

# Brazos River Clean Rivers Steering Committee



Annual Meeting  
March 31, 2010



## Texas Instream Flow Program: Middle and Lower Brazos River



**Mark Wentzel**

Surface Water Resources Division  
Texas Water Development Board



# 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.”



Hydrology and  
Hydraulics

Physical  
Processes

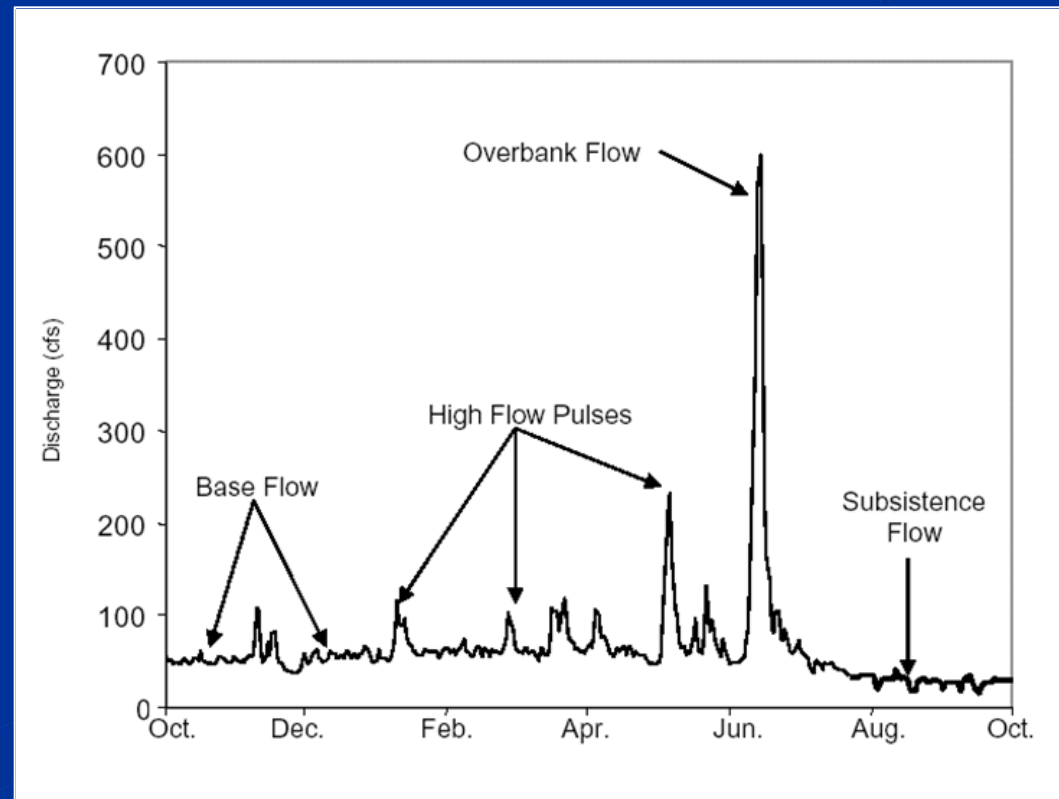
# Multi-Disciplinary Approach

Water  
Quality

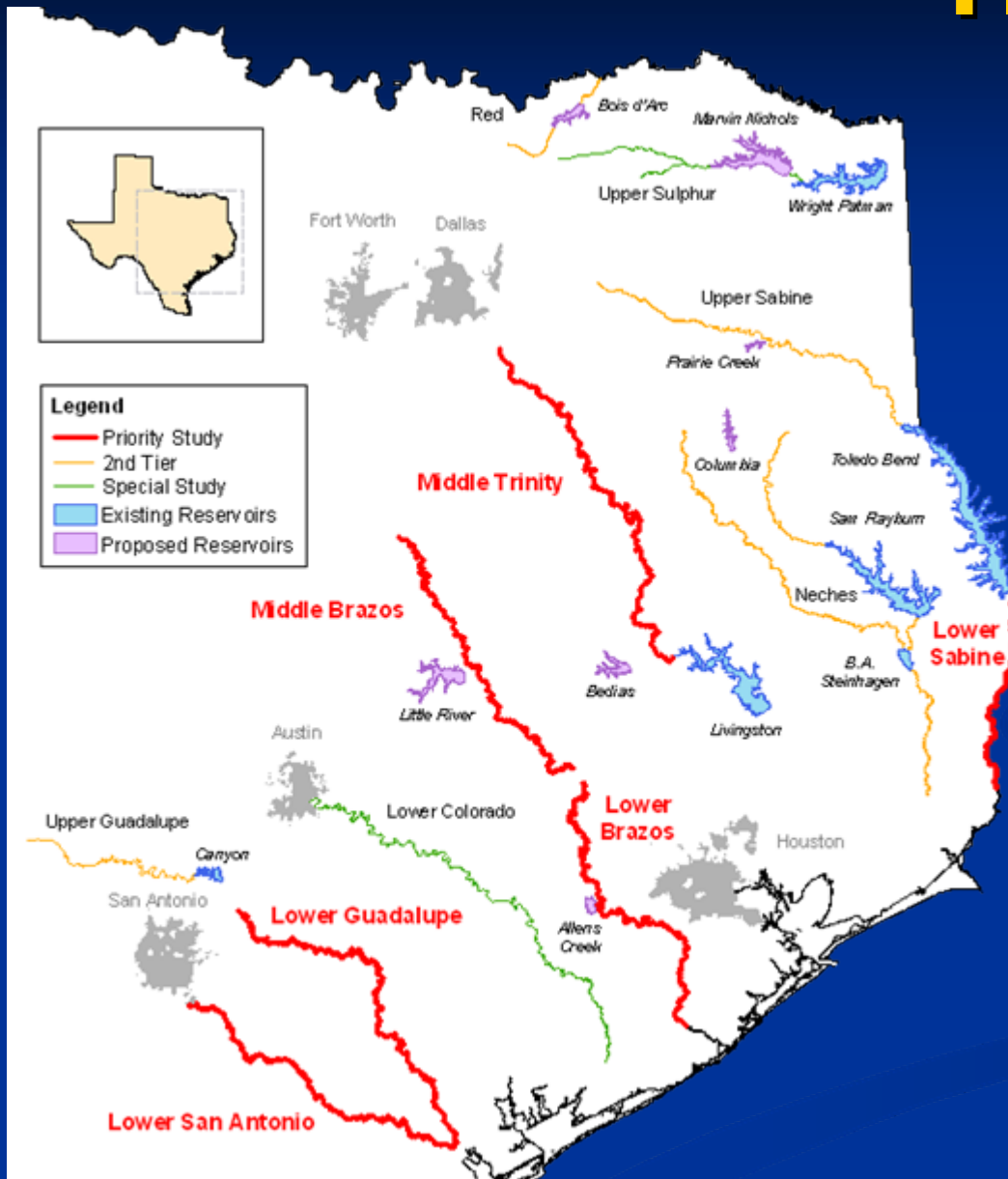
Biology

Connectivity

## Flow Regime



# TIFP Studies



## Current Priority Studies

- Lower Sabine
- Middle & Lower Brazos
- Lower San Antonio

Study Designs - 2009-10

Completed Studies – 2012-13

## Remaining Priority Studies

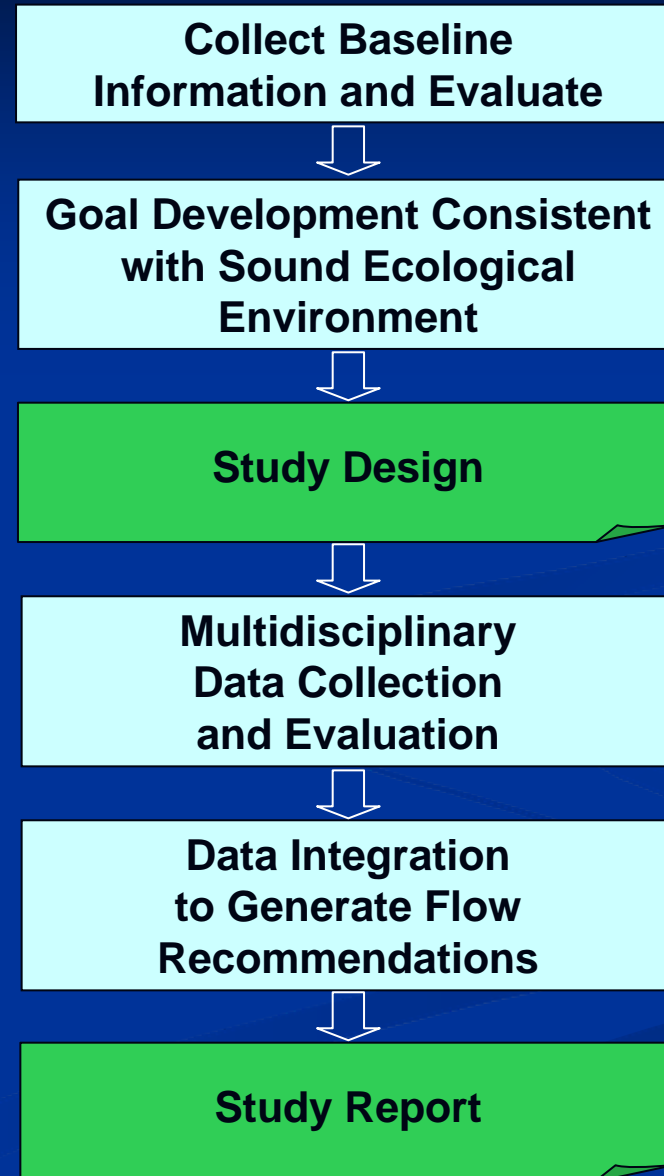
- Middle Trinity
- Lower Guadalupe

Completed Studies - 2016

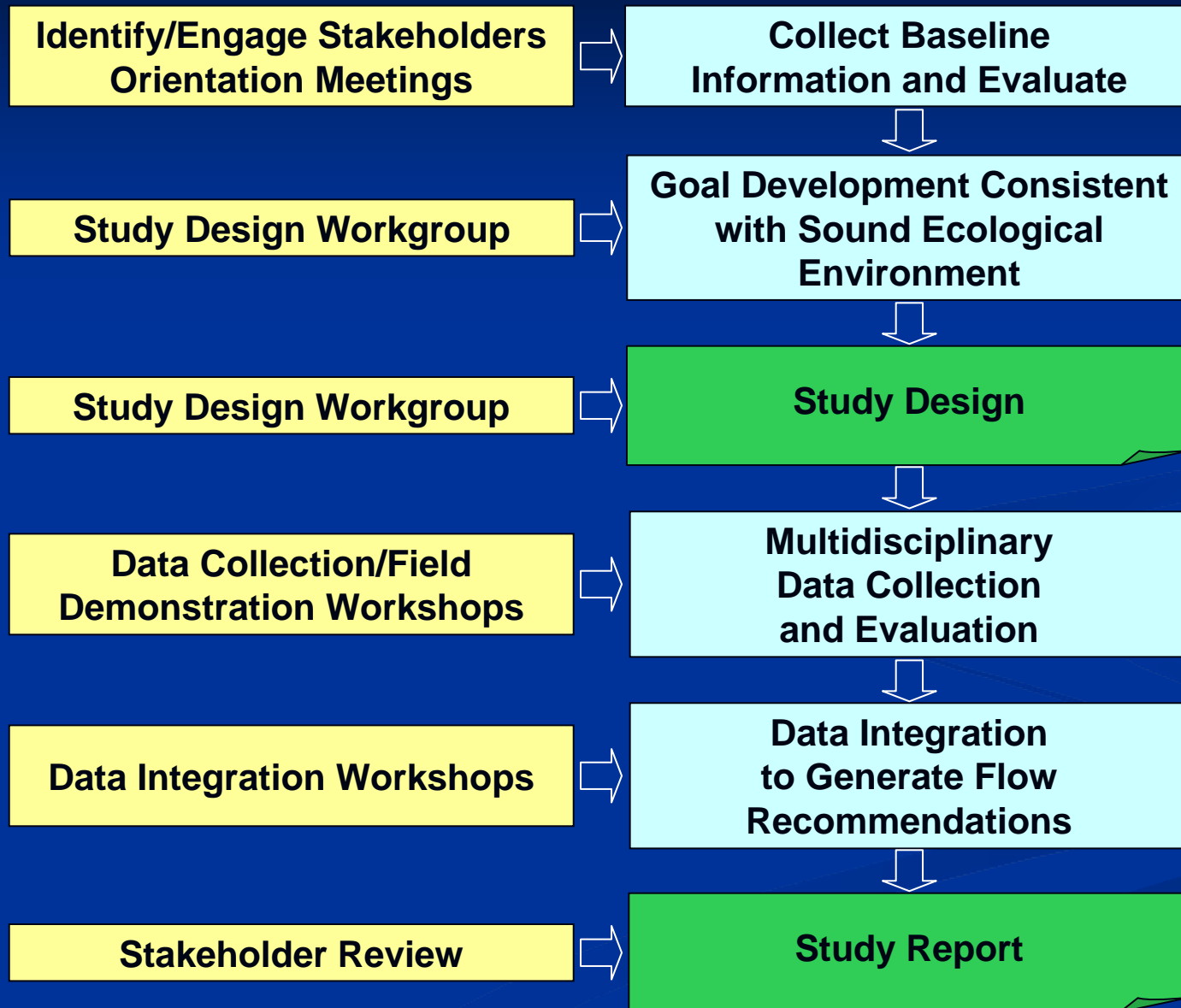
## Other Studies

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

# Instream Flow Study



# Instream Flow Study



# Instream Flow Study



Middle & Lower  
Brazos Sub-Basin **Instream Flow Study**  
2005-2008





# Study Design Workgroup

**Jun. 11&12, 2008** – Sub-Basin Orientation/Update Meetings: **Values**

**Aug. 21, 2008** – 1<sup>st</sup> Study Design Workgroup Meeting: **Goal**

**Oct. 20, 2008** – 2<sup>nd</sup> Study Design Workgroup Meeting: **Objectives**

**Dec. 11, 2008** – 3<sup>rd</sup> Study Design Workgroup Meeting: **Indicators**



# Middle & Lower Brazos Sub-basin

- **Middle and Lower Brazos Goal:** A Middle and Lower Brazos River that provides for sustainable environmental, economic, and social uses.
- **Water Quality Objective:** Manage flow-related water quality to sustain ecological, economic, and social processes and productive capacity.
- **Water Quality Indicators:** Nutrients (N, P), Oxygen, Temperature, Total Suspended Solids, Salinity, Bacteria

# Study Design

**Jan. 15, 2010** – Draft Provided to Study Design Workgroup

**Jan. 26, 2010** - Discussed at 4<sup>th</sup> Study Design Workgroup

**Feb. 19, 2010** - Comment Period

**Mar. 8, 2010** - Revised Draft provided for Scientific Peer Review

**Early May 2010** - Comments Received from Scientific Peer Review

**Late June 2010** - Study Design Finalized

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## Instream Flow Study of the Middle and Lower Brazos River

### Draft Study Design



Prepared for  
Middle and Lower Brazos River Sub-Basin Study Design  
Workgroup

Prepared by  
TEXAS INSTREAM FLOW PROGRAM  
AND BRAZOS RIVER AUTHORITY

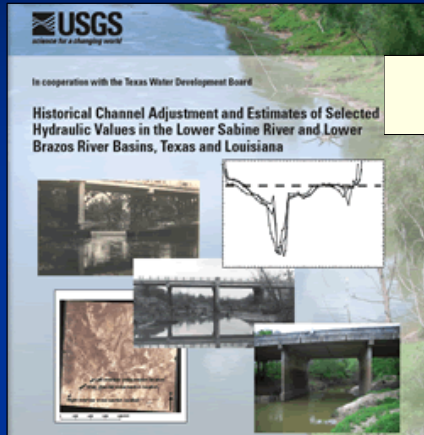
JANUARY 2010

# WQ Related Technical Studies

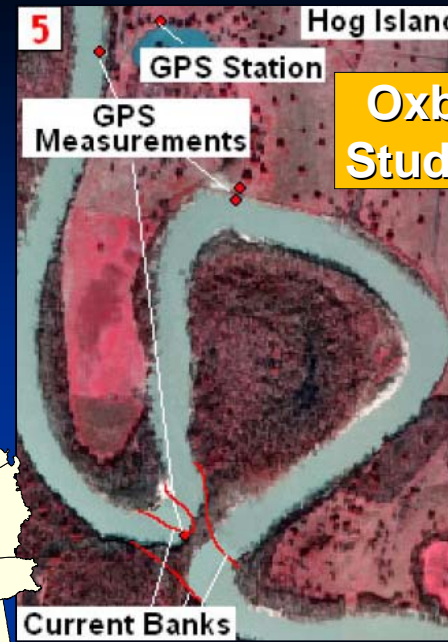
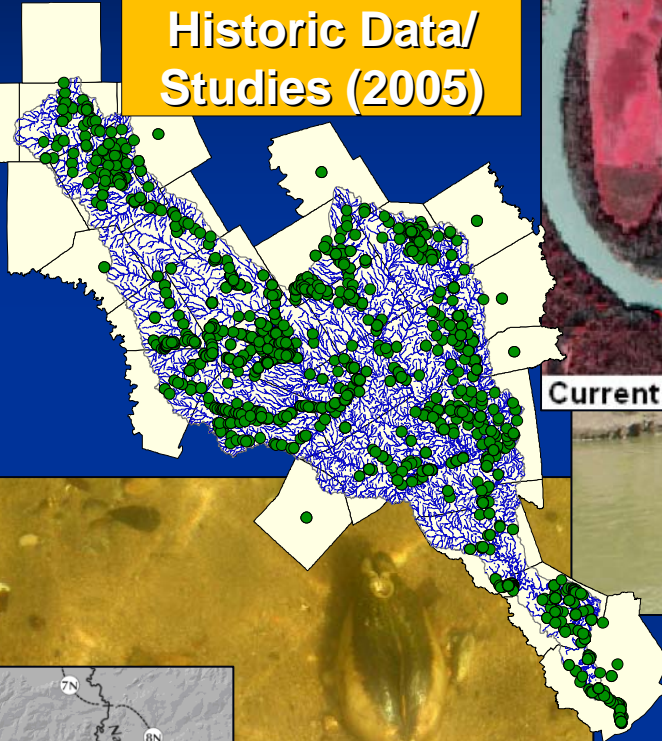
- Evaluation of data from existing programs (CRP, TPDES, TMDL)
- Extended deployment of WQ data sondes
- Water Quality modeling
  - Existing models
    - QualTX –Steady State
  - Future models
    - ? – ability to model parameters across a range of flow conditions



# Intermediate Products

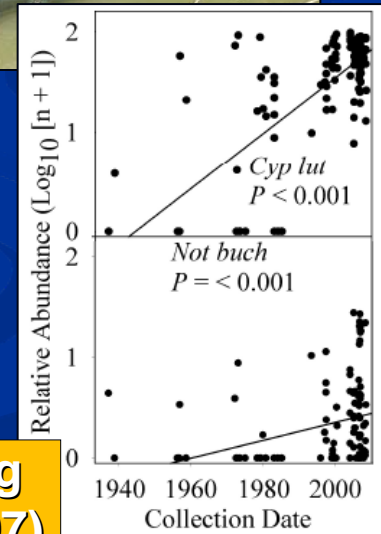


GIS Database of  
Historic Data/  
Studies (2005)

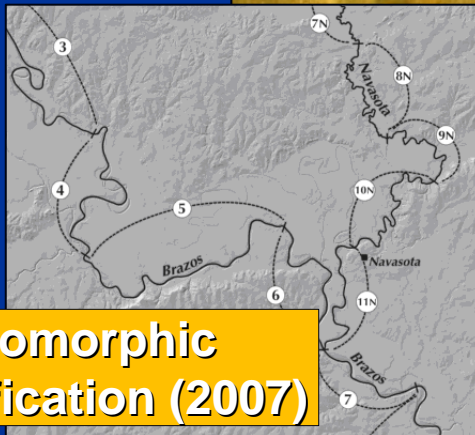


Oxbow Lake  
Studies (2004)

Supplement  
Existing  
Biological  
Data (2007)



Mussel Survey & Habitat  
Studies (2008, 2010)



Geomorphic  
Classification (2007)

Analysis of Existing  
Biological Data (2007)

# More Information, Questions, Comments



## ■ Contact:

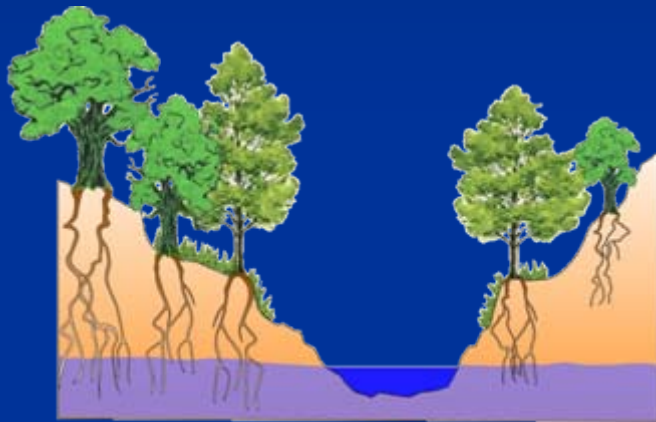
- Dakus Geeslin, TCEQ, 512-239-0058  
[pgeeslin@tceq.state.tx.us](mailto:pgeeslin@tceq.state.tx.us)
- Kevin Mayes, TPWD, 512-754-6844, ext. 25  
[kevin.mayes@tpwd.state.tx.us](mailto:kevin.mayes@tpwd.state.tx.us)
- Mark Wentzel, TWDB, 512-936-0823  
[mark.wentzel@twdb.state.tx.us](mailto:mark.wentzel@twdb.state.tx.us)

## ■ TIFP web site:

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

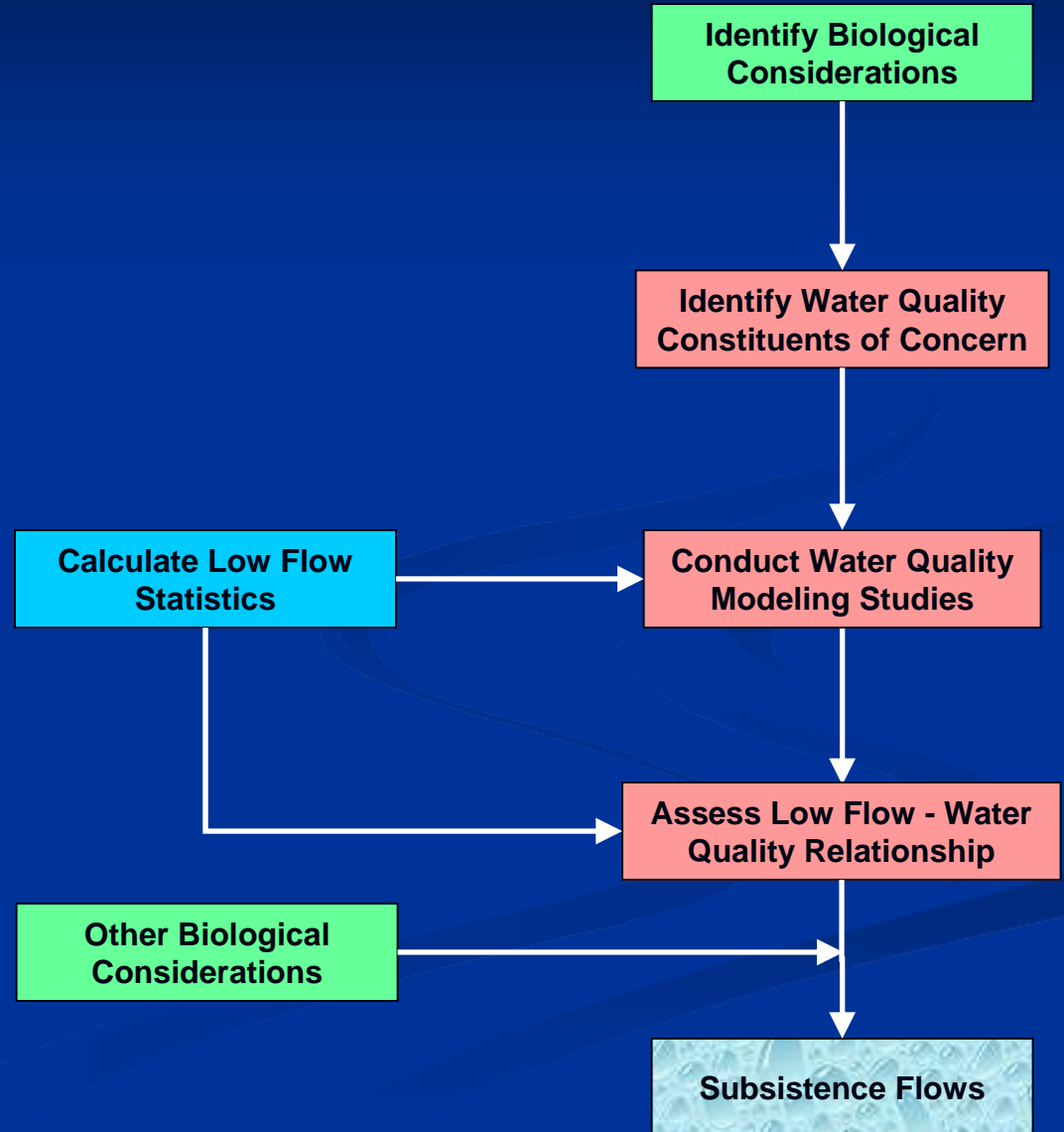


# Subsistence Flows



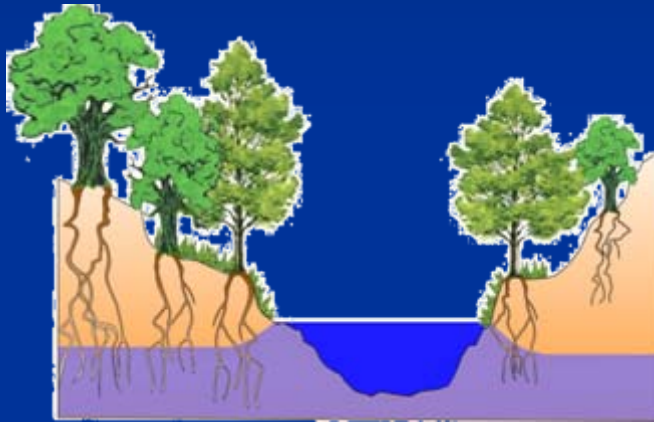
## Primary Disciplines

- Hydrology/Hydraulics
- Biology
- Water Quality
- Physical Processes/Geomorphology





# Base Flows



## Primary Disciplines

- Hydrology/Hydraulics
- Biology
- Water Quality
- Physical Processes/Geomorphology

