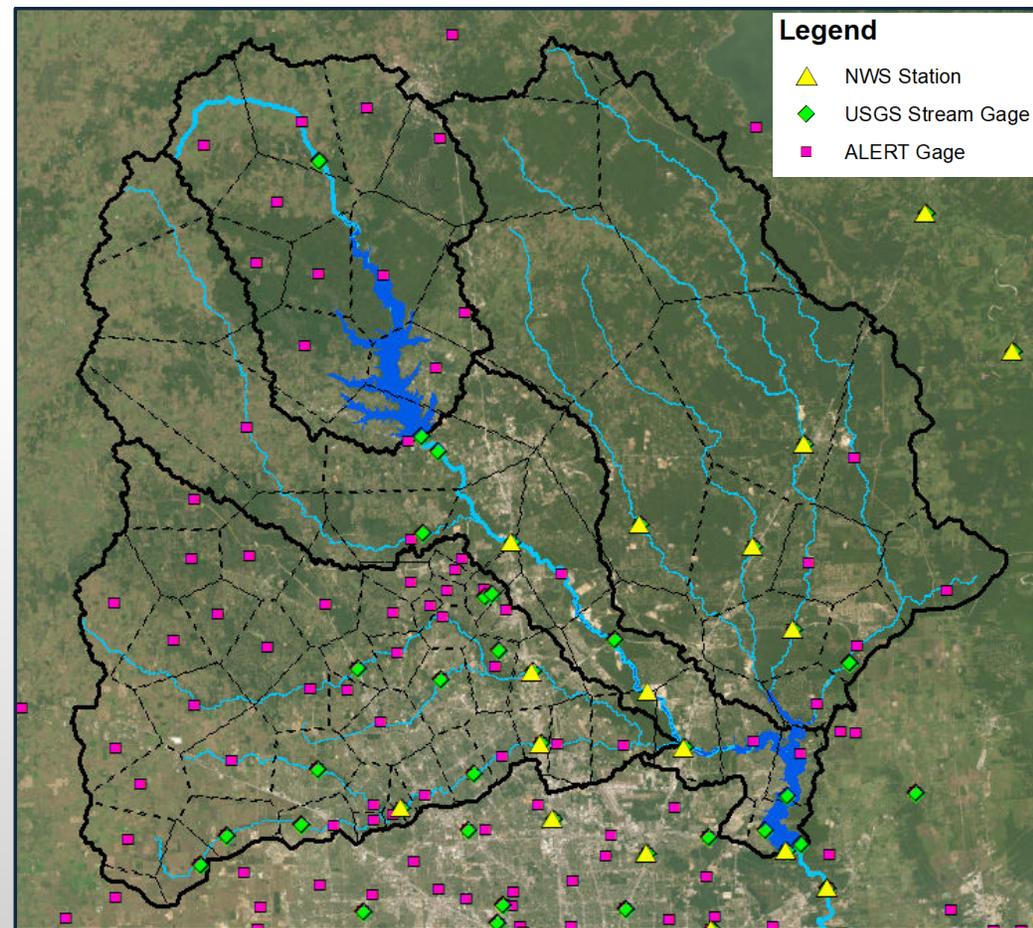
- 1) Lake Houston inflows
- 2) Lake Houston water levels

Verify forecasts reasonably match observations

Can inform proposed gate operations and communications with local officials



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# Support Lake Houston Gate Operations Policy



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- Incorporate Lake Conroe operations data
- Incorporate inflow forecasting
- Potentially incorporate pre-release strategies



# Community Engagement / Estimated Schedule



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Kickoff – September 2025

## Public Meetings

- #1 – March 2026: Study Background, Scope, and Goals (Humble)
- #2 – Mid 2026: Study Progress (Lake Conroe)
- #3 – Late 2026: Study Results (The Woodlands)

Website: [LCLHJointOps.com](http://LCLHJointOps.com)

Public comments welcome on the study, flood risk locations, and flood impacts



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# Questions