

Trinity and San Jacinto and Galveston Bay

Draft Workplan Report Overview/Discussion

January 5, 2011

Charge

- *Section 11.02362 (p) In recognition of the importance of adaptive management, after submitting its recommendations regarding environmental flow standards and strategies to meet the environmental flow standards to the commission, each basin and bay area stakeholders committee, **with the assistance of the pertinent basin and bay expert science team**, shall prepare and submit for approval by the advisory group a work plan. The work plan must:*
 1. *establish a periodic review of the basin and bay environmental flow analyses and environmental flow regime recommendations, environmental flow standards, and strategies, to occur at least once every 10 years;*
 2. *prescribe specific monitoring, studies, and activities; and*
 3. *establish a schedule for continuing the validation or refinement of the basin and bay environmental flow analyses and environmental flow regime recommendations, the environmental flow standards adopted by the commission, and the strategies to achieve those standards.*
- *Section 11. 1471 (f) An environmental flow standard or environmental flow set-aside adopted under Subsection (a) may be altered by the commission in a rulemaking process undertaken in accordance with a schedule established by the commission. In establishing a schedule, the commission shall consider the applicable work plan approved by the advisory group under Section 11.02362 (p).*

Review of Key Dates

Date	Description
26 October 2010	Full TSJ BBEST Mtg, Assignment of Workplan Elements
12 November 2010	Workplan Elements submitted to Lester (Estuary) and Espey (Instream)
17 November 2010	Estuary and Instream chapters submitted to Espey for consolidation, Subcommittee on Integration initiates
24 November 2010	Subcommittee submits Integration chapter
6 December 2010	Full TSJ BBEST Mtg, Review of Draft Report
20 December 2010	Submittal of Draft Workplan to TSJ Stakeholder Committee
5 January 2011	TSJ Stakeholder Committee/BBEST Mtg.
Future	BBASC Review/Revisions

Characterization of Workplan

- BBEST's role is to support Stakeholder Committee
 - Technical aspects of workplan to tie into and support the policy aspects considered by Stakeholders
- Workplan – backbone of the Adaptive Management Process
- Workplan objective:
 - Workplan must set forth a process to address two concurrent topics:
 - The validation of the standards set forth by TCEQ
 - Refinement of these standards, recommendations, strategies for their achievement, and their supporting analyses.

BBEST Characterization of Workplan

- Document should be strategic:
 - Beyond this level, Workplan will likely get bogged down in detail
 - Achievable
 - Reasonably Detailed
 - Understandable
- Tiered, prioritized approach
 - Short-term
 - Long-term

Process

- BBASC and BBEST uniquely positioned to provide coordination and oversight of work to be undertaken.
- Implementation of Workplan handled by agencies and/or contractors
 - BBEST members might individually participate in this capacity
- 5-year review cycle
 - Scheduled consistent with RWPG process
 - Consistent with previous SB 3 process
- TWDB naturally positioned to take prominent role

Draft Workplan Outline

- PREAMBLE
 - Senate Bill 3 Charge
 - Process
- Instream Flows
 - Validation and Refinement
 - Study Areas
 - Hydrology
 - Hydraulics/Habitat/Geomorphology
 - Ecology
 - Water Quality
- Estuary
 - Salinity/Hydrology
 - Nutrients/Sediments
 - Estuarine Ecology Section
 - Benthics/Oysters
- Integration
 - Existing Programs and Potential Resources
 - Work Plan Approach (Research Studies, Surveys, and Monitoring Program)
- Prioritized Summary of Efforts

Instream

Steps within Workplan elements can essentially be described as:

- Identify data gaps
- Consider geographic distribution
- Identify objectives of studies and how they might be utilized in an environmental flow context
- Evaluate existing programs
- Specify near-term studies
- Specify long-term monitoring or studies
- Specify if model exists which might be validated or that model needs to be developed

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority	
Instream		3-Tier study area development	x			2	
		Mapping of unique features	x			2	
	Hydrology		Flow regime component characterization	x			1
			High flow pulse and overbank assessment		x		2
			Loss/gain		x		3
			Continued flow regime component characterization			x	2
	Hydraulics/ Habitat/ Geomorphology		Surveys of long reaches covering TCEQ-adopted flow sites	x			2
			Imagery analyses	x			3
			Prioritization of intensive study sites	x			1
			Intensive site-specific studies of high priority sites	x			1
			Initiate long-term monitoring of key parameters at study sites (subsequent to intensive study)	x			2
			Intensive site-specific studies of lower priority sites			x	3
		Continued long-term monitoring			x	2	

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority
Instream	Ecology	Analyses and establishment of baseline ecological conditions	x			1
		Identification of Indicator Metrics & Species	x			1
		Identification of typical riffle-run sequences, conduct low flow subsistence monitoring, biological surveys	x (if suitable hydrology occurs)			2
		Synoptic survey of selected rivers under baseflow conditions	x (at least once during 4-year period)			2
		Coordinated surveys during high flow pulses	x (at least once during 4-year period)	x (spawning/larval fish surveys)		2
		Basin-wide baseline surveys of (state listed species) mussels and related studies	x (at least once during 4-year period)			2
		Establishment of long-term riparian monitoring sites				x

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority
Instream	Water Quality	Coordinate data gathering and special studies with work plan being developed for Senate Bill 2.	x			1
		Gather water quality data and sediment characteristic data within the segments related to Gages TR near Oakwood (Note: within SB 2 segment for TR), TR at Romayer, SJR near Cleveland, and WFSJR near Conroe.	x			2
		Gather Trinity River channel physical data for segments related to Gages TR near Oakwood (Note: within SB 2 segment for TR), TR at Romayer, SJR near Cleveland, and WFSJR near Conroe.	x			2
		Analyze data and develop findings and conclusions regarding the relationship between water quality data and the proposed flow regimes.	x			1
		Develop long-term action plan to gather data and perform analyses of water quality conditions for river segments associated with other proposed gages.	x			2
		Gather water quality data and sediment characterization data within the segments related to selected other proposed gages.			x	2
		Gather Trinity River channel physical data for segments related to selected other proposed gages.			x	3
		Analyze data and develop findings and conclusions regarding the relationship between water quality data and the proposed flow regimes.			x	2
		Develop analytical tools and/or mathematical models to be used in assessing moderate to high flow water quality conditions.			x	2
		Develop/adapt eutrophication mathematical model to Lake Livingston.			x	2

Estuary Summary

- Near-term validation of draft standard not possible
 - No time period specified for evaluation
- Focus on refining recommendations

SAC Focus Areas

- Salinity/Hydrology
 - Study flow-salinity-ecology relationship, especially competing needs of species
 - Improve flow-salinity modeling
- Nutrients/Sediment
 - Study flow-nutrient/sediment-productivity relationship
 - Evaluate new indicators

SAC Focus Areas

- Estuarine Ecology
 - Define baseline for evaluation of “sound ecological environment”
 - Improve analysis of potential indicator species
- Benthics/Oysters
 - Increase knowledge of *Rangia*
 - Evaluate other benthic indicators

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority
Estuary	Salinity	Evaluate the effect of the appropriate flow recommendations on salinity zones for additional indicators starting with, but perhaps not limited to, those initially identified by the TSJ B&E subcommittee.	x			2
		Test the conclusion that these indicators (either the three immobile species or an expanded list) are appropriate for representing the health of Galveston Bay.	x			2
		Recognizing that estuarine species have broad tolerances for salinity ranges, if a set of indicators responsive to salinity cannot be identified "as representing a healthy Galveston Bay ecosystem in its entirety" this should be explicitly stated and some attempt to quantify the relative benefit of preferred salinity zones to overall estuarine health might be attempted.	x			2
		Evaluate the response of various estuarine indicators throughout their range in the estuary including tidal streams and bayous. These areas are currently not sampled. Therefore, the lack of correlation between individual and community metrics obtained from TPWD biological data and freshwater inflow and related variables (e.g. salinity, nutrients) may reflect the bias associated with only sampling open bay areas.	x			2
		Consider the addition of new species which were previously not recognized during the BBEST process.	x			2
		Documentation of the specific sources utilized to select how specific salinity niche parameters for particular life stages were obtained.	x			2
		Analyze frequencies of occurrence of proposed freshwater inflows	x			3
		Analyze geographic factors related to flows and salinity zone areas	x			2
		Expand current analysis to evaluate broader range encompassing a full flow regime, or propose alternative or complementary approach to address other components of freshwater inflow regime	x			1
		Evaluate annual freshwater inflow targets (WAM, TxBLEND)	x			2
		Evaluate salinity circulation model		x		3
		Evaluate whether salinity is an important parameter for estuarine health, quantify relative importance of other factors (nutrients, sediments) associated with freshwater inflow				x

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority
Estuary	Nutrients/Sediments	BBEST design and promote studies to obtain the data necessary for statistical modeling	x			2
		Nutrient concentration water sampling at frequencies shorter than two weeks	x		x	2
		BBEST develop recommendations for monitoring projects.	x			1
		BBEST evaluate data obtained from monitoring projects designed to develop flow-nutrient model and make recommendations on validation of any indicators based on nutrient- flow relationships		x		2
		BBEST consider and recommend further studies to refine indicators developed based on a nutrient-flow relationship		x	x	2

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority	
Estuary	Estuarine Ecology	BBEST draft proposals for development of baseline values for the estuary which will be used to evaluate whether changes in freshwater inflow are affecting estuarine health.	x			2	
		BBEST draft proposals to identify data collection, analysis and research needed to evaluate and refine the recommendations of the BBEST for freshwater inflows to Galveston Bay.	x			2	
		Process for identifying environmental flow regime for the estuary (could include: reevaluation of the process for determining the relationships between salinity and <i>Vallisneria</i> , <i>Rangia</i> reproduction, and/or oyster parasitism	x			1	
		BBEST identify analysis, data collection, research needed. Possible examples include: Additional monitoring of phytoplankton, zooplankton, and benthos and their relationships to flow; monitoring of biological communities in tidal streams (upstream of areas traditionally sampled by TPWD); analysis of brittle star occurrence in TPWD data, analysis of seagrass occurrence; relationship between rainfall runoff to coastal watersheds (ex. Houston bayous) and freshwater inflow to the bays, etc.	x			2	
		BBEST will communicate needs for analysis, data collection, and research needs to organizations.	x			2	
		Set the parameters of indicator baselines	x			1	
		Determine how best to evaluate changes from a "sound ecological environment"	x			1	
		Development of data and analyses that will permit improved recommendations				x	1
		Identify data collection, analysis and research needed to validate or refine the freshwater inflow standards. For certain parts of the ecosystem, critical relationships between seasonality of flow and ecological health are expected.				x	2
		Identify data collection, analysis and research needed to develop strategies to meet standards set by TCEQ.				x	2
		BBEST will meet at least annually to provide progress updates			x		2
		BBEST will compare available information to baseline values 4 years after implementation of the workplan.				x	1

Prioritized Matrix

Component	Category	Item	Near-Term	Mid-Term	Long-Term	Average Priority
Estuary	Benthics/Oysters	BBEST deliberate on the suitability and efficacy of other indicators of benthic ecological health. Suggest additional monitoring to assess proposed benthic indicators.	x			2
		Initiate quantitative data collection for Atlantic rangia	x			1
		Initiate or expand monitoring programs designed to assess reproduction of Rangia and parasite and predator impacts on oysters.	x			2
		Initiate efforts to determine the cause of the current oyster decline	x			3
		BBEST will coordinate with resource management agencies to design and implement a program of monitoring benthic community that incorporates multiple correlates of freshwater inflow				x

Integration

- BBEST and BBASC resources are questionable
- Focus on existing programs and potential resources
- SAC questionnaire obtained positive responses from several federal and state entities including:
 - TCEQ Clean Rivers Program
 - TIFP Senate Bill 2 (SB 2) studies
 - TWDB and TPWD joint freshwater inflow studies program and Datasonde program
 - TWDB Research and Planning Fund Studies
 - National Estuary Programs for Galveston Bay and Coastal Bend Bays

Integration Opportunities for Trinity-San Jac-Galveston Bay

- Instream Flow (rivers, streams, and tributaries) collaboration:
 - Subsistence Flows: TCEQ Clean Rivers Program
 - Base Flows: Possible TIFP SB2 studies and academic research projects
 - Pulse and Overbank Flows: Possible TIFP SB2 studies and academic research projects
- Bay and Estuary collaboration:
 - TPWD Coastal Fisheries Program
 - TCEQ monitoring studies and Galveston Bay Estuary Program
 - TWDB coastal studies
 - Other State agency programs (e.g. Dept. of State Health Services seafood safety program)
 - Academic research initiatives (TAMUG, UHCL, etc.)

Questions?