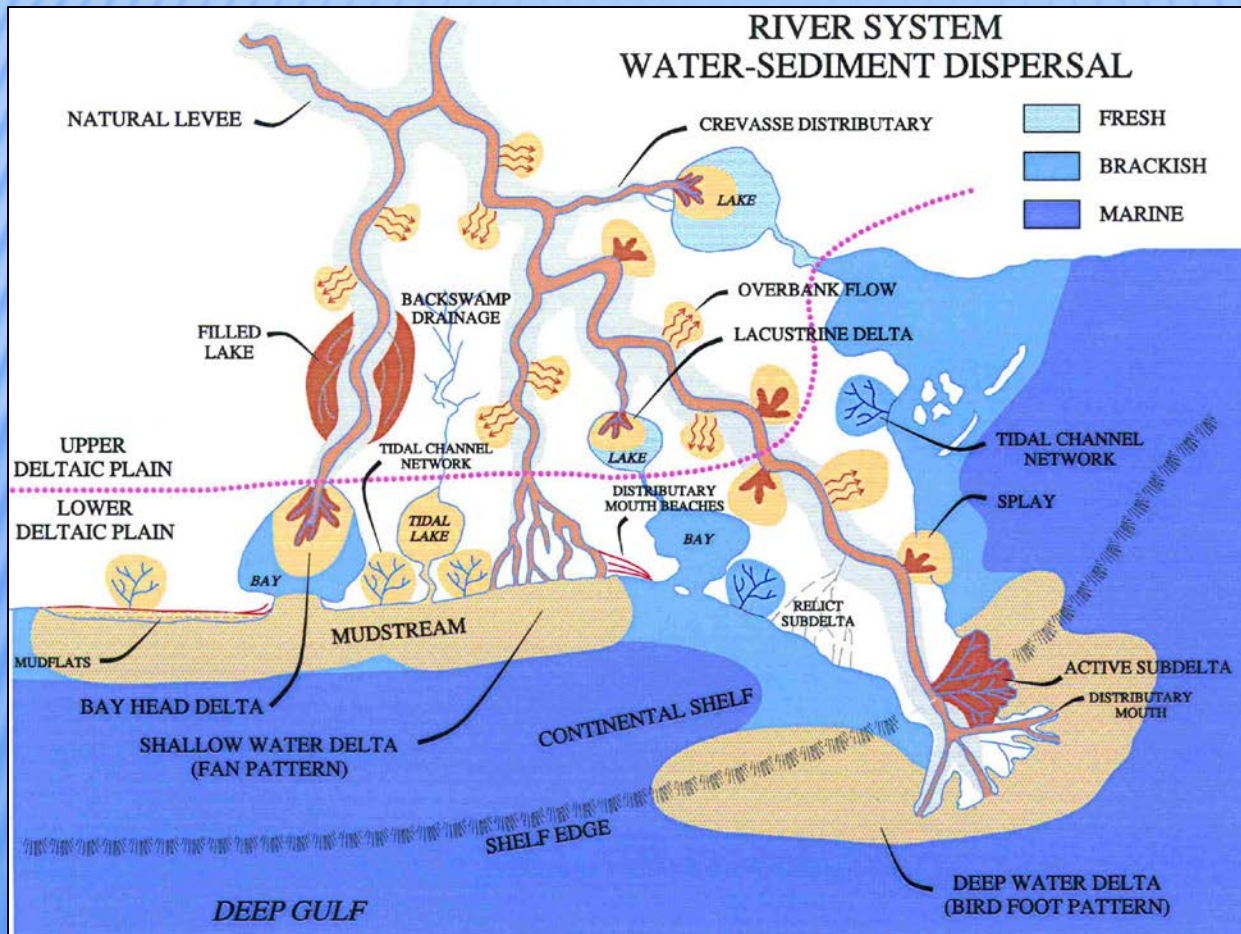


EXPECTATION OF SYSTEM RESPONSE TO DIVERSIONS

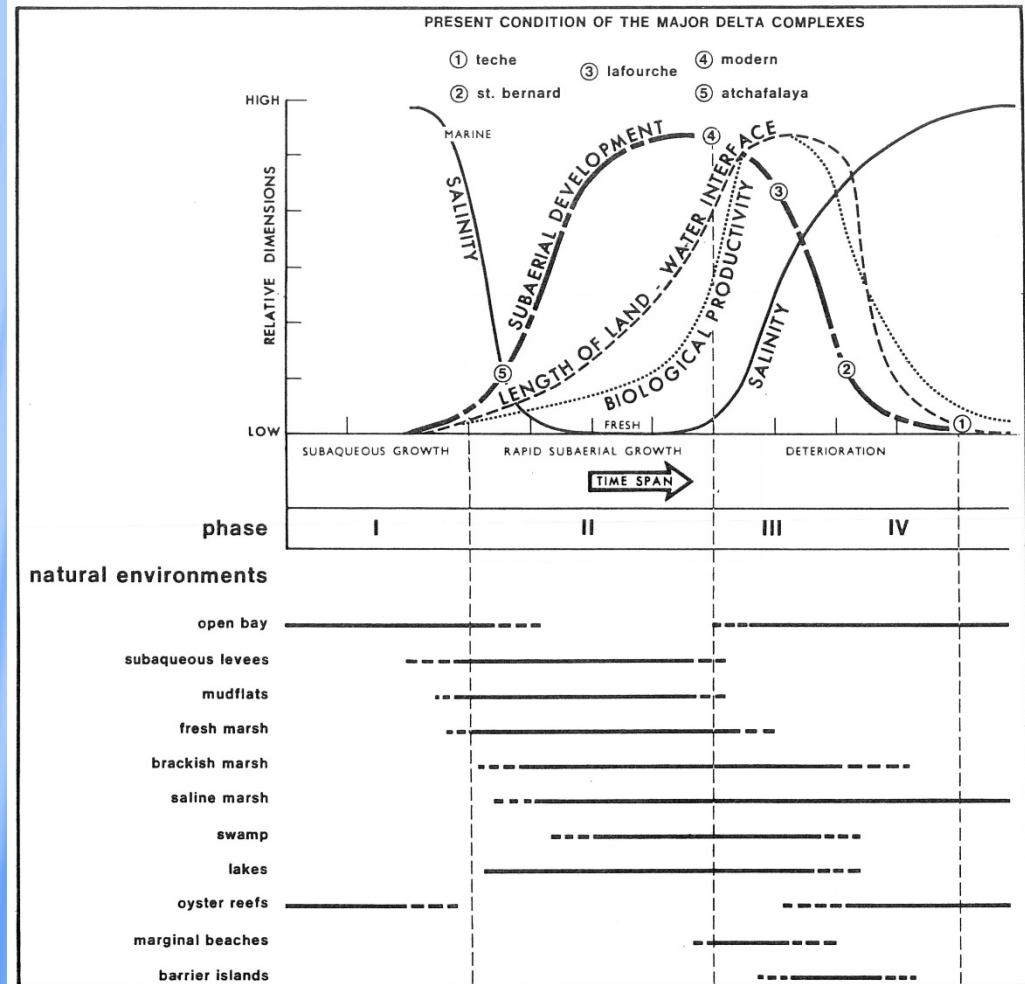
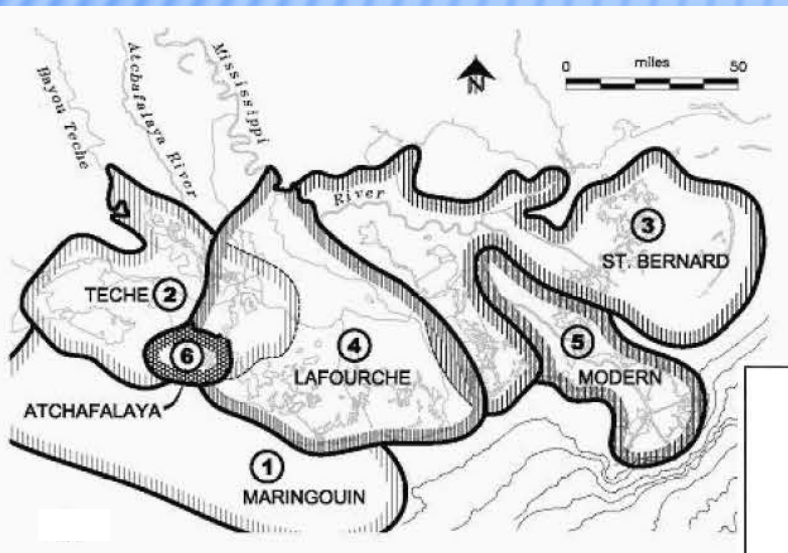
Sherwood M. Gagliano, Ph.D.
Expert Panel on Diversion
Planning and Implementation
Meeting # 3



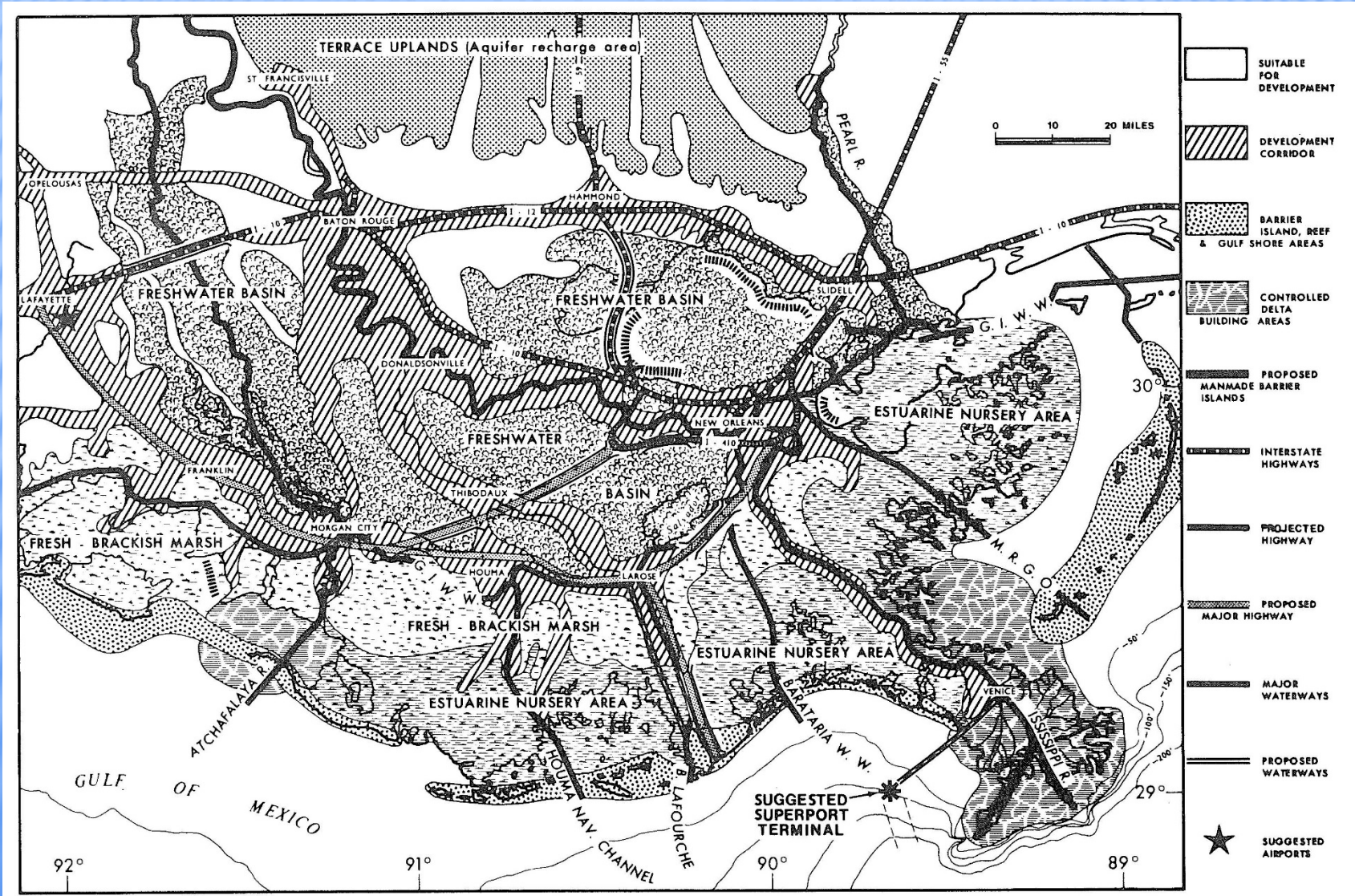
Crowne Plaza Hotel
Baton Rouge, LA
October 28, 2014

THE DELTA CYCLE

Channel switching drives highly productive ecological successions.

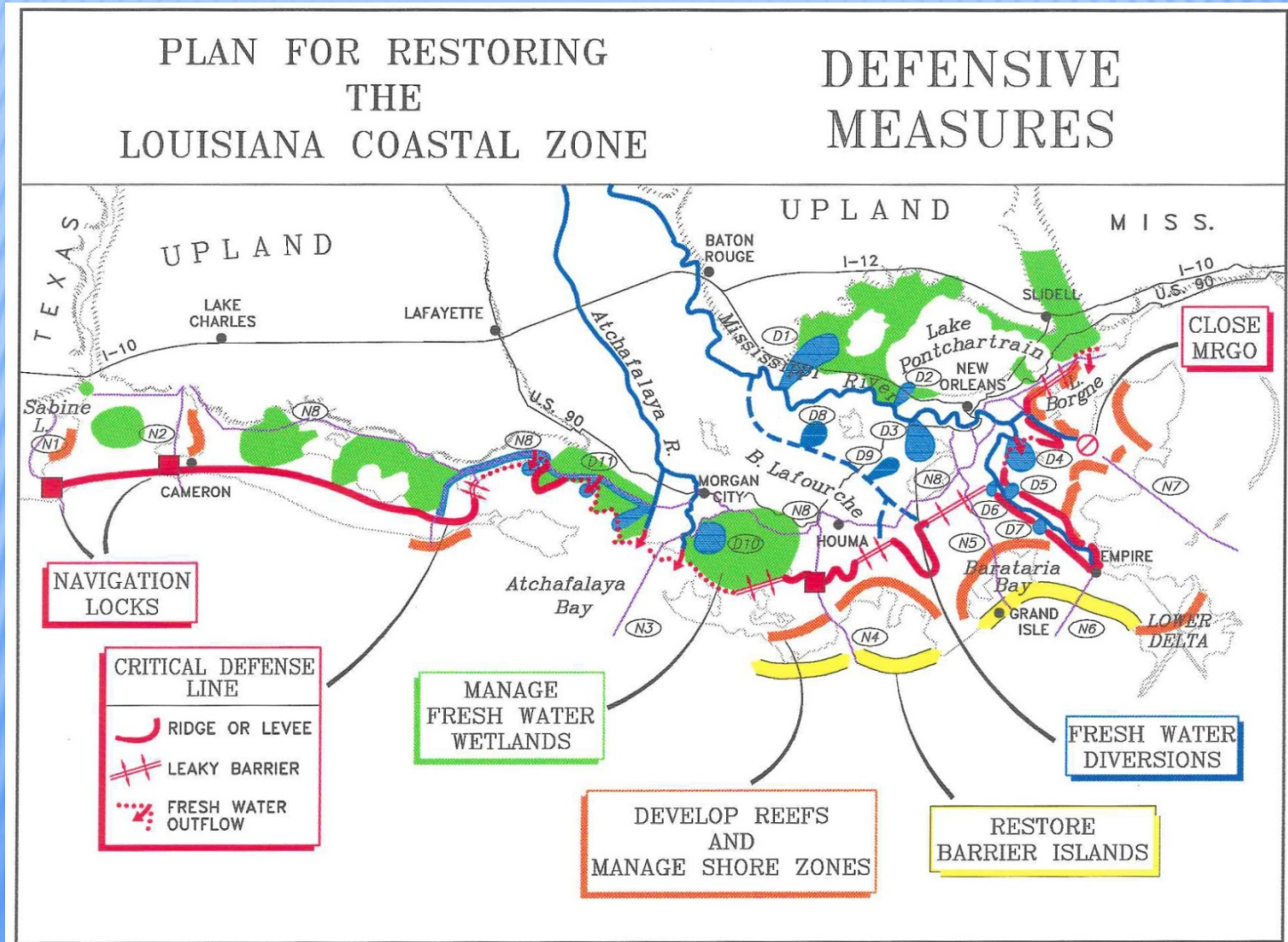


FIRST MULTIPLE USE MANAGEMENT PLAN 1975



(After S. M. Gagliano and van Bee)

BLUE PRINT PLAN 1994



BLUE PRINT PLAN 1994



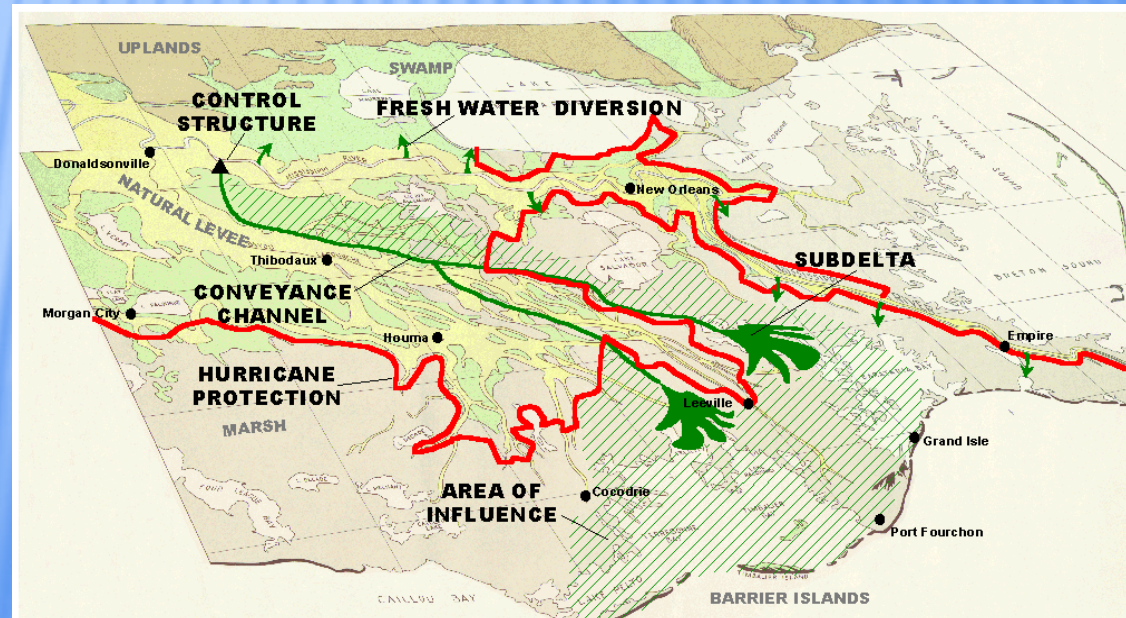
THIRD DELTA CONVEYANCE CHANNEL 1999

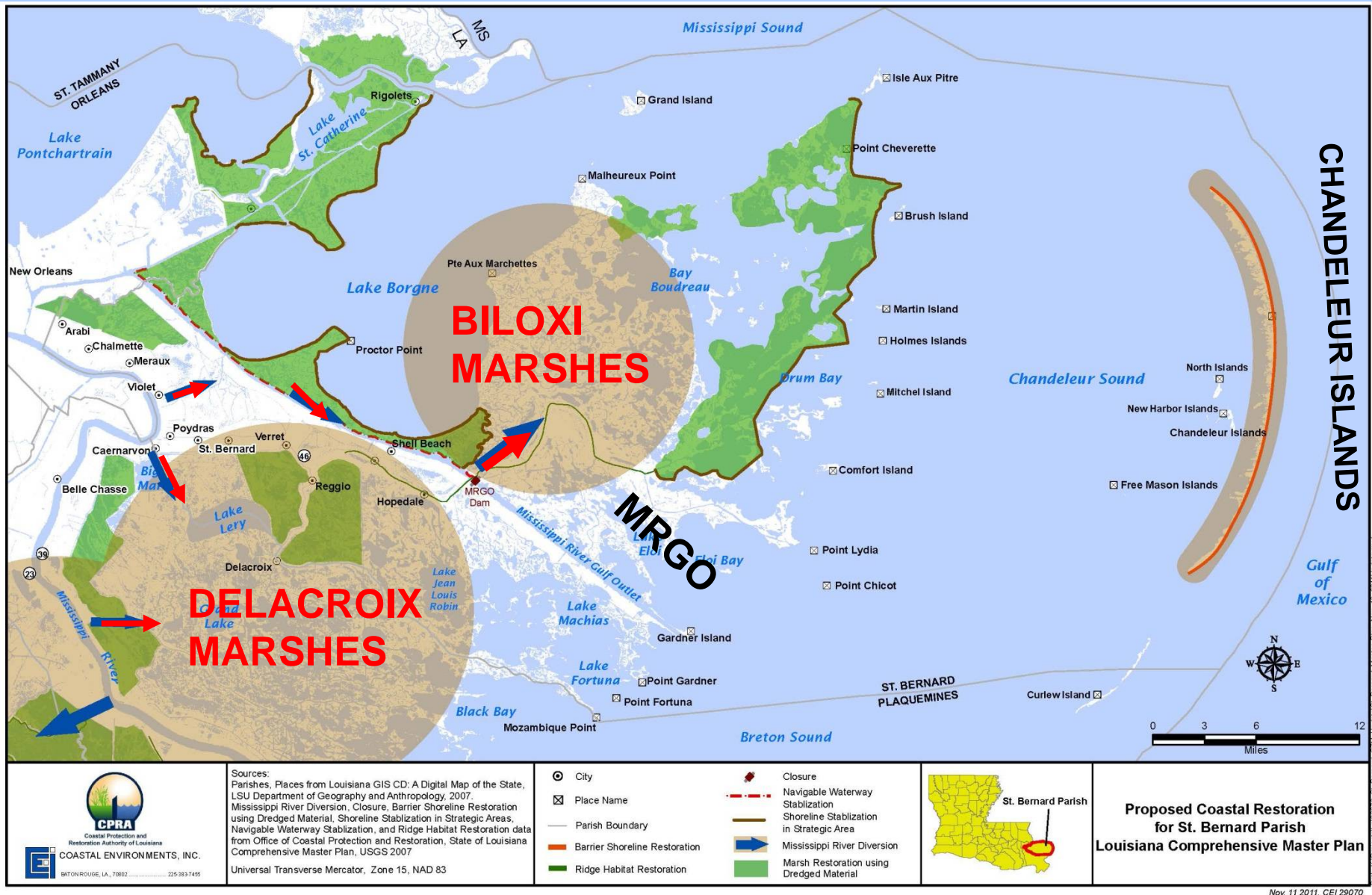


Wax Lake Outlet Diversion Prototype

Maximum flow - 200,000 cfs

Barge tow in GIWW
crossing Wax Lake
Outlet during flood of
2008, 200,000 CFS
discharge.





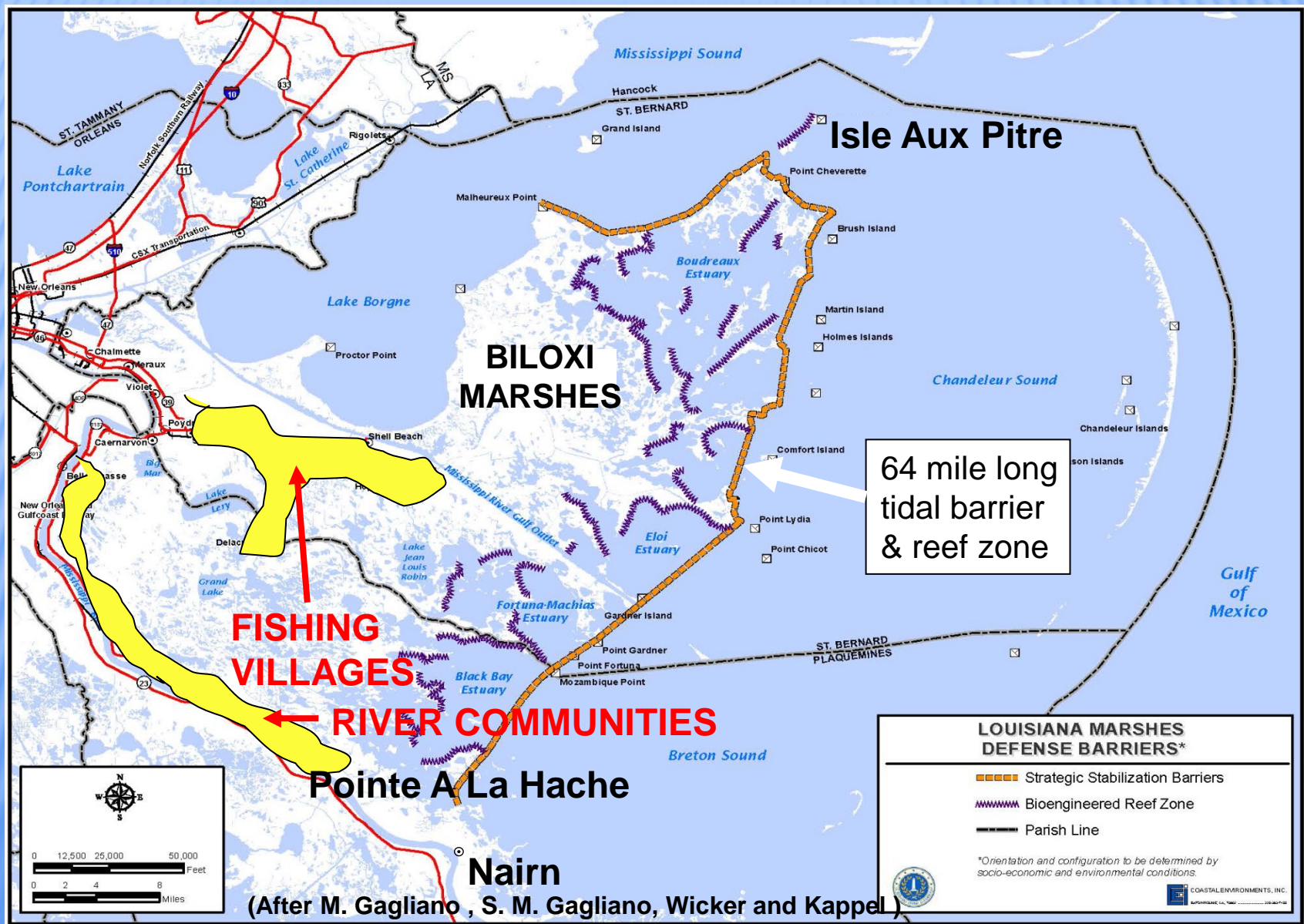
CPRA and USCE have proposed large Mississippi River diversions into Plaquemines and St. Bernard estuarine

HOPEDALE JULY 2011

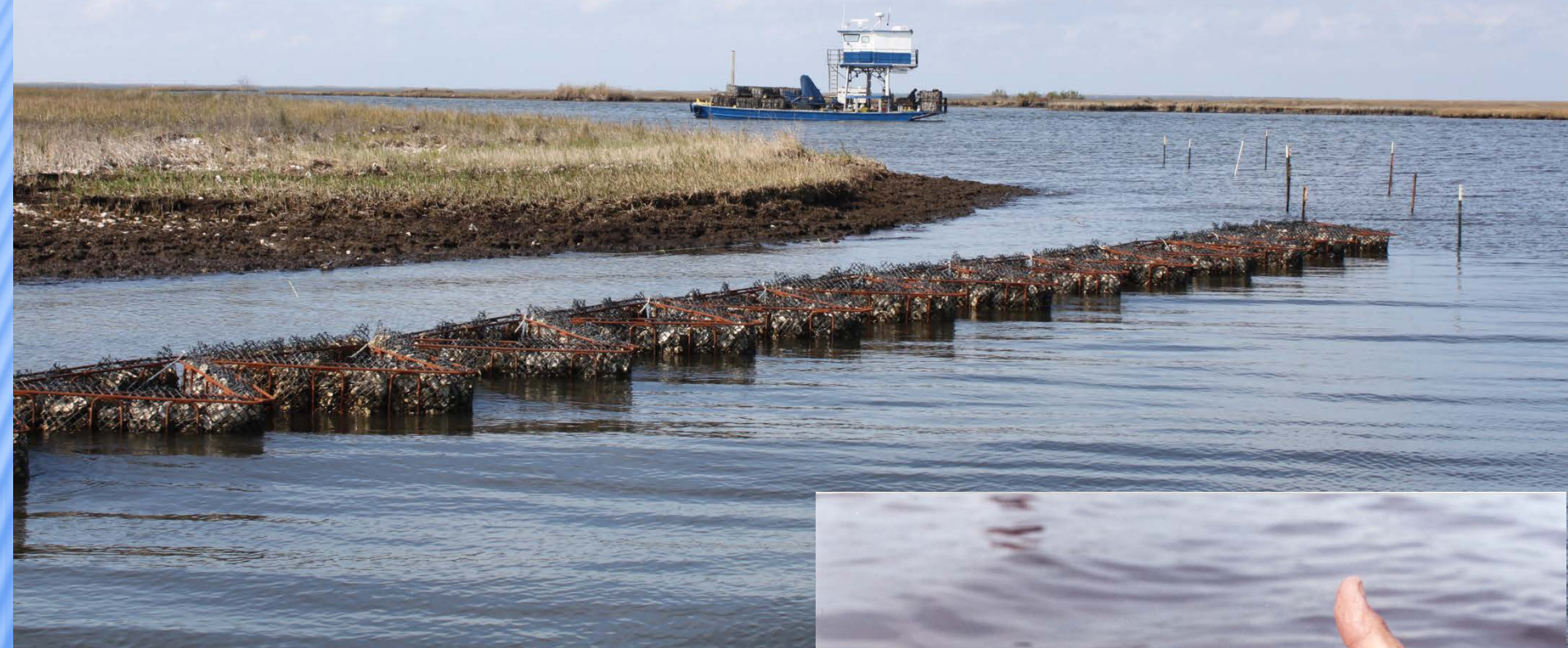


Plaquemine and St. Bernard commercial fishermen who deployed booms to control and capture oil resulting from the BP oil release are opposed to the diversions as are recreational fishermen of the region

ALTERNATIVE TO LARGE DIVERSIONS INTO BILOXI AND DELACROIX ESTUARIES 2012



St. Bernard Parish, LA 2012



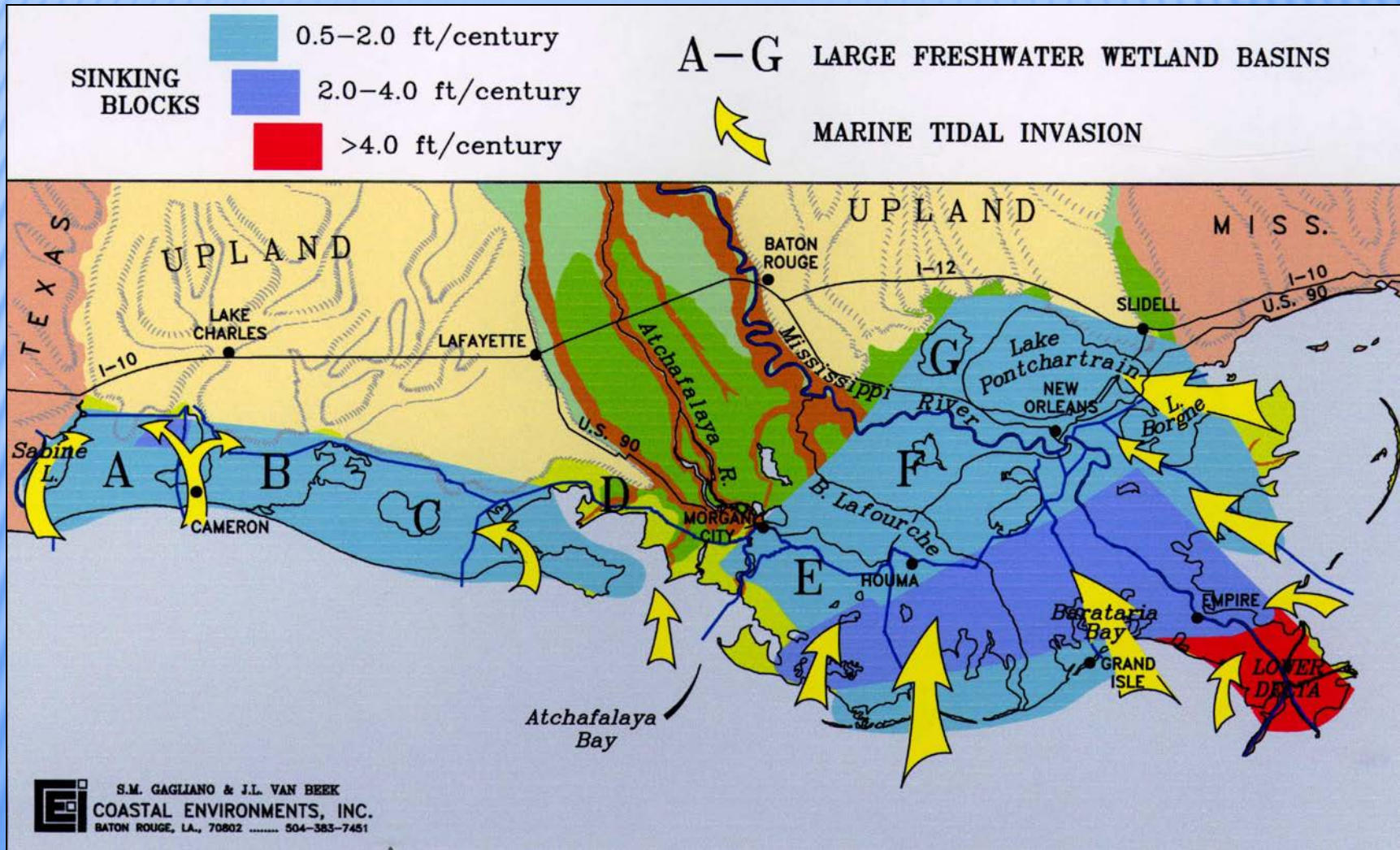
Free swimming oyster larvae (spat) attach themselves to the clean shell in the bags. Water flowing through the bags provides plankton to the filter feeding oysters, and they grow rapidly.



OYSTER SHELL BANK ST. BERNARD PARISH, LA 2010



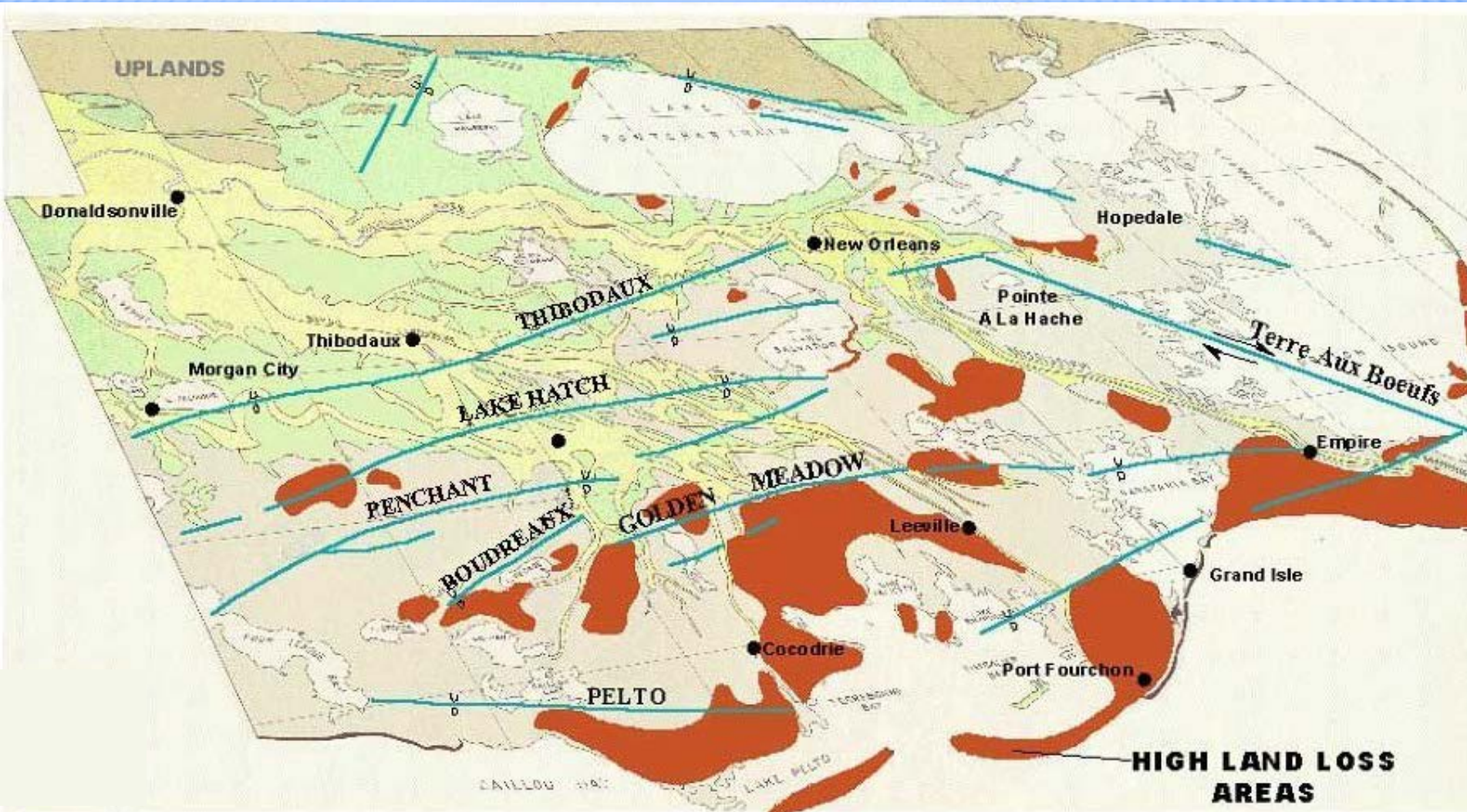
FAULT DRIVEN TRANSGRESSION 1999



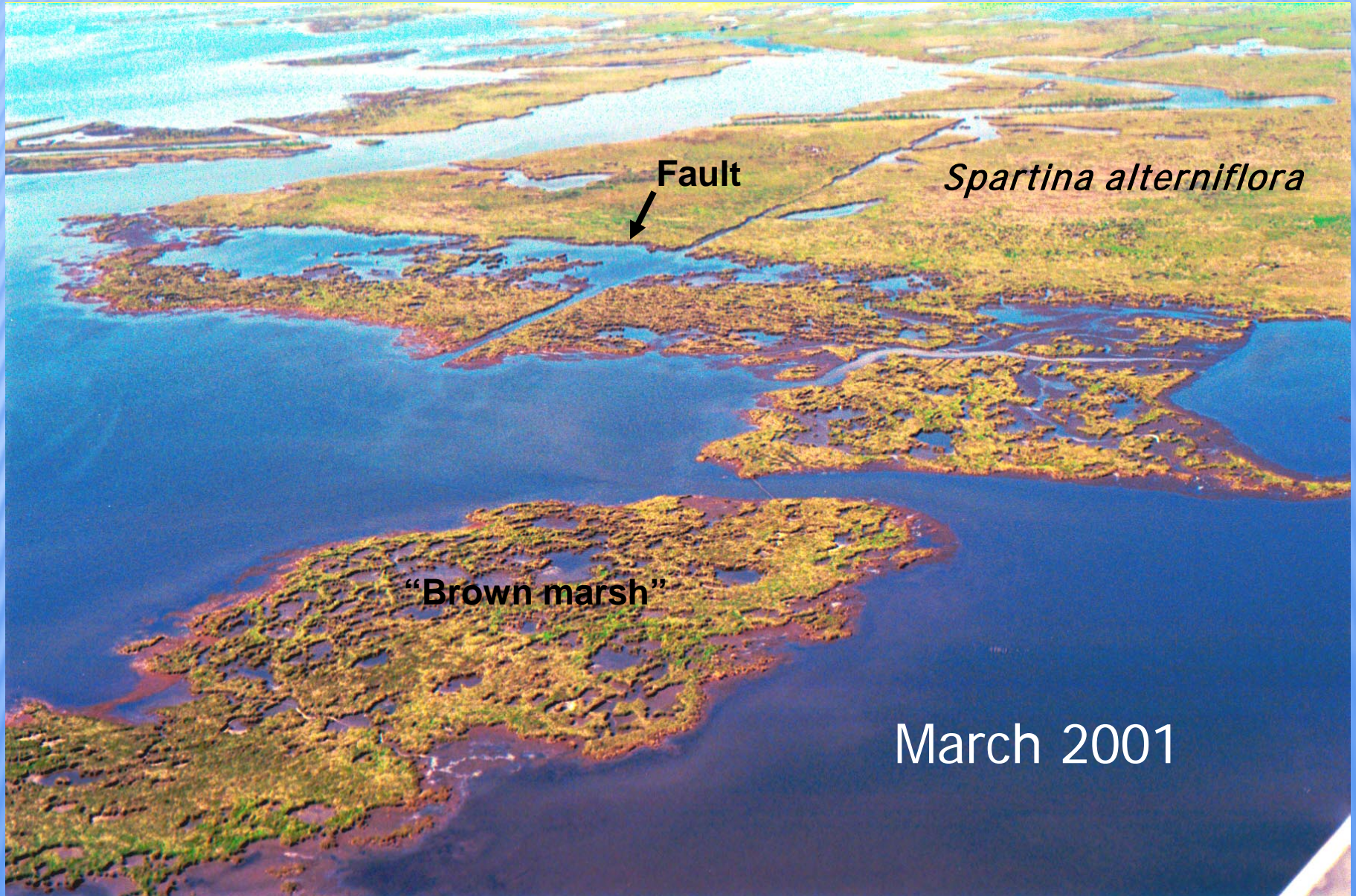
Sea Invasion of Louisiana's sinking Coastal Zone

(After S. M. Gagliano)

FAULTS AND LANDFORMS 1999



LAKE ENFERMER FAULT



"Brown marsh"

Spartina alterniflora

Fault

March 2001

Brown marsh on down-dropped fault block. Fault movement causes changes in landforms and ecology. Fault moved in 1971.

EMPIRE & BASTIAN BAY FAULT EVENTS 1976 - 1978

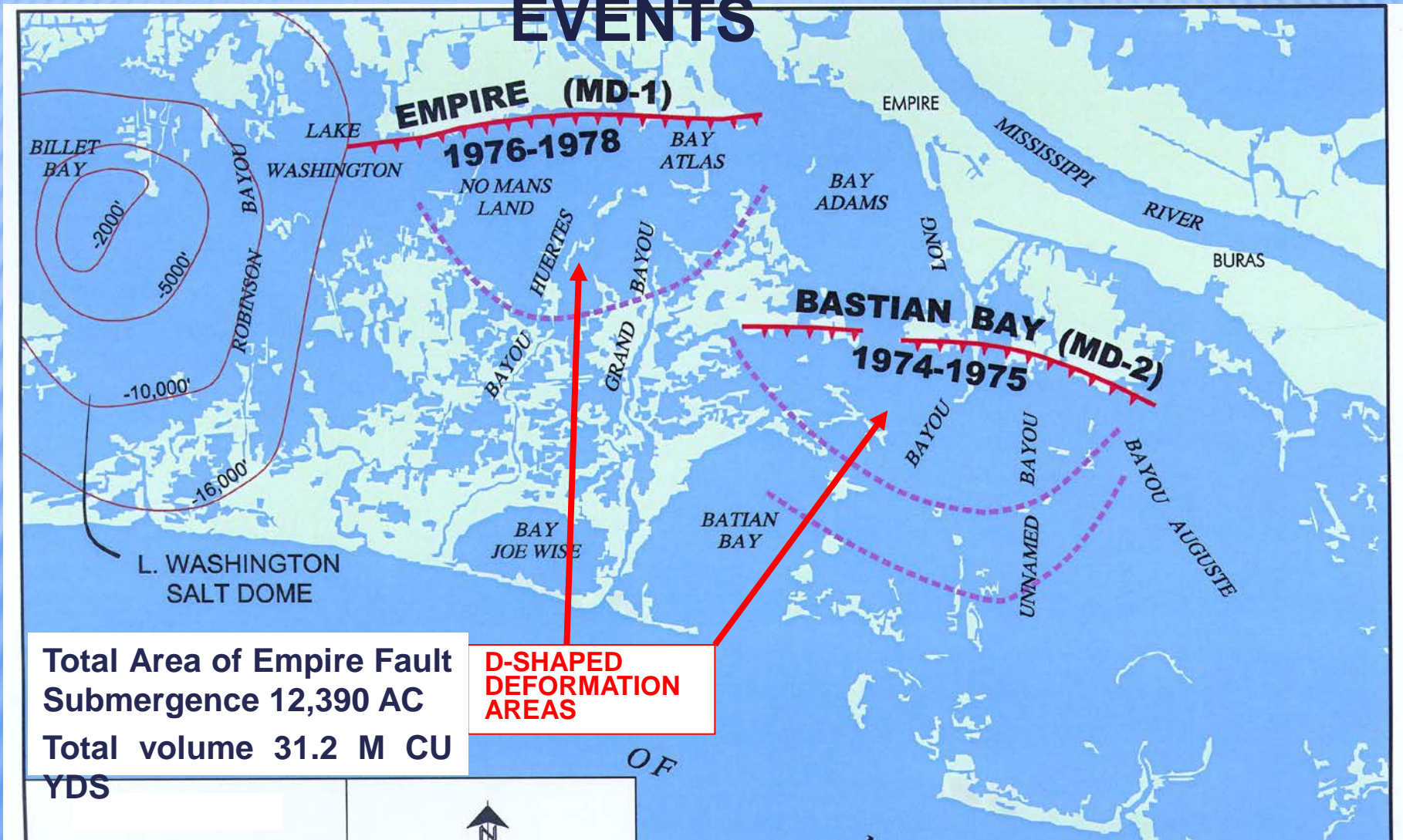
EMPIRE FAULT

- Scarp – 5 mi long
- Maximum vertical displacement along scarp – 3.5 ft
- Radius of deformation – 3.7 mi



Pete Hebert's camp built on the bank of Bayou Farrand in the late 1960s. Land sank 4.5 ft in 2 years in 1970s.

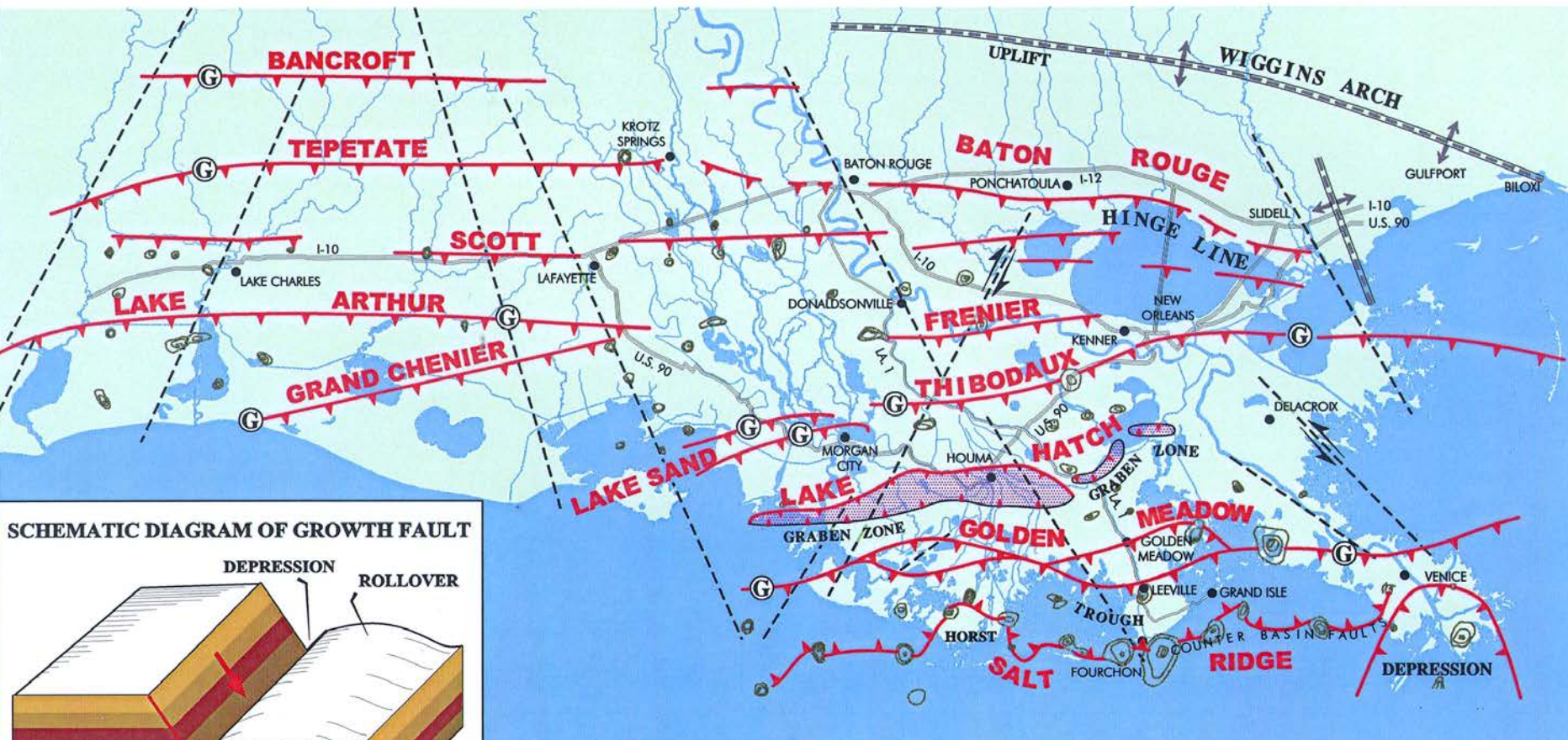
EMPIRE & BASTIAN BAY FAULT EVENTS



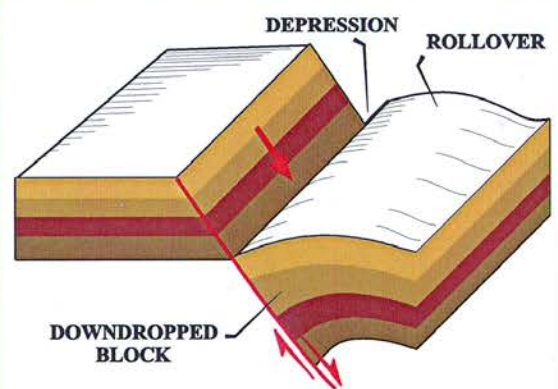
These two faults, along with the Lake Washington Salt Dome, lie within the Golden Meadow Fault Zone.

(After S. M. Gagliano 2005)

FAULTS and GEOFRACTURES of SOUTH LOUISIANA



SCHEMATIC DIAGRAM OF GROWTH FAULT

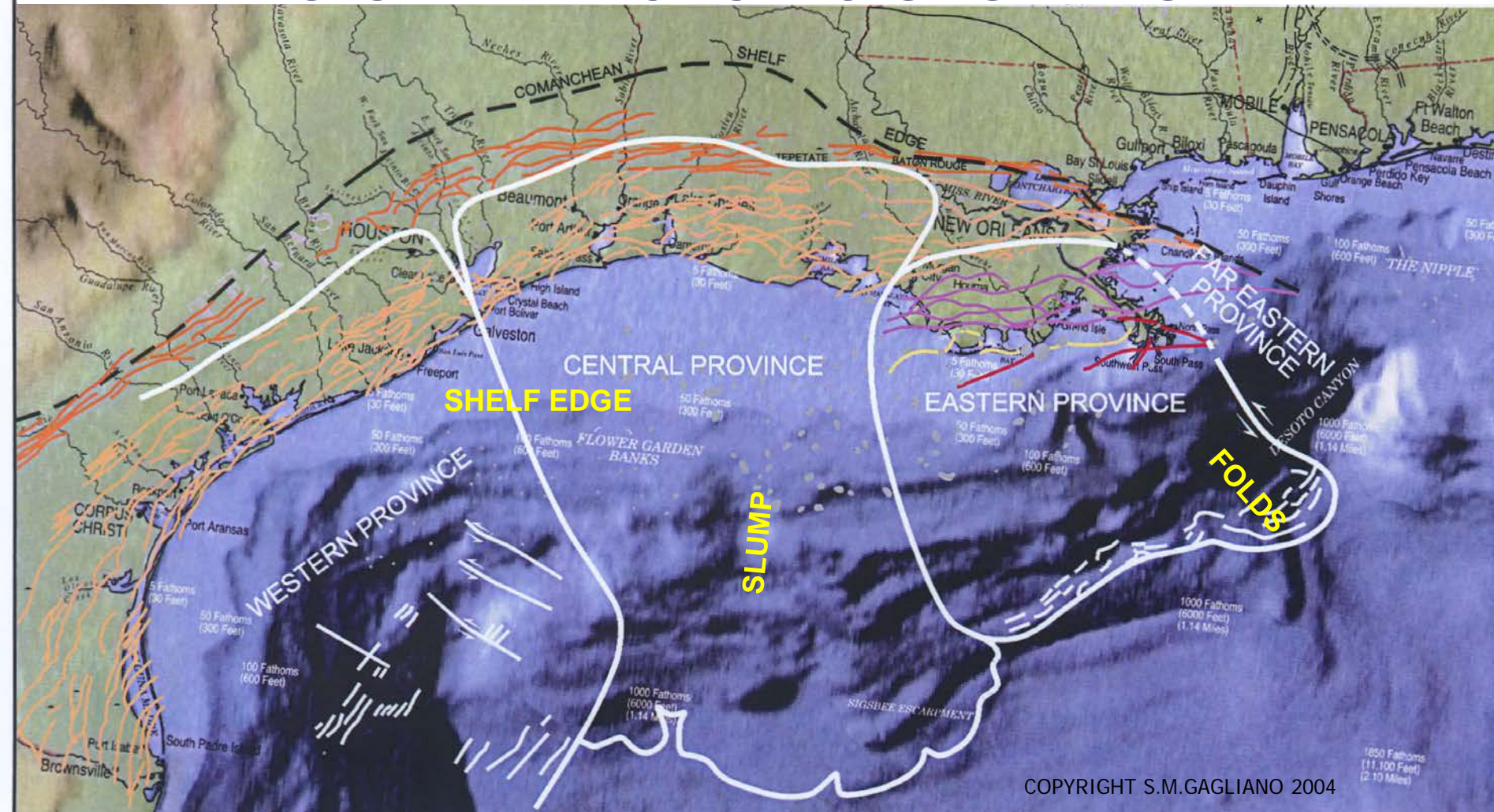


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	FAULTS		SALT DOMES
	GEOFRACTURES		GROWTH FAULTS

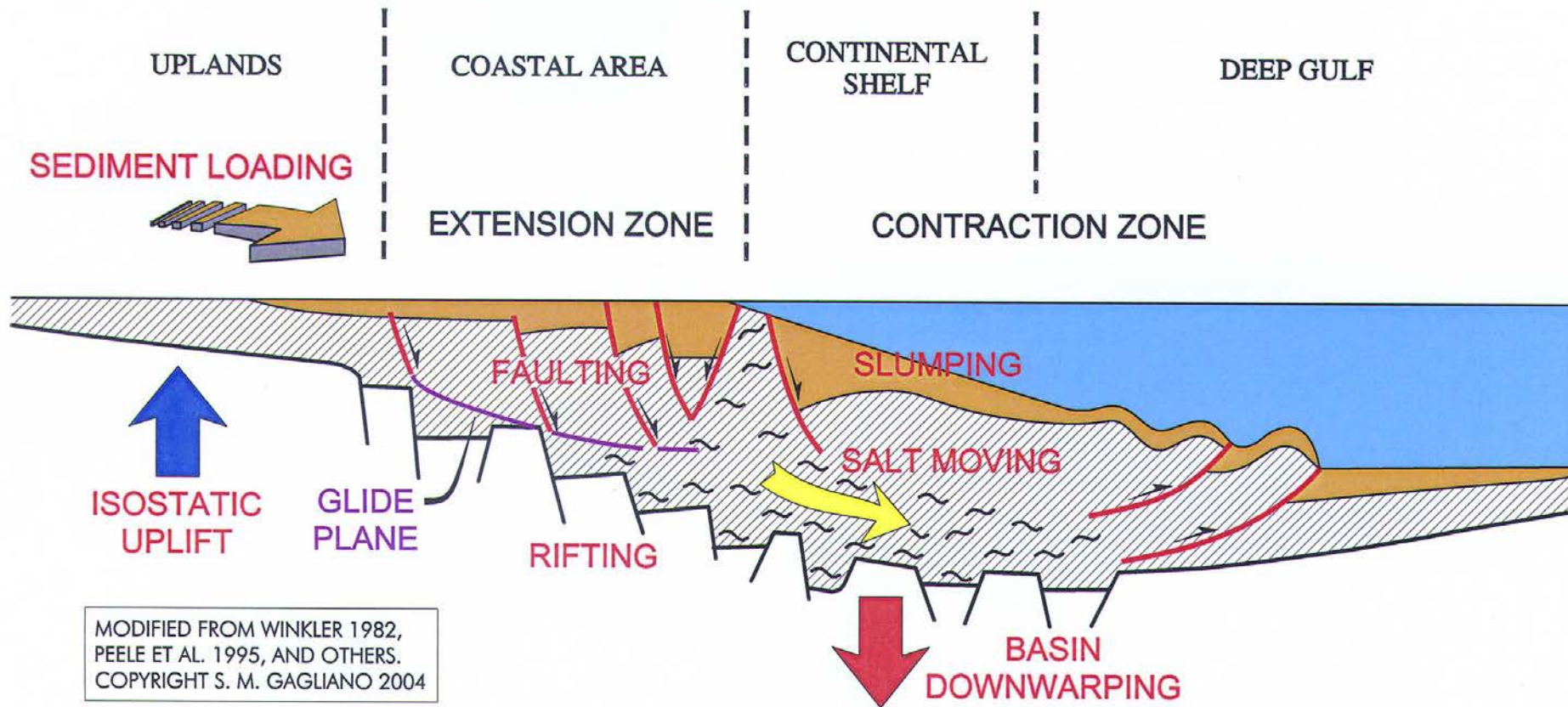
South Louisiana is underlain by a maze of deep-seated subsurface faults and geofractures (transfer faults).
 (After S. M. Gagliano 2005)

REGIONAL TECTONIC SYSTEMS



The onshore faults and fractures are part of linked regional tectonic systems that extend into the deep Gulf (after Gagliano et al. 2003; base map with permission of Port Publishing Co.; structural provinces after F. J. Peele et al. 1995.

CONTINENTAL MARGIN GRAVITY SLUMPING AND LINKED TECTONIC SYSTEMS SOUTHEASTERN LOUISIANA



The tectonic system is driven by interplay of natural processes and is in constant motion (after Gagliano et al. 2003).

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