



Freshwater Inflow Needs Study for Matagorda Bay

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How much freshwater inflow does Matagorda Bay need to help maintain a productive ecological environment? To shed light on the matter, two river authorities and three state agencies recently completed a Colorado River freshwater inflow needs study. Below are answers to frequently asked questions about the study.

What is the 2006 Matagorda Bay freshwater inflow needs study (2006 FINS)?

The study, which began on April 1, 2002, is a reassessment of freshwater inflow needs for Matagorda Bay, including a review and update of a bay system study conducted in 1997. It is a joint effort of the Lower Colorado River Authority, Lavaca-Navidad River Authority, Texas Parks and Wildlife Department (TPWD), Texas Water Development Board (TWDB), and the Texas Commission on Environmental Quality (TCEQ). Each study partner was represented on a FINS advisory committee. The study also involved a stakeholder process and public review.

Why is it necessary to reassess freshwater inflow needs for Matagorda Bay?

The new study provides updated information on the freshwater inflow needs of Matagorda Bay by analyzing more than a decade of data. The 1997 study was based on five years of data collected after the U.S. Army Corps of Engineers opened up a diversion channel from the Colorado River into Matagorda Bay. The new study draws upon another eight years of data, including TPWD species sampling. The study also reviewed the 1997 study methodologies and assumptions.

What are the results of the 2006 FINS?

The results of the study indicate that higher freshwater inflows may be needed to achieve Target and Critical inflow needs than indicated in the 1997 study. These results are based on the availability of additional, more variable data collected over a longer period of time. Both the 1997 and 2006 studies identified two freshwater inflow needs (FIN): Target FIN and the Critical FIN. The goal of Target inflows is to maintain salinity, nutrient and sediment loadings to optimize the productivity of economically and ecologically important fish and shellfish. The goal of Critical inflows is to provide a refuge for species to survive during low-flow conditions until more normal conditions return.

What was the role of the advisory committee?

The advisory committee reviewed the study scope, schedule and technical methods; aided communication and cooperation; prepared alternative objectives for the analyses; evaluated results of the analyses; and made consensus recommendations on alternatives. LCRA conducted the quarterly meetings, which were open to the public.

What was the stakeholder process?

In addition to public quarterly meetings of the advisory committee, LCRA and partners conducted stakeholder workshops at McKinney Roughs near Austin on Aug. 5, 2004, Bay City on Dec. 13, 2004, and Oct. 24, 2005. The initial two workshops provided an overview of the FINS process data and methodologies. The final workshop presented for review and comment the preliminary results contained in the draft study.

What will the study partners do with the results of the 2006 FINS?

The state agencies will use the results to evaluate a number of strategies for meeting freshwater inflow needs in accordance with their statutory responsibilities. In the next review of its Water Management Plan, (WMP), LCRA will consider the study results to see if the plan needs updating. This review process will assess this need with all other water demands, water availability, and with input from all affected interests. This review will also include the consideration of the Bay Health Study being performed as part of the feasibility study for the Lower Colorado River Authority -San Antonio Water Project (LSWP). This project, still in the study phase, is designed to meet future water needs in the lower Colorado River basin and the City of San Antonio.

Why are freshwater inflows important to Matagorda Bay?

The biological productivity of Matagorda Bay depends upon many factors, including maintaining a balance between fresh and marine waters. This brackish water provides a nursery and a refuge for many shellfish and finfish and a food source for all estuarine species.

Why is it important to maintain a proper ecological balance in Matagorda Bay?

The production of finfish and shellfish makes this area important ecologically and economically as a significant location for commercial and sports fishing. Commercial seafood harvests from the bay generate about \$63 million annually and another \$115 million for the sportfishing industry.

What are the sources of freshwater inflows to the bay?

Freshwater inflows enter the bay from a number of sources. They include the Colorado, Lavaca and Navidad rivers, multiple smaller coastal tributaries, return flows from cities and agriculture, and rainfall. Of these freshwater inflows, the Colorado River basin contributes about 46 percent; the Lavaca River basin about 22 percent; and other coastal basins about 32 percent on average since records have been kept.

How does LCRA help ensure adequate freshwater inflows?

LCRA's WMP governs operations of the Highland Lakes to meet the needs of major water users throughout the lower Colorado River basin. This includes freshwater inflows to maintain a healthy bay and estuary ecosystem. As a part of its adaptive water management strategy, LCRA revises the WMP periodically to keep pace with changing water demands and improved information.

Which species are used to measure biological productivity?

The 2006 FINS re-evaluated data on species from the coastal fisheries data collected by TWPD. The study found that three varieties of finfish and four types of shellfish are useful indicators of biological productivity. The varieties of finfish are gulf menhaden, striped mullet and red drum; the shellfish are blue crab, brown shrimp, white shrimp and eastern oysters.

How are the freshwater inflow needs for the bay determined?

The Target FIN methodology — developed by TPWD and TWDB — makes use of historical hydrological, water quality and biological data from the bay to determine inflow needs under normal flow conditions. The state method optimizes productivity by scheduling monthly inflows within historical and biological constraints. The study partners also have developed a method of determining the Critical FIN based on species salinity tolerances.

How is the LCRA-SAWS Water Project related to the FINS?

The enabling legislation for the LCRA-SAWS Water Project requires a study that addresses more than what is being considered in the 2006 FINS. Before approval of the LSWP, the LCRA Board of Directors must find that the beneficial inflows after any water diversions associated with the project will be adequate to maintain the bay's ecological health and productivity. The FINS will be a starting point for the LSWP analyses. 5272, Ext. 3572.

Questions?

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