

Senate Bill 3
Adaptive Management for Environmental Flows
Cycle 1
(FY2014 – FY2015)

Final Status of SB3 Adaptive Management Cycle 1 (FY14 - FY15)

Study 1 - Anchor QEA

Studies to Evaluate Achievement of Inflow Standards & Ecological Response

- Deliverables Complete
- Contract in process of being closed

Study 2 – AquaStrategies

Evaluation of Freshwater Delivery Alternatives to East Matagorda Bay

- Deliverables Complete
- Contract in process of being closed



Brief Summary of Results

Studies to Evaluate Achievement of Inflow Standards & Ecological Response

Study Goal: Update and expand analyses developed thru MBHE and BBEST efforts for oysters & dermo, marsh vegetation, and finfish/shellfish

Summary Results:

1. Dermo & oysters are responsive to infrequent low salinity events (<2ppt) as well as recent average salinity & temperature conditions
2. Marsh biomass analyses support SB3 multi-level inflow criteria & achievement guidelines
3. Habitat is a good key indicator of freshwater inflow. Finfish/shellfish species & community data are not good measures. *Rangia* clams definitely are not.
4. **Study supports existing freshwater inflow standards for Matagorda and Lavaca bays.**
5. **Study supports inclusion of large freshet events for the inflow standards** (similar to the high flow pulses of the instream flow standards)
6. **Study supports the long-term average inflow value for Matagorda Bay and recommends a similar component for Lavaca Bay (at 480,000 acre-feet per year).**



Suggested Future Analyses from

Studies to Evaluate Achievement of Inflow Standards & Ecological Response

To enhance assessment of e-flow standards:

- (1) Long-term monitoring –
 - a. Re-establish Dermo monitoring in Lavaca and Matagorda bays
 - b. Establish marsh productivity monitoring in each delta

- (2) Oyster health–
 - a. Identify the role of freshets and management options for oyster health
 - b. Evaluate nutrient loading from the Colorado River

- (3) TxBLEND hydrodynamic and salinity transport model improvements–
Improve hydrology data sets for :
 - a. Return flow and diversion data (1986 – 2009)
 - b. Appropriateness of USGS Bay City gage (which can be tidally influenced)

- (4) Application of TxBLEND to quantify spatial extent of salinity areas – similar to other SB3 studies



Brief Summary of Results

Evaluation of Freshwater Delivery Alternatives to East Matagorda Bay

Study Goal: Identify cost-effective engineering solutions for augmenting freshwater inflows to East Matagorda Bay, with focus on delivering flows from the Colorado River

Summary Results:

1. Analyses examined scenarios to bring 3,000 to 16,250 acre-feet per month with cost estimates of \$4 million to \$150 million
2. Large volumes of water (150,000 to 300,000 acre-feet) are costly to implement and availability of water is uncertain – these options not examined
3. **Use of existing irrigation infrastructure to deliver freshwater to marshes may have greater long-term benefit than options to deliver inflows to EMB**
4. Modification of the spoil islands separating the GIWW and EMB may improve circulation and nutrient delivery to EMB
5. Consideration of groundwater inflows may be an alternative for reducing salinity in EMB
6. **Need to weigh benefits of delivering flows to EMB versus marshes and determine the ecological goal to achieve with limited inflows**

Suggested Future Analyses from *Evaluation of Freshwater Delivery Alternatives to East Matagorda Bay*

Key Assumptions:

1. Salinity is a surrogate for ecological condition when comparing scenarios
2. Is possible to obtain a diversion permit for the Colorado River

Recommended future study:

- (1) Conduct TCEQ Full Authorization WAM analysis to determine availability of water to support Scenario #4 (divert 275 cfs).

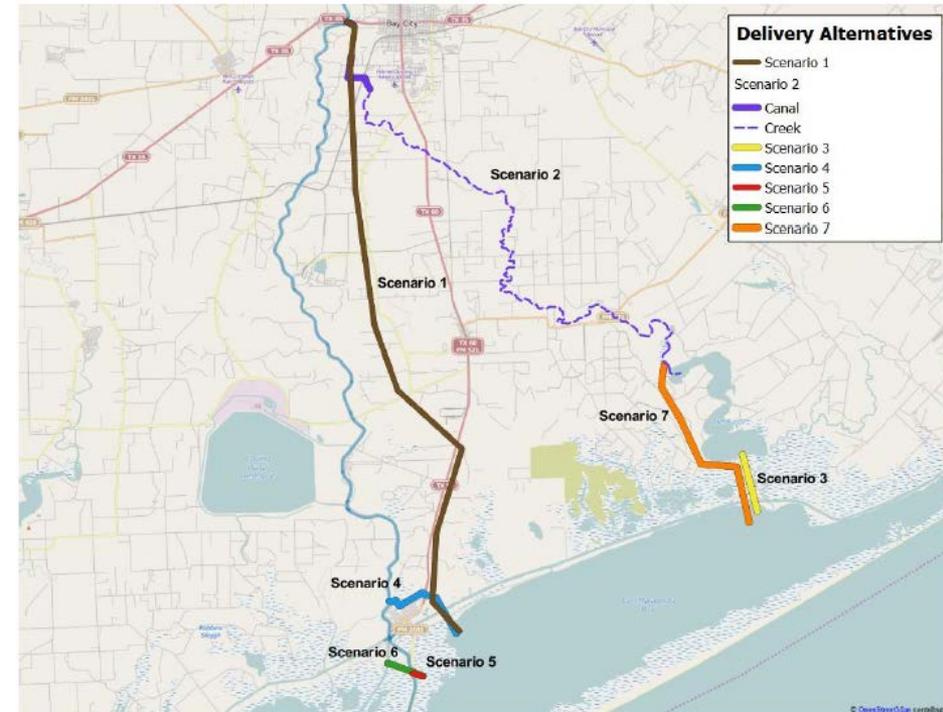


Figure 29. Freshwater Delivery Alternative Scenarios for Localized Benefits

Suggested Future Analyses from *Evaluation of Freshwater Delivery Alternatives to East Matagorda Bay*

Recommended future efforts for East Matagorda Bay and wetlands:

- (2) Conduct studies and data collection to:
 - a. Inform seasonal and long-term ecological goals
 - b. Provide a baseline for quantifying changes in response to flows
 - c. Characterize the status of marshes north of GIWW and causes for decline
 - d. Identify land owners amenable to improving flows to marshes
- (3) Use a hydrodynamic and salinity transport model to determine:
 - a. Location, quantity, and timing of inflows to achieve most benefit to EMB
 - b. Volume of freshwater to benefit marshes north of the GIWW
- (4) Investigate feasibility of reconfiguring soil islands that bound north side of EMB to improve circulation and freshwater delivery
- (5) Investigate feasibility of brackish groundwater to augment inflow to EMB

Senate Bill 3
Adaptive Management for Environmental Flows
Cycle 2
(FY2016 – FY2017)

Report on Process for SB3 Adaptive Management Cycle 2 (FY16 - FY17)

- \$2 million for studies & data collection
- 5 of 7 basins interested in funding – thus far!
 - If 5 basins = \$400,000
 - If 6 basins = \$333,333
 - If 7 basins = \$285,714
- Funding available 9/1/2015 – 8/31/2017
- Timing:
 - ~ 5 weeks lead time for Board Approval
 - RFQ is posted 14 – 21 days
 - At least 1 month to negotiate & execute contract

BOARD MEETING	DRAFT BOARD ITEM FOR EA REVIEW BY NOON	FINAL ITEM FOR EA SIGNATURE BY NOON	FINAL ITEM WITH ALL COPIES BY NOON	SECRETARY OF STATE POSTING
9-9-15	8-13-15	8-24-15	8-26-15	9-1-15
9-22-15	8-25-15	9-3-15	9-8-15	9-14-15
10-13-15	9-15-15	9-25-15	9-29-15	10-5-15
10-27-15	9-29-15	10-9-15	10-13-15	10-19-15
11-10-15	10-13-15	10-23-15	10-27-15	11-2-15
11-23-15	10-23-15	11-4-15	11-6-15	11-13-15
12-7-15	11-6-15	11-17-15	11-19-15	11-25-15
12-21-15	11-20-15	12-2-15	12-4-15	12-11-15

