MUNICIPAL • INDUSTRIAL • AGRICULTURAL WATER

LOWER NECHES VALLEY AUTHORITY

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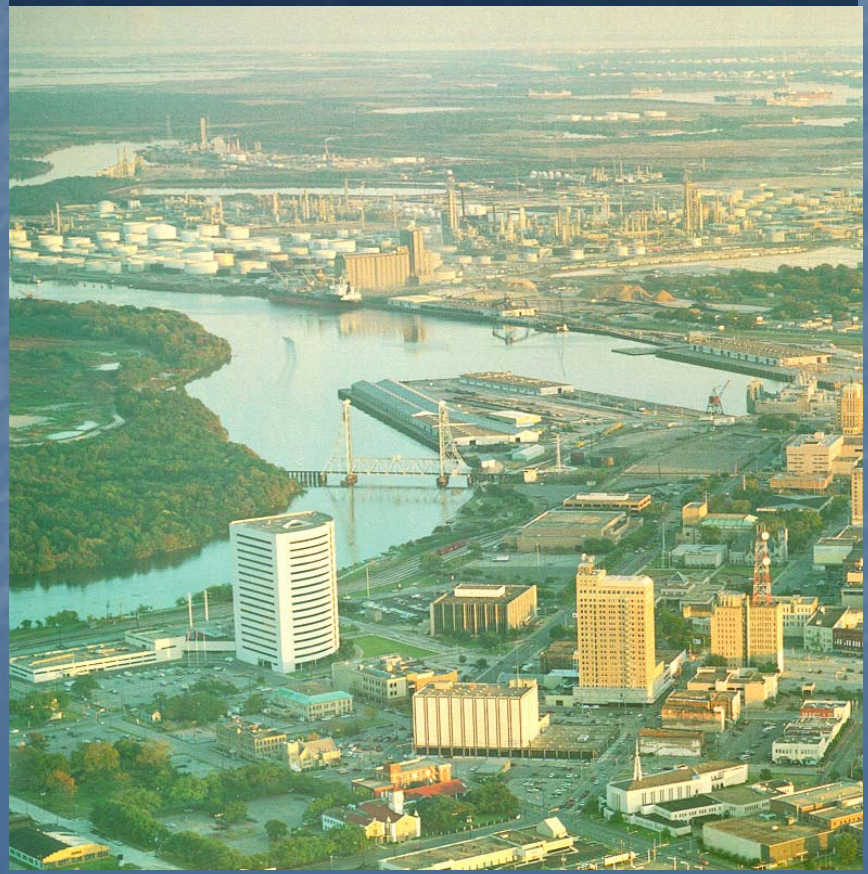
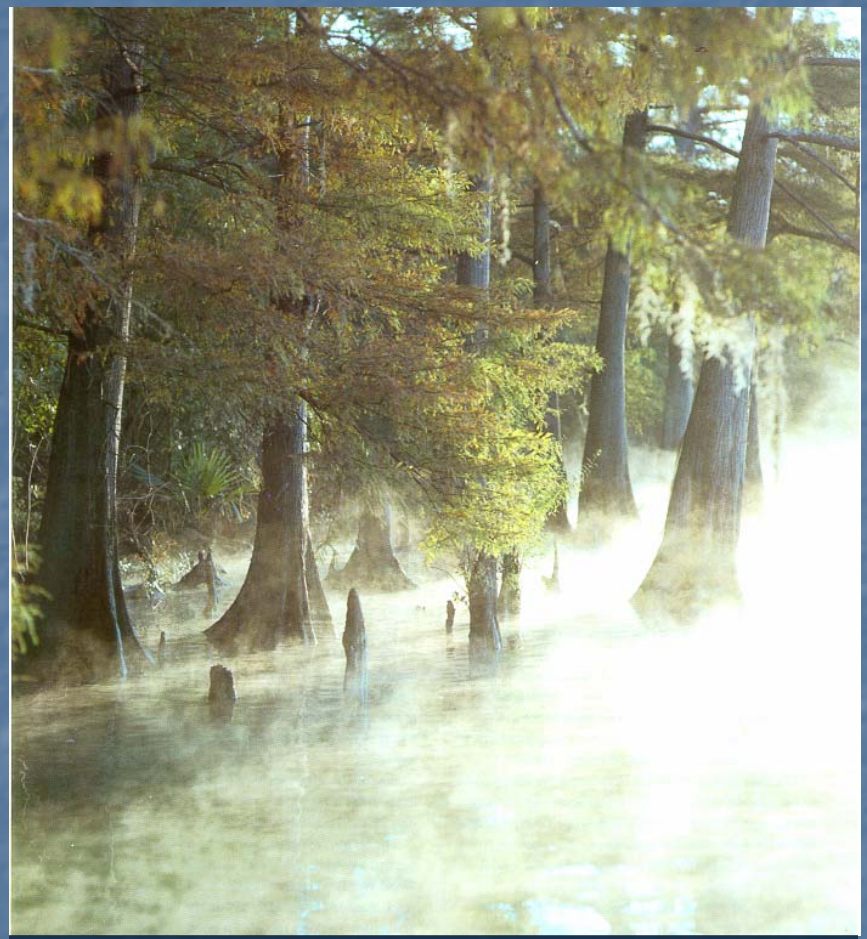
Internet Address: http://www.lnva.dst.tx.us

LNVA – Mission Statement

Provide for the present and long term freshwater need of municipal, agricultural & industrial customers,





Protect water quality in the Neches River and Coastal Basin,

LNVA – Mission Statement

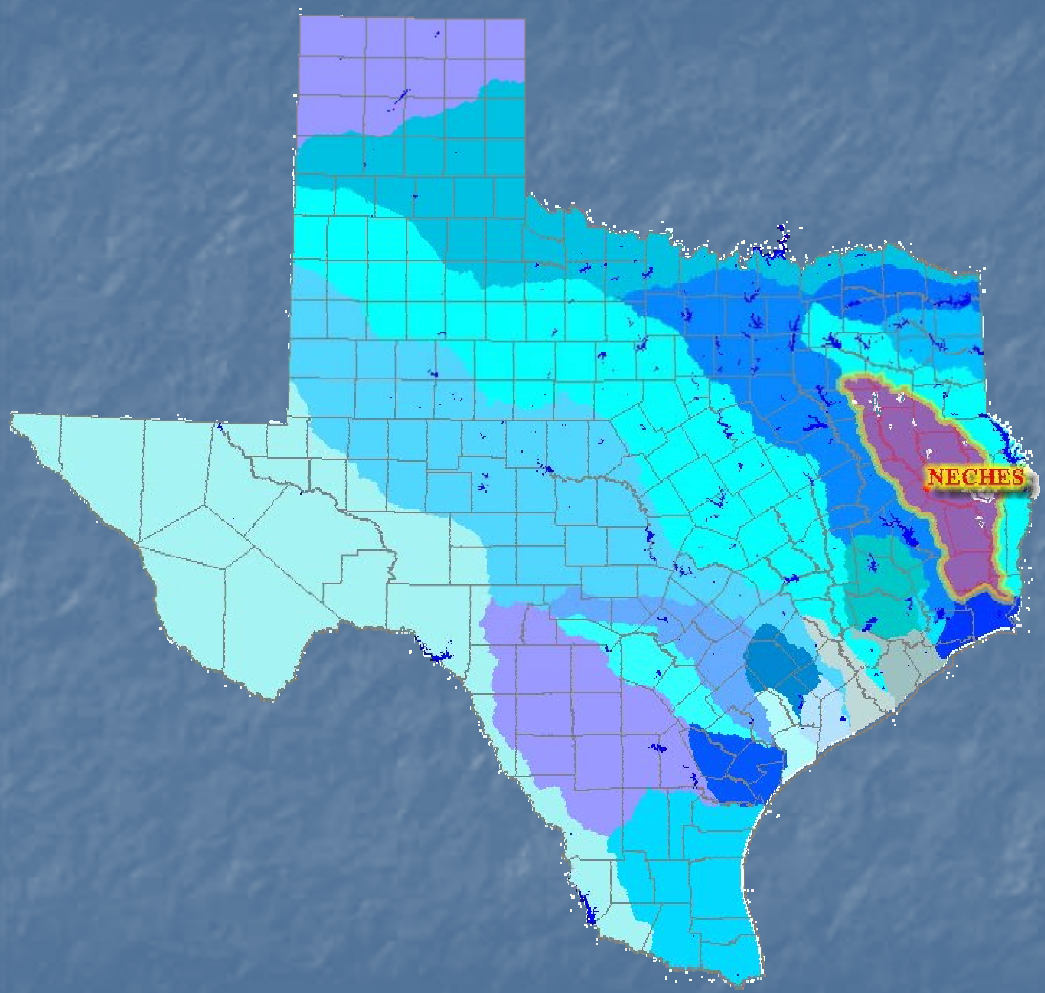
Insure affordability of the water supply,

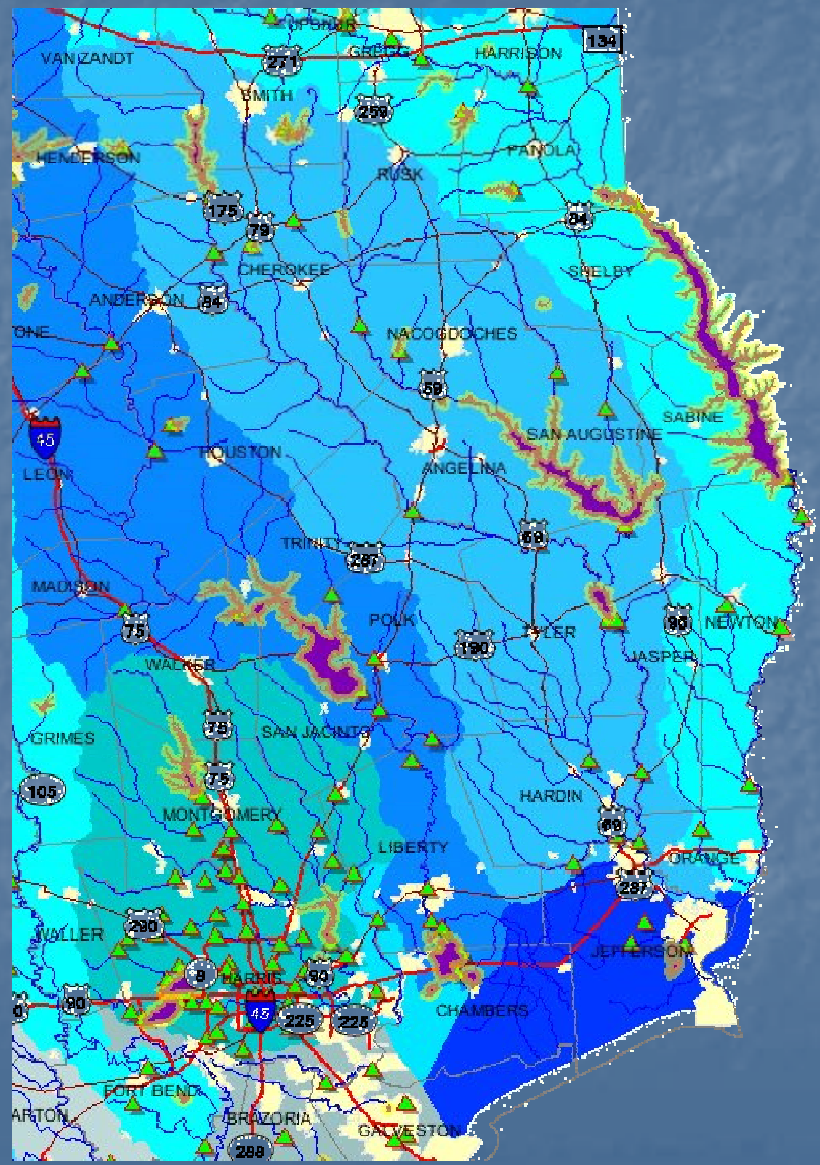
Enhance economic development in the Authority's jurisdiction.

Canal System History

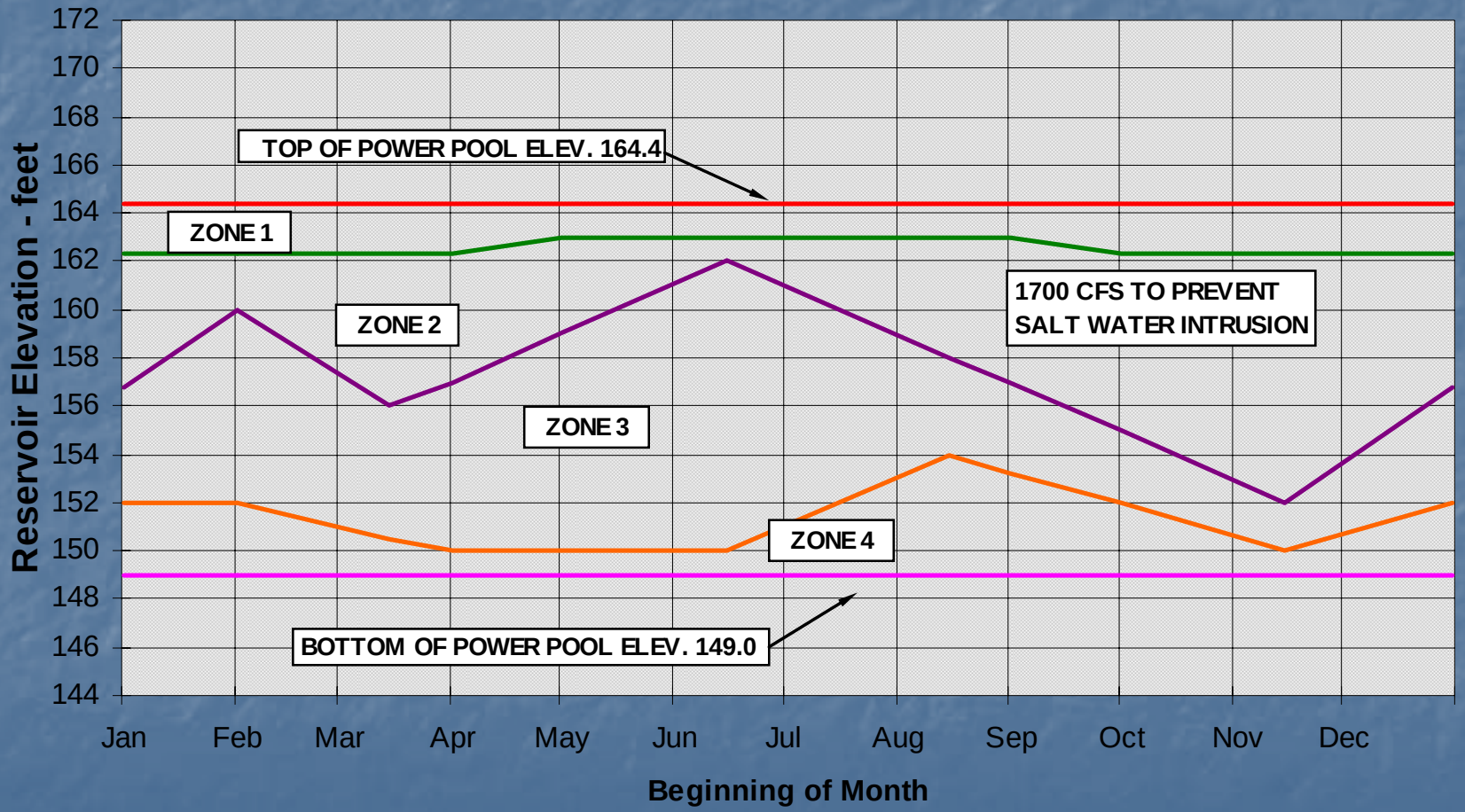
The Neches Main Canal follows the divide between the Neches Basin and the Neches Trinity Coastal Basin.

Neches River Basin





Sam Rayburn Reservoir
1981 Rule Curve



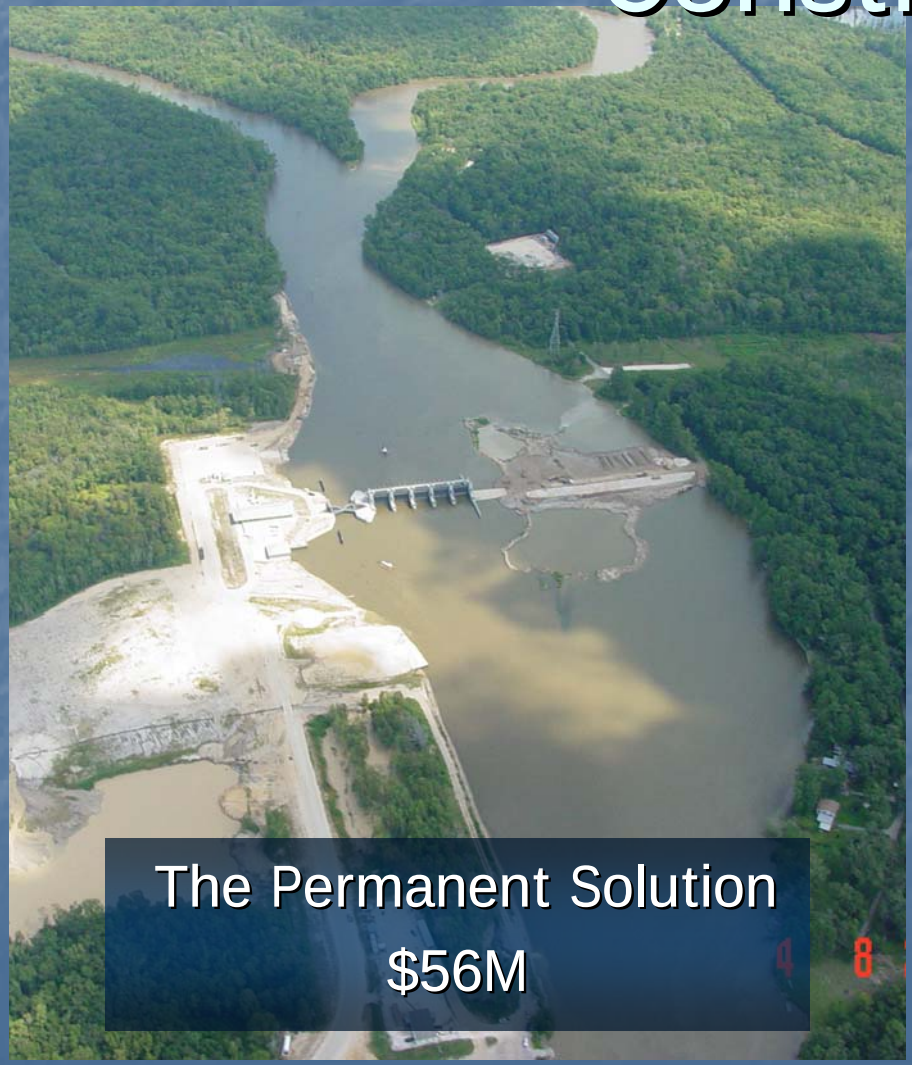
1981 Rule Curve System Requirements

Zone	Sam Rayburn Reservoir Power Requirements	Discharge Requirement Below Dam (at Evadale)
1	150 hours of generation per month (20 % power operation factor)	Monthly Irrigation & M&I plus 1700 cfs to prevent salt water intrusion
2	75 hours of generation per month (10 % power operation factor)	Monthly Irrigation & M&I plus 1700 cfs to prevent saltwater intrusion
3	75 hours of generation per month from 15 April – 15 October (10 % power operation factor)	Monthly Irrigation & M& I. Salt water barrier assumed installed.
4	75 hours of generation per month from 15 April – 15 October (10 % power operation factor)	Monthly M&I. Shortages declared if discharge fails to meet Zone 3 requirements.

Neches River Saltwater Barrier Construction

The Temporary Solutions
$800K/installation
& rising

Neches River Saltwater Barrier Construction



Neches Basin Yield Analysis

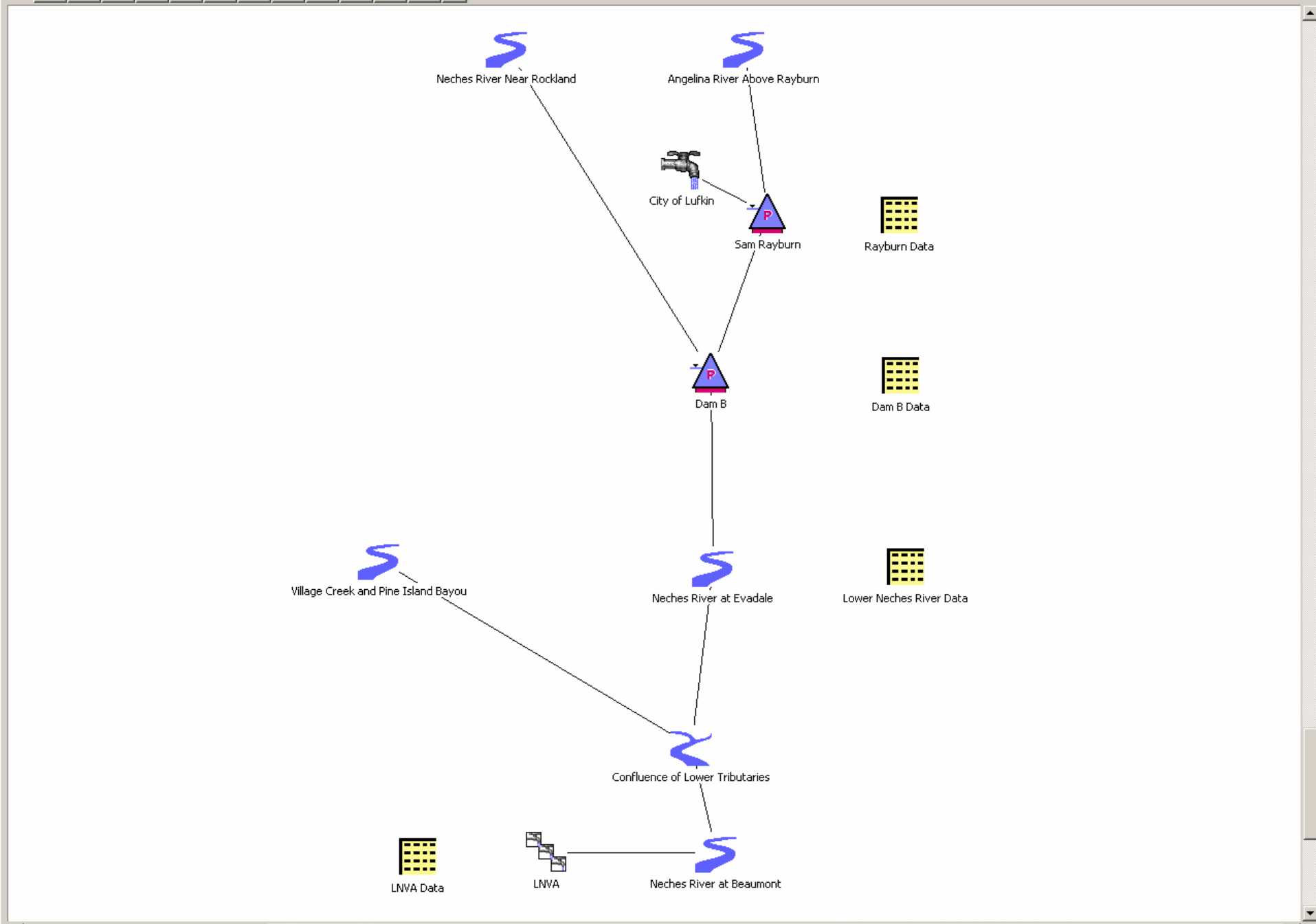
Considering the addition of the Permanent Saltwater Barrier

Methodology

- Model daily hydrologic conditions in the Neches Basin using RiverWare Rules Based Simulation
- Utilize inflow and evaporation data provided by the Reservoir Control Office at the Fort Worth District US Army Corps of Engineers
- Verify historical reservoir performance against model simulation
- Reduce salinity control flushing requirements with the Permanent Saltwater Barrier in place to determine yield of current system

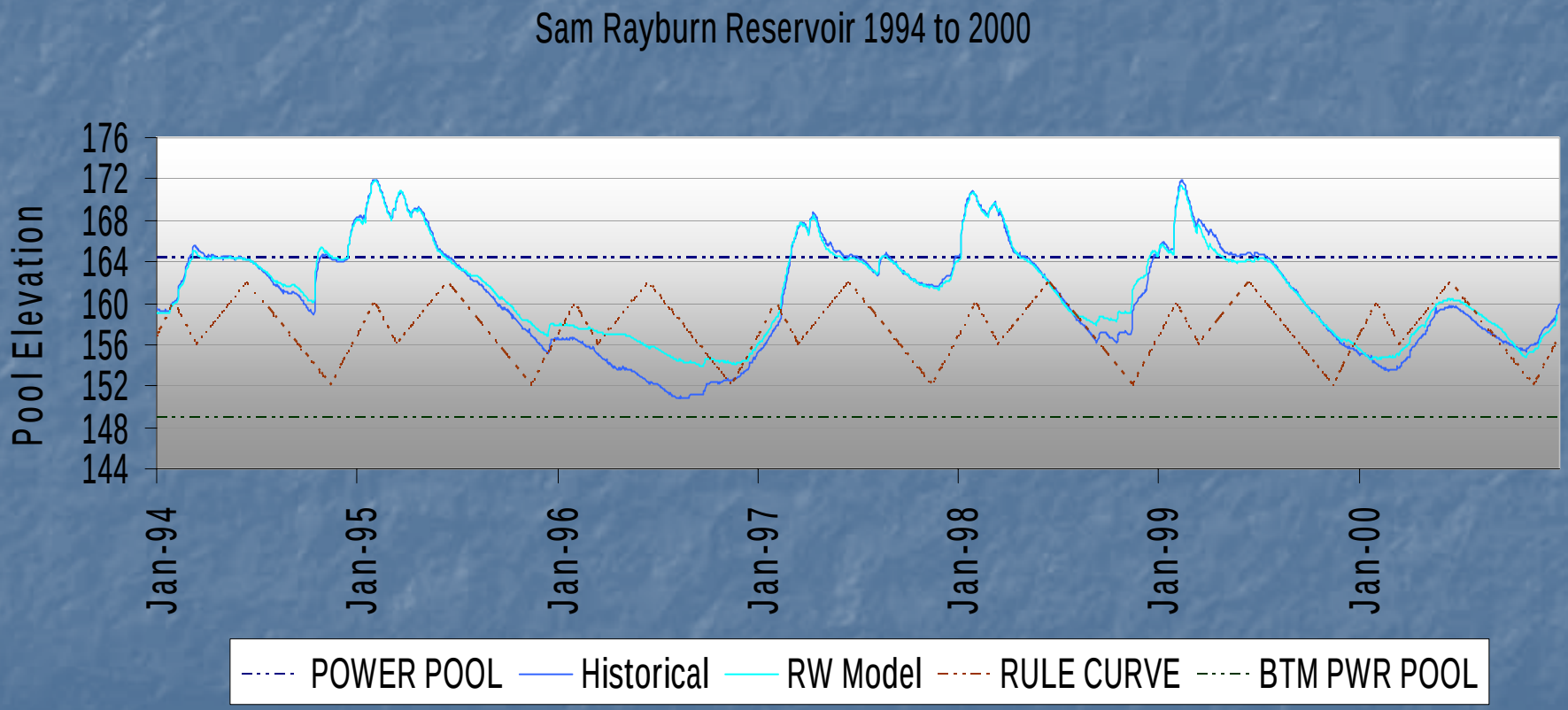
RiverWare 4.1.1 Patch - Neches Basin Full Diversion by LNVA

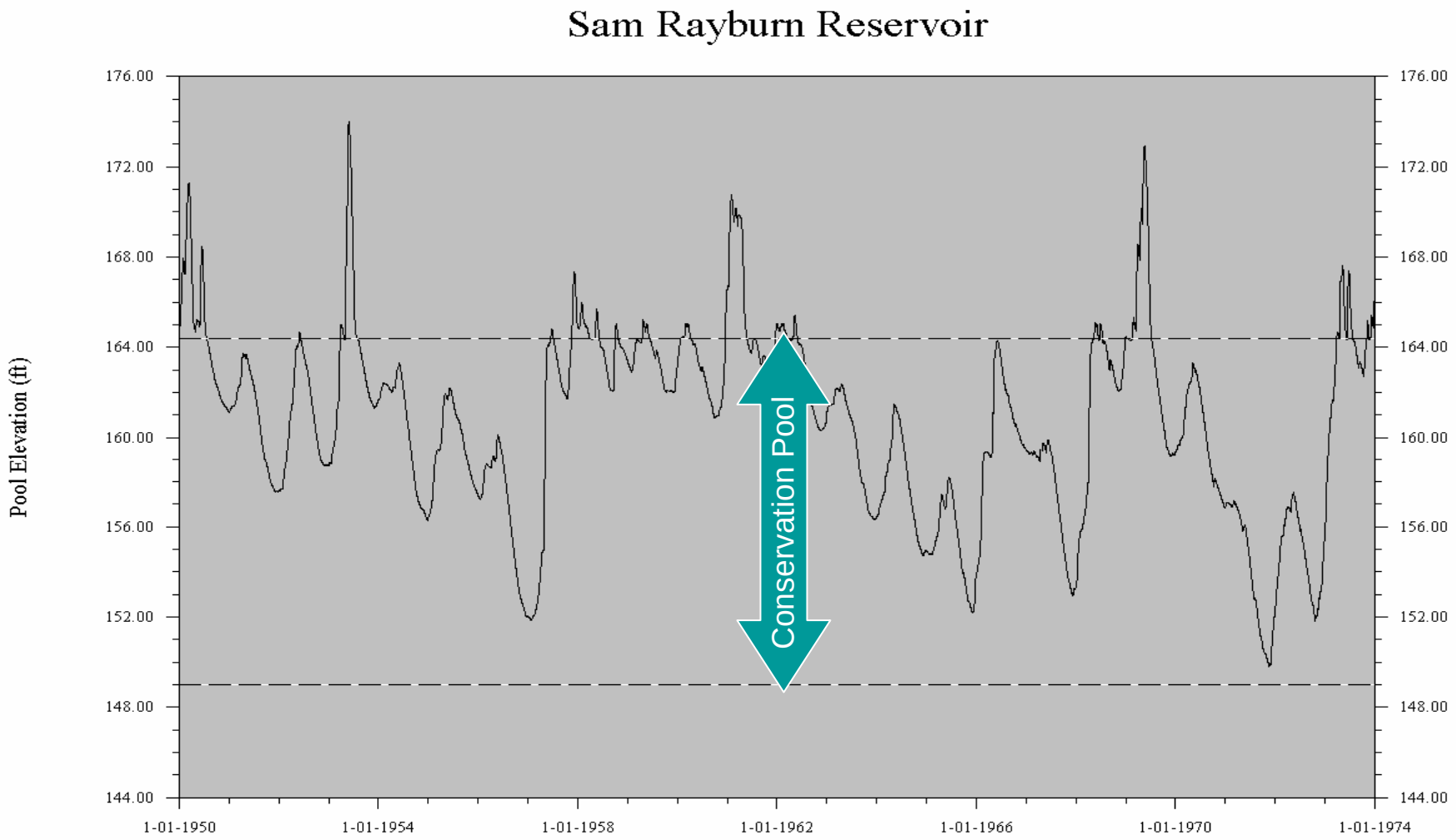
Model Control Workspace Policy Accounting Utilities Help



COMPARISON AT SAM RAYBURN RESERVOIR

HISTORICAL TO SIMULATED POOL ELEVATIONS



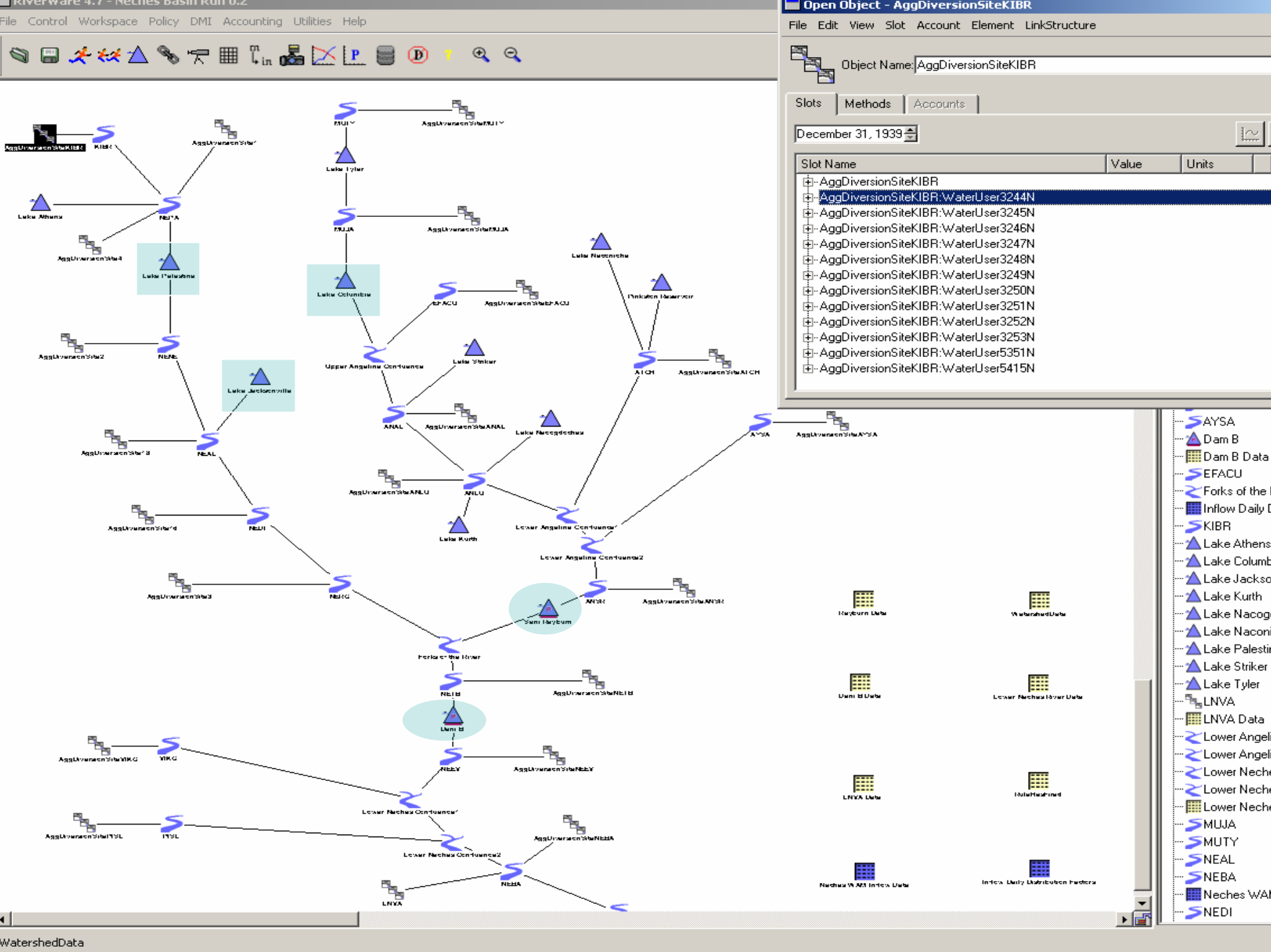


Conditions of Period of Record Model Analysis:

- LNVA Diversion Request 1,201,876 ac-ft/yr including Salinity Control Requirement of 400 cfs
- Drought Restrictions: 10% Zone 3 & 30% Zone 4
- City of Lufkin Diversion 28,000 ac-ft/yr from the conservation pool of Rayburn
- No upstream reservoirs of water rights detracting from inflows on the Neches or Angelina Rivers.

Continuing Effort

- Add proposed reservoirs on the Neches and Angelina Rivers upstream of Rayburn and Steinhagen
- Add all water rights in the Neches Basin
  - TCEQ list 227 water rights in the Neches Basin
  - Authorized diversions total 4,063,669 ac-ft/yr
  - Authorized diversion above Rayburn 195,759 ac-ft/yr (Columbia)
- Address flows from the Neches into Sabine Lake
  - TCEQ estimates naturalized discharge of the Neches River average 6,235,000 ac-ft/yr with minimum 1,431,000 ac-ft/yr
- Annual update to assess water availability based on projected demand and current supply


RiverWare 4.7 - Neches Basin Run 0.2
File Control Workspace Policy DMI Accounting Utilities Help
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File Edit View Slot Account Element LinkStructure
Object Name: AggDiversionSiteKIBR
Slots Methods Accounts
December 31, 1939
Slot Name
Value
Units
AggDiversionSiteKIBR
AggDiversionSiteKIBR:WaterUser3244N
AggDiversionSiteKIBR:WaterUser3245N
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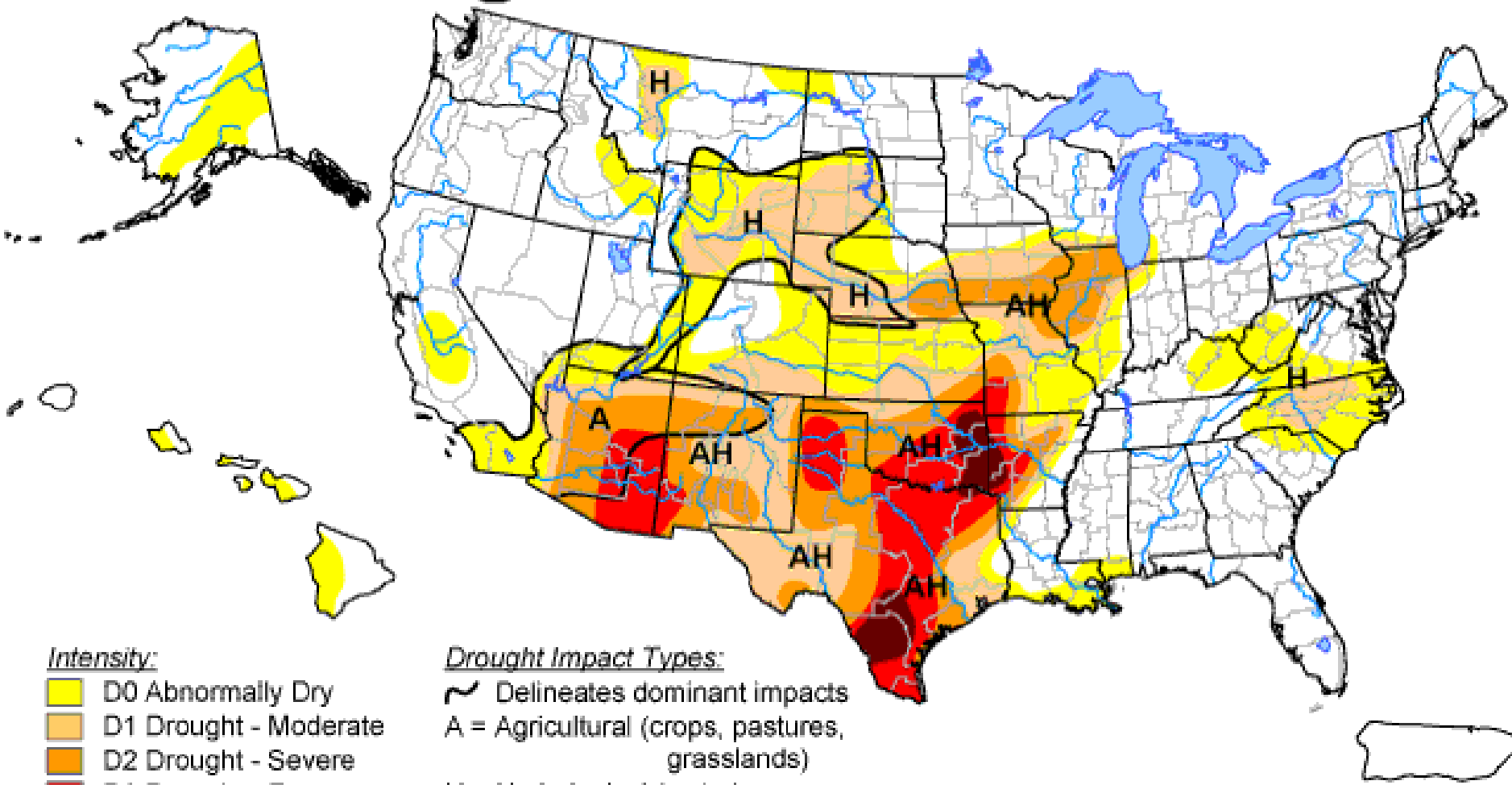
AYSA
Dam B
Dam B Data
EFACU
Forks of the
Inflow Daily
KIBR
Lake Athens
Lake Columb
Lake Jackso
Lake Kurth
Lake Nacog
Lake Naconi
Lake Palesti
Lake Striker
Lake Tyler
LNVA
LNVA Data
Lower Angeli
Lower Angeli
Lower Neche
Lower Neche
Lower Neche
MUJA
MUTY
NEAL
NEBA
Neches WA
NEDI
WatershedData

U.S. Drought Monitor

February 28, 2006
Valid 7 a.m. EST



Intensity:
- D0 Abnormally Dry
- D1 Drought - Moderate
- D2 Drought - Severe
- D3 Drought - Extreme
- D4 Drought - Exceptional

Drought Impact Types:
- ~ Delineates dominant impacts
- A = Agricultural (crops, pastures, grasslands)
- H = Hydrological (water)

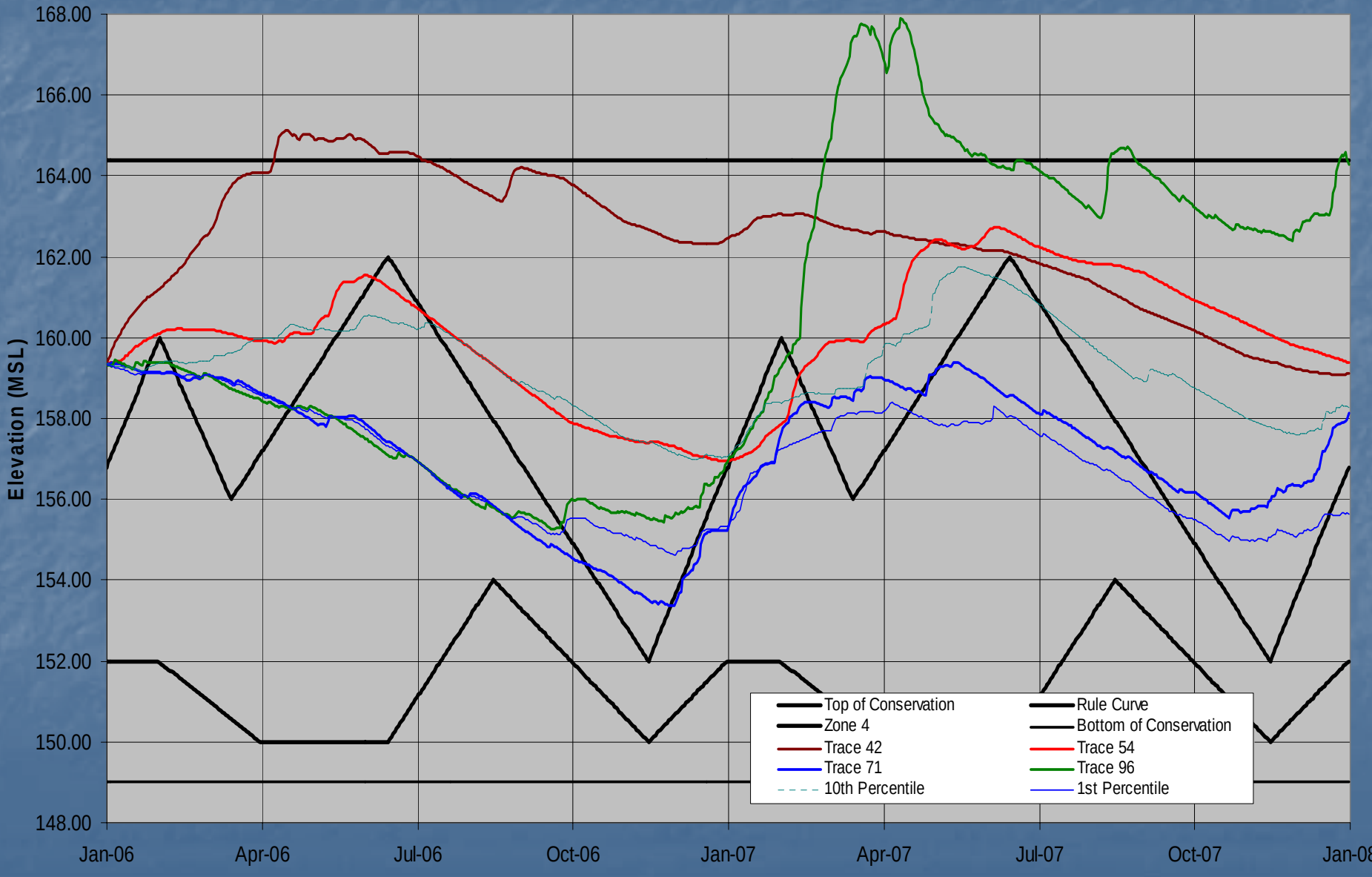
The Drought Monitor focuses on broad-scale conditions. Local conditions may vary. See accompanying text summary for forecast statements.

http://drought.unl.edu/dm

Released Thursday, March 2, 2006

Author: Brian Fuchs, National Drought Mitigation Center

Modeled Sam Rayburn Pool Elevation
for
Dry Period Hydrologic Pattern with Projected 2006 Demands



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