

INTRODUCTION

The principal goal of the Texas Clean Rivers Program (CRP) is to ensure safe, clean water supplies for the future of Texans' drinking water needs, industry, agriculture, healthy ecosystems, and recreation and for all other uses of this valuable state resource. The CRP meets its goal in the Brazos River Basin through an ongoing partnership involving the Texas Commission on Environmental Quality (TCEQ), the Brazos River Authority (BRA), regional entities, local governments, industry and citizens.

As the lead agency for the Brazos River Basin, the Authority oversees all aspects of the Clean Rivers Program process in the basin. This includes: serving as liaison between TCEQ and the stakeholders, participating in statewide CRP task forces; performing all administrative and project tasks; supporting the Brazos River Basin CRP Steering Committee and Technical Advisory Committee; and maintaining regular contacts with other planning agencies.

Drought, Flooding and Chloride Levels

The water quality in the Brazos River Basin is generally good and the majority of the basin supports aquatic life and recreational uses. Two issues that commonly affect the water quality are drought conditions and excessive levels of chloride. Water quality can also be dramatically impacted by flooding, and although this occurs rarely, we did experience significant flooding in the spring and summer of 2007.

Chloride in the mainstem of the Brazos River Basin comes from natural brine springs in Stonewall, Kent and Garza counties that deposit highly concentrated groundwater into the watershed of the Salt Fork and Double Mountain Fork of the Brazos. Rainfall then flushes this residual salt into the rivers. The natural salt produced in the uppermost portion of the Brazos River Basin affects the mainstem throughout its entire reach.

Drought conditions frequently affect most of the State of Texas; such was the case from 2005 through early 2007 (Figures 1 and 2). Over this period, chloride levels in mainstem lakes became even more concentrated than normal due to evaporation which reduced water levels while leaving chlorides in the remaining water. During this drought period, chloride levels in Lakes Possum Kingdom and Granbury reached high concentrations never previously observed in either lake. Water releases from both lakes caused abnormally high chloride levels to be observed in the entire mainstem of the Brazos River. Concentrating effects of chlorides and other minerals were also observed in other parts of the basin but were not as dramatic as those observed in the mainstem.

The drought broke in March 2007 and rainfall continued through July 2007, with significant rainfall events occurring in March, May and June (Figure 3). Flooding occurred in almost all parts of the Brazos River basin. In the Upper Basin, these rainfall events fortunately all occurred east of the salt producing area in the

Brazos basin and had a diluting affect on chlorides in the mainstem. In just a few months time, the chloride levels in the mainstem went from the highest ever recorded to the lowest ever recorded. Chloride levels in mainstem lakes remain uncharacteristically low but are expected to gradually rise over the next few years.

Also observed during the 2007 flood were other expected impacts to water quality including increases in total suspended solids, bacteria and large quantities of debris, both of natural and man-made origins, entering the lakes and rivers. Bacteria levels declined rapidly after the rains subsided and lake levels returned to normal within a matter of weeks. The suspended solids levels have taken longer to recover to pre-flood concentrations and some lakes have not yet returned to normal levels.

Figure 1. 2005 Estimated Precipitation

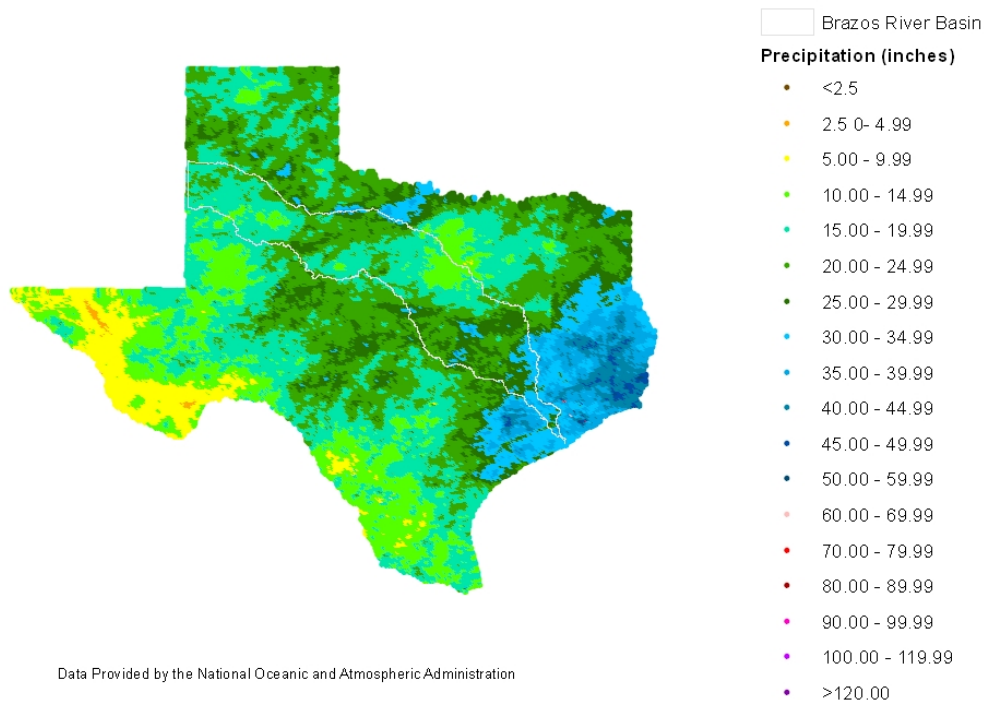


Figure 2. 2006 Estimated Precipitation

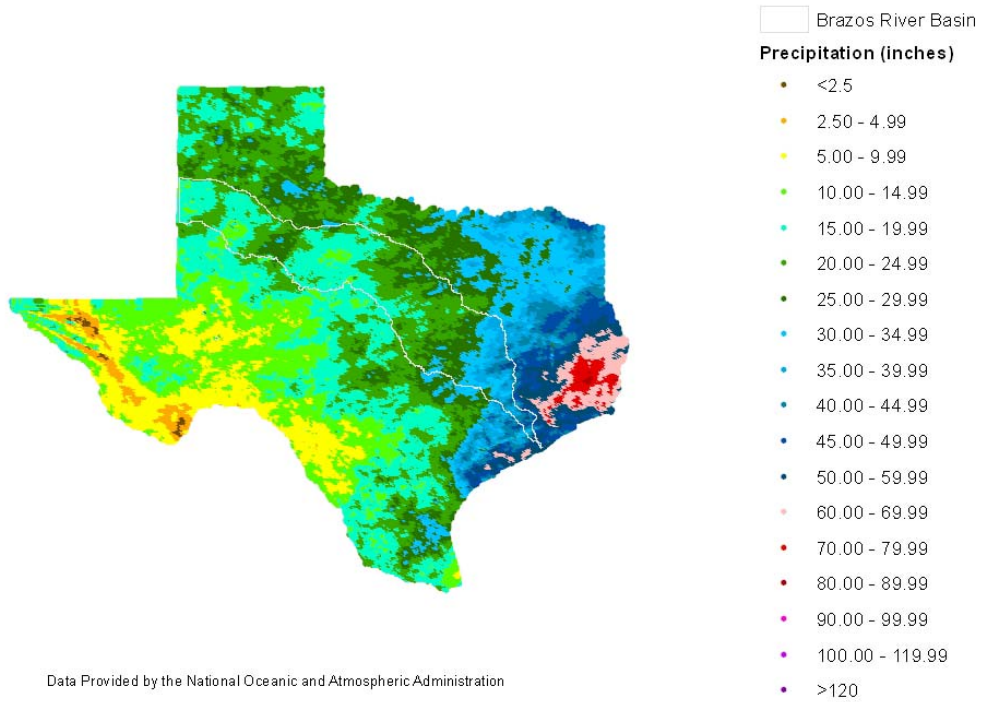


Figure 3. 2007 Estimated Precipitation

