

Technical Support for Development of Nueces BBASC Recommendations Report

Scope of Work January 31, 2012

Budget: \$22,000

Introduction

The Nueces River and Corpus Christi and Baffin Bays Basin and Bay Area Stakeholders Committee (Nueces BBASC), in fulfilling its charge under the Texas Water Code, is seeking technical support to assist it in evaluating recommendations of the Basin and Bay Expert Science Team (Nueces BBEST).

The work to be provided may include, but is not limited to, the following tasks:

1. Planned Water Supply Project Evaluations

a) Compute the firm yield of two example large scale water supply projects in the 2012 State water plan (e. g. the Nueces Off Channel Reservoir and the Lower Sabinal Edwards Recharge Dam) subject to senior water rights, appropriate hydrologic assumptions, and the following environmental flow standards:

- i) No instream flow requirement;
- ii) TCEQ Default (Modified Lyons);
- iii) Regional Planning (Consensus Criteria for Environmental Flow Needs); and
- iv) BBEST Recommendations.¹

b) Quantify the percentages of maximum potential example project firm yield committed to the environment subject to each of the above environmental flow standards.

c) Estimate the capital, annual, and unit costs of firm water supply associated with example projects and environmental flow standards. Compare these unit costs to one another and to the unit cost of those for projects recommended in the 2012 State Water Plan.

d) Evaluate magnitudes, frequencies, and durations of instream flows and estuarine inflows downstream of the example projects and consider quantitative ecological ramifications in the forms of relative differences in species abundance, suitable habitat area, and/or other factors.

e) BBASC to consider whether an appropriate balance between firm water supply and environmental flow needs has been achieved. If an appropriate balance has not been achieved or further research is needed to formulate recommendations, proceed to Task 3.

2. Potential Standard and Strategy Evaluations

¹ Modeling tools are expected to include the Nueces River Basin Water Availability Model (Nueces WAM), the Nueces River Basin Model (for recharge enhancement simulation), the Flow Regime Application Tool (FRAT), and the Corpus Christi Water Supply Model (CCWSM)

- a) Perform additional unspecified CCWSM runs (which include tabulation of yield, bay inflow statistics, and other readily accessible information) for exploration of strategies to meet potential BBASC recommended environmental flow standards.
- b) Evaluate Rincon Bayou Pipeline strategies for meeting salinity targets recommended by the Nueces BBEST within the Nueces Delta.
- c) Evaluate effects of potential environmental flow standards including simplified base flow criteria and / or pulse exemption criteria on water availability, instream flows, habitat availability, and sediment transport for the Nueces River at Cotulla and Three Rivers (Nueces River at Laguna is addressed in Task 1).

3. BBASC Recommendations Regarding Environmental Flow Standards

- a) If additional firm water supply from an example project or water available for permitting is necessary to achieve an appropriate balance, then evaluate potential modifications of BBEST flow regime recommendations in accordance with the following steps:
 - i) Successively reduce or eliminate BBEST flow regime components perceived to be the least critical for maintenance of a sound ecological environment (e.g., tiered seasonal pulses or tiered base flows).
 - ii) Quantify resulting percentages of maximum potential example project firm yield or unappropriated streamflow committed to the environment.
 - iii) Perform unit cost comparisons for example projects.
 - iv) Consider quantitative ecological ramifications based on relative differences in downstream flows.
 - v) Iterate steps i. through iv. until an appropriate balance has been achieved, one (1) iteration per site/project.
- b) If additional water for environmental flow needs is necessary to achieve an appropriate balance, then evaluate potential modifications of BBEST flow regime recommendations in accordance with the following steps:
 - i) Successively increase or add to BBEST flow regime components perceived to be the most critical for maintenance of a sound ecological environment (e.g., tiered seasonal pulses, tiered base flows, or subsistence flows).
 - ii) Quantify resulting percentages of maximum potential example project firm yield or unappropriated streamflow committed to the environment.
 - iii) Perform unit cost comparisons for example projects.
 - iv) Consider quantitative ecological ramifications based on relative differences in downstream flows.
 - v) Iterate steps i. through iv. until an appropriate balance has been achieved, one (1) iteration per site/project.

4. BBASC Meetings, Technical Reporting and Additional Services

- a) Prepare and deliver presentations and limited report documentation summarizing technical support work described in Tasks 1 through 3.
- b) Participate in up to 8 meetings of the BBASC.
- c) Provide additional technical support to BBASC as directed within schedule and budget constraints.

Tentative Schedule:

Work Product	Schedule of Deliverables
Task 1. Planned Water Supply Project Evaluation	TBD
Task 2. Potential Strategy Evaluation	TBD
Task 3. Flow Standards Analysis	TBD
Task 4. BBASC Meetings and Technical Reporting	TBD