

Update for Science Advisory Committee



April 18, 2012

Dakus Geeslin



Mark Wentzel



Kevin Mayes

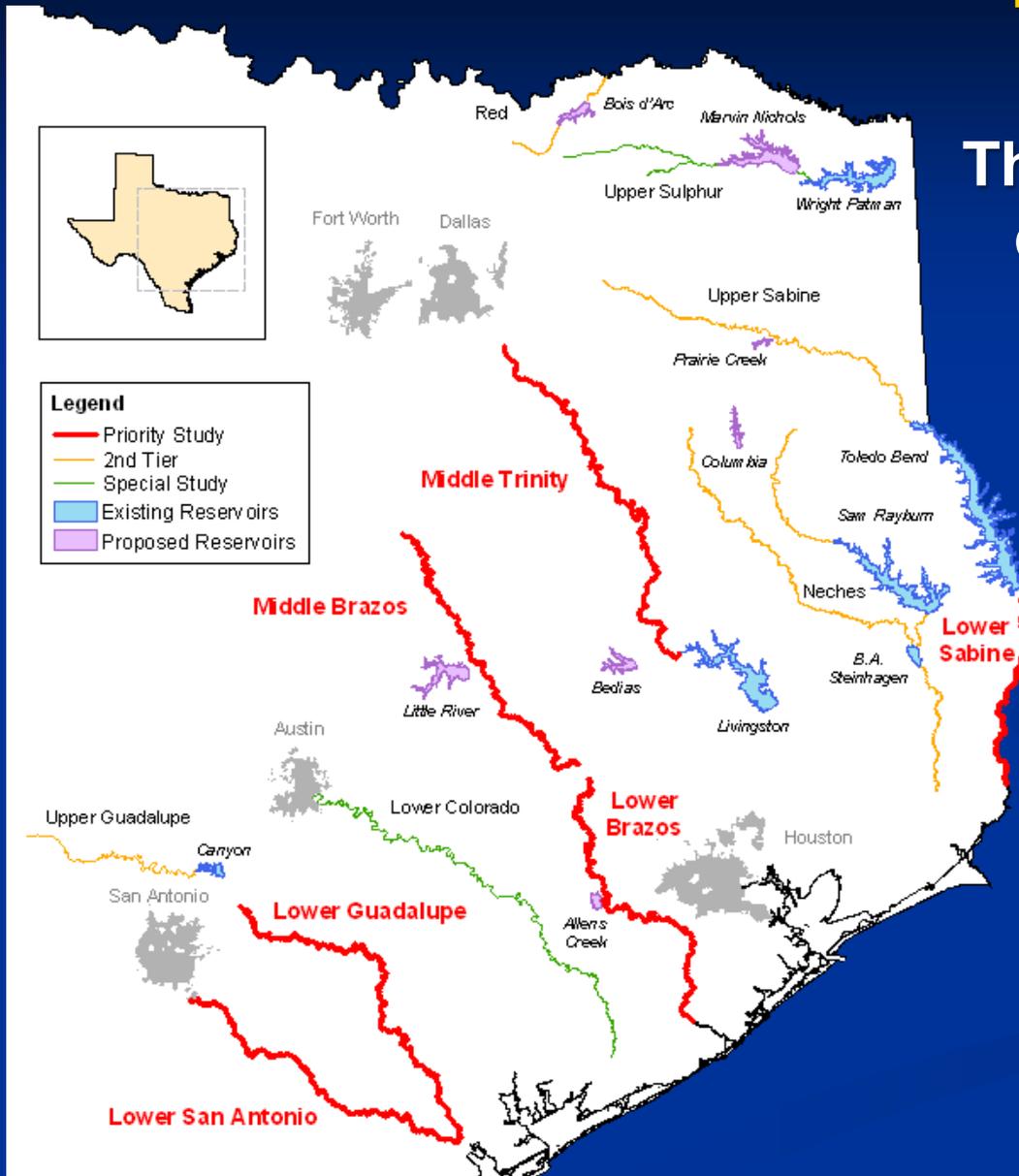


- **Where we are on the TIFP timeline**
- **Types of flow-ecology relationships TIFP studies have identified**
- **How TIFP studies relate to information needs identified by the SB3 process**
- **Resources**



TIFP Timeline

TWC Section 16.059(d)
The priority studies shall be completed not later than December 31, 2016.



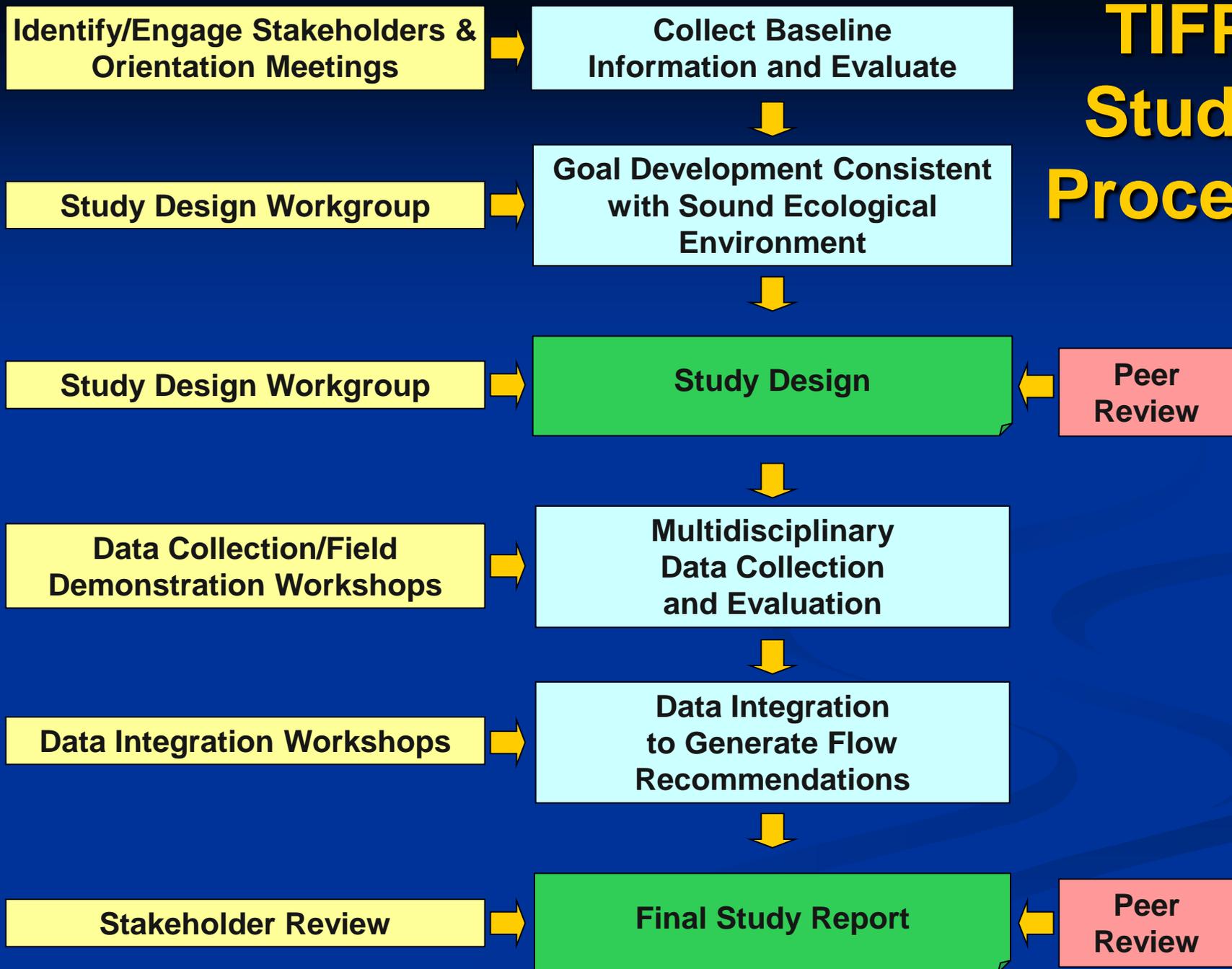
Current Priority Studies

- Lower San Antonio
 - Middle & Lower Brazos
 - Lower Sabine
 - Middle Trinity
 - Lower Guadalupe
- Completed Studies - 2016

Second Tier Studies

- Upper Guadalupe
 - Neches
 - Upper Sabine
 - Bois d'Arc
- Completed Studies - ?

TIFP Study Process



Lower San Antonio River

Instream Flow Study of the Lower San Antonio River and Lower Cibolo Creek

Interim Progress Report and Instream Flow Recommendations



Prepared for
Lower San Antonio River Sub-Basin Workgroup

Prepared by
TEXAS INSTREAM FLOW PROGRAM
AND SAN ANTONIO RIVER AUTHORITY

AUGUST 2011

Ongoing Applied Research

- Sediment Transport Evaluations
- SFA Large Woody Debris Evaluations
- UNT Golden Orb Mussel Study
- Larval Fish Sampling



Data Integration Workshops

Data Integration
to Generate Flow
Recommendations

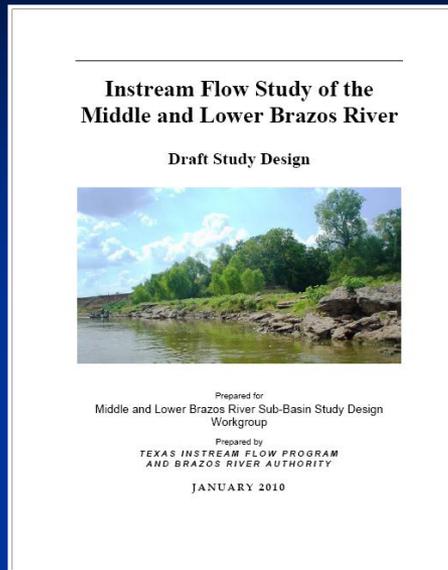
2013-2014

Stakeholder Review

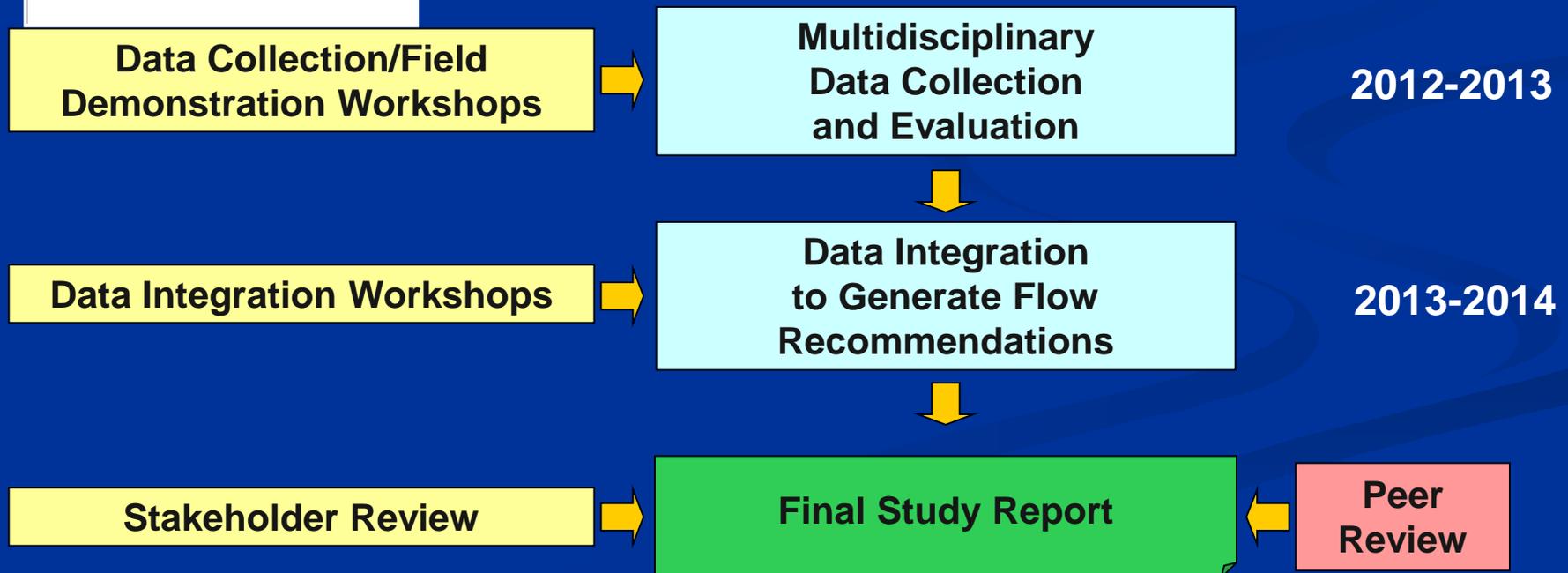
Final Study Report

Peer
Review

Middle and Lower Brazos River



- Finalized Study Design Summer 2012
- Continue Data Collection 2012-2013
- Ongoing applied research
 - Geomorphic change modeling
 - Additional riparian study sites
 - Water quality modeling
 - Fish/mussel habitat criteria and modeling



Middle Trinity River & Lower Guadalupe River

Identify/Engage Stakeholders &
Orientation Meetings



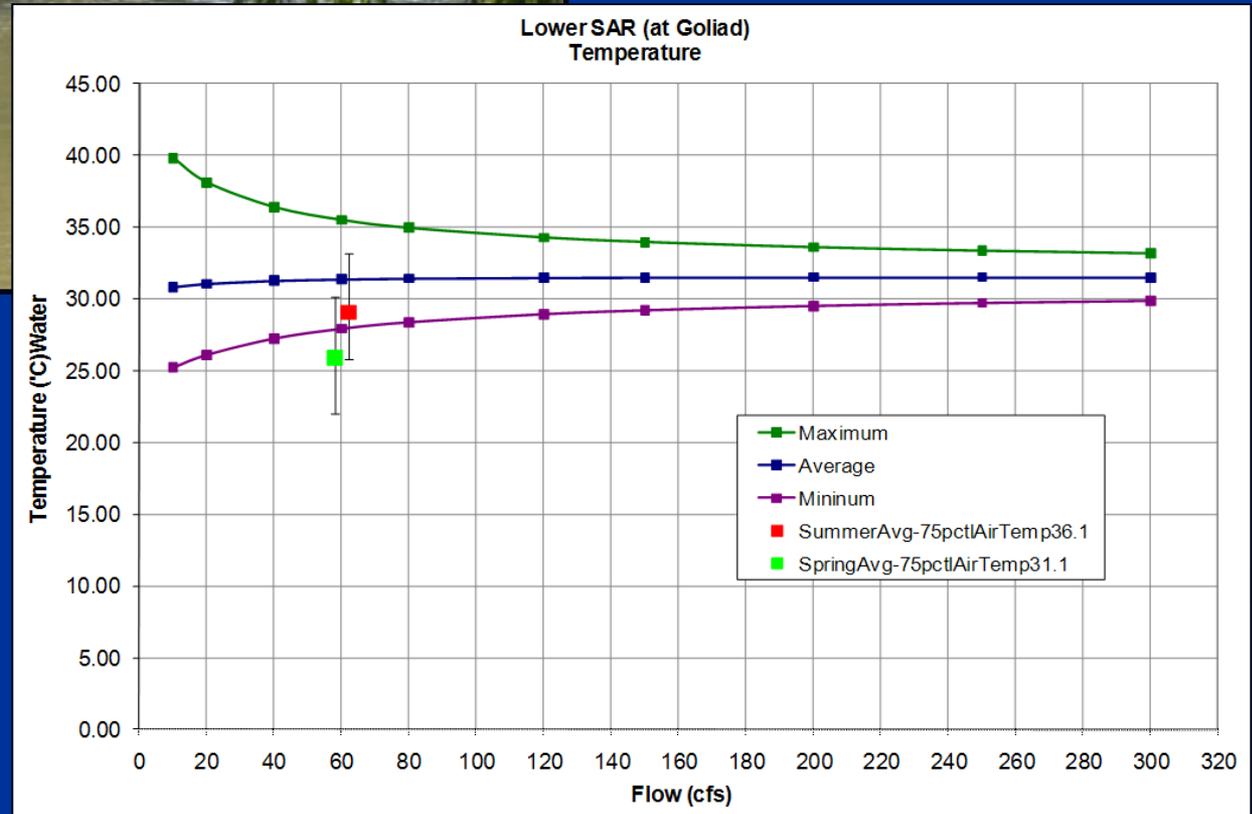
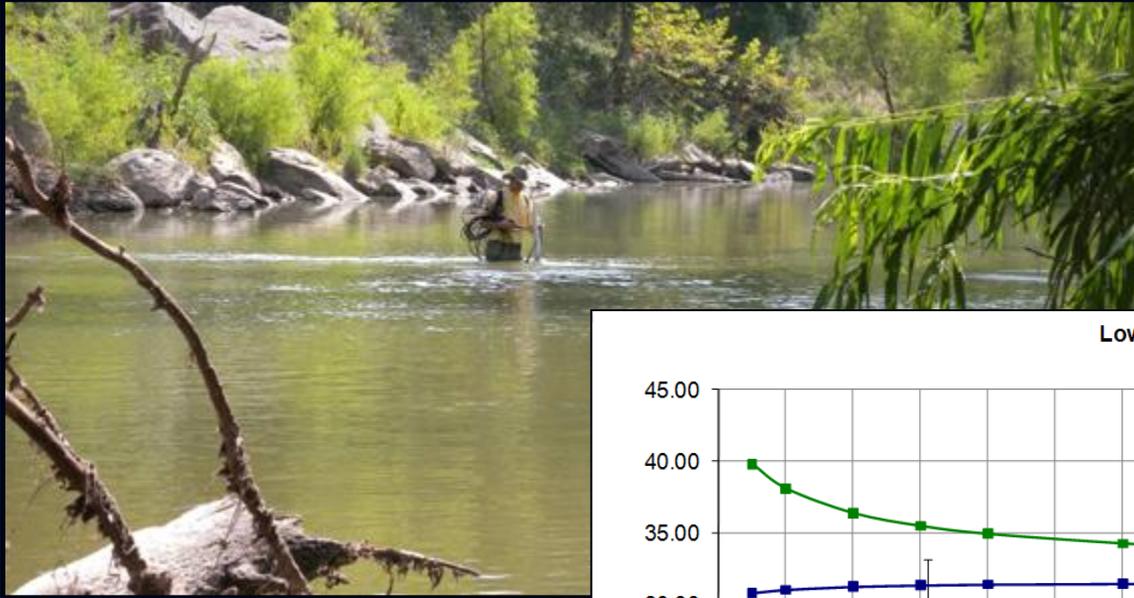
Collect Baseline
Information and Evaluate

Summer/Fall/
Winter 2012

- Ongoing Coordination Meetings with the Trinity River Authority and Guadalupe Blanco River Authority
- Baseline Biological Sampling Efforts to begin in 2012-2013
- Initiate Stakeholder Process in Fall/Winter 2012

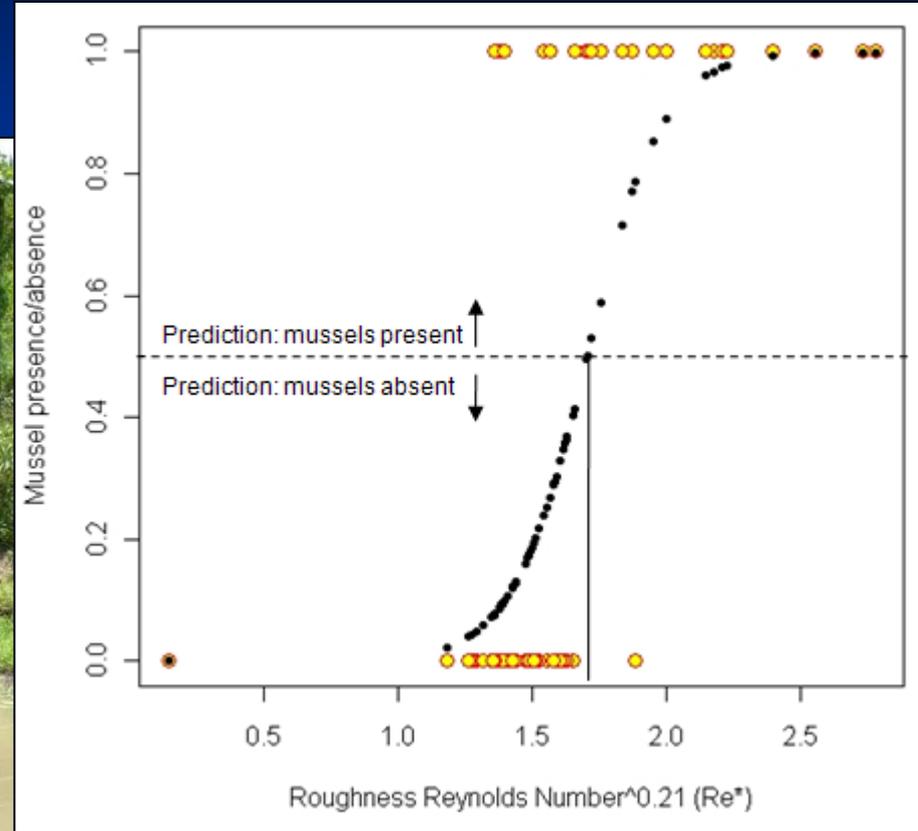
Temperature, Dissolved Oxygen vs. Flow

Lower San Antonio & part of lower Brazos



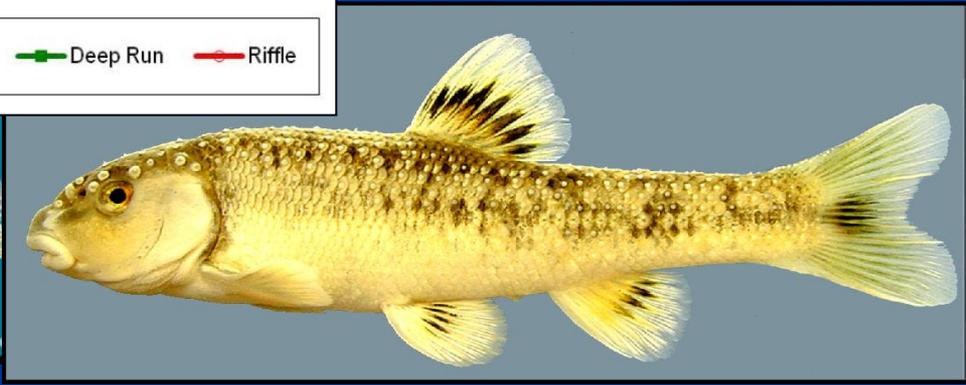
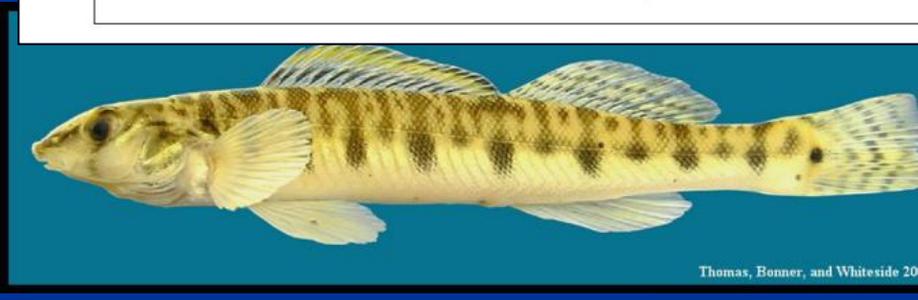
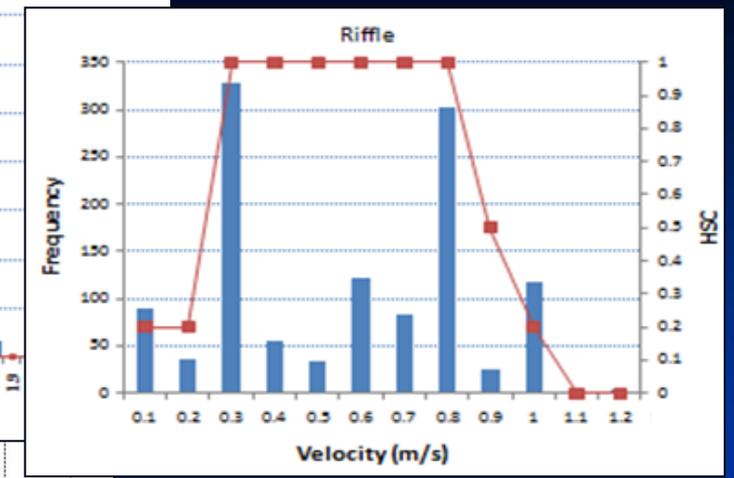
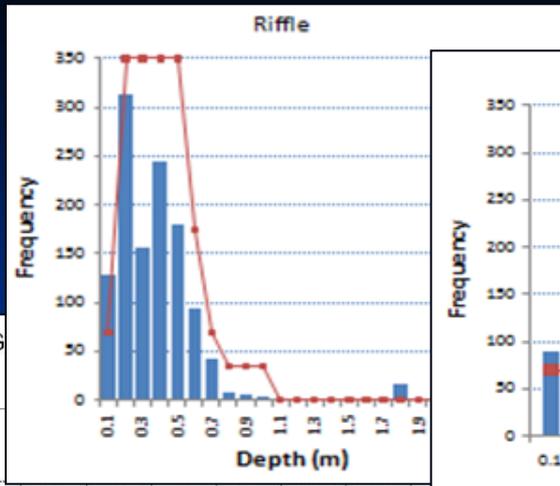
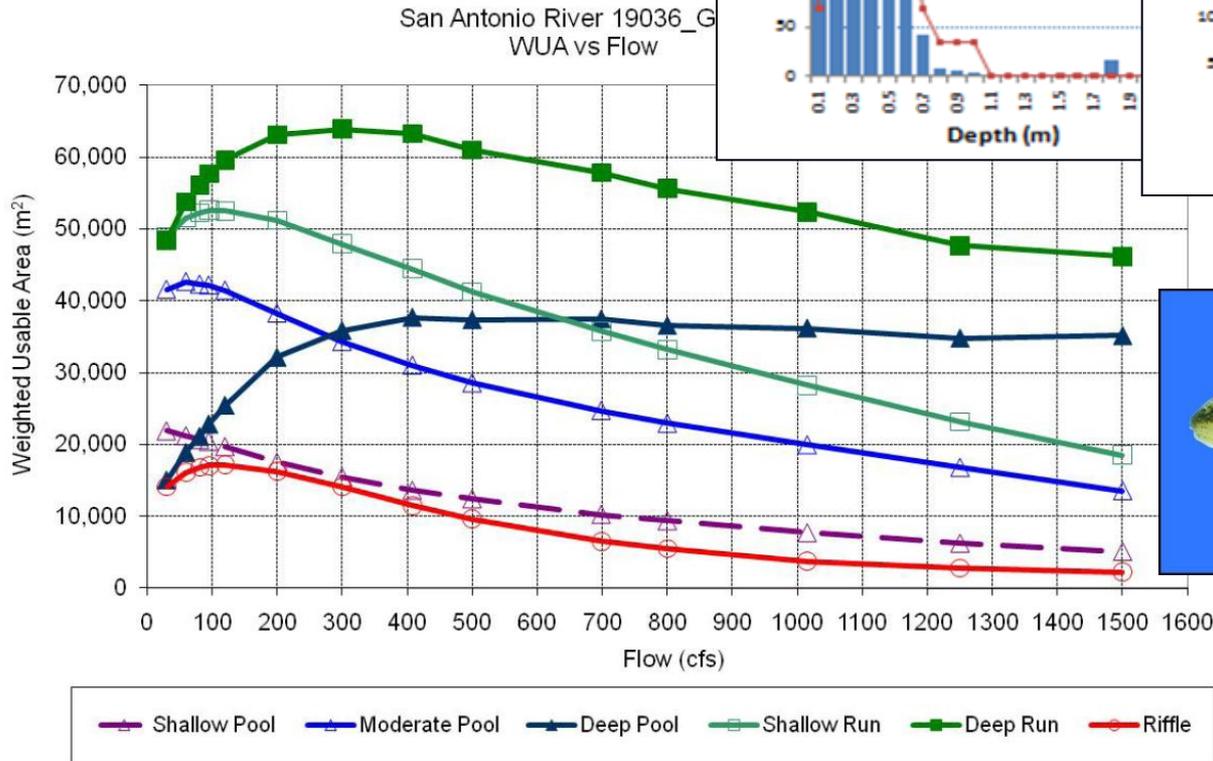
Mussel Habitat vs. Flow

Middle & lower Brazos and lower Sabine



Fish Habitat vs. Flow

Lower San Antonio

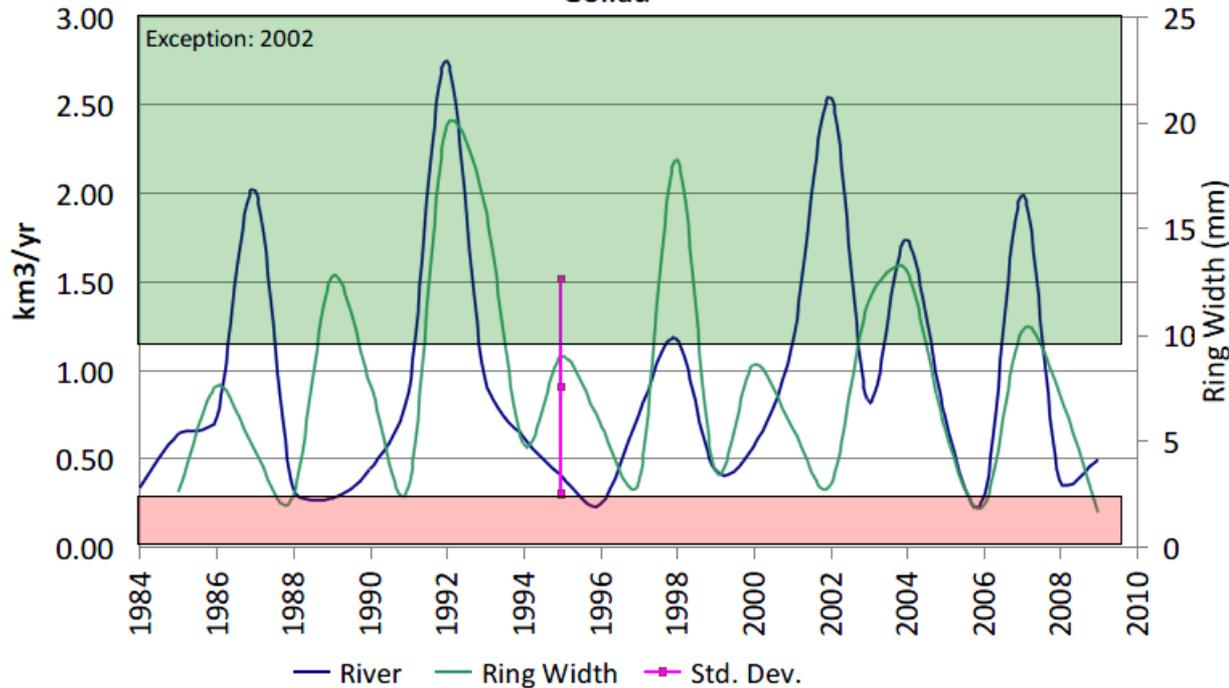


Riparian Species Productivity vs. Flow

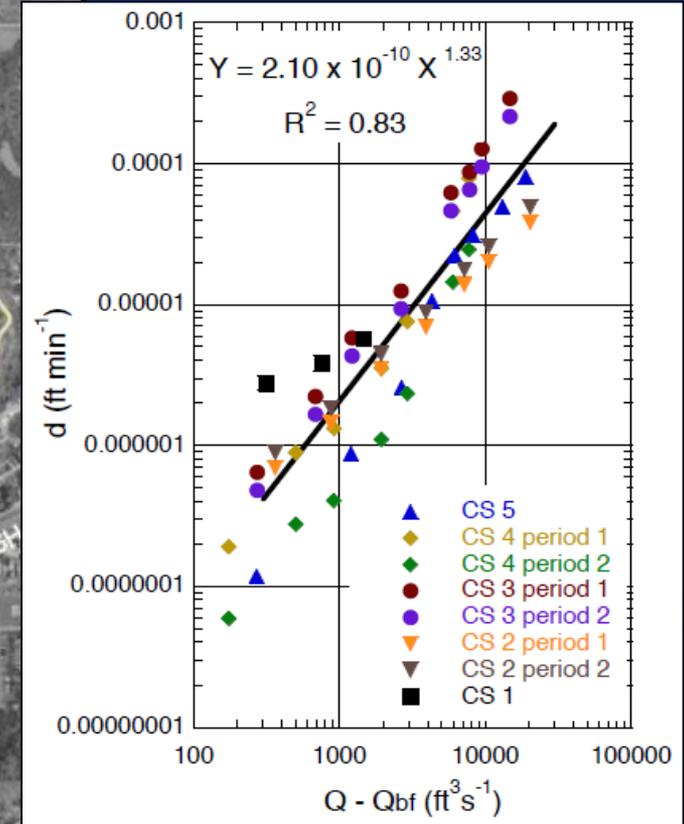
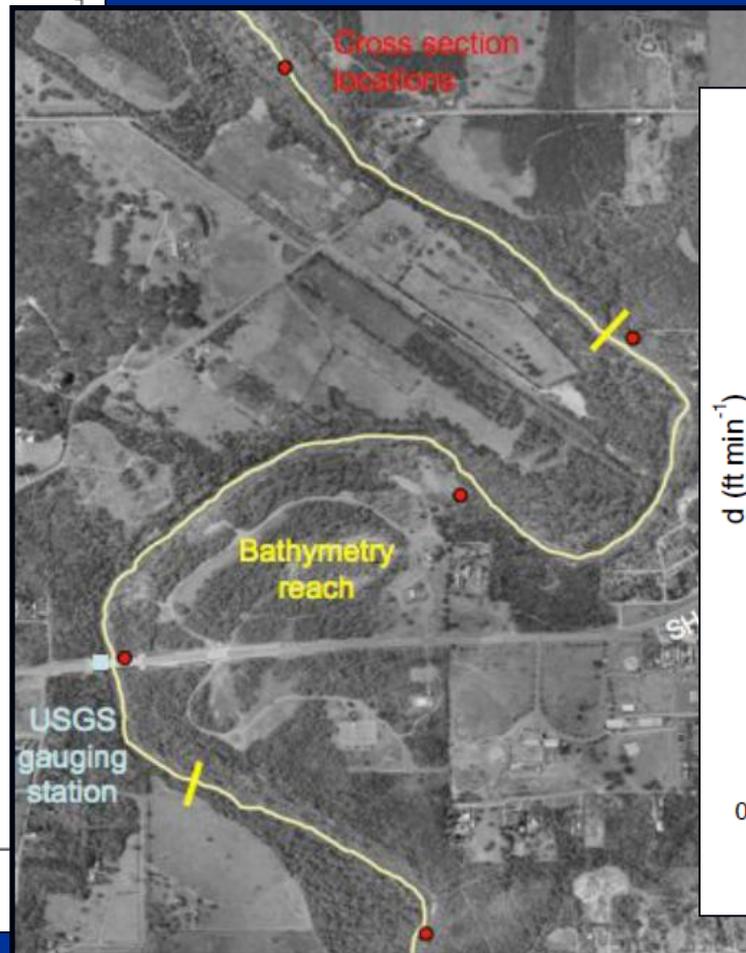
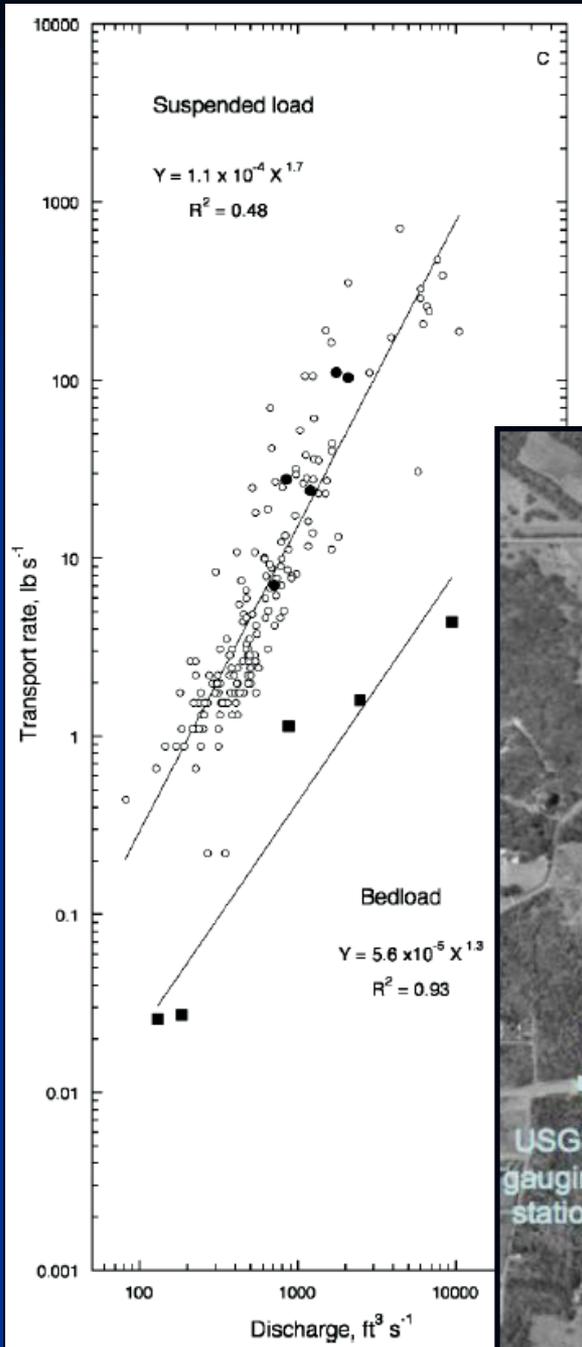
Lower San Antonio & middle and lower Brazos



Comparison of River Flow *Salix nigra*
Goliad



Sediment Transport, Floodplain Accretion vs. Flow Lower San Antonio



Sabine/Neches

BBASC Recommendations Report

Recommendation 3

“initiate and complete the instream flow studies required under SB 2 (2001) in order to develop the type of data required to better understand the amount of instream flow needed for a sound ecological system ...”

Recommendation 5

“proceed with the development of a Work Plan that: ... suggests adjustments to the SB 2 instream flow program to obtain information useful to the SB 3 process....”

Sabine/Neches

Work Plan & Addendum

- **Proposes additional monitoring and data collection**
- **Recognizes TIFP as providing valuable information regarding ecosystems in the basin (7 of 9 studies in “Existing Data”)**
- **Calls for studies in other parts of the basin similar to those conducted by TIFP in Lower Sabine (riparian, LWD, mussels, geomorphic)**
- **Calls for studies similar to those yet to be completed by TIFP in Lower Sabine (fish habitat)**

Trinity/San Jacinto Work Plan (Draft)

Work Plan Priorities

Component	Category	BBASC Item No.	BBEST Item No.	Item Description	Comparable TIFP Study Element
Instream/Estuary	General	1	21	Coordinate data gathering and special studies with work plan being developed for Senate Bill 2	Program Goal: "in conjunction"
	General	2	54	Determine how best to evaluate changes from a "sound ecological environment"	Values, Goals, Objectives, Indicators
Instream	Hydrology/ Hydraulics/ Habitat/ Geomorphology	3	1	3-tier study area development	Study Site Selection
			8	Imagery analyses	
			9	Prioritization of intensive study sites	
		4	3	Flow regime component characterization	Hydrologic Analysis
		5	*	Evaluate interrelationships between environmental flow regimes and proposed water supply projects	
		6	10	Intensive site-specific studies of high priority sites	Intensive Studies
Instream	Ecology	7	14	Analyses and establishment of baseline ecological conditions	Objectives, Indicators, Baseline Data Collection
		8	15	Identification of Indicator Metrics & Species	
Instream	Water Quality	9	24	Analyze data and develop findings and conclusions regarding the relationship between water quality data and the proposed flow regimes	Water Quality Data Analysis & Modeling

Colorado/Lavaca Work Plan (Draft)

Work Plan Priorities

- Proposes additional monitoring and data collection
- Highest priority tasks are heavy on desktop and monitoring efforts (less emphasis on field studies)
 - “Literature review and discussion with experts”
 - “Compile and review available information”
 - “Desktop studies as necessary, field studies”
- Remaining tasks are similar to those carried out by TIFP studies
 - Special study on perennial pools
 - Identify two aquatic and two riparian indicator species
 - Flows required to sustain freshwater mussels
 - Site specific studies of Guadalupe bass and blue sucker

Guadalupe/San Antonio Work Plan (Draft)

■ Tier I Priorities

- SB2/TIFP Study on Guadalupe (both lower and upper)**

■ Tier II Priorities

- Riparian Assessment and Monitoring**
- Biological Sampling and Monitoring (develop HSC, investigate floodplain habitat)**
- Geomorphic Studies and Monitoring**
- Effects of Logjams on Habitat, Flooding, Sediment**

■ Tier III Priorities

- Impacts of Invasive (riparian) Species**

Nueces BBEST Report

Future Research and Monitoring Needs

- Describe relationships between flow; physical, chemical, biological structure and function; and ecological health
- Identify stream locations where flow-environment should be analyzed
- Modeling of flow-fish habitat relationships
- Ecological services of perennial pools
- Identify flows necessary to sustain mussels
- Describe how hydrology is changing
- Describe relationship between flow and benthic macroinvertebrates
- Describe changes in geomorphology
- Identify hydrologic condition and triggers

Brazos BBEST Report

Adaptive Management

“The studies being conducted for this portion of the Brazos (by TIFP) will be of incalculable value for the BBEST during first adaptive management reviews. The study results will fill many data gaps for the lower portion of the Brazos Basin and allow the BBEST to refine flow regime recommendations for this portion of the basin. The BBEST has recommended that similar data collection efforts and studies be expanded to cover the remainder of the Brazos Basin and be started in the San Bernard Basin.”

Resources

- TIFP is unfunded by SB 2
“maximize in-house capabilities”
- Research and Planning Fund shrinking
- Pursuing federal funds to extend limited RPFs
- Substantial funds and resources contributed by river authorities