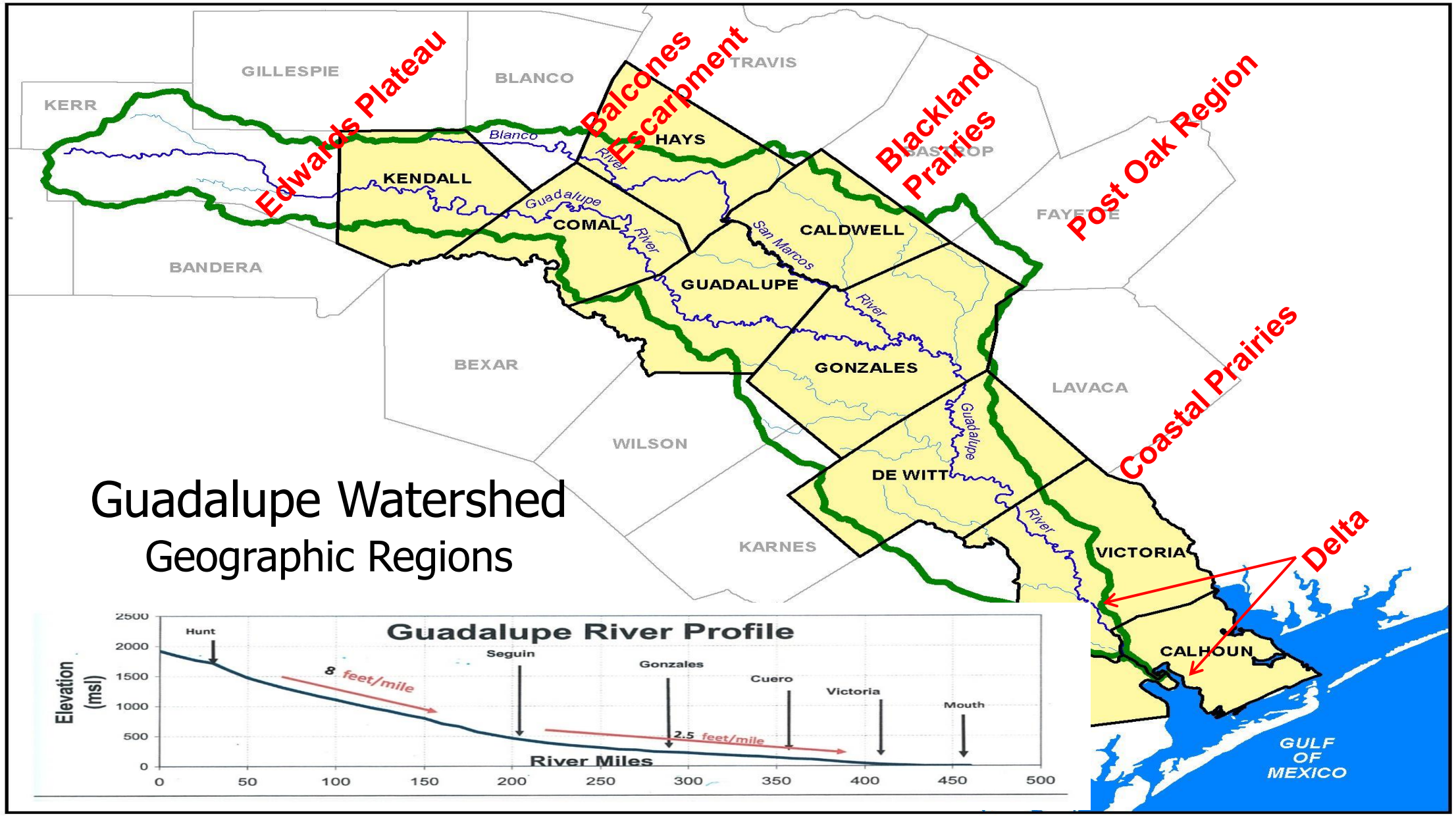
Guadalupe Delta Log Jam History & GBRA Operations in the Lower Basin

March 23, 2017

Guadalupe Watershed

Geographic Regions



Guadalupe Watershed

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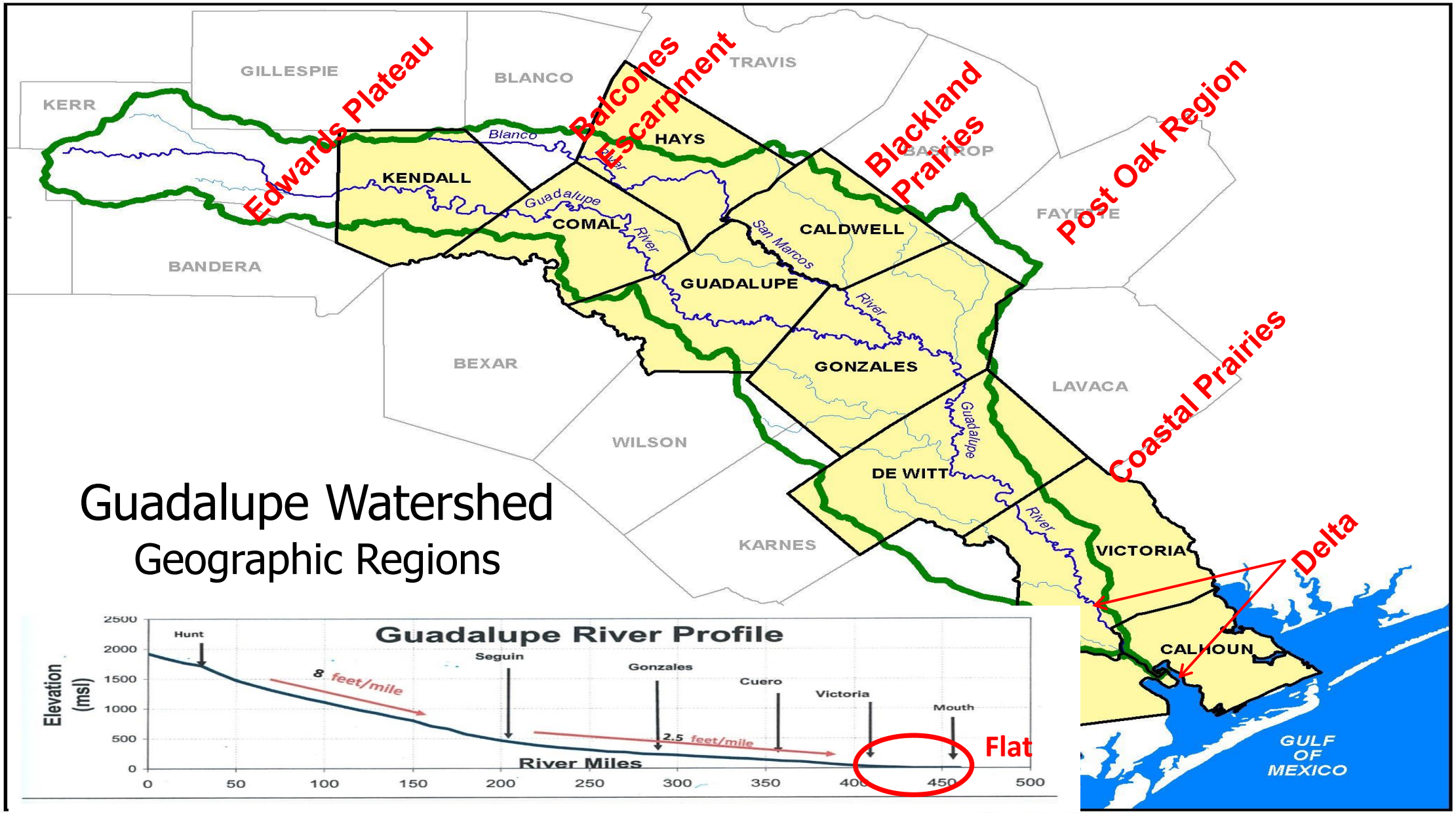


Delta Geomorphology

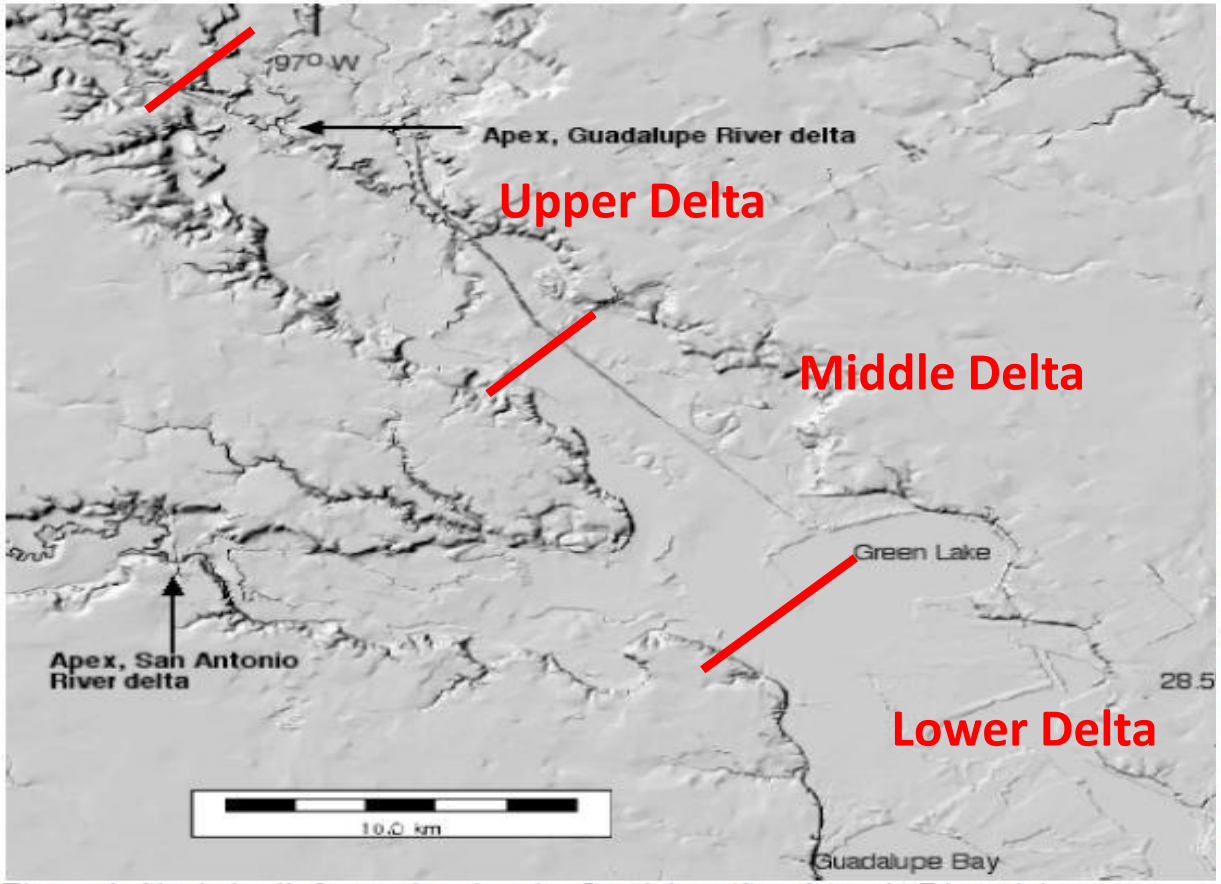
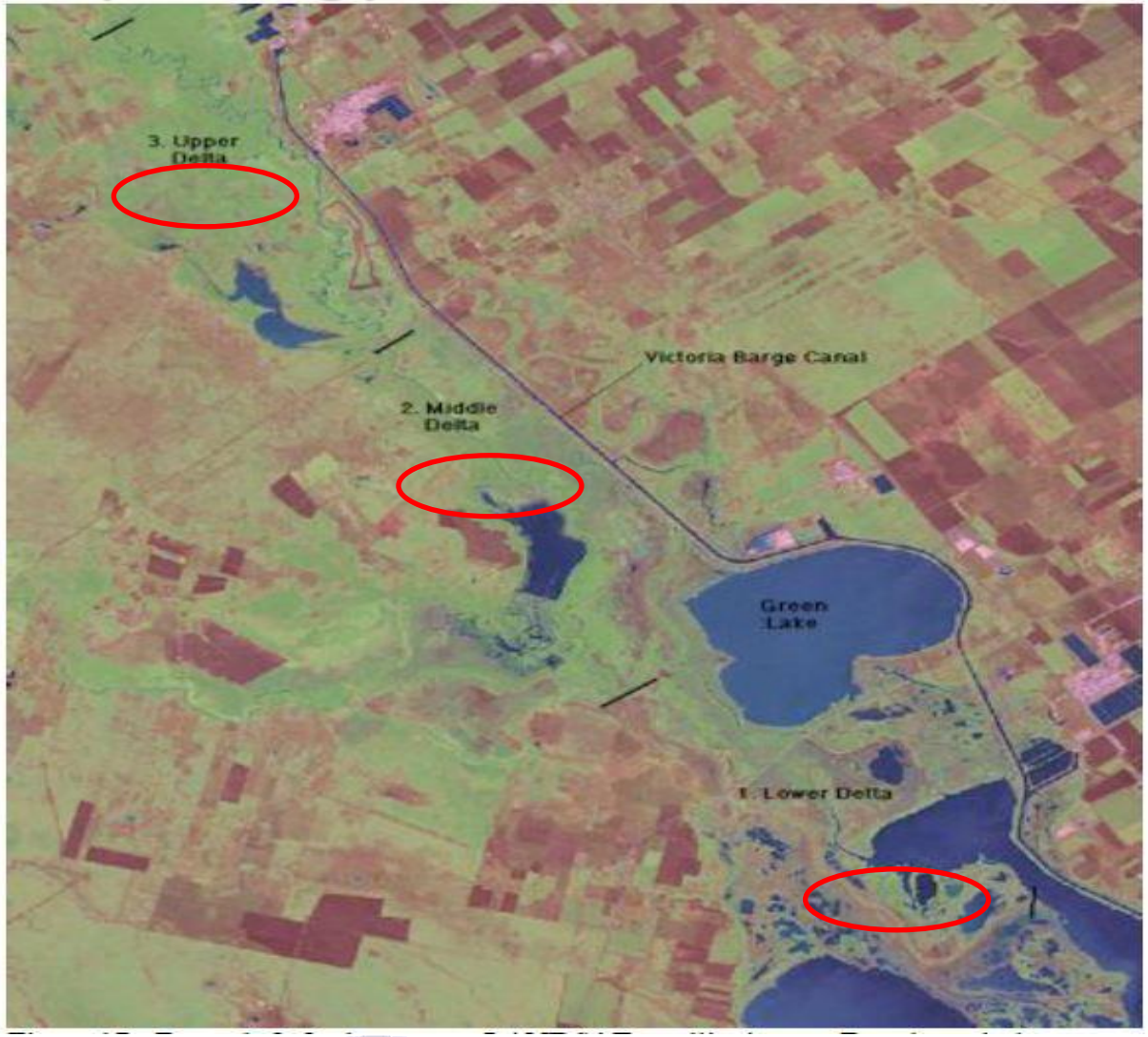


Figure 4. Shaded relief map showing the Guadalupe/San Antonio River delta area.



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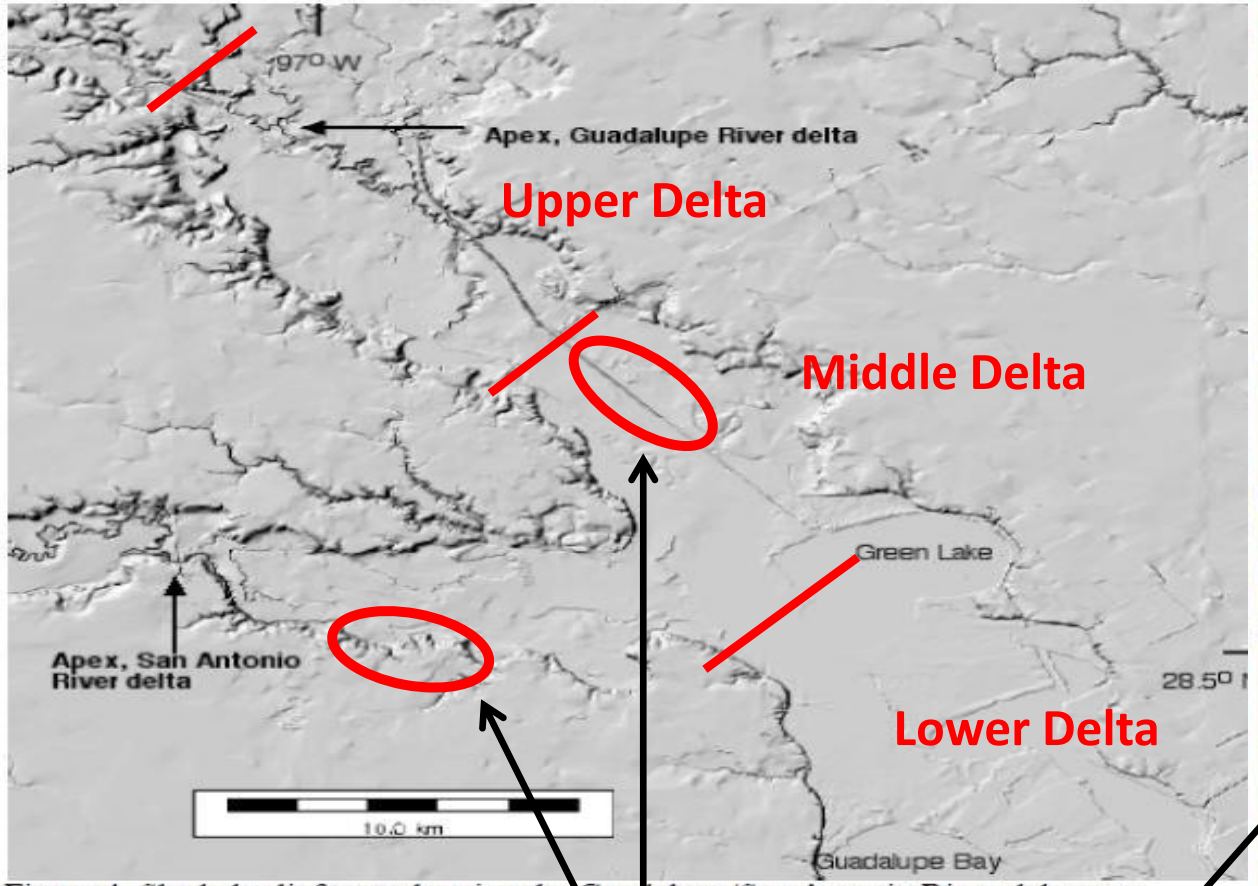

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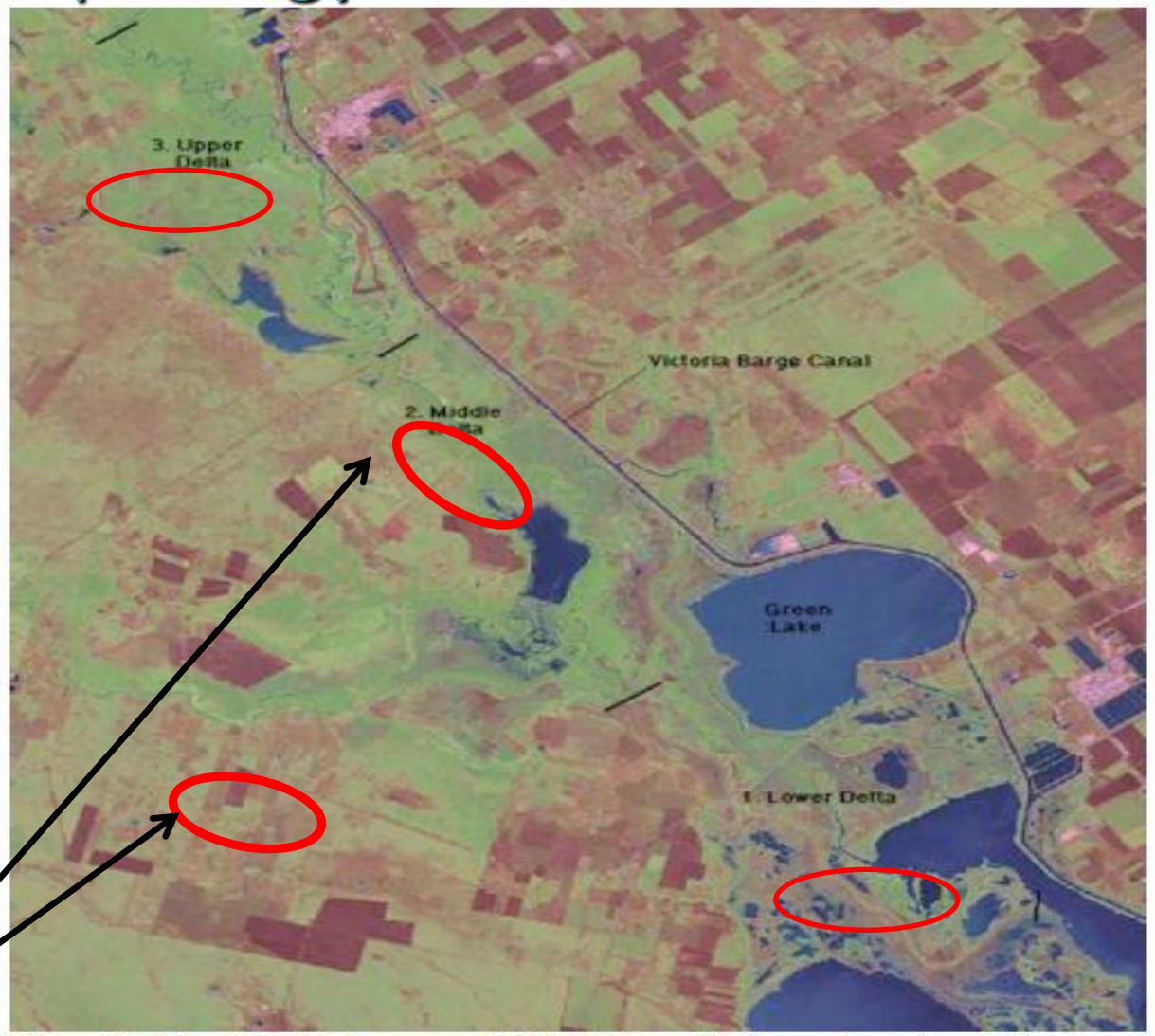
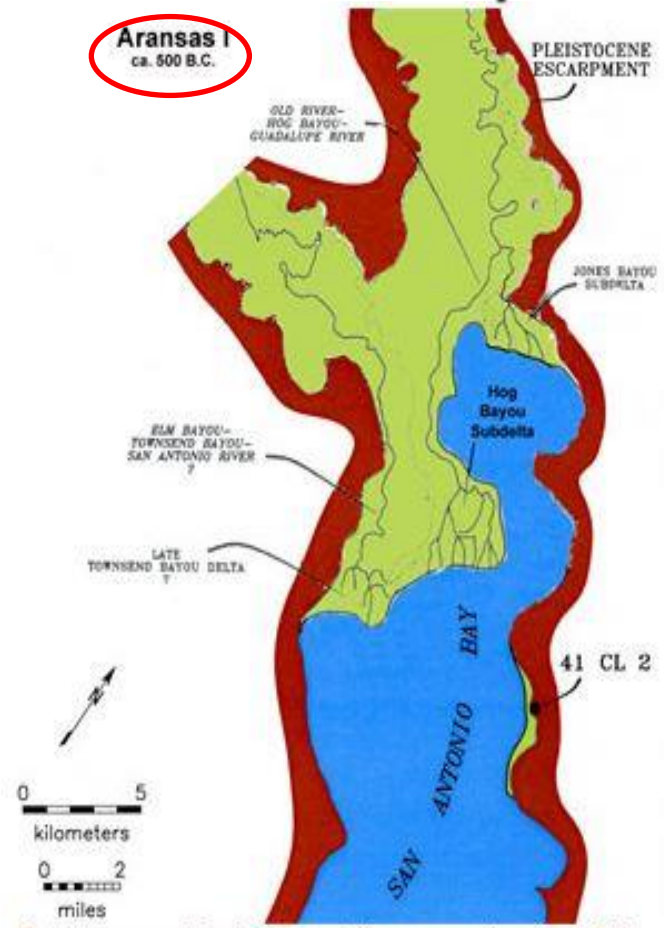


Major Log Jams

Delta Inferred Development of Delta



Paleogeographical interpretative reconstruction of the Guadalupe delta and upper San Antonio Bay area during the Aransas I occupation at the Guadalupe Bay site (41CL2) around 500 B.C. Adapted from CEI graphic.

Delta Inferred Development of Delta

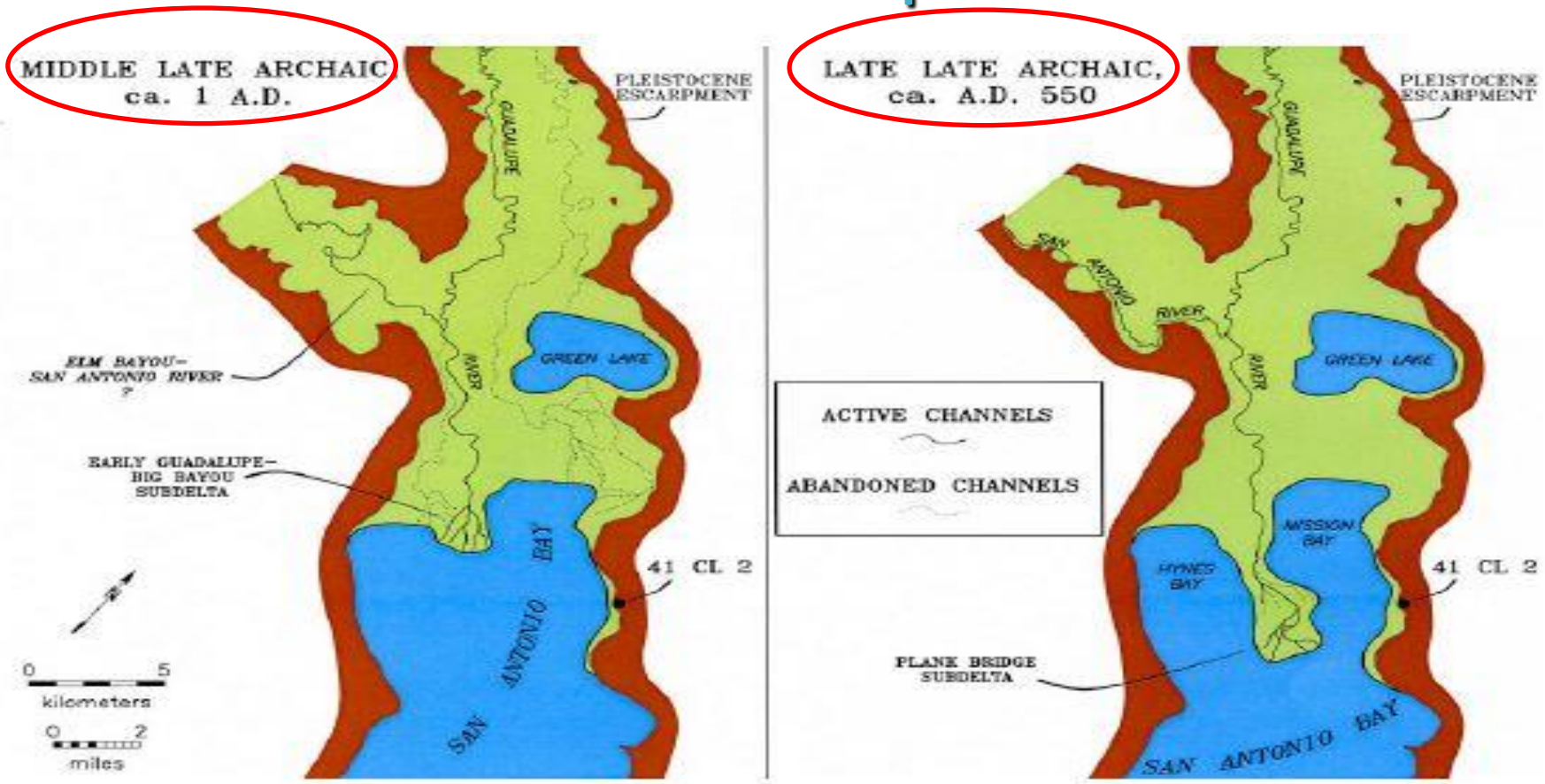


Figure 5. Inferred development of the Guadalupe/San Antonico delta and upper San Antonio Bay ca. 1 and 550 A.D. Source: Weinstein and Black, 2009; http://www.texasbeyondhistory.net/guadbay/images/Guadalupe-Delta-Aransas.html, from an original by Coastal Environments, Inc.

Delta Inferred Development of Delta

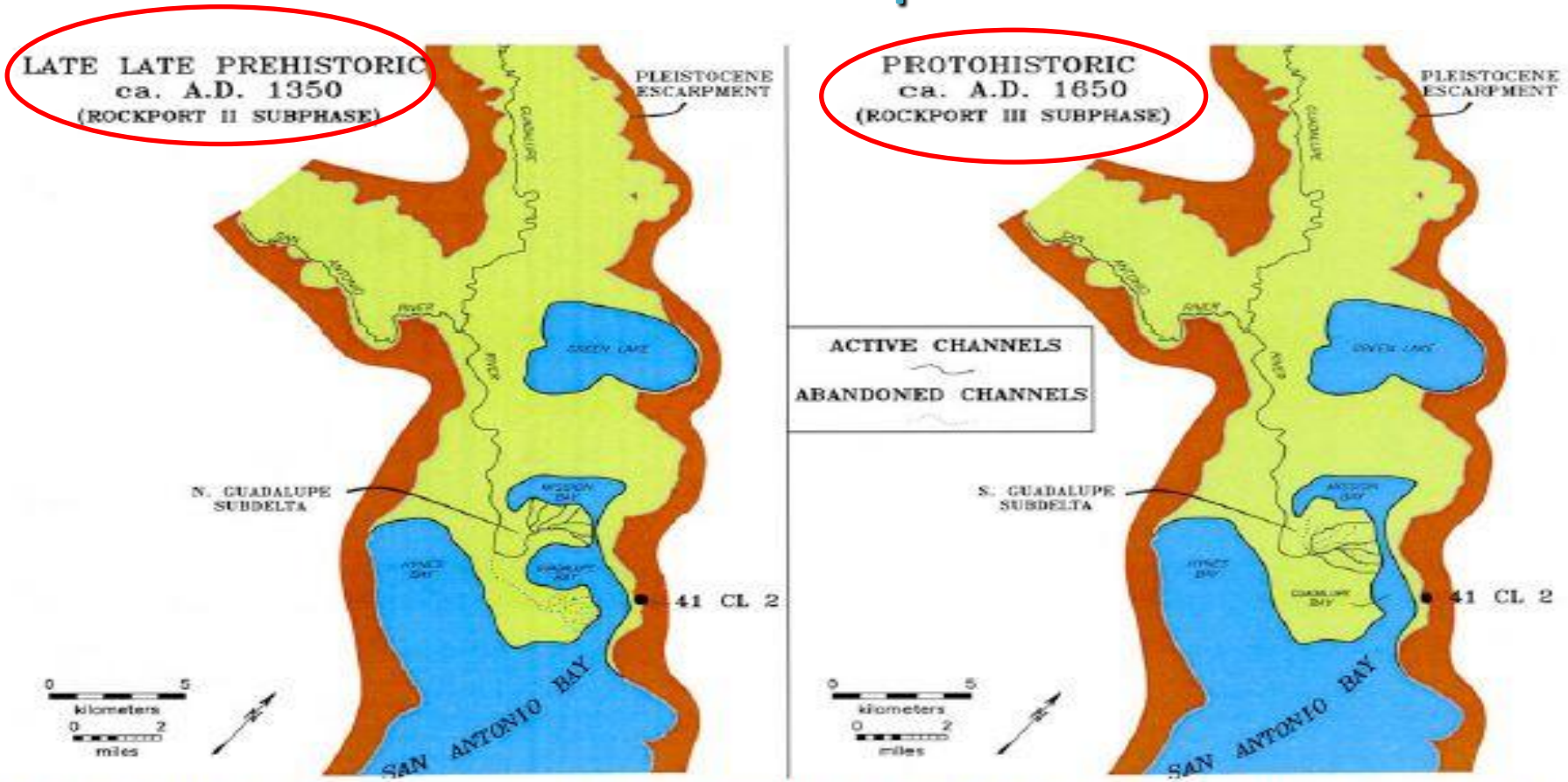
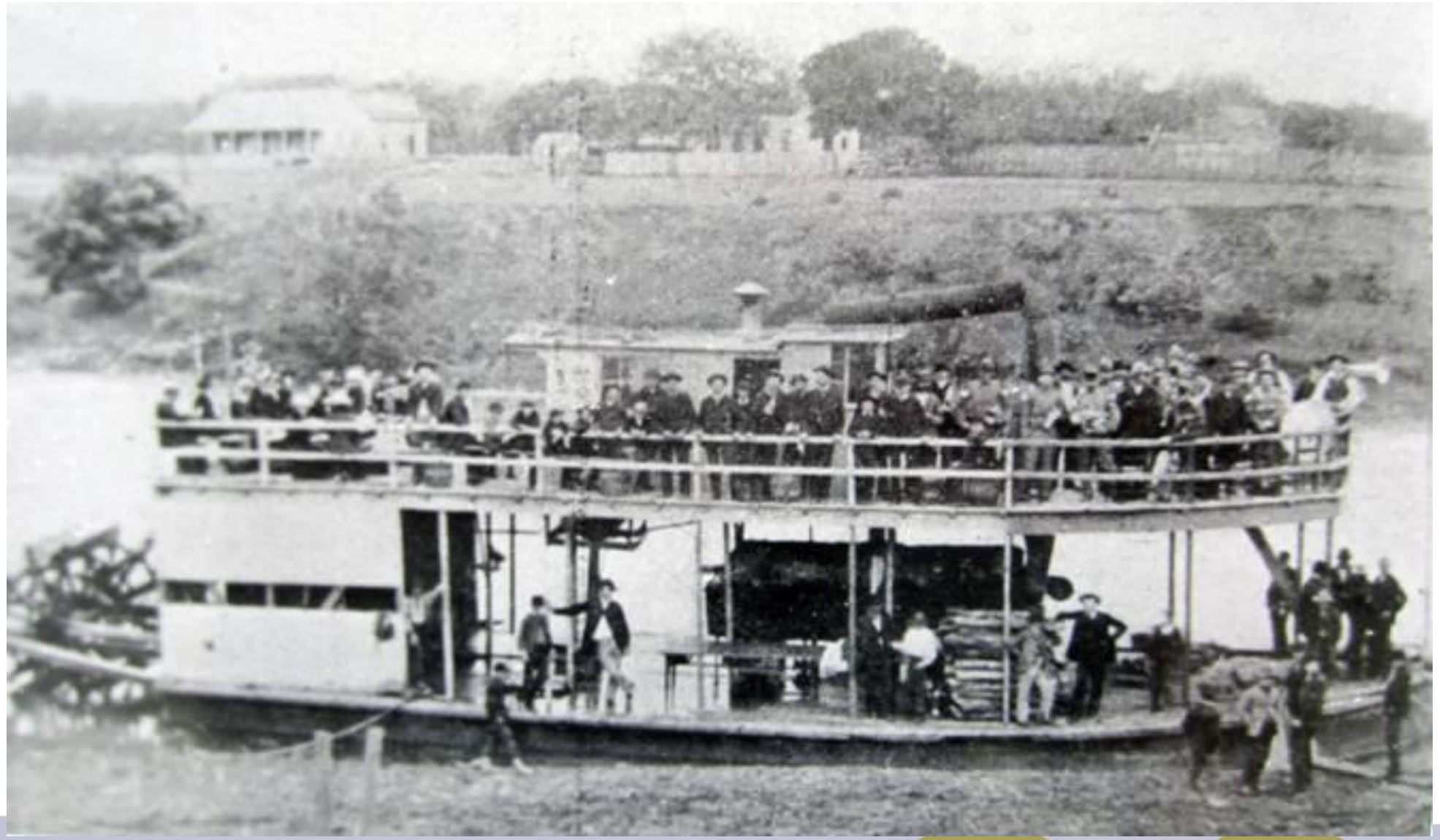


Figure 6. Inferred development of the Guadalupe delta and upper San Antonio Bay area from about the late part of the Late Prehistoric period 650 years ago (A.D. 1350; Rockport II) to the Protohistoric period (A.D. 1650; Rockport III). Source: Weinstein and Black, 2009, http://www.texasbeyondhistory.net/guadbay/images/Guadalupe-Delta-Aransas.html, from an original by Coastal Environments, Inc.

History – Steam-Boat Traffic



Delta History – Log Jams

- 1848 – Newspaper discuss Steamboat Traffic – logs were issue
- 1857 – 1st Navigation Project awards to GB Dycus to remove jams
  - To removal log below City of Victoria
  - Funding by City – County - State of Texas @ $22,900
- 1860 – Railroad built and provides completion
- 1860s – Civil War interrupted Navigation
- 1875 – Chief Report by COE discuss large jams
- 1880 – Fritz Berner – Barges freights but logs are issue
- 1890 – Sand & Gravel Company start barging operation
- 1907 – River & Harbor Act (1907) – Clears Channel to Victoria

Delta History – COE Report

Excerpts from:

THE ANNUAL REPORT OF THE CHIEF OF ENGINEERS TO THE SECRETARY OF WAR FOR THE YEAR 1875

EXAMINATION OF THE GUADALUPE RIVER BELOW GONZALES, TEXAS

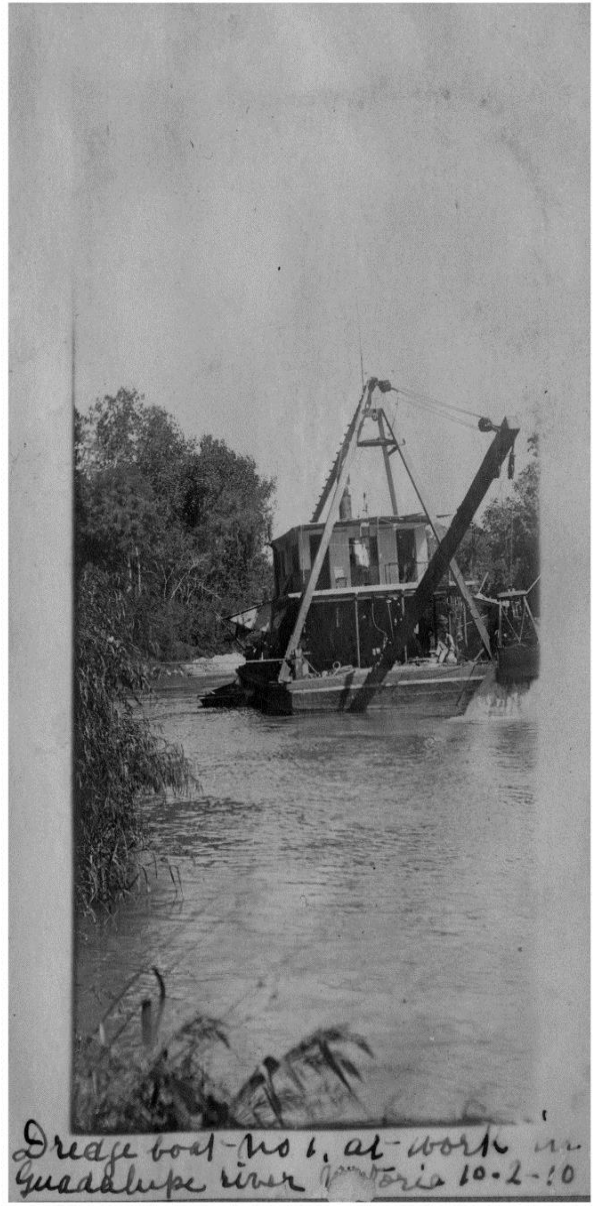
JULY THRU SEPTEMBER 1874

- "The character of and the obstructions in the river between Gonzales and its mouth may be considered to consist of two: the first, that part between Gonzales and a point three miles below Victoria in which the average current is about three miles per hour and the average depth about 8 feet… *For the second part, from the one hundred and sixth mile to the mouth below Victoria, the character of the river is somewhat different, the average current being one and one-fourth miles per hour and in the neighborhood of the rafts (log jams) scarcely perceptible*…"

Delta History – COE Report

- "In the lower part of the river (below Victoria), the principal obstructions are the rafts (log jams), of which there are four; the first of which *completely blocks the river for a distance of 1,850 feet*… The first of these rafts is a bad obstruction, and would be difficult of removal, *being composed of several layers of heavy trees wedged together and into the banks and bed of the river, the whole forming a compact mass some 12 feet in depth*".

Delta History – Snag Boat (1910)

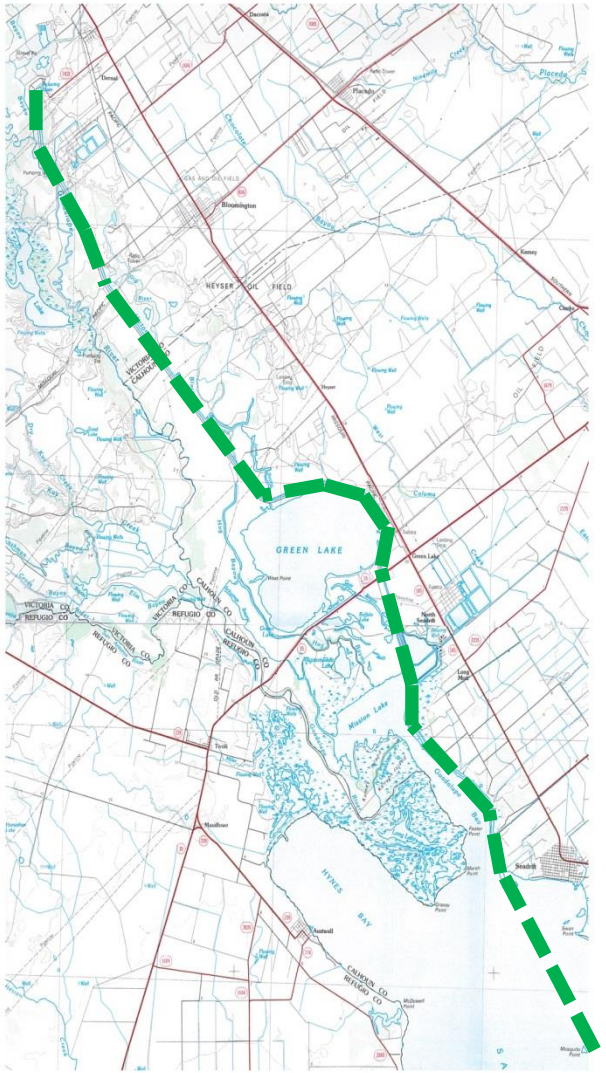


Delta History – Snag Boat (1910)

Delta History – Log Jams

- **1945 – River & Harbor Act (1945)– Proposes Barge Canal to avoid logs**
- **1951 – Victoria Barge Canal – Construction Begins on 14 miles**
- **1953 – Victoria Barge Canal -1st Phase complete**
- **1965 – Canal at Turning Basin Complete**
- **1968 - Docks at Turning Basin Complete**

Delta History – Victoria Barge Canal



Victoria Barge Canal at Green Lake (Flood of 1998)

Delta Recent History – Log Jams

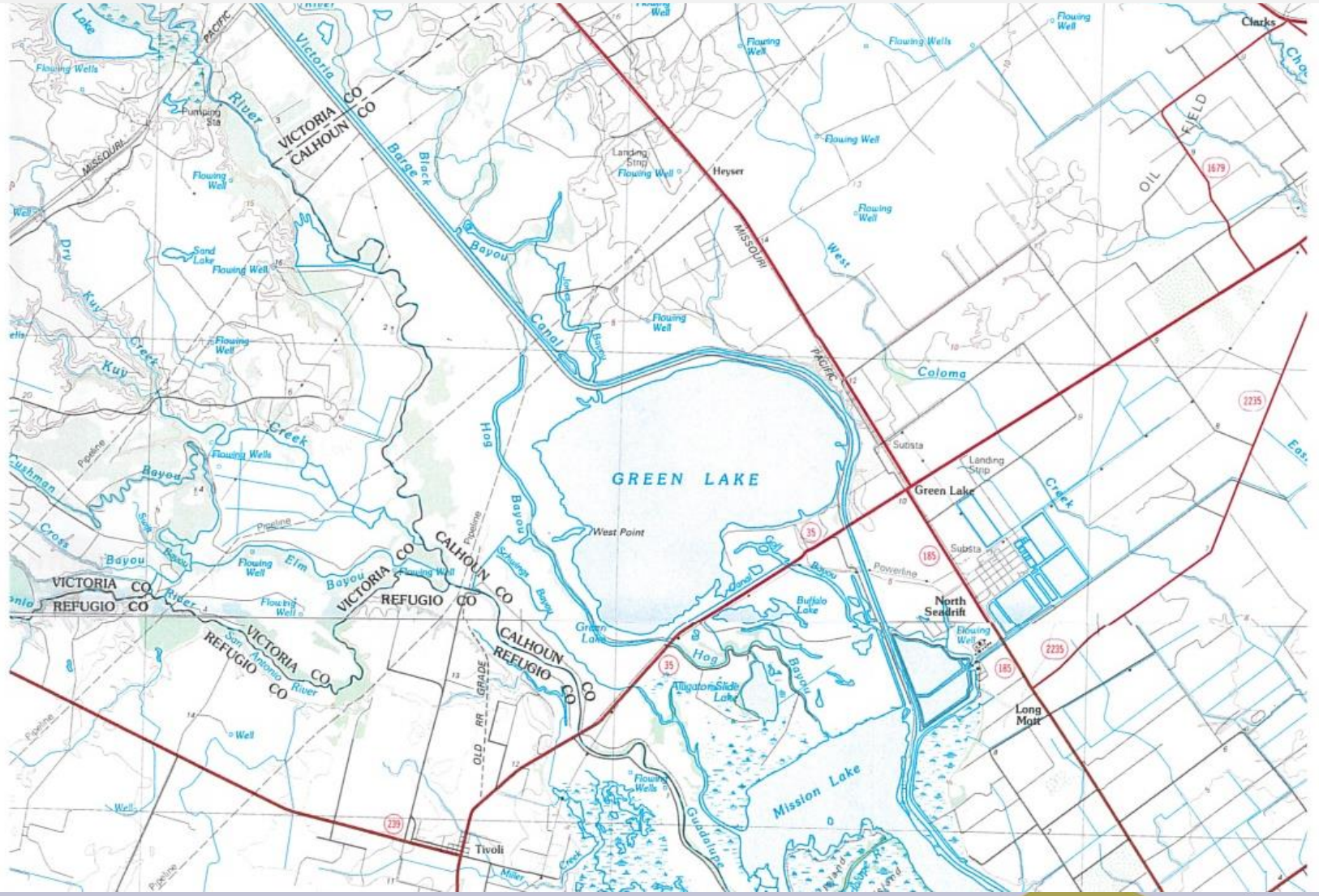
- 1963 – GBRA purchases Calhoun Canal System
- 1963 – GBRA encourages log jam removal
  - Rep. John Young recommends COE clearing jams & tree for 7.5miles
- 1975 – COE obtains funding to clear log on Guadalupe River
- 1976 – GBRA constructs boat to remove small jams on Guadalupe
- 2009 – GBRA constructs 2nd vessel

Guadalupe River at Horseshoe

Causes of Log Jam

- Erosion causes trees to fall into river
- Slower river velocity
- Obstructions

Delta Log Jam History



GBRA

Guadalupe-Blanco River Authority
flowing solutions

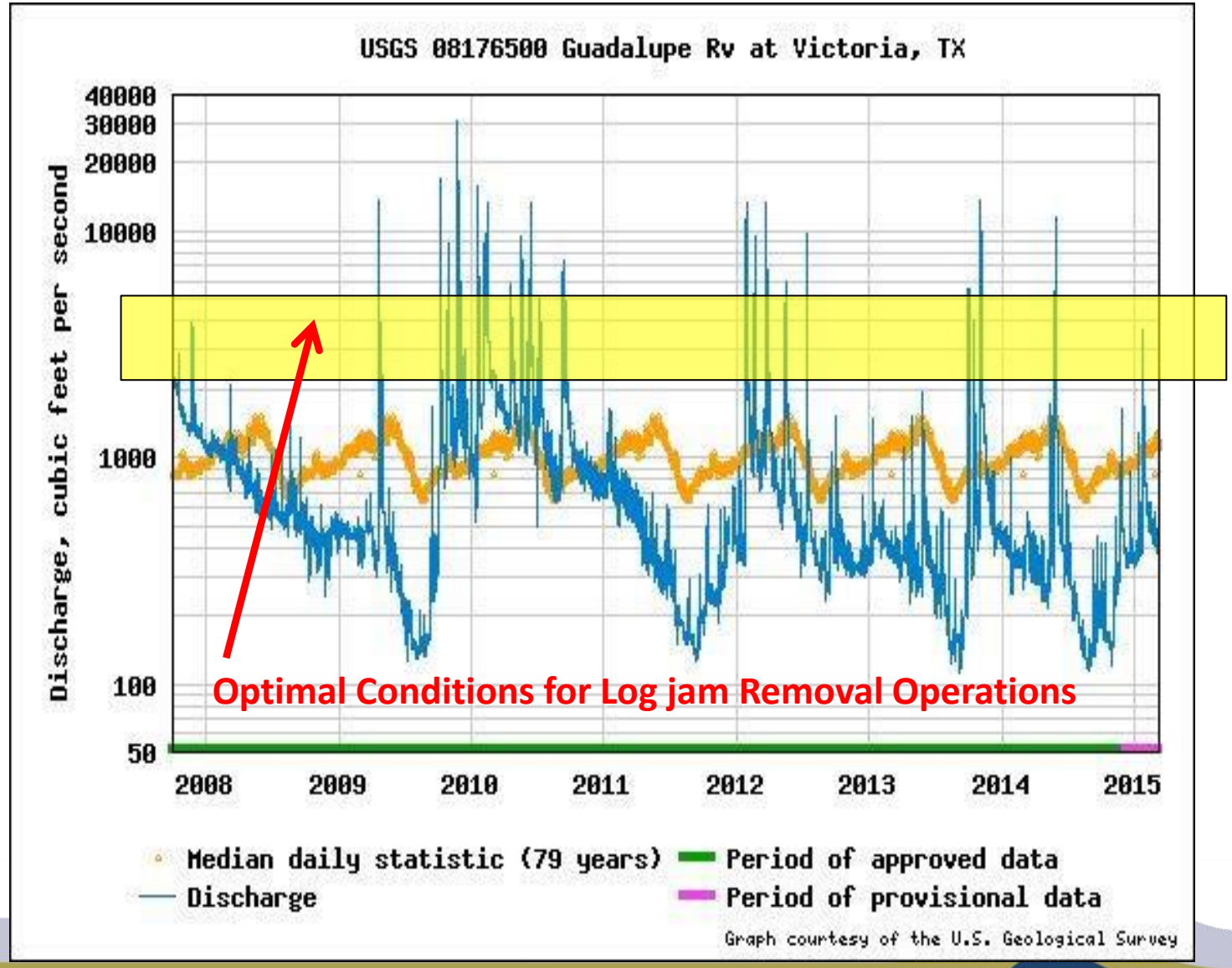
Two vessels working in tandem to break-up Jam

Miss Guadalupe II – track hoe breaks up key logs

Logs retrieved from river & stacked on bank

Stacks burned in place

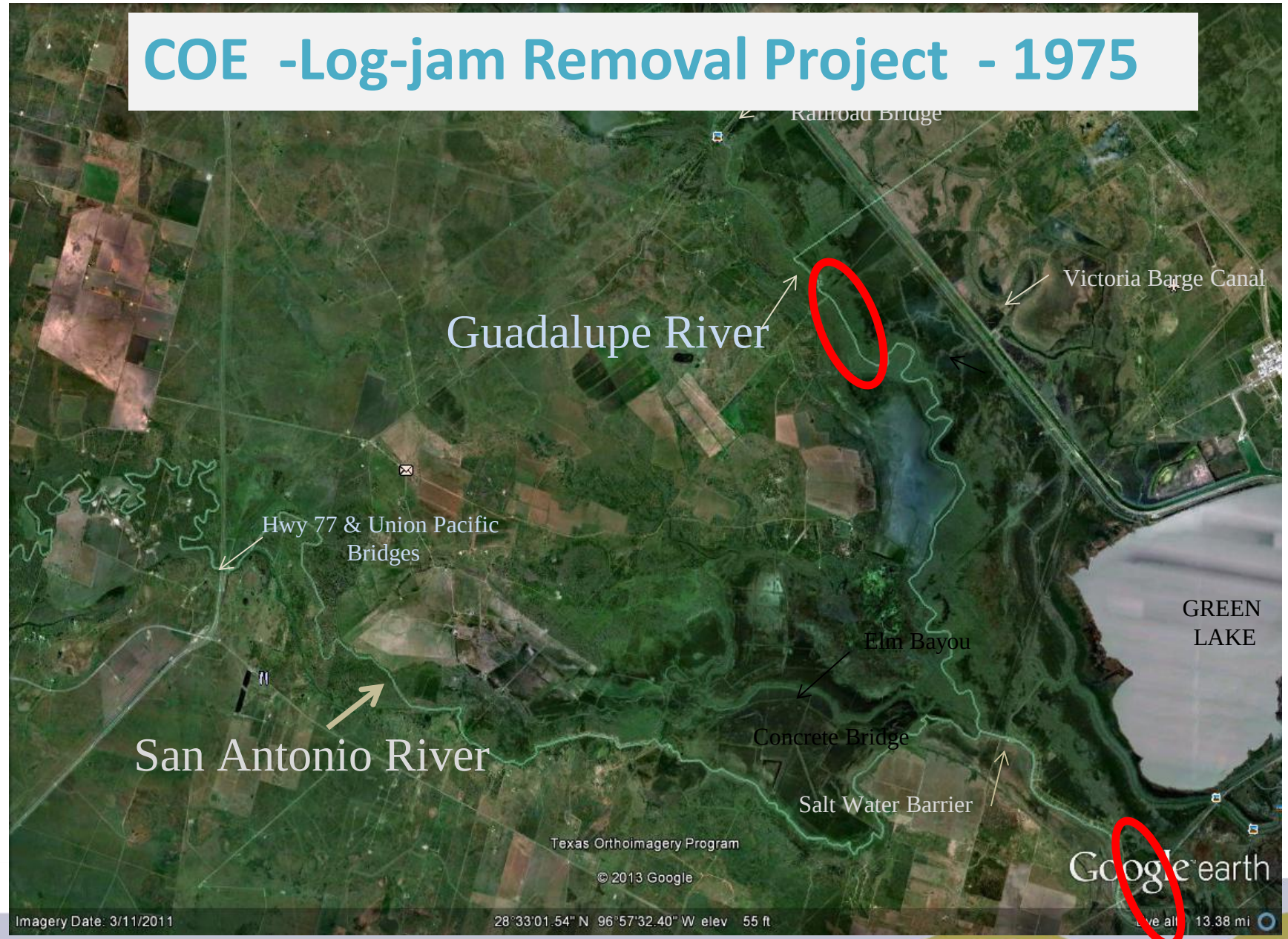
River Conditions Dictate Opportunity for Removal



Recent Major Log Jam Removal Projects

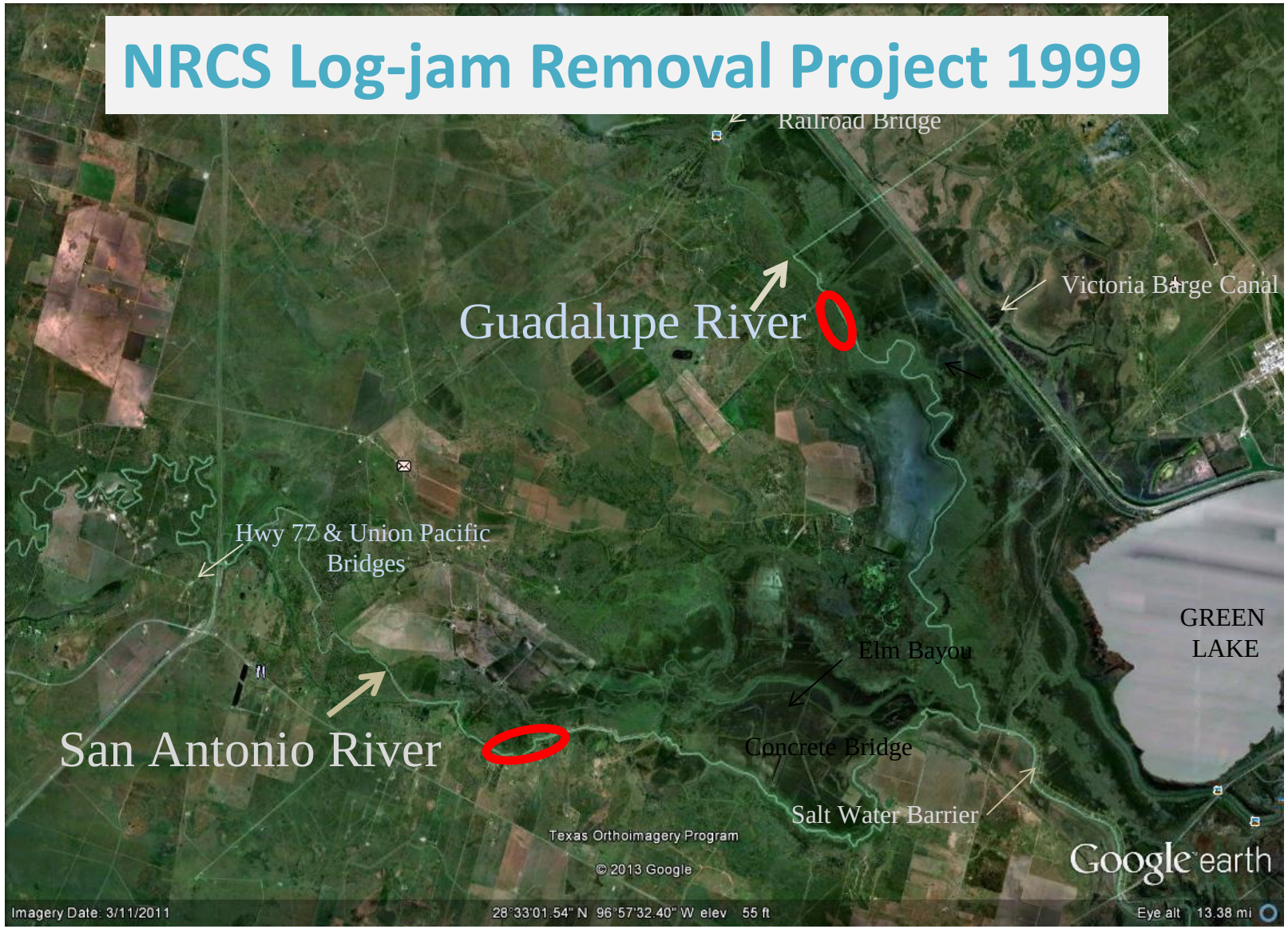
- **COE - 1975 - Guadalupe River (selected areas -river mile 3 to 19)**
  - In 1963, GBRA Provide letter to Congress requesting COE funding
- **NRCS - 1999 - Guadalupe & San Antonio River**
  - Funding provided as a result of 1998 Flood Event
- **GBRA – 2008 -San Antonio River Project (River Mile 6 to 8)**
  - GBRA used In-House Personal
- **NRCS – 2016 -San Antonio River Project (River Mile 6 to 9)**
  - NRCS Funded project

COE -Log-jam Removal Project - 1975



Guadalupe River COE Project - 1975

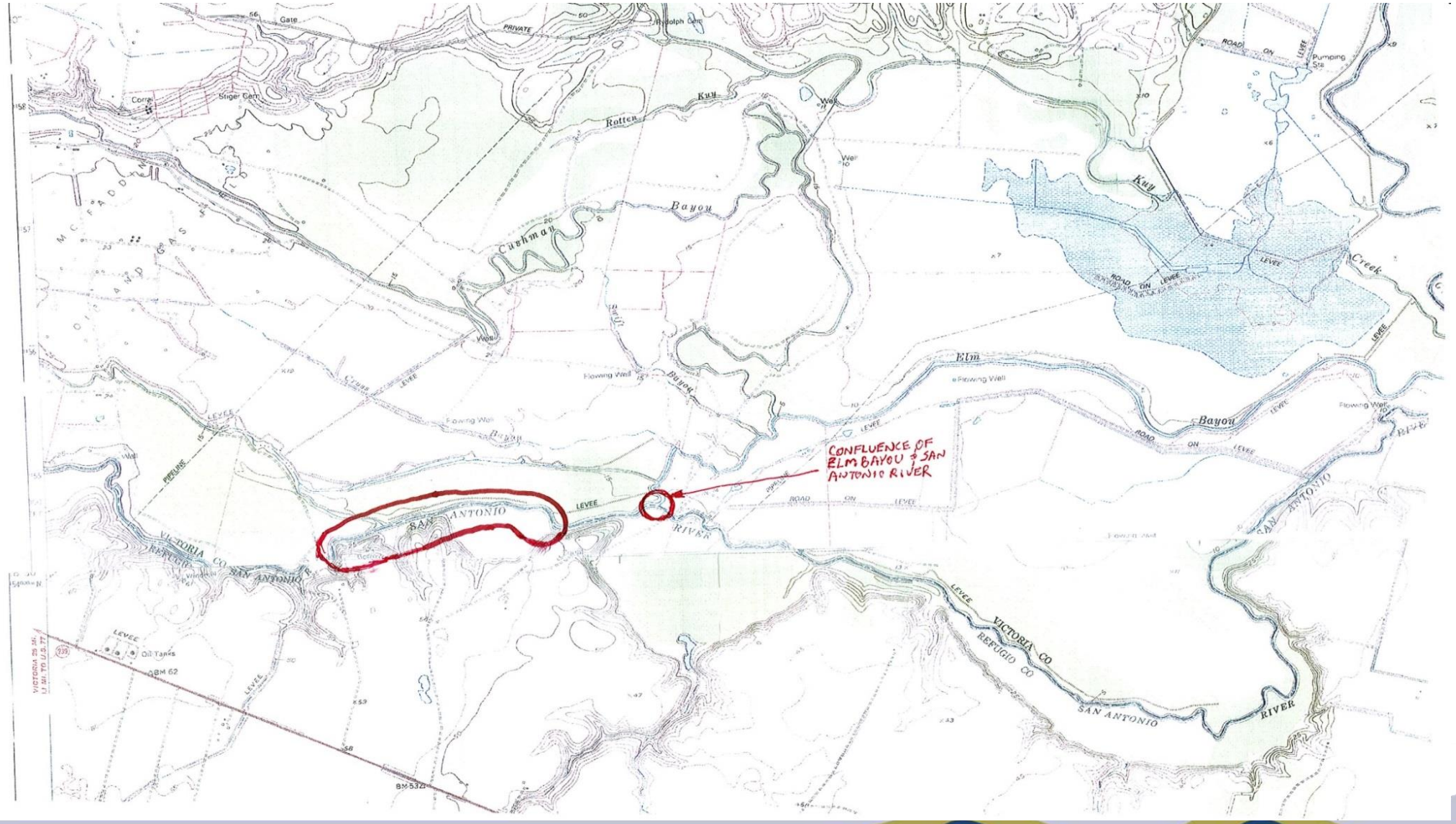
NRCS Log-jam Removal Project 1999



Guadalupe & San Antonio River NRCS Project 1999

Guadalupe & San Antonio River NRCS Project 1999

San Antonio River Debris Removal Project 2008



GBRA

Guadalupe-Blanco River Authority
flowing solutions

San Antonio River Debris Removal Project --2 008

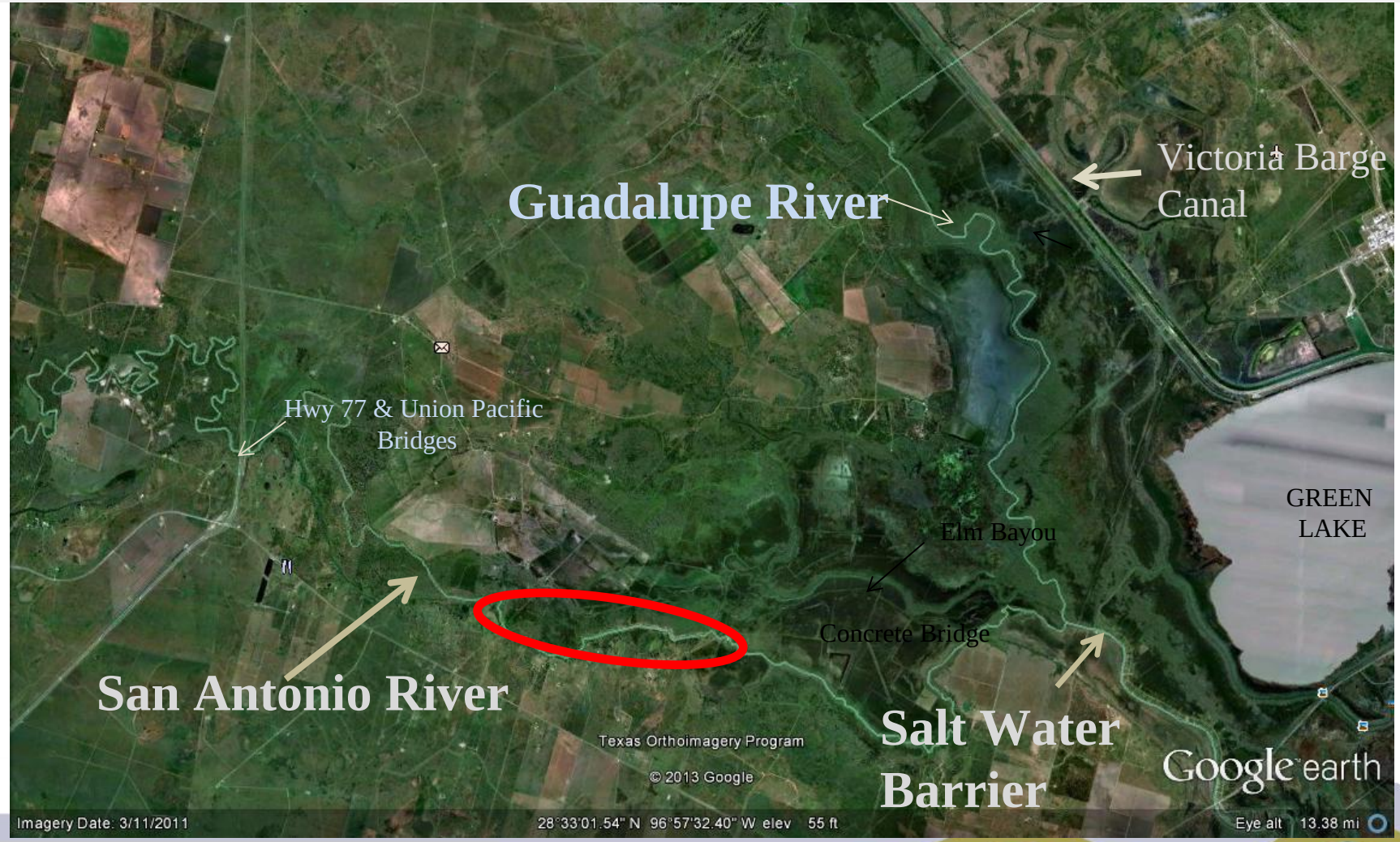
San Antonio River required track-hoe and bull dozer -2008

Logs stacked and burned later (2009)

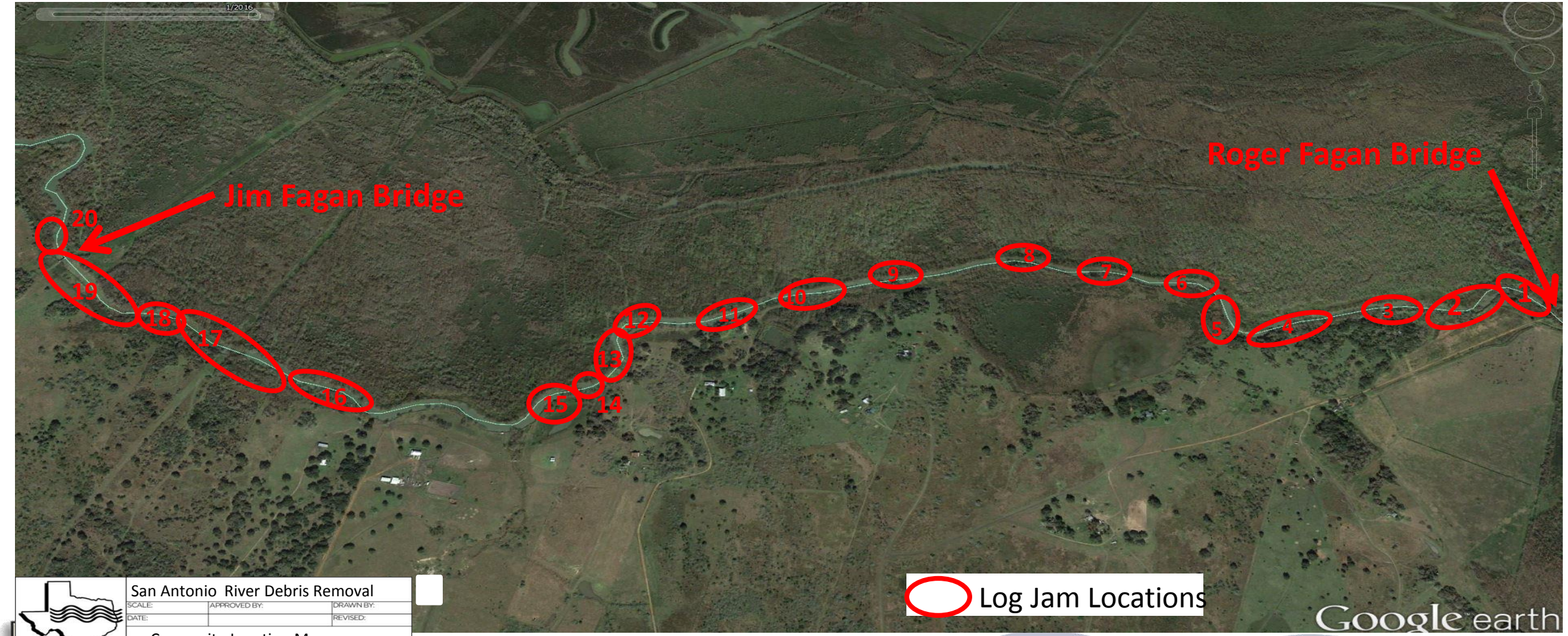
Intersection San Antonio River & Elms Bayou - 2009

San Antonio River @ River Mile 9.0 - 2015

San Antonio River Debris Removal Project
NRCS - 2016



San Antonio River Debris Removal Project 2016
Composite Map



San Antonio River Debris Removal		
SCALE:	APPROVED BY:	DRAWN BY:
DATE:		REVISED:
Composite Location Map		
		DRAWING NUMBER:

GBRA

San Antonio River Debris Removal Project 2016

Upstream Jim & Ginger Fagan Bridge – Pre-Construction – Site 20

San Antonio River Debris Removal Project 2016

Working at Site 20

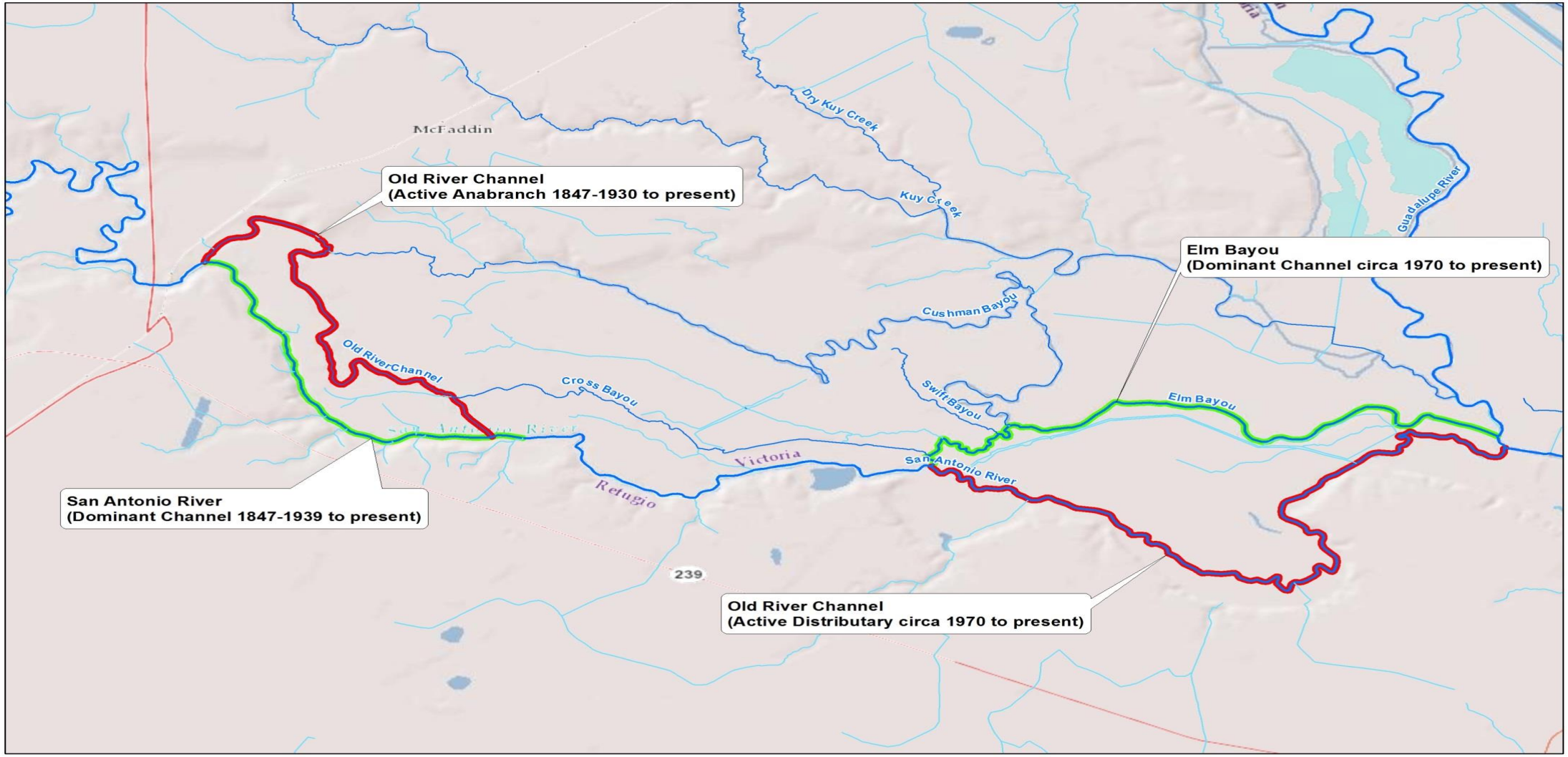
San Antonio River Debris Removal Project 2016

San Antonio River Debris Removal Project 2016

Working at Site 13

San Antonio River Debris Removal Project 2016

Migration San Antonio River channel 1847 -Present



Jonathan D. Phillips

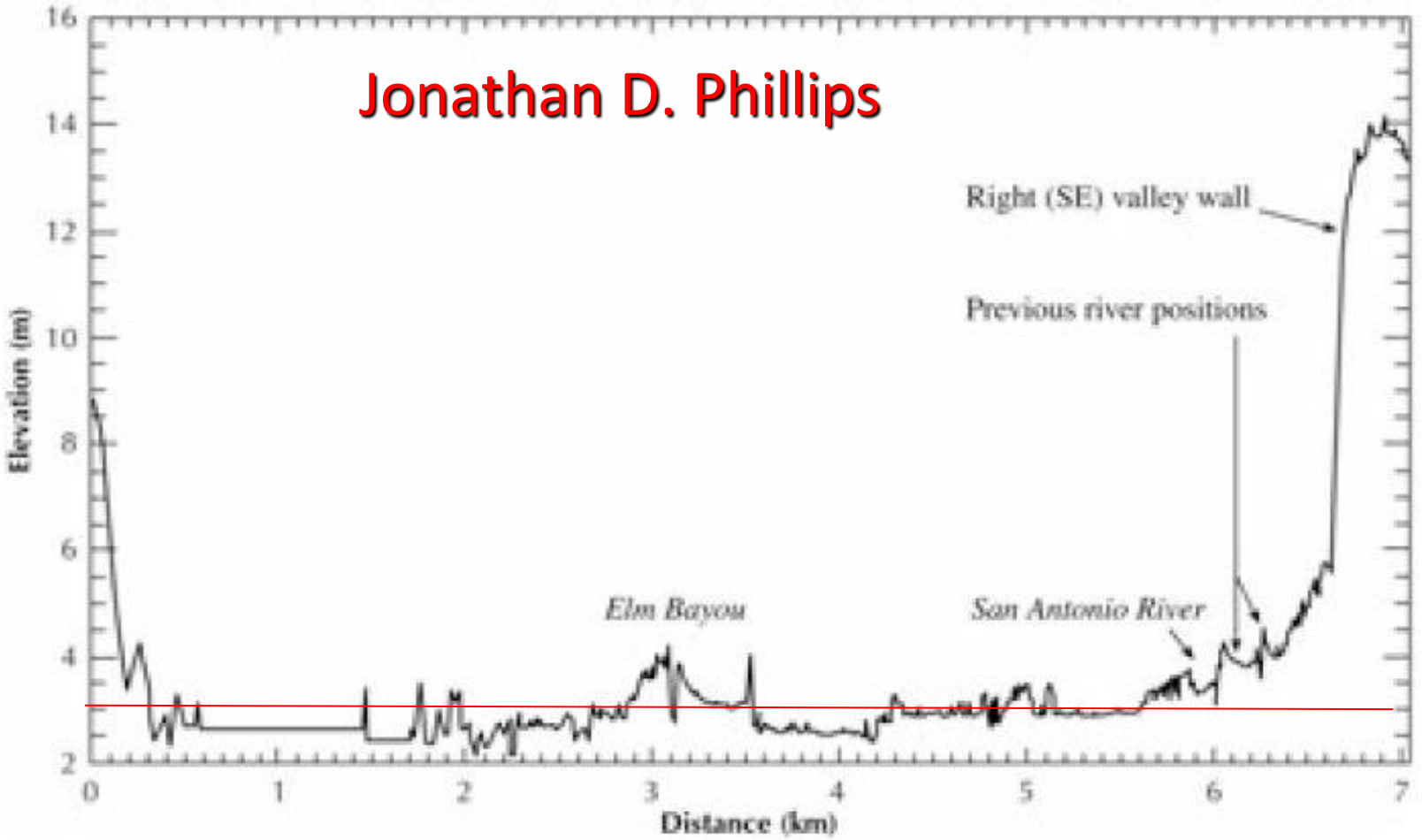


Figure 3. Topographic cross-section across the delta downstream of the San Antonio-Elm Bayou split. Note the former channel positions,

San Antonio River Sedimentation - 2016

San Antonio River during drought