



Flood  
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# Texas Integrated Flooding Framework

## What is compound flooding?

Major coastal flood events have occurred during four of the last five years prior to 2019, resulting in billions of dollars in damage to coastal infrastructure. Coastal floods are more destructive when multiple flooding processes happen simultaneously, creating a compound event. A compound flooding event can be defined as a simultaneous or sequential combination of flooding from meteorological, oceanographic, and hydrologic drivers. The most common type of coastal compound flooding—a combination of storm surge and riverine flooding—can produce floodwaters that are longer in duration and more spatially extensive than anticipated.

## What is the Texas Integrated Flooding Framework?

For Texas to implement state and regional flood planning, decision-makers need a more accurate understanding of coastal flood risks and the tools for effective mitigation planning. The Texas General Land Office, through its Community Development Block Grant Disaster Recovery Program, funded the Texas Water Development Board (TWDB) to serve as the lead agency to coordinate a comprehensive flood risk reduction planning project in partnership with the U.S. Geological Survey and the U.S. Army Corps of Engineers – Galveston District. The Texas General Land Office provided \$3 million to the TWDB to deliver this project by December 2024.

The Texas Integrated Flooding Framework (TIFF) project will create an integrated framework to provide local, regional, and state entities with the compound flood risk information and planning tools necessary for comprehensive regional flood planning and mitigation in the coastal zone. The general objectives of the TIFF are to: 1) develop the guidelines and processes for implementing a comprehensive framework to model, visualize, and plan for the risk of flooding in counties affected by Hurricane Harvey; 2) build relationships among agencies to improve coordination and collaboration; and 3) complement the many ongoing efforts to enhance flood science, mapping, modeling, warning, response, and planning in Texas.

## What are the primary components of the TIFF project?

**1. Data and Monitoring Gap Analysis.** The goal of this component is to identify available data and data gaps and to establish a plan for obtaining data critical for successful

coastal flood analysis. This component will support expansion and improvement of data observations for inland, coastal, and ocean systems.

- 2. Data Management and Visualization.** The goal of this component is to ensure that any coastal flood-related data and model outcomes can be properly visualized for technical and non-technical end users. Furthermore, TIFF will support the effort led by the Texas Disaster Information System pertaining to data management and visualization.
- 3. Integrated Flood Modeling Framework.** The goal of this component is to develop an integrated modeling framework to support inland and coastal flood hazard identification.
- 4. Planning and Outreach.** The goal of this component is to ensure various end users' flood planning and mitigation needs are incorporated into the data and modeling frameworks and the findings from various efforts are well communicated. Furthermore, TIFF will support expansion and improvement of flood planning in Texas by incorporating new findings into the existing planning tools or recommending the creation of new planning tools. Finally, TIFF aims to balance local cost-effective flood risk management with regional flood risk considerations.

The TIFF project utilizes a collaborative approach by engaging other governmental agencies, academia, and regional stakeholders to build out the four components of the framework through expert technical advisory teams.

## Contact Information

Dr. Amin Kiaghadi  
Coastal Modeling Team Lead, Coastal Science  
[Amin.Kiaghadi@twdb.texas.gov](mailto:Amin.Kiaghadi@twdb.texas.gov), 512-936-0844

Caimee Schoenbaechler  
Manager, Coastal Science  
[Caimee.Schoenbaechler@twdb.texas.gov](mailto:Caimee.Schoenbaechler@twdb.texas.gov), 512-463-3128

Dr. Carla G. Guthrie  
Director, Surface Water Division  
[Carla.Guthrie@twdb.texas.gov](mailto:Carla.Guthrie@twdb.texas.gov), 512-463-4179

[webapps.usgs.gov/tiff/](http://webapps.usgs.gov/tiff/)

[TIFF@twdb.texas.gov](mailto:TIFF@twdb.texas.gov)