
San Jacinto River

SB3 Instream Flow Literature Review May 2009 Update

Presentation to: Trinity-San Jacinto BBEST
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Outline

- Coordination (WHO and WHY)
- Status
- Scope (WHAT)
- Methods (HOW)
- Deliverable (specifics on WHAT)

Coordination

TCEQ

Texas Commission on Environmental Quality

SJRA

San Jacinto River Authority

EC

Espey Consultants, Inc.

Timeframe:

September 1, 2008 – August 31, 2009

Coordination

- Initial Scoping and Kickoff Meeting
 - September 22, 2008
 - Texas Instream Flow Program (TIFP)
 - TCEQ, TPWD, TWDB
 - Ensure continuity with previous TIFP SB2 studies
- EFAG Science Advisory Committee (SAC)
 - Progress reports: Oct 2008 -- Jan 2009
 - Proceed with speed, finish early if possible
 - Deliverable should have utility in developing environmental flows overlays
- Trinity-San Jacinto BBEST
 - Progress reports
 - Feb 2009 – request from BBEST member

Progress to date

- At 8 months (April 2009), we are nearing completion of tasks
- To do list:
 - QA/QC, clean-up and polishing
 - Some items are still filtering in
 - Some items remain in-progress

Scoping and Kickoff meeting

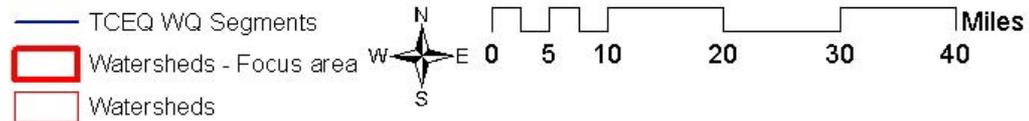
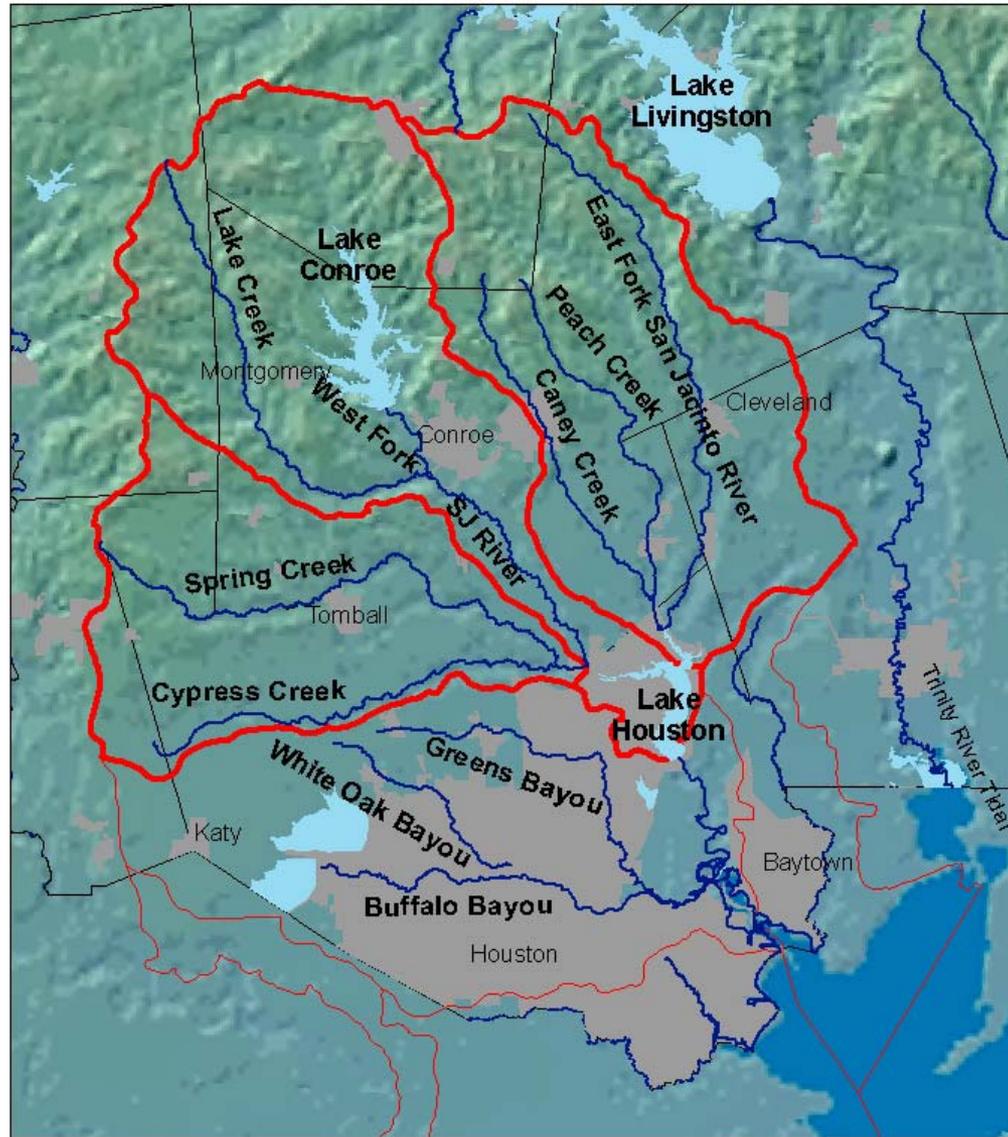
- Objective
 - A catalogue of reports relevant to instream flows
- Geographic Scope
 - Streams in the watershed draining to Lake Houston
- Deliverable
 - Protocols for metadata, ranking, and cataloguing
 - Tier 1 – Relevant or useful for overlays
 - Tier 2 – Potentially relevant or useful for overlays
 - Tier 3 – Low relevance
 - Matrix table of literature and reports:
 - Ranking by relevance to instream flows
 - Identification of site-specific analysis or data
 - As possible: migration of reports to electronic format
 - As possible: mapping of study areas

Scoping and Kickoff meeting

- Spatial data
 - This project should not duplicate on-going TxHIS work
- B&E and Bayous should not be ignored
 - B&E reports are not the focus
 - Bayous with confluence downstream of Lake Houston
- Ultimately, provide opportunity to extract overlay information

Map

San Jacinto River Basin



Studies and reports - WHAT

- What did we look for? → “TITLES”
 - Journal articles
 - University studies
 - MS theses
 - PhD dissertations
 - Contracted research
 - Government reports and studies
 - Planning studies
 - Water quality studies
 - Modeling studies
 - Sediment studies
 - Fish kill reports
 - Clean Rivers Program basin summary reports

Studies and reports - WHERE

- Where did we look?
 - Search tools
 - EndNote database search
 - Web search
 - SJRA archive search
 - Phone calls to entities and individuals
 - Physical locations
 - SJRA
 - Houston Public Library
 - University of Houston
 - University of Texas
 - Austin Public Library
 - Harris County Flood Control District
 - USGS

What did we find?

- Accumulation
 - 6,800+ titles came up in initial search
- Filtering
 - Removed 5,000+ financial reports, invoices, contracts, etc.
 - Removed duplicates
 - Removed out-of-basin references
 - 544 titles proceed to ranking
- Ranking in 2 steps
 - Tier 1 – Relevant to instream flows - 73 titles (draft)
 - Tier 2 – Potential relevance - 206 titles (draft)
 - Tier 3 – Low relevance – 265 titles (draft)

Studies and reports - HOW

RANKING: step 1

Based upon bibliographic information only, proceed with ranking according to relevance to major categories:

- Biology
- Hydrology and Hydraulics
- Physical Processes
- Water Quality
- Other

RESULT → which reports to grab first (Tier 1)

Studies and reports - HOW

RANKING: step 2

Ranking subordinate categories

B_Biology	H_Hydraulics and Hydrology	P_Physical Processes	W_Water Quality	O_Other
B_Algae	H_Hydraulics	P_Channel_Pattern	W_Aquatic_Life_Uses	O_Instream_Flow
B_Aquatic_Macrophytes	H_Hydrology	P_Curvature	W_FlowRelationships	O_Spatial
B_Benthic_Macroinverts	H_Flooding	P_Elevation	W_General_Water_Quality	O_Cultural
B_Community_Composition	H_Groundwater	P_Erosion_Deposition	W_Landfills	O_Population
B_Fish	H_Impoundment	P_Floodplain	W_Nutrients	O_Navigation
B_Life_History	H_Rating_Curves	P_Geology	W_Permitted_Discharges	O_Recreation
B_Tissue_Organics	H_Springs	P_Imagery	W_Permitted_Hazardous_Waste_Sites	O_Videography
B_OtherInverts	H_Topography	P_Land_Use_Cover	W_Petroleum_Wells	
B_OtherVerts	H_Water_Rights	P_Photos	W_Pipelines	
B_WaterQualityRelationships	H_Watershed	P_Riparian	W_Species	
B_FlowRelationships	H_Wells	P_River_Length	W_Superfund	
B_Riparian	H_Xsec_Location	P_Sediment_Transport	W_WPP	
B_Species_Distributions	H_Xsec_Transect	P_Slope	W_TMDL	
B_Wetland	H_InstreamStructure_Manmade	P_Substrate	W_ImplementationPlan	
B_BtmLnd_Hrdwd_Forest	H_InstreamStructure_Natural	P_Substrate_Characteristics		
B_Aquatic_Habitat	H_Weather	P_Watershed_Sediment		
B_Mesohabitat	H_LargeWoodyDebris			
B_Microhabitat	H_Waterfalls			
B_Instream_Cover				

Studies and reports - Ranking

Tier	Rank	Description
1	0	An instream flow recommendation for the San Jacinto River.
	1	Highly relevant
	2	Relevant
2	3	Relevant but needing significant resources to evaluate further
	4	Potentially relevant
3	5	Contains information that is only marginally supportive
	6	Not relevant
	9	Not evaluated

Studies and reports - Ranking

Tier	Rank	Example
	0	
1	1	Linkage of site-specific conditions to flow rate at a relevant scale.
	2	Linkage of environmental conditions to flow conditions within the study area.
2	3	Same as 2, but where work is needed to extract information.
	4	Historical information, journals, anecdotes, maps not georeferenced.
3	5	General information about the basin.
	6	Financial reports.
	9	

Studies and reports – Ranking

For titles in TIER 1 – hold a copy in our hands

THEN:

Tier	Rank	Action
1	0	While skimming a complete copy (1) re-evaluate rank and tier and (2) rank sub-categories. If still Tier 1, identify study sites. Obtain and make available a complete electronic copy (PDF) of the report (for non-copyright materials).
	1	
	2	
2	3	On a resource-available basis: Rank sub-categories. Identify study sites. Obtain a complete copy on a resource-available basis.
	4	
3	5	No action.
	6	
	9	

Example Matrix

Field	Heading	Entry		
1	Bibliographic	Ref_ID	1	2
2		Author_full	Buckley, Frank A.	Herrera, Roxana Wilkins;University of Houston
3		Publication Date	1954	1999
4		Title	A Generalized Land Use Study of the San Jacinto River Watershed of Texas	Morphology and stratigraphy of a coarse-grained point bar on the West Fork San Jacinto River : Montgomery County, Texas
5		Secondary Author	-	-
6		Secondary Title	ADD	-
7		Place Published	-	-
8		Organization	-	University of Houston, 1999.
9		Volume	W1954	-
10		Number of Volumes	-	-
11		Number	-	-
12		Pages	1	xv, 179 leaves
13		Study Start Date	-	-
14		Study End Date	-	-
15		Section	-	-
16		Tertiary Author	-	-
17		Tertiary Title	-	-
18		Edition	-	-
19		Date	-	-
20		Type of Document	-	Thesis (M S)
21		Subsidiary Author	-	-
22		Short Title	A Generalized Land Use Study of the San Jacinto River Watershed of Texas	Morphology and stratigraphy of a coarse-grained point bar on the West Fork San Jacinto River
23		Alternate Title	-	-
24		ISBN/ISSN	-	-
25		Original Publication	-	-
26		Reprint Edition	-	-
27		Reviewed Item	-	-
28		Custom1	-	-
29		Custom2	-	-
30		Custom3	-	-
31		Custom4	-	-
32		Custom5	-	-
33		Custom6	-	-
34		Report ID	AAG0195309 Provider: OCLC	5949113
35		Call Number	-	ANDERSON/SPEC COLL Thesis 550 1999.H

Example Matrix

57	B_Biology	B_Algae	9	9	9
58		B_Aquatic_Macrophytes	9	9	9
59		B_Benthic_Macroinverts	9	9	9
60		B_Community_Composition	9	9	9
61		B_Fish	9	9	9
62		B_Life_History	9	9	9
63		B_Tissue_Organics	9	9	9
64		B_OtherInverts	9	9	9
65		B_OtherVerts	9	9	9
66		B_WaterQualityRelationships	9	9	9
67		B_Riparian	9	9	9
68		B_Species_Distributions	9	9	9
69		B_Wetland	9	9	9
70		B_Btmlnd_Hrdwd_Forest	9	9	9
71		B_Aquatic_Habitat	9	9	9
72		B_Mesohabitat	9	9	9
73		B_Microhabitat	9	9	9
74		B_Instream_Cover	9	9	9
75	H_Hydraulics and Hydrology	H_Hydraulics	9	9	9
76		H_Hydrology	9	9	9
77		H_Flooding	9	9	9
78		H_Groundwater	9	9	9
79		H_Impoundment	9	9	9
80		H_Rating_Curves	9	9	9
81		H_Springs	9	9	9
82		H_Topography	9	9	9
83		H_Water_Rights	9	9	9
84		H_Water_Rights	9	9	9
85		H_Watershed	9	9	9
86		H_Wells	9	9	9
87		H_Xsec_Location	9	9	9
88		H_Xsec_Transect	9	9	9
89		H_InstreamStructure_Manmade	9	9	9
90		H_InstreamStructure_Natural	9	9	9
91		H_Weather	9	9	9
92		H_LargeWoodyDebris	9	9	9
93		H_Waterfalls	9	9	9

Example Matrix

94	P_Physical Process	P_Channel_Pattern	9	9	9
95		P_Curvature	9	9	9
96		P_Elevation	9	9	9
97		P_Erosion_Deposition	9	9	9
98		P_Floodplain	9	9	9
99		P_Geology	9	9	9
100		P_Imagery	9	9	9
101		P_Land_Use_Cover	9	9	9
102		P_Photographs	9	9	9
103		P_Riparian	9	9	9
104		P_River_Length	9	9	9
105		P_Sediment_Transport	9	9	9
106		P_Slope	9	9	9
107		P_Substrate	9	9	9
108		P_Substrate_Characteristics	9	9	9
109		P_Watershed_Sediment	9	9	9
110	W_Water Quality	W_Aquatic_Life_Uses	9	9	9
111		W_FlowRelationships	9	9	9
112		W_General_Water_Quality	9	9	9
113		W_Landfills	9	9	9
114		W_Nutrients	9	9	9
115		W_Permitted_Discharges	9	9	9
116		W_Permitted_HazWst_Sites	9	9	9
117		W_Petroleum_Wells	9	9	9
118		W_Pipelines	9	9	9
119		W_Species	9	9	9
120		W_Superfund	9	9	9
121		W_WPP	9	9	9
122		W_TMDL	9	9	9
123		W_ImplementationPlan	9	9	9

Running the numbers...

- Tier 1 – 73 titles (draft)
 - Electronic copies
 - 26 titles full-text document
 - 28 titles cover sheet/intro/abstract/TOC
 - 19 titles without any electronic copy
 - Study sites
 - 50 titles with study site information
 - 3 titles with study site Lat/Long

Running the numbers...

- Tier 2 – 206 titles (draft)
 - Electronic copies
 - 24 titles full-text document
 - 77 titles cover sheet/intro/abstract/TOC
 - 105 titles without any electronic copy
 - Study sites
 - 7 titles with study site information
 - 0 titles with study site Lat/Long

Deliverables to-date

- Progress reports
 - 2 TCEQ progress reports
 - Some materials provided to SAC
- Request
 - Reports made available in response to a specific request
 - 15 of 16 titles, full-text available electronically
- Draft database representing work to date

Wrap-up

- Questions?
- Potential next steps
 - Make steps toward identification of overlays
 - Specific opportunities
 - Obtain additional full-text copies of more reports
 - Develop annotated short list of only the most relevant Tier 1 reports
 - Geo-spatial location of study sites

- Contact

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