

**Guadalupe, San Antonio, Mission, & Aransas Rivers
& Mission, Copano, Aransas, & San Antonio Bays
BBASC & BBEST Meeting
April 7, 2010**

**Update on the
Texas Instream Flow Program:
Lower San Antonio River**



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Texas Instream Flow Program

Senate Bill 2 (2001)

“...conduct studies and analyses to determine appropriate methodologies for determining flow conditions in the state’s rivers and streams necessary to support a sound ecological environment.”



TIFP Studies



- Current Priority Studies
 - Lower Sabine
 - Middle & Lower Brazos
 - Lower San Antonio
- Study Designs - 2009-10
- Completed Studies – 2012-13

- Remaining Priority Studies
 - Middle Trinity
 - Lower Guadalupe
- Completed Studies - 2016

- Other Studies
 - Upper Guadalupe
 - Neches
 - Upper Sabine
 - Bois d'Arc

Instream Flow Study





Lower
San Antonio
2005-2008

Instream Flow Study



Study Design Workgroup

Jul. 22&23, 2008 – Sub-Basin Orientation/Update Meetings: **Values**

Sep. 9, 2008 – 1st Study Design Workgroup Meeting: **Goal**

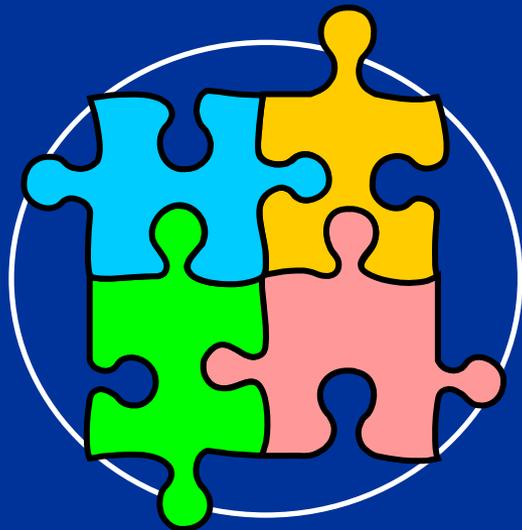
Oct. 21, 2008 – 2nd Study Design Workgroup Meeting: **Objectives**

Dec. 9, 2008 – 3rd Study Design Workgroup Meeting: **Indicators**



Lower San Antonio Sub-basin

Lower San Antonio Goal: A naturally functioning and sustainable ecosystem that supports a balance of ecological benefits and economic, recreational and educational uses.



Objectives & Indicators:

- Biology
- Hydrology & Hydraulics
- Physical Processes
- Water Quality
- Connectivity

Study Design

Jun. 19, 2009 – Draft Provided to Study Design Workgroup

Jun. 30, 2009 - Discussed at 4th Study Design Workgroup

Aug. 3, 2009 - Comment Period

Nov. 11, 2009 - Revised Draft provided for Scientific Peer Review

Feb. 12, 2010 - Comments Received from Scientific Peer Review

Summer 2010 - Study Design Finalized

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

Draft Study Design



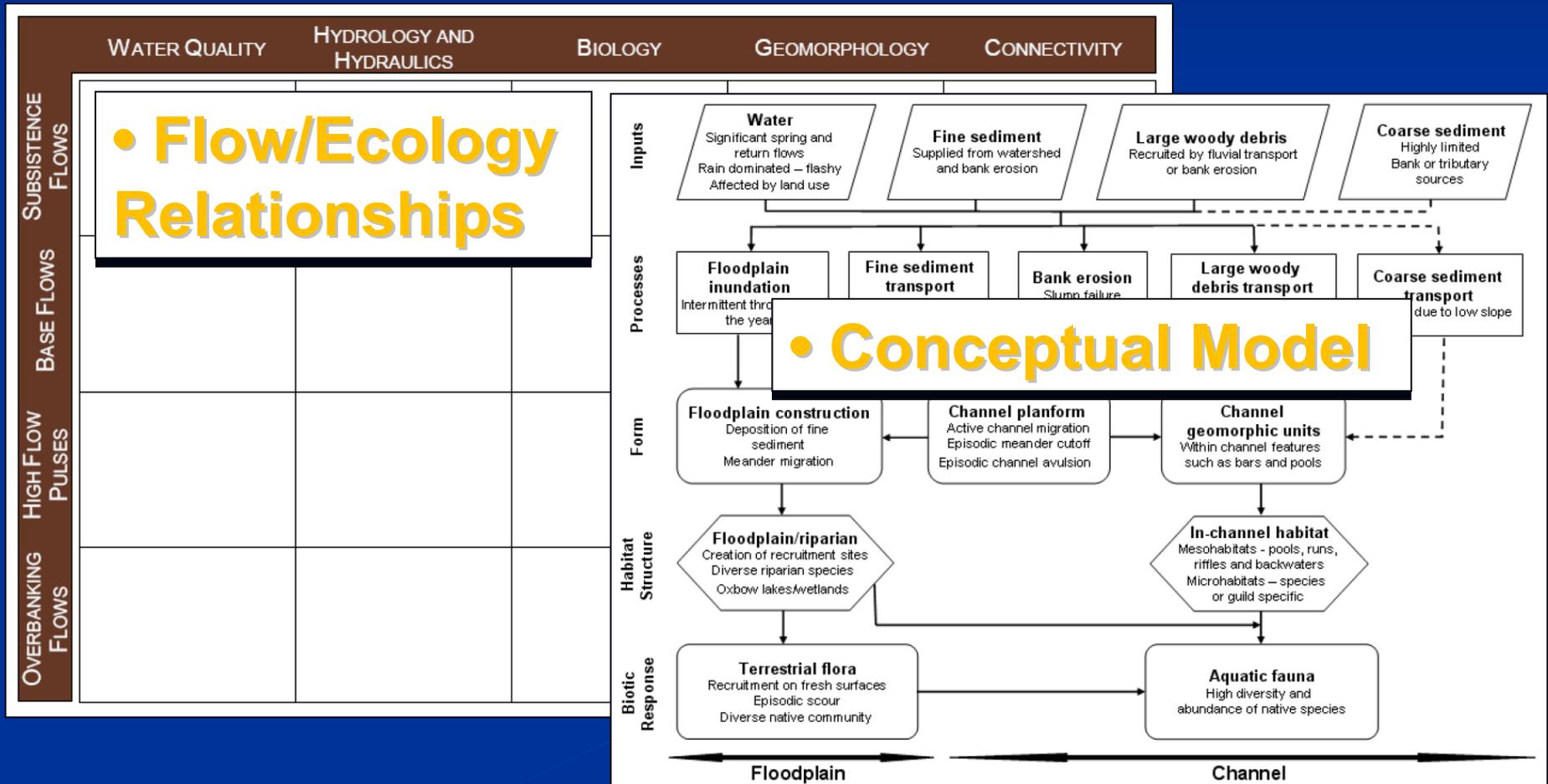
Prepared for
Lower San Antonio River Sub-Basin Study Design Workgroup

Prepared by
*TEXAS INSTREAM FLOW PROGRAM
AND SAN ANTONIO RIVER AUTHORITY*

NOVEMBER 2009

Contents of the Draft Study Design

- Summaries of Recent Studies of Interest
- Assessment of Current Conditions
- Descriptions of SB2 Studies



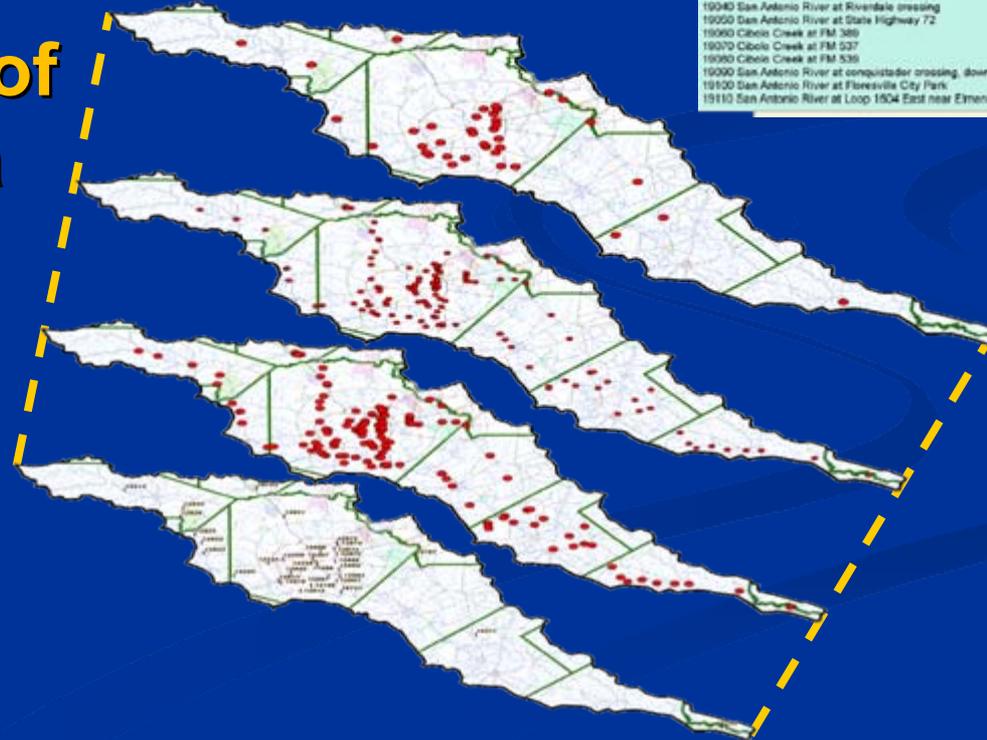


Intermediate Products

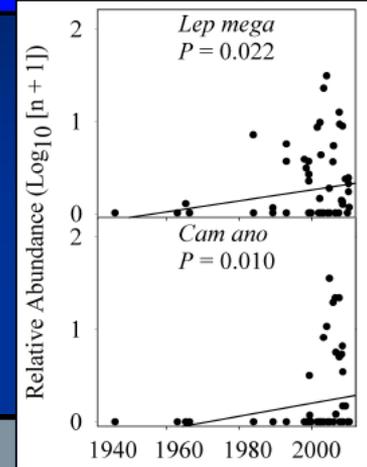
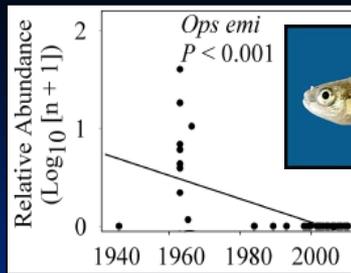
- **Baseline Biological Data**
SARA & TIFP (2006)



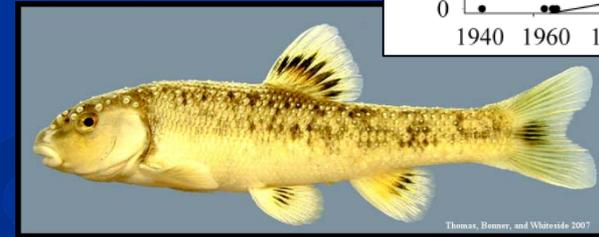
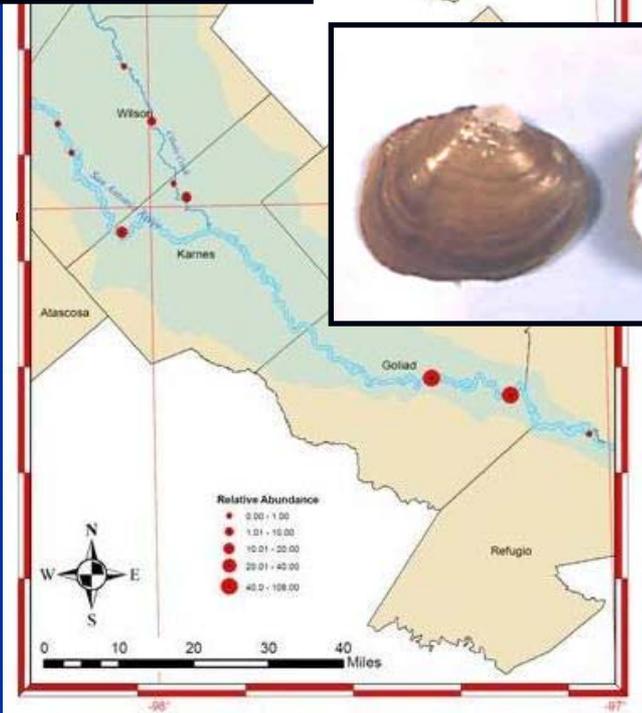
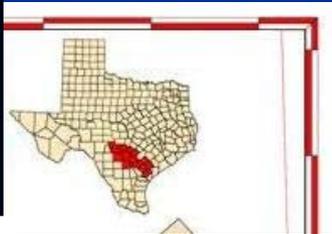
- **GIS Database of Available Data**
SARA (2005)



Intermediate Products (cont.)



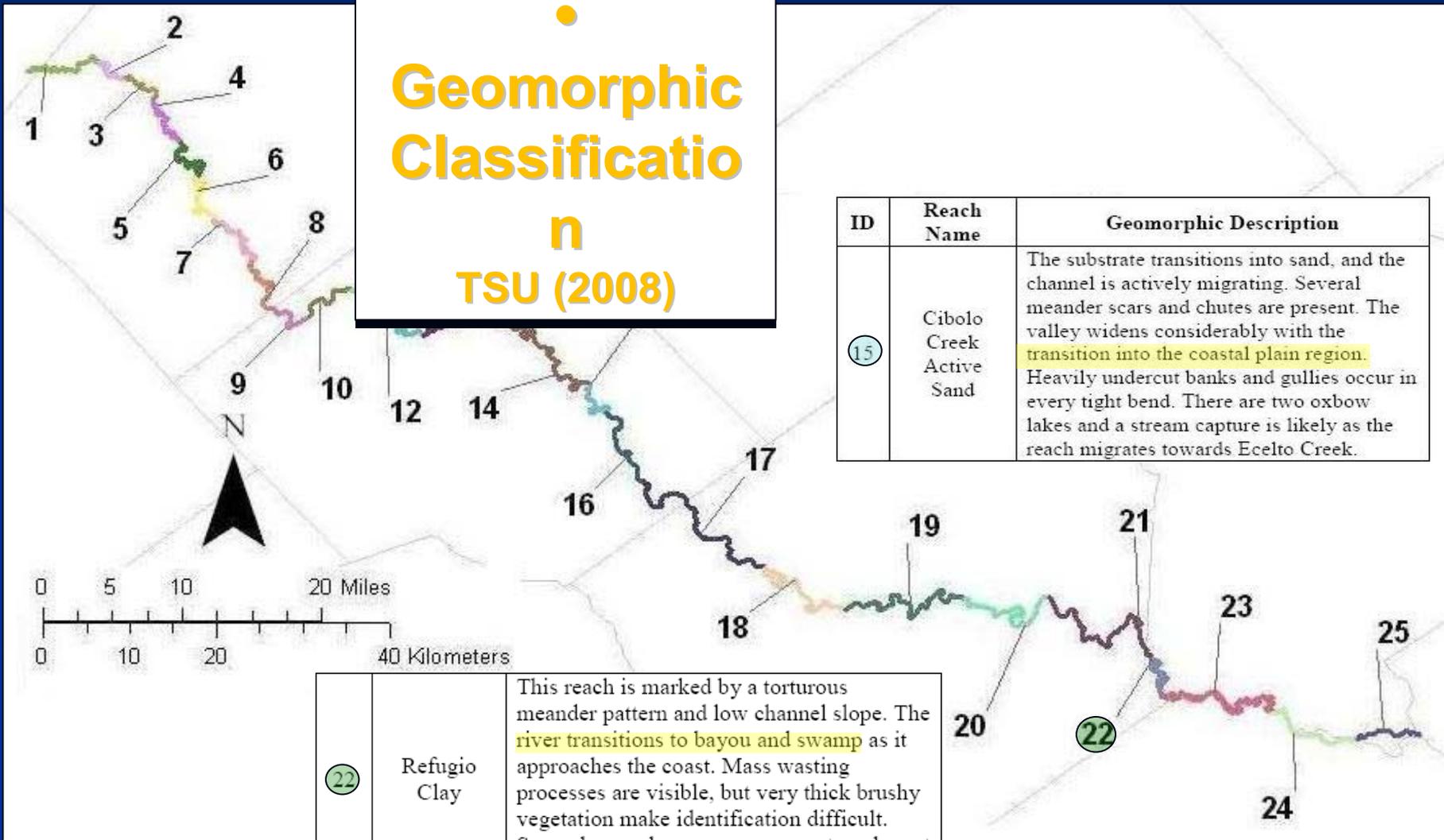
- Analysis of Existing Biological Data TSU (2007)



- Mussel Survey SFASU (2007)

Intermediate Products (cont.)

Geomorphologic Classification n TSU (2008)

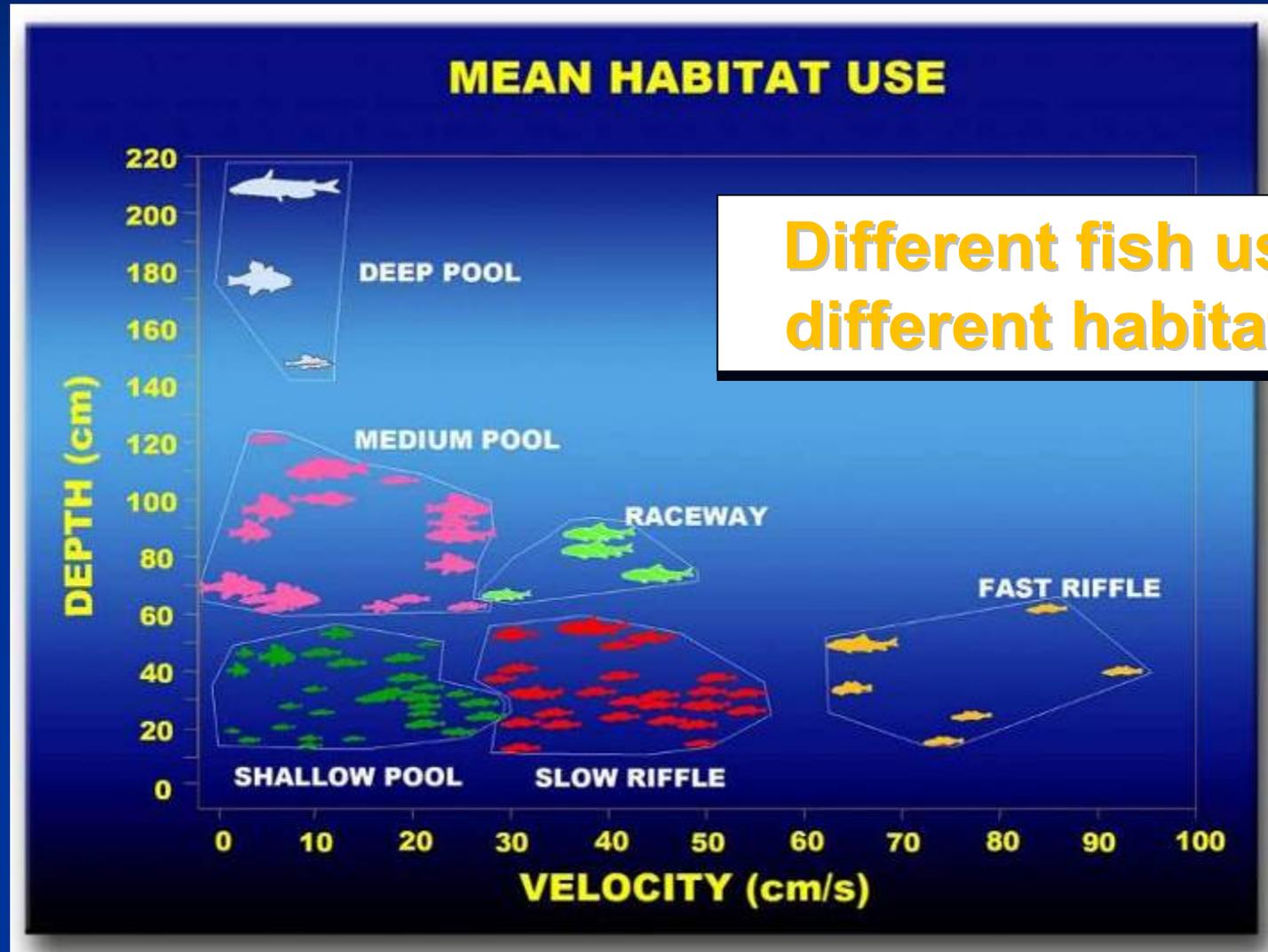


ID	Reach Name	Geomorphologic Description
15	Cibolo Creek Active Sand	The substrate transitions into sand, and the channel is actively migrating. Several meander scars and chutes are present. The valley widens considerably with the transition into the coastal plain region. Heavily undercut banks and gullies occur in every tight bend. There are two oxbow lakes and a stream capture is likely as the reach migrates towards Ecelto Creek.

22	Refugio Clay	This reach is marked by a torturous meander pattern and low channel slope. The river transitions to bayou and swamp as it approaches the coast. Mass wasting processes are visible, but very thick brushy vegetation make identification difficult. Several meander scars are present, and most are heavily vegetated swamps or lakes.
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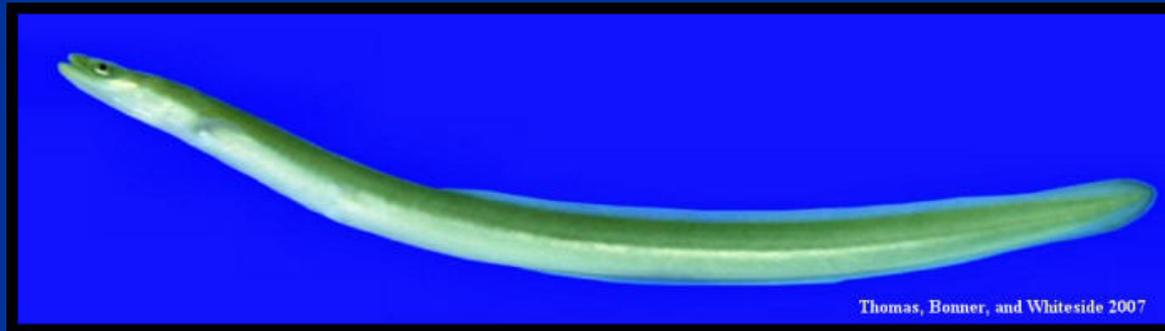
Components of TIFP Study

- Habitat Modeling



Components of TIFP Study

- Habitat Modeling – Indicator Species

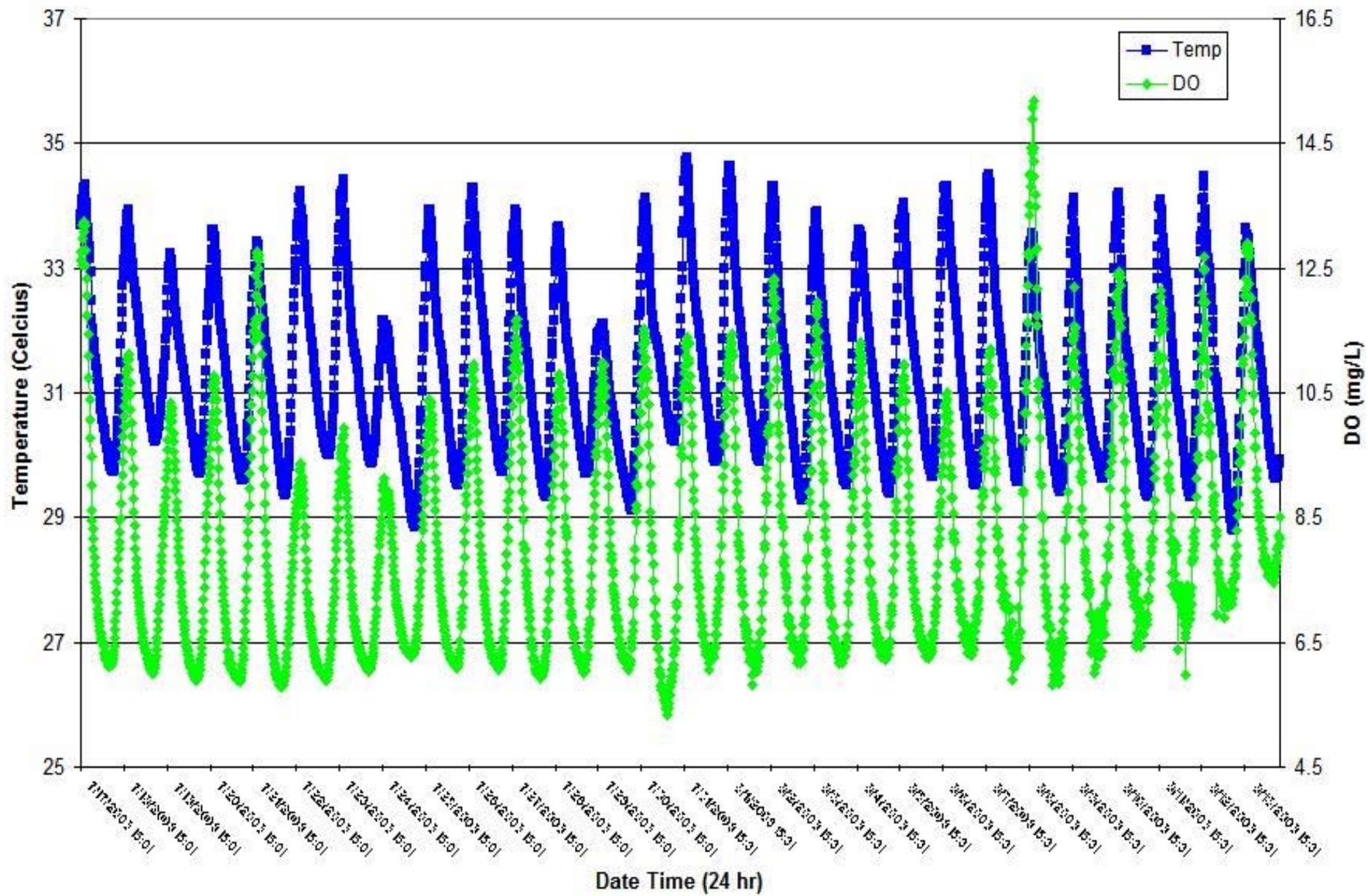


Components of TIFP Study

- **Water Quality Analysis / Modeling**

- **Evaluation of data from existing programs (CRP, TPDES, TMDL)**
- **Extended deployment of WQ data sondes**
- **Water Quality modeling**
 - **Existing models**
 - QualTX –Steady State**
 - **Future models**
 - ? – ability to model parameters across a range of flow conditions**

Goliad Site Upstream Sonde Temp and DO Data



Components of TIFP Study

- **Water Quality Analysis / Modeling
(Preliminary Observations)**

- **DO – Typical Diurnal Swings.
Highest during later afternoon and
lowest before dawn.**
- **DO/Temp. track well.
↑ Temp = ↑ Photosynth. = ↑ DO**
- **Weak Relationship between Q and
DO/Temp**

More Information, Questions, Comments



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■ TIFP web site:

<http://www.twdb.state.tx.us/instreamflows>