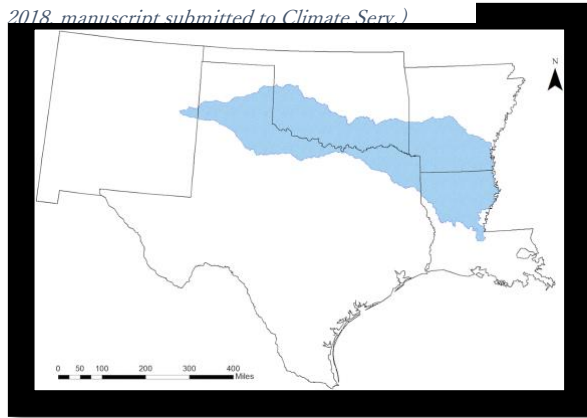


Future Hydrologic Extremes of the Red River Basin

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Figure 1 Red River basin (Bertrand and McPherson 2018, manuscript submitted to *Climate Serv.*)



Extreme hydrologic events like drought and flooding cause stress on water resources and often impact nearby communities. Located in the south-central United States, the Red River Basin is subject to hydrologic extremes that affect water resources and impact the communities that rely or use this water source.

One instance of this can be seen in the summer of 2011, when Oklahoma experienced its third driest summer and Texas experienced its driest in state history. When long-term drought

conditions ended in the spring of 2015, El Niño caused record precipitation in the Red River Basin resulting in the loss of property and life because of flooding conditions. Catastrophic hydrological events such as floods and droughts have historically occurred in this region, but it is the frequency of these events, which is expected to vary in a changing climate, that decision-makers and stakeholders need to take into account for future planning purposes.

This study focused on how extreme events which impact water resources is expected to change in the future, as well as how to best aid local water resource managers and stakeholders. Overall, the results indicate an increase in the frequency of severe-drought events in the western Red River Basin, as well as a rise in heavy-rainfall events by the end of the century. This would mean that both decision-makers and water resource managers will need to adapt to and prepare for varying hydrologic events depending on their as it will have direct impacts to the communities that surround and rely on these water resources.

For more information, click [here](#).