

Orange County TMDL

Seventeen Total Maximum Daily Loads
for Bacteria, Dissolved Oxygen, and pH
in Adams Bayou, Cow Bayou, and Their Tributaries

Miles Hall – Sabine River Authority

Orange County TMDL Project



Cow Bayou Watershed –
194 square miles
Adams Bayou Watershed –
51 square miles
Annual Rainfall ~ 60 inches



Cow Bayou near Orangefield



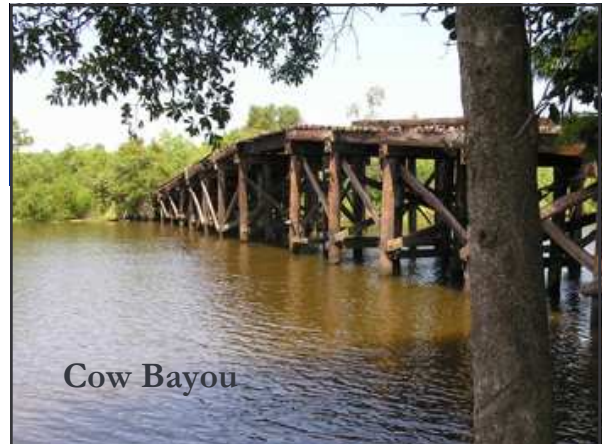
Cow Bayou at Highway 87



Cow Bayou Below IH10

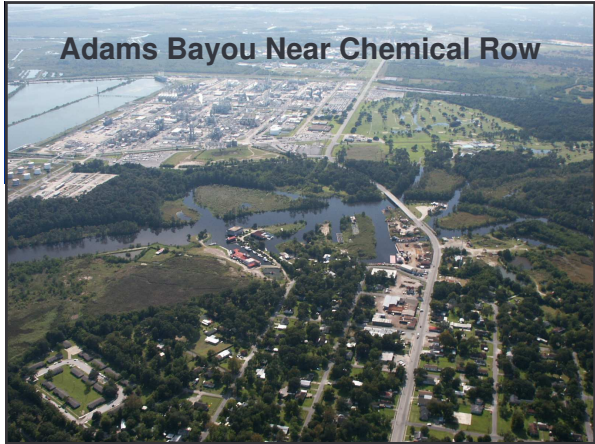


Cow Bayou





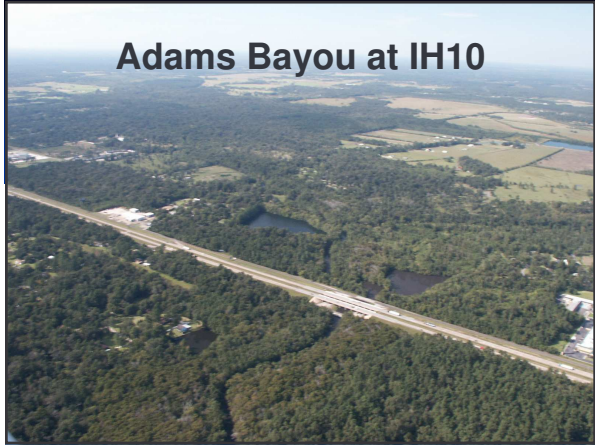
Upper Cow Bayou



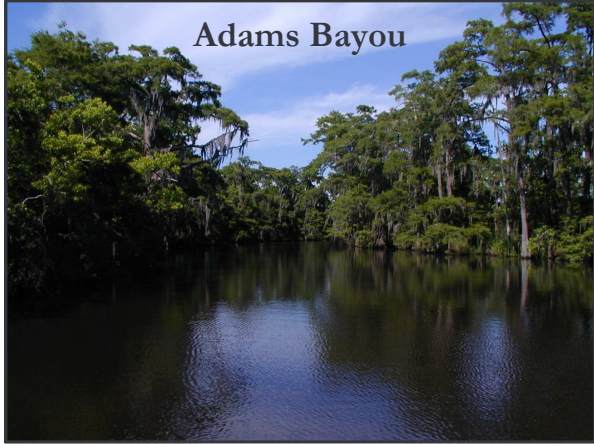
Adams Bayou Near Chemical Row



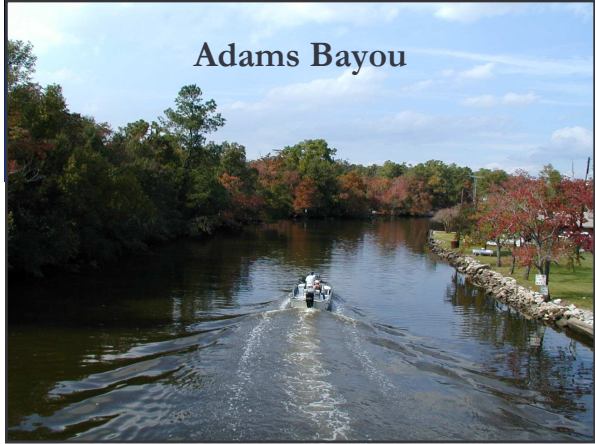
Adams Bayou at Green Ave. in Orange



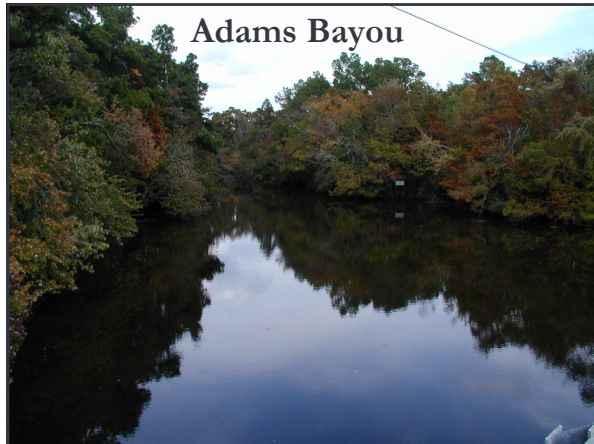
Adams Bayou at IH10



Adams Bayou



Adams Bayou



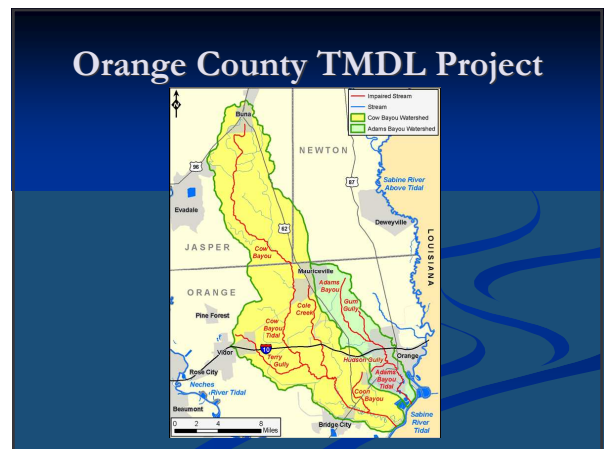
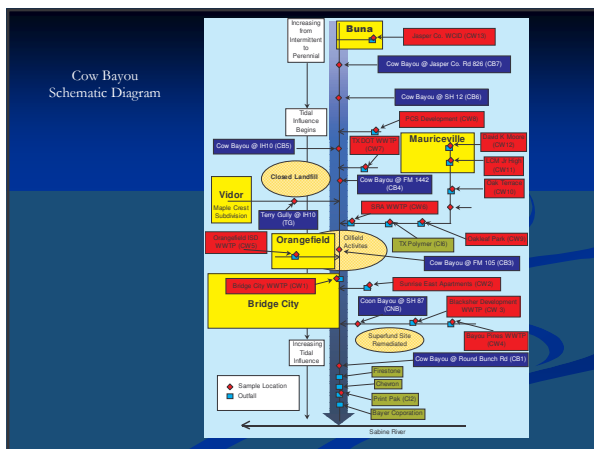
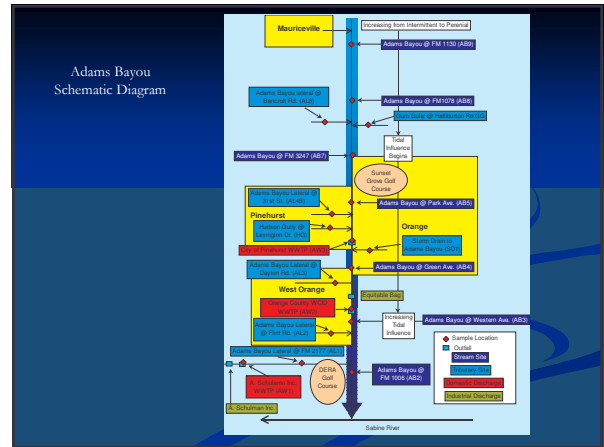
Adams Bayou

Water Quality History

- 1980-81 South East Texas Non-point Source Study
- 1982 Intensive Survey of Adams Bayou
- 1986 Adams Bayou Waste Load Evaluation (WLE)
- 1998-1999 Special Study on Adams Bayou

Water Quality History

- 1982 Intensive Survey of Cow Bayou
- 1986 Intensive Survey of Cow Bayou
- 1986 Cow Bayou WLE
- 1987 Fisheries Analysis - Texas Parks and Wildlife Department
- 1988 Use Attainability Analysis (UAA) - the Texas Water Commission
- 1998-1999 Special Study on Cow Bayou

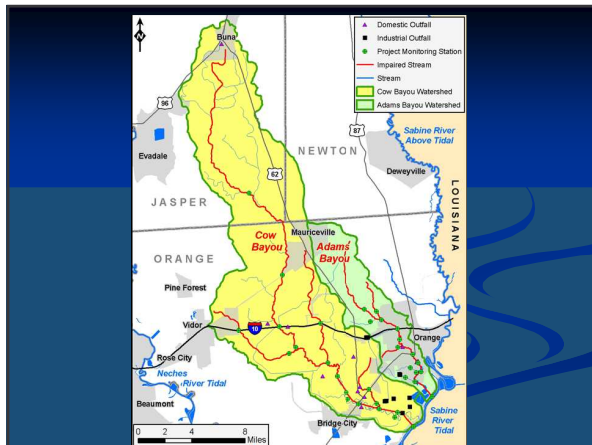


17 Reasons for 303(d) Listing

	Fecal Coliform	Dissolved Oxygen	Low pH
Adams Bayou Tidal	X	X	
Adams Bayou Above Tidal	X	X	
Gum Gully	X	X	
Hudson Gully	X	X	
Cow Bayou Tidal	X	X	X
Cow Bayou Above Tidal		X	
Coon Bayou	X	X	
Cole Creek	X	X	
Terry Gully	X		

Stakeholder Advisory Group

- SAG - formed in 2003
 - Local Government
 - Permitted Facilities
 - Agriculture
 - Business
 - Environmental Groups
 - Community Interests
- TAG (Technical Advisory Group)
 - State and Local Governmental Entities

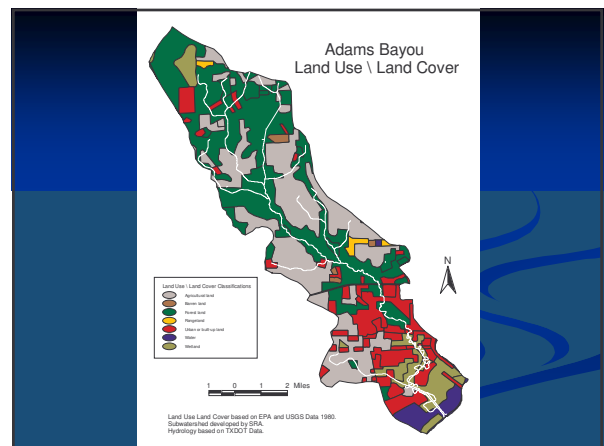


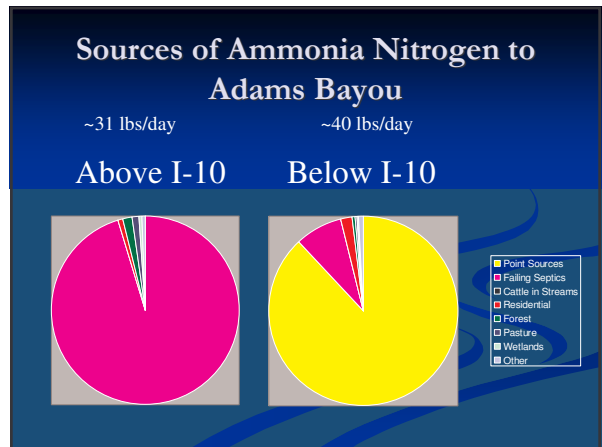
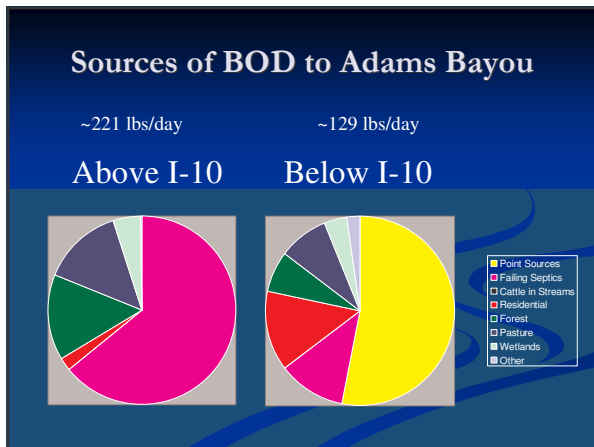
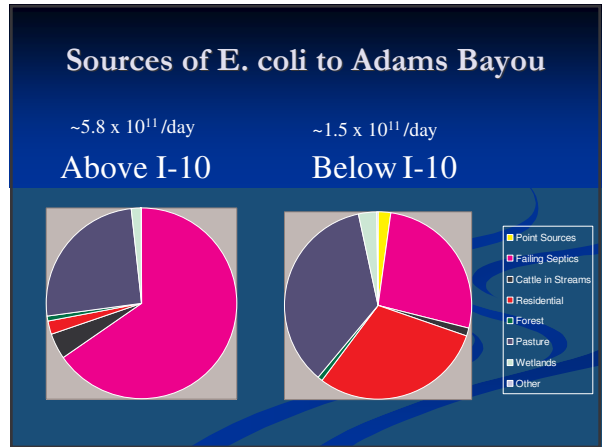
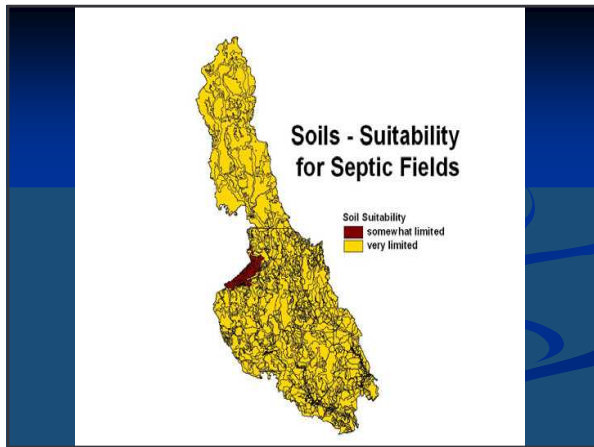
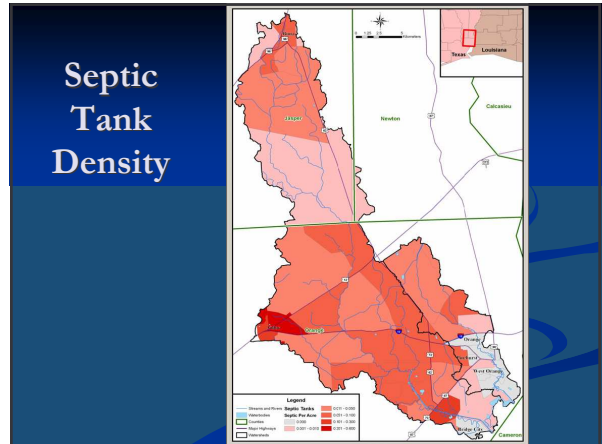
Domestic Wastewater Discharges

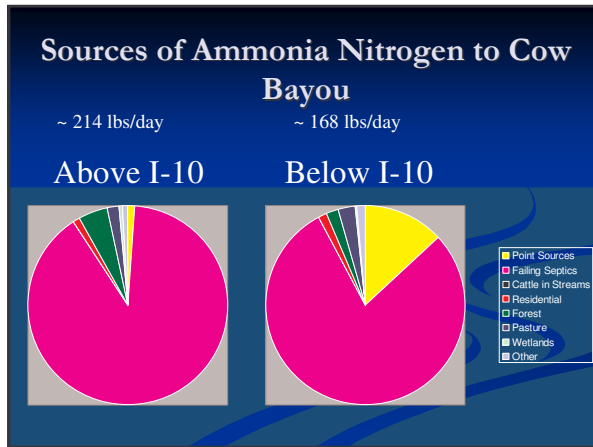
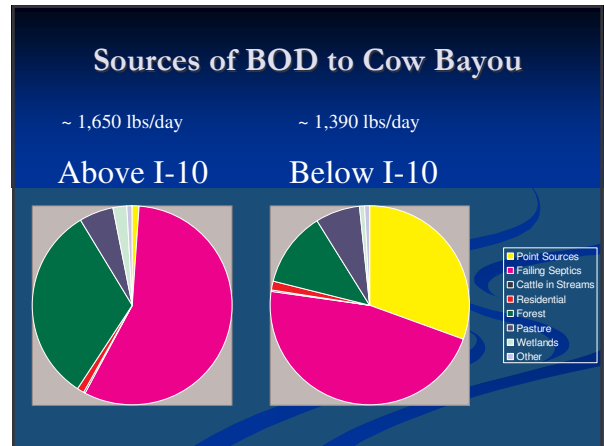
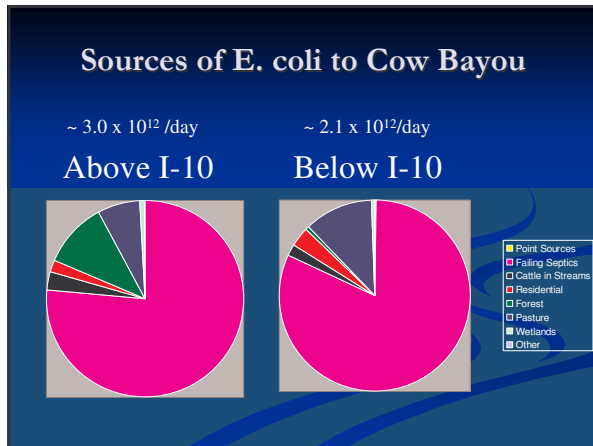
	Maximum Permitted Flow (MGD)	
	WWTF Discharges	
Adams Bayou Watershed	Orange County	1.22
	City of Pinhurst	0.5
	City of Orange	7.0
Cow Bayou Watershed	City of Bridge City	1.6
	Jasper WCID #1	0.41
	Bayou Pines Park	0.009
	TXDOT Orange Co. Comfort Station	0.011
	Orangefield ISD WWTP	0.032
	PCS Development Co	0.09
	Sabine River Authority 1 Plant	0.003
	Sunrise East Apartments	0.01
	Waterwood Estates	0.02

Industrial Wastewater Discharges

	Industrial Discharges	Maximum Permitted Flow (MGD)
Adams Bayou Watershed	A. Schulman, Inc.,	0.06
Cow Bayou Watershed	Chevron Phillips Chemical Orange Plant	3.15
	Firestone Polymers Orange Plant	1.0
	Honeywell International Inc, Orange	1.4
	Bayer Corp	3.5
	Texas Polymer Services, Inc	
	Printpak, Inc.	0.085







Load Reductions Needed

Adams Bayou

- 63% reduction to meet the DO standard
- 85% reduction to meet the bacteria standard

Cow Bayou

- 69% reduction to meet the DO standard
- 83% reduction to meet the bacteria standard*

Implementation Plan

- Stakeholder Involvement
- Regional Wastewater Treatment
- Public Education/Awareness

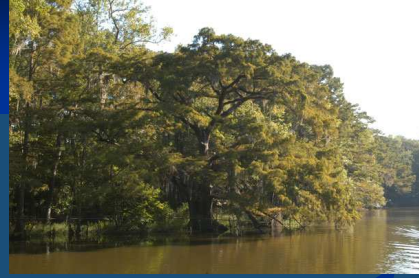
Regional Wastewater Treatment

- Texas Water Development Board Grant
 - Sabine River Authority
 - Municipalities
 - Industry
 - Failing Septic Tanks

Shangri La Botanical Gardens and Nature Center



Shangri La Botanical Gardens and Nature Center



Survivor Tree
1200 year old Pond Cypress
Circumference = 212 in.
Height = 45 ft.
Crown Spread = 83 ft.

