

Senate Bill 2 Instream Flow Study Lower San Antonio River

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Texas Water Rights Primer











Reviewed every 4-5 years



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a. 3 yrs
b. 10 yrs
c. 25 yrs
d. Forever





Reviewed every 4-5 years



Prior to 1975, no consideration of environmental flows in the water right permitting process





In 1975, began to consider the effects, if any, of the issuance of a permit on the bays and estuaries of Texas



In 1985, legislation was enacted that authorized the inclusion of permit conditions to maintain beneficial inflows to the bays and estuaries and also required the consideration of instream flow uses, water quality, and fish and wildlife habitat







Appropriated Surface Water Volumes



Water Availability Map (2000)



Senate Bill 1
Senate Bill 2
Senate Bill 3



Senate Bill 1 (1997) Water planning conducted by regional planning groups



Senate Bill 2 (2001) Instream Flow Program



Conduct studies of our rivers and streams to assess flow conditions necessary to support a sound ecological environment



Senate Bill 3 (2007)

Set aside water for the environment (both instream flows and freshwater inflows for bays and estuaries)







Primary Disciplines



















74,071 individuals

49 species













Fish Sampling

















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Develop Habitat Suitability Criteria













1147 sample areas



MEAN HABITAT USE







































Lower SAR (at Goliad)





בל Riparian Vegetation

Tree Species Composition



Indicator Species

Common Name	Calaveras	Falls City	Goliad	Hwy 77	Cibolo Creek	
Box elder	Х	Х	Х	Х	Х	
Common buttonbush		Х			Х	
Green ash	Х	Х	Х	Х	Х	
Deciduous holly		Х	Х	Х	Х	
American sycamore		Х	Х	Х	Х	
Cottonwood	Х	Х			Х	
Black willow	Х	Х	Х	Х	Х	
American elm		Х	Х	Х	Х	
Cedar elm	Х	Х	Х	Х	Х	

Black willow

- Seeds are distributed by water and wind, and must reach a seedbed within 12–24 hours, unless floating in water
- Very moist, almost flooded mineral soil is best for germination and development
- Seedlings grow best when there is abundant moisture available throughout the growing season
- Can survive more than 30 days of inundation





Develop protective flow regime

			44.000	<i>.</i>							-	
		Magnitude = 14,000 cts Key Indicators:										
		Frequency = 1 event Riparian: Inundates approx. 90% of hardwood forest community										
		Duration = 3 days Reduces upland vegetation encroachment										
		Cottonwood										
		Sediment transport: Channel maintenance										
											1	
Overbank		Magnitude = 8 500 cfs Magnitude = 8 500 cfs						<u></u>		1		
Flow		Frequency	/=1event	-		Frequency	equency = 1 event					
		Duration -	- 3 davs			Puration = 2 days						
		Duration = 5 days										
		Key indicators: Key indicators:										
		Riparian: Inundates approx. 65% of hardwood Riparian: Inundates approx. 65% of hardwood forest										
		forest community community										
		Cottonwood/Box Elder					Cottonwood	d/Box Elder				
		Sediment t	ransport: Cl	hannel maint	tenance	Sediment transport: Channel maintenance						
					Magnitude	= 7,000 cfs	Magnitude	e = 7,000 cf	s			
					Frequency	= 1 event	Frequency	/=1event				
		Magnitude	e = 4,000 cf	s	Duration =	3 days	Duration =	= 3 days				
		Frequency = 2 events Key Indicator: Key Indicator:										
		Duration = 4 days Ringright Green Ash					Ringrign: Green Ash/Box Elder/Sycamore					
		Key Indicate			nipunun. o		nipanan.					
Flow Pulses		Ripanan: I	box Elder/Sy	camore								
		Magnitude = 2,000 cfs Magnitude = 2,000 cfs Magnitude = 2,000 cfs						s				
		Frequency = 3 events				Frequency = 2 events F			Frequency = 2 events		5	
		Duration = 4 days Key Indicator:			Duration = 4 days			Duration = 4 days				
						Key Indicator:			Key Indicator:			
		Riparian: Black Willow		,	Riparian: Black Willow			Riparian: Black Willow		/		
												1
					95% of any	flow > 2,00	0 cfs left in	n river				
Sediment					Key indicator	2						
Flow					Sediment tra	insport: Cha	nnel mainte	nance				
BASE FLOV	VS (cfs) - Aa	uatic Habitat	protection	(intra- and i	nterannual va	riability)			Key Indicate	ors: Aquatio	Habitat, Wa	ater Quality
Base Wet	280	280	288	295	313	255	213	148	220	223	250	240
Base Average	157	157	161	165	175	143	119	100	123	125	140	134
Base Dry	90	90	92	94	100	100	100	100	100	71	80	77
SUBSISTENCE FLOWS (cfs) - Water quality protection and maintenance of limited aquatic habitat Key Indicators: Aquatic Habitat, Water Quali											ater Quality	
Subsistence	60	60	60	60	60	80	80	80	80	60	60	60
MONTH	January	February	March	April	May	June	July	August	September	October	November	December

