

# Fish and Wildlife Resources in Trinity and San Jacinto River Basins

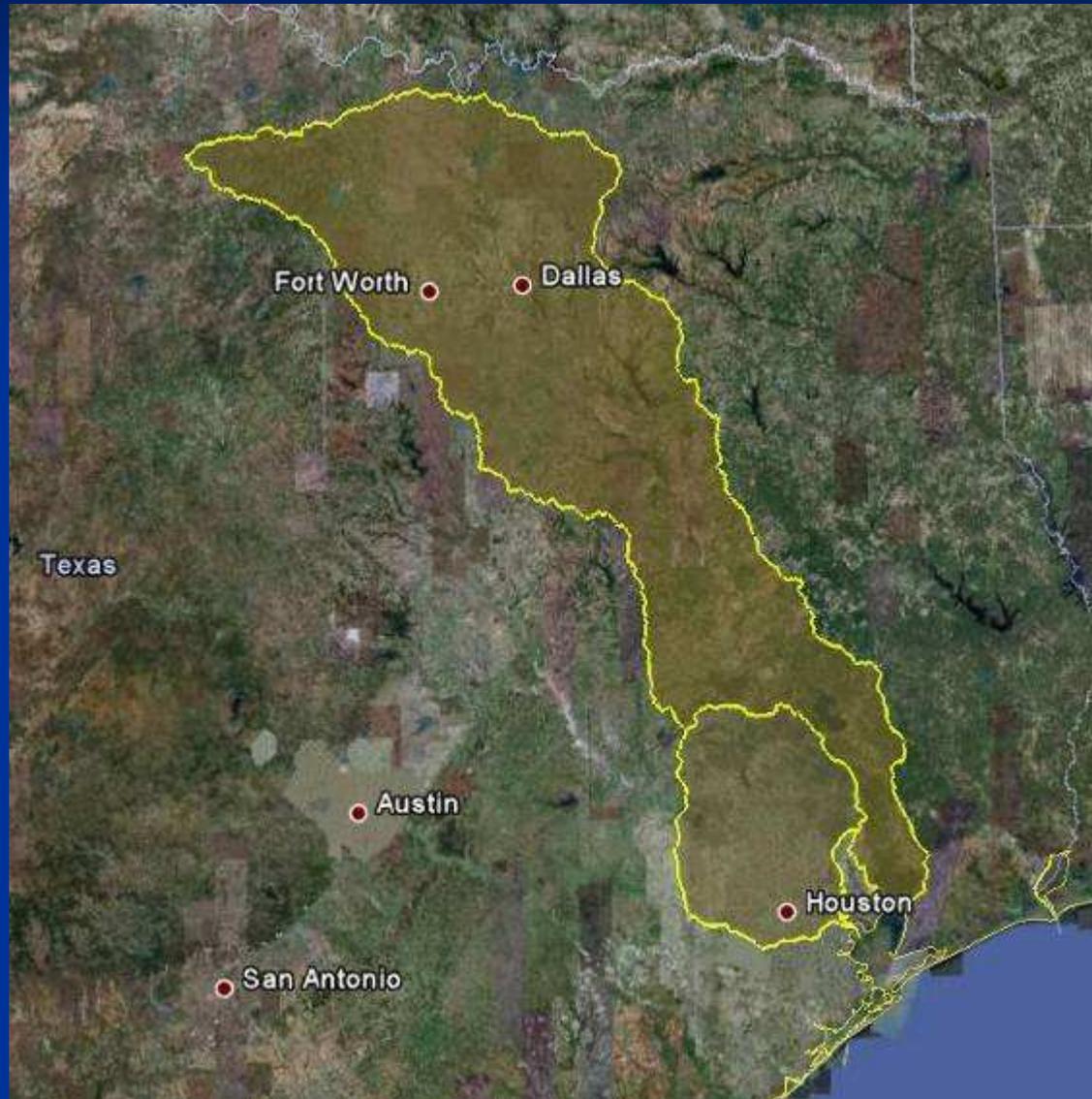
John Botros

Trinity/San Jacinto BBASC

July 1, 2009



# Trinity / San Jacinto Watersheds



- Over 23,000 sq. miles of river drainage area
- Six major eco-regions
- More than 600 river miles combined

# What's at Stake?

- Biodiversity
  - Fish
  - Mussels
  - Crustaceans
  - Riparian Areas
  - Invertebrates and other aquatic organisms

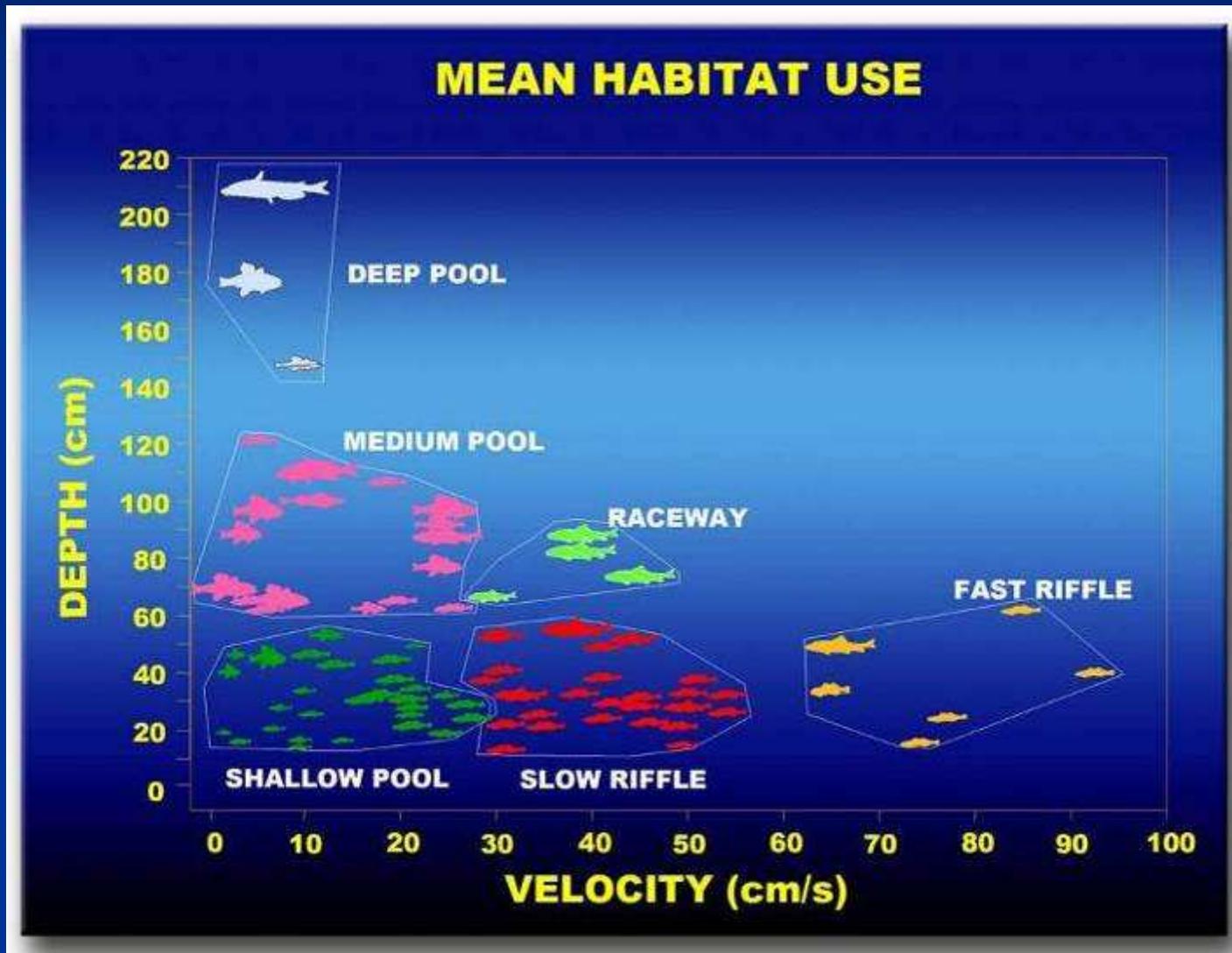
# Trinity River Fishes

- 113 fish species in basin comprising 32 families
- About a dozen of those species use both riverine and estuarine habitats
- Nonnative species include common carp and striped bass
- Nine species reach southwestern range limits

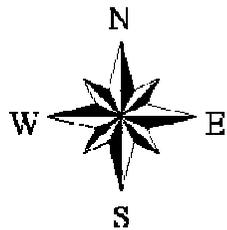
# San Jacinto River Fishes

- 91 fish species in basin comprising 21 families
- Nonnative species include common carp and goldfish
- Fewer species than the Trinity given the smaller drainage area

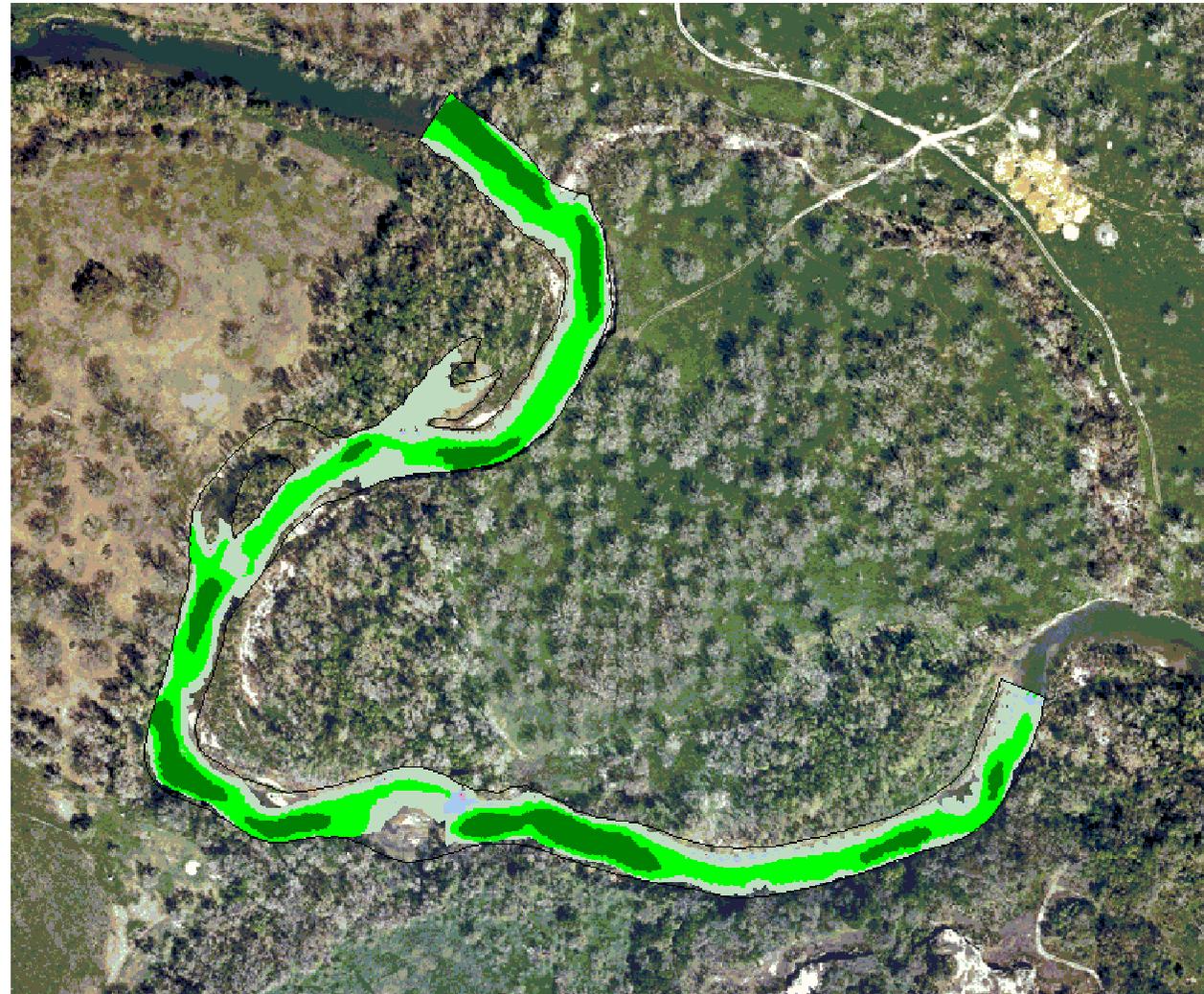
# Different Fish use Different Habitats



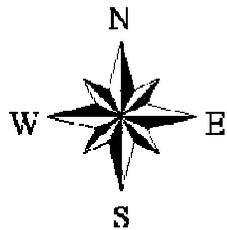
# Habitat Changes with Flow



**Flow =  
100 cfs**



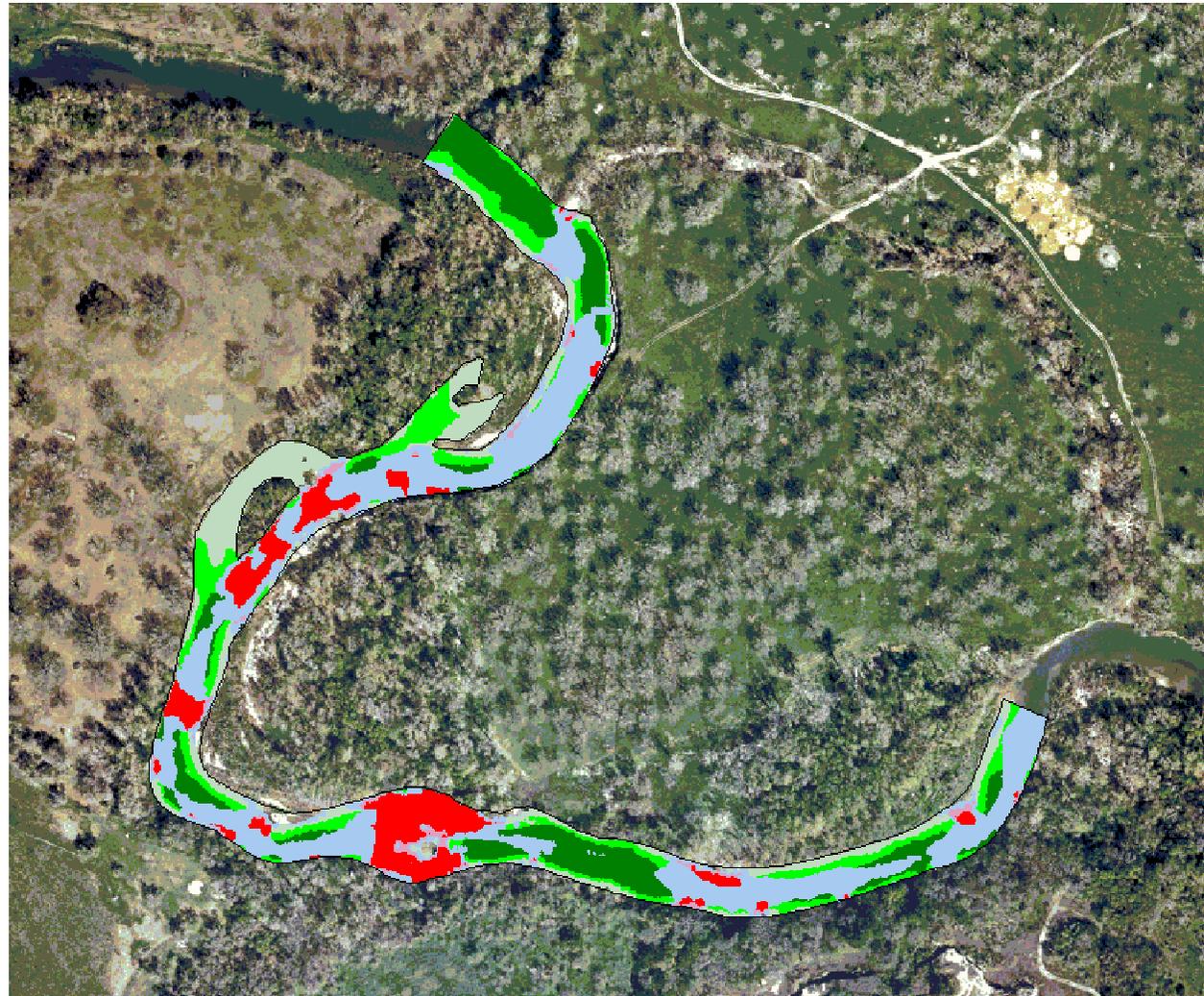
# Habitat Changes with Flow



**Flow =  
1,000 cfs**

**Mesohabitat**

	<b>Deep Pool</b>
	<b>Medium Pool</b>
	<b>Shallow Pool</b>
	<b>Run</b>
	<b>Slow Riffle</b>
	<b>Fast Riffle</b>
	<b>Dry</b>



400 0 400 800 1200 1600 Feet

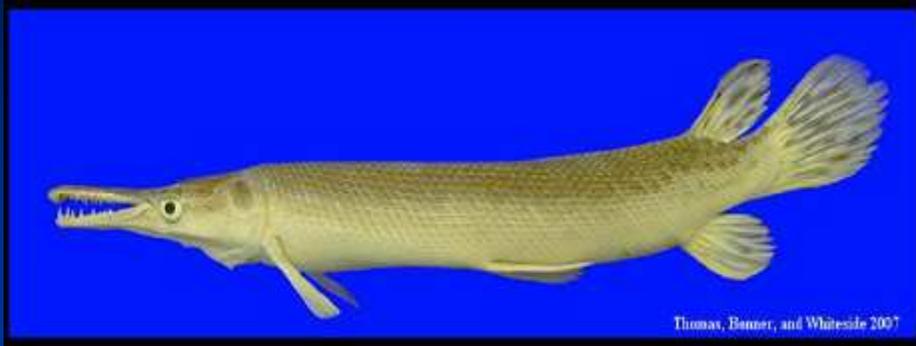
# *Polyodon spathula* - paddlefish



- Historical range from the Trinity River basin eastward
- State-listed threatened status
- Invertivore/planktivore, and filter feeder; straining food with large mouth.
- Spawning occurs between late February and late June when water temperatures are 10-17°C. Requires prolonged higher flows to attract fish onto gravel beds to spawn. 3-5 meter rise in the river for about 10-14 days



# *Atractosteus spatula* – alligator gar



- Can live as long as 75 years and are the largest freshwater fishes in Texas
- Usually found in slow sluggish waters, although high flow pulses seems to be necessary for spawning. They appear to spawn in the spring beginning sometime in May. Eggs are deposited in backwater habitats.
- Increased interest and take of alligator gar has resulted in recent TPWD regulation of one fish per day bag limit

# *Cycleptus elongatus* – blue sucker



- State threatened status
- Inhibits large, deep river systems
- Occupy swift water habitat to spawn with cobble and bedrock substrates

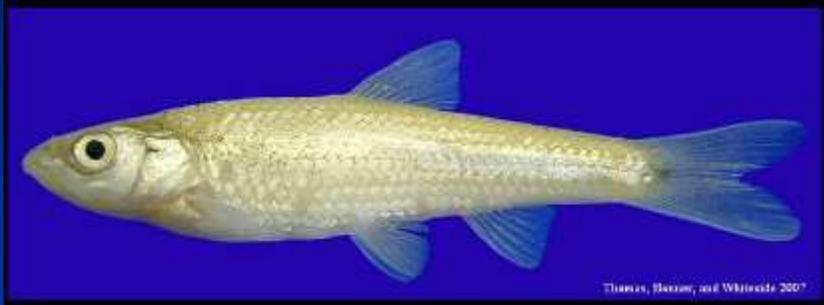
Abundance and distribution of blue sucker has been reduced by flow alterations and migratory barriers.

# *Erimyzon oblongus* - creek chubsucker



- Occurs in eastern Texas streams from the Red River southward to the San Jacinto Drainage
- State threatened status
- Spawning occurs on gravel nests in relatively swift water  
In contrast to most suckers, the creek chubsucker will spawn in pairs rather than a group.
- Populations apparently declining in streams subject to siltation.

# Minnows – Family Cyprinidae



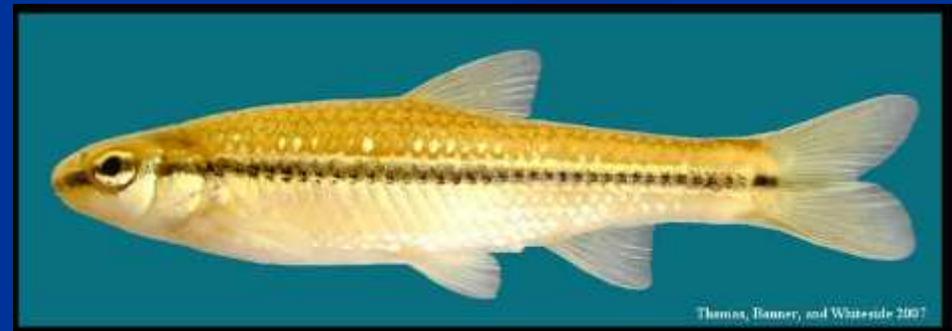
*Notropis potteri* – chub shiner



*Notropis sabinae* – Sabine shiner

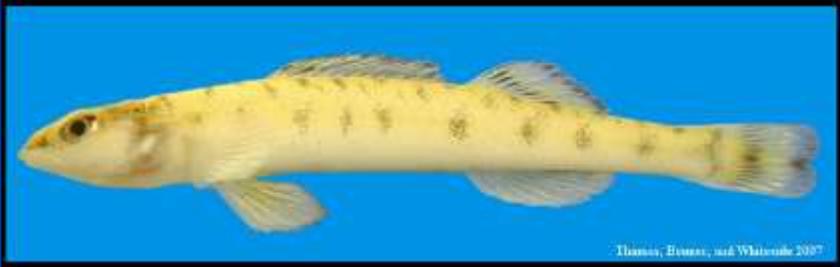


*Notropis shumardi* – silverband shiner



*Notropis atrocaudalis* – blackspot shiner

# Darters – Family Percidae



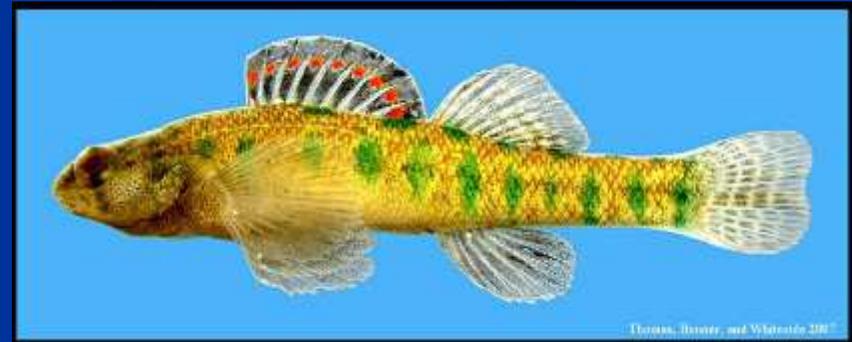
*Ammocrypta vivax* – scaly sand darter



*Percina macrolepida* – bigscale logperch

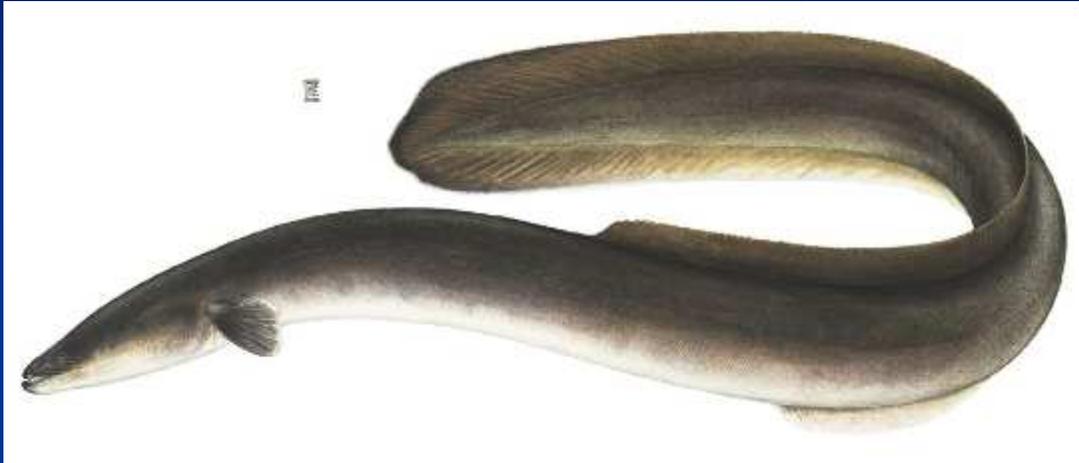


*Percina sciera* – dusky darter



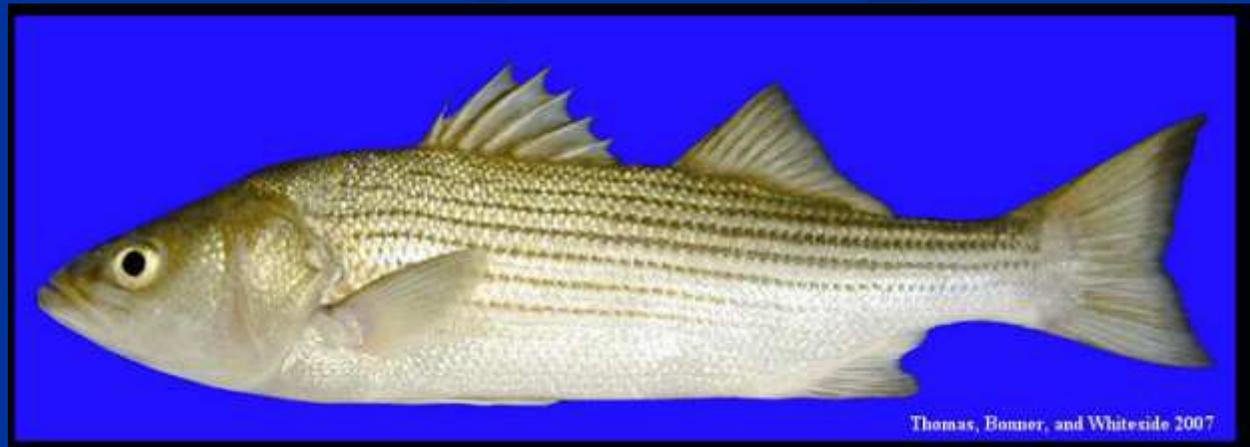
*Etheostoma gracile* – slough darter

# Other fish species of interest



*Anguilla rostrata* - American eel

*Morone saxatilis* –  
striped bass



# Mussels – Family Unionidae

- species of concern



rock pocketbook (*Arcidens confragosus*)



Texas fawnsfoot (*Truncilla macrodon*)

**Louisiana pigtoe** (*Pleurobema riddellii*)



**Texas pigtoe** (*Fusconaia askewi*)



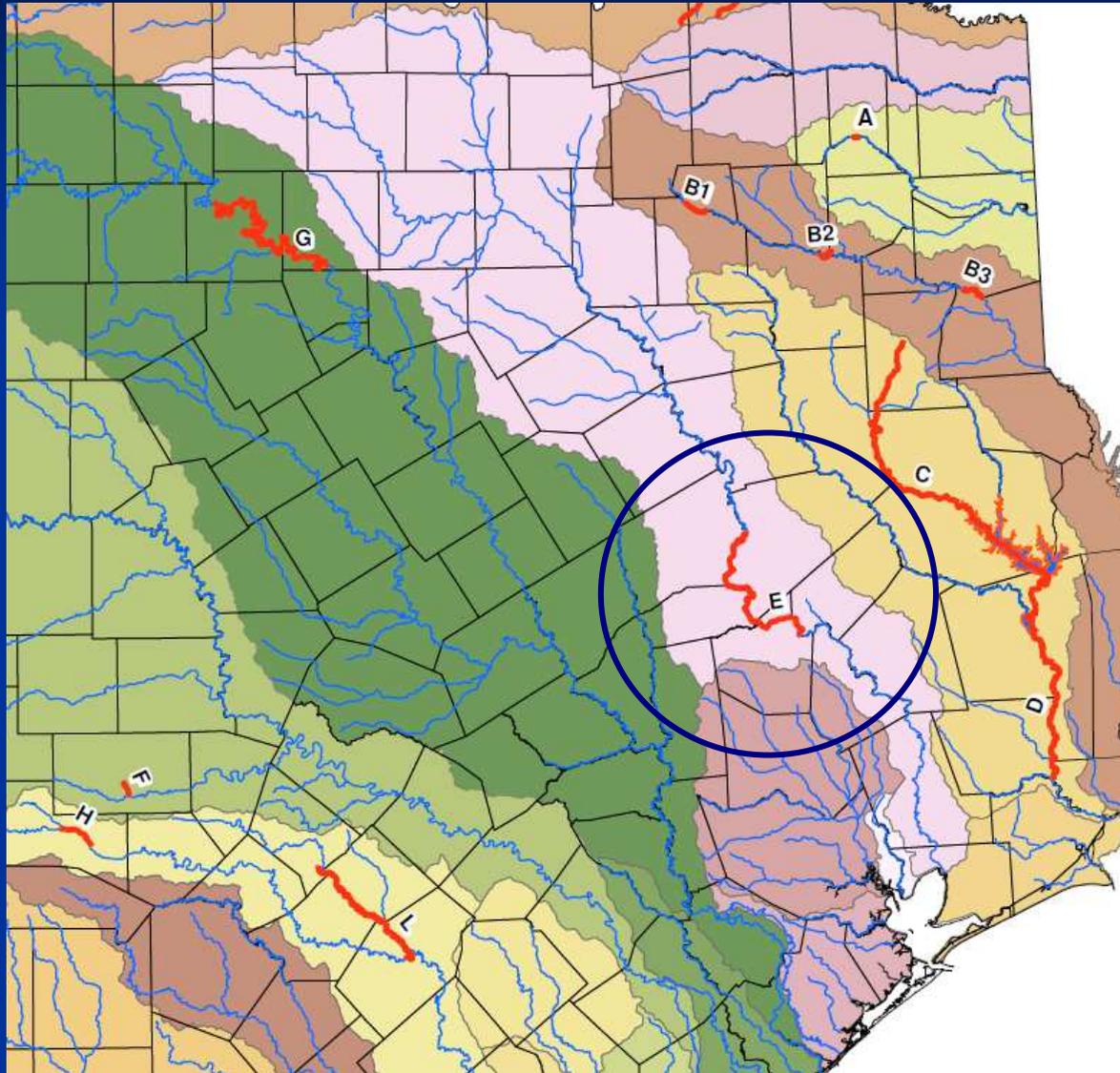
**Texas heelsplitter** (*Potamilus ampicachaenus*)



**sandbank pocketbook** (*Lampsilis satura*)



# Texas Mussel Sanctuaries



# Crustaceans / Invertebrates



Macrobrachium spp. – river shrimps

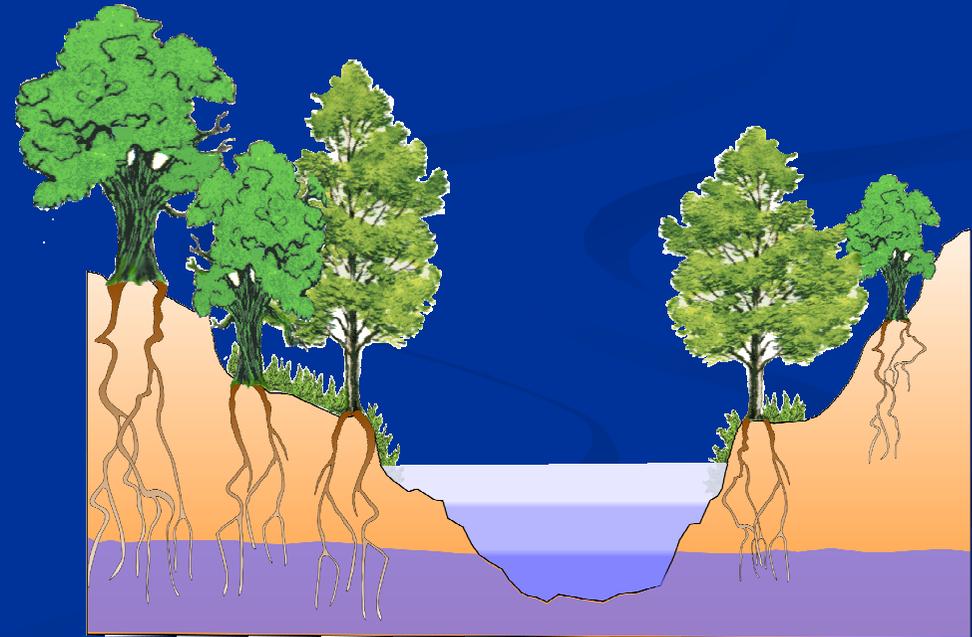
- Good indicator of instream water quality / ecosystem health



Order Plecoptera - stonefly

# Riparian Zones

- Provide shade
- Roots help hold the soil (prevent erosion)
- Plants help to filter water that flows from the uplands
- Acts as a sponge, soaking up extra water when there are higher flows
- Provides habitat to many different animals and plants
- Provides food for aquatic organisms



# Sound Ecological Environment

## Conserve Biodiversity

- fish, invertebrates, mussels, plants ...
- riparian diversity



## Maintain Ecological Integrity

- processes & functions that create & maintain habitat & other physicochemical conditions that support survival, growth, & reproduction

**Subsistence  
Flows**

**Conserve  
biological  
function**

- Water quality tolerances met
- Key habitat thresholds maintained

**Base Flows**

**Conserve  
water quality,  
habitat and bio-  
diversity**

- Habitat for flow dependent spp.
- Suitable temperatures / dissolved oxygen

**High Flow  
Pulses**

**Life history /  
geomorphic  
processes**

- Fish spawning cues
- Maintain channel
- Sediment/ nutrient transport

**Overbank  
Flows**

**Floodplain  
maintenance**

- Moisture and nutrients to floodplain
- Riparian recruitment

**Sound Ecological Environment**

# Flow Variability

(subsistence, baseflows, high flow pulses, overbank)



# Habitat Diversity

(pools, riffles, runs, backwater)



# Biodiversity

(fish, mussels, invertebrates, riparian)



# Sound Ecological Environment

**TEXAS**

---

**PARKS &**

---

**WILDLIFE**