

Lavaca-Matagorda Freshwater Inflow Recommendations

Stakeholder questions:

How much can freshwater inflow recommendations be changed without affecting sound environment in the bays?

- **In the case of Matagorda Bay freshwater inflow recommendations, it would be extremely time-consuming (estimated minimum of year) and complicated to determine how much the freshwater inflow regime can be modified without harming a sound environment. This would be an analysis that could not be done by the BBEST because of the complexity and magnitude of the original analysis.**

Will different levels of freshwater inflow and different attainment frequencies protect sound environments?

- **The regimes proposed for Matagorda Bay and Lavaca Bay are certainly not the only values that will protect sound environments. However in order to change them in the future, there would need to be new and different analysis. For example in Lavaca Bay, it is likely that any reasonable analysis of freshwater inflow to protect oysters would result in similar freshwater inflow regime values. New and different analysis on another key habitat like marsh would involve different assumptions and data availability and would almost certainly result in a different set of values.**

Matagorda Bay freshwater inflow Recommendations Background

In the process of deriving the flow regime values, millions of dollars and thousands of hours were spent. Additionally, thousands of decisions, interpretations, rounding of values, etc. were done in the process of arriving at these 14 values and 5 sets of achievement frequencies. This means that if a team of scientist were to reanalyze the data and identify decisions, interpretations, rounding of values, new data, that were involved in the initial analysis, they could probably identify areas where they might change values. **However because there are so many factors and decisions involved in the process, it is highly unlikely that making a few changes would significantly change any of the MBHE flow regime values.**

If changes are made objectively, those changes would be based on 2 assumptions:

- The MBHE flow regime we included in our report was judged to support a sound environment
- Any change in the analytical process might result in new values that would be considered to support a sound environment. **If the changes in analytical approach are conducted objectively, it is equally likely they could increase in value as decrease in value.**

It doesn't seem appropriate for the BBEST, TCEQ, or anyone else to attempt an analysis to change the MBHE flow regime without demonstrating they were involving among the best scientists, and had adequate time and money for the process (probably years and millions of dollars).

If someone applied for a permit that would cause the MBHE flow regime values to be changed by less than one percent, it is unlikely anyone could prove even with additional analyses that the change would affect sound environment. Ex. The MBHE 4 Spring value is 433,200 ac-ft during 3 months. We know that scientists could spend a life time and not be able to say that 428,868 ac-ft (a 1% reduction in the regime value) was any less healthy than 433,200.

There is one easy way to provide additional opportunity for flow and that is to use the frequency of occurrences for the period of record in the MBHE report instead of using the achievement guideline frequencies.

Table 22. Recommended achievement guidelines. POR Recommended Occurrence

Achievement Guideline	
MBHE 4 Historical = 35%	Achievement guideline = 35%
MBHE 3 Historical = 58%	Achievement guideline = 60%
MBHE 2 Historical = 72%	Achievement guideline = 75%
MBHE 1 Historical = 86%	Achievement guideline = 90%
Threshold	100%

This is a long way of saying, regarding the MBHE flow regime, that it would be very difficult within the resources available to conduct any meaningful analysis of different environmental flow regimes.

Feasible, Quick Adjustments to Lavaca Bay and Matagorda Bay freshwater inflow recommendations

Round flow regime values to 2 significant figures and state the value is accurate to the ± 0.5 of the place of the lowest significant figure.

Ex. The MBHE 4 spring value is 433,200. Round to 430,000. The lowest significant figure is 3 and it is the ten thousands place. Describe the MBHE 4 spring value as $430,000 \pm 5,000$ which would mean the MBHE 4 spring value could be as low as 425,000 or as high as 435,000. We would be stating that there is not an ecologically significant difference between 425,000 and 433,200.

Suggested Hydrologic Condition:

Reservoir storage in Lake Texana for Lavaca Bay
Highland lakes reservoir storage for Matagorda Bay