10/25/2018

Progress report

Central Texas Hill Country flooding

- **INTRODUCTION**

When rushing floodwaters in the Llano River completely wash away a bridge in Kingsland on October 16th, 2018, it was certain that a devastating flooding in the region was on the way. The same day, the river reached the highest height in more than 80 years. A series of evacuations were set on for multiple cities in the Central Texas Hill Country, roads and property were inundated and damaged, and water boil notices issued due to overwhelmed water treatment plants in addition to several casualties along the way.

The purpose of this report is to provide a GIS analysis of the flood in order to assess the situation based on the hydrological models, tools and datasets at our disposal. The main software used in this report is ArcGIS Pro, and the tools include spatial and hydrological analysis. In addition, other hydrological modeling tools will help provide better insight and understanding of the situation.

- **BASEMAP**

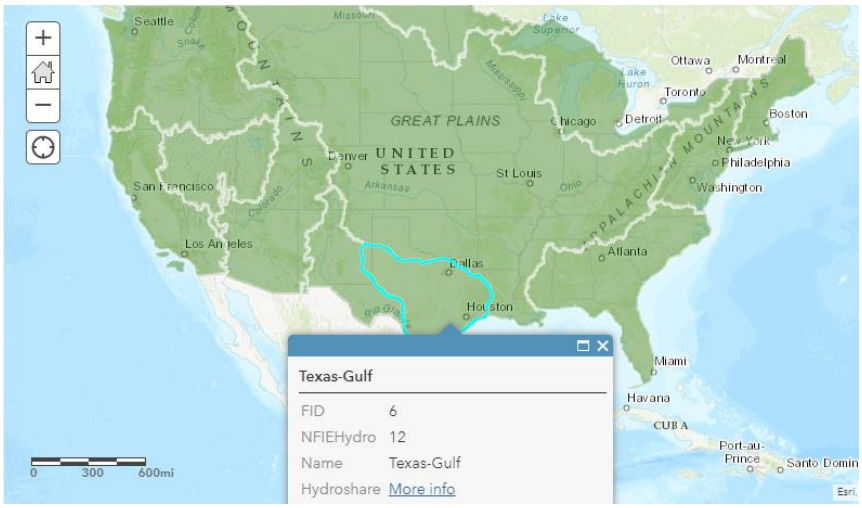

Figure 1. Hydroshare NFIE region 12

Based on the national geospatial framework, NFIE-Geo, we can use the portion of the dataset for the Texas-Gulf Region that covers the USGS Water Resources Region 12. Along with the Colorado river, 2 other rivers and streams that drain to the Texas Gulf Coast are represented in this dataset. This allows to extract features for the watersheds and subwatersheds in the Austin-Colorado subbasin.

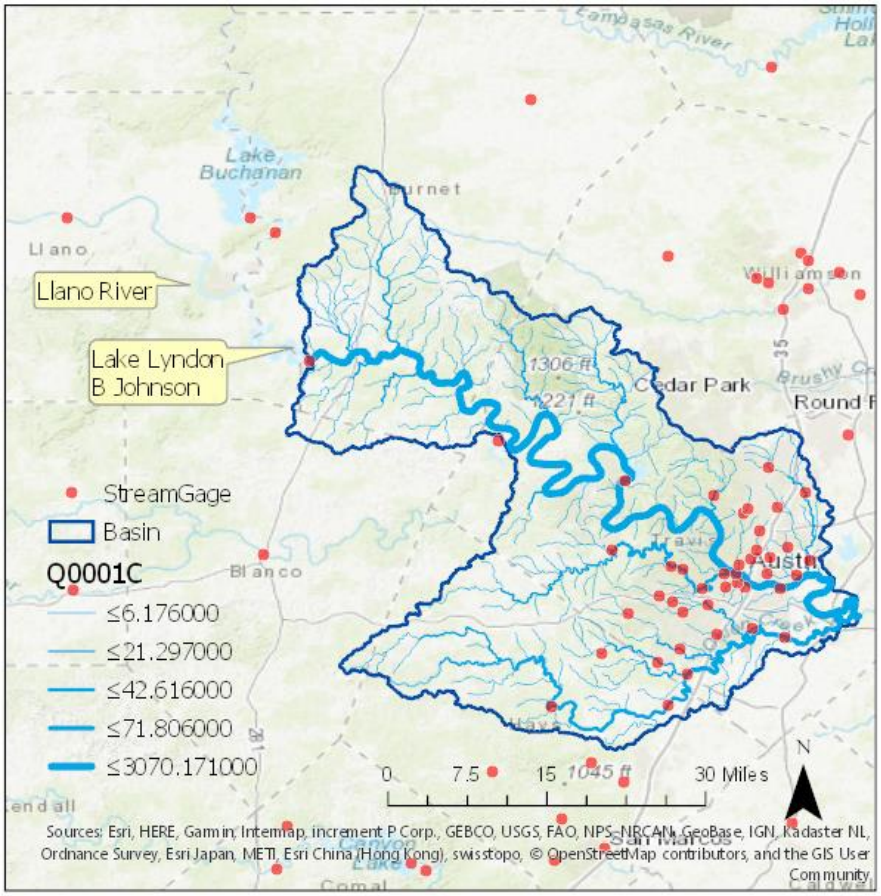

Figure 2. Austin - Colorado subbasin with its flowlines and stream gages

The map in Figure 2 gives an initial idea about the hydrology of the subbasin and where stream measurements are taken. It also shows gages outside of the basin which can be useful to compare data inside the subbasin with flows coming from the llano river and Lake Buchanan into Lake Lyndon B Johnson before they drain into the studied subbasin. The symbology for flowlines (graduated symbols) is based on **Field Q0001C** (the mean annual flow of each flowline in cubic feet per second) which puts into perspective the subbasin's hydrology. Based on this map and dataset, we can already draw relevant characteristics about the study area and converge to the assessment of the flooding situation.