TIFF and Treats: the Texas Integrated Flooding Framework and Other Inter-Agency Collaborations

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August 11, 2021

USACE, Galveston District (SWG)
Summer 2021 Portfolio Review and Stakeholder Partnering Forum (SPF)
Theme: “Collaborating for Coastal resiliency”

Let’s start with the treats!

- **Texas Flood Organizing Group (FLOG)**
  - Hosted by TWDB
  - Participants
    - FEMA
    - GLO
    - NWS
    - TAMU
    - TDEM
    - TWDB
    - TxDOT
    - USACE
    - USGS
    - UT Austin
    - UT Center for Space Research
  - Subgroups meeting every other month with a focus on specific relevant topics, with the regular full groups being held in between months.
  - POCs: Taylor Christian (taylor.christian@twdb.texas.gov) & Saul Nuccitelli (Saul.Nuccitelli@twdb.texas.gov)

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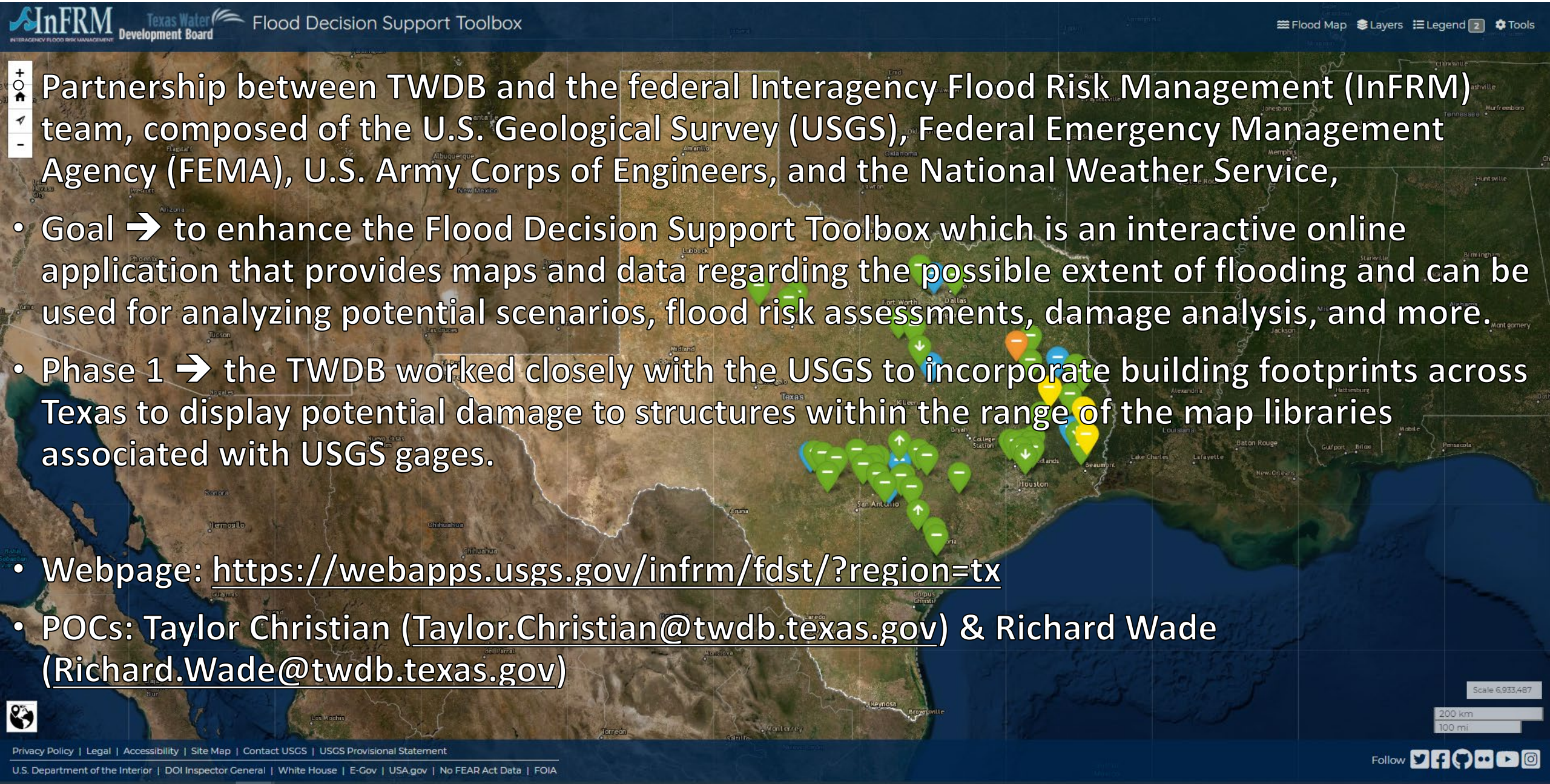
Flood Information Clearinghouse Committee (FLICC)

- The 86th Texas Legislature (2019) directed the TWDB to develop a clearinghouse of information about state and federal flood planning, mitigation, and control programs that may serve as a source of funding for flood projects.
- FLICC is a group of cooperating agencies that regularly meet to review funding inquiries submitted to the committee and to maximize the effective utilization of public funding resources and help communities identify the source they would like to pursue. These agencies include:
- Collaboration between the Texas General Land Office, the Texas Division of Emergency Management, Texas State Soil and Water Conservation Board, and the TWDB.
- Website: https://texasfloodclearinghouse.org/index.html
- POCs: Sara Sopczynski (Sara.Sopczynski@twdb.texas.gov) & Tom Entsminger (Tom.Entsminger@twdb.texas.gov)

Flood Decision Support Toolbox (FDST)



- Partnership between TWDB and the federal Interagency Flood Risk Management (InFRM) team, composed of the U.S. Geological Survey (USGS), Federal Emergency Management Agency (FEMA), U.S. Army Corps of Engineers, and the National Weather Service,
- Goal → to enhance the Flood Decision Support Toolbox which is an interactive online application that provides maps and data regarding the possible extent of flooding and can be used for analyzing potential scenarios, flood risk assessments, damage analysis, and more.
- Phase 1 → the TWDB worked closely with the USGS to incorporate building footprints across Texas to display potential damage to structures within the range of the map libraries associated with USGS gages.
- Webpage: https://webapps.usgs.gov/infrm/fdst/?region=tx
- POCs: Taylor Christian (Taylor.Christian@twdb.texas.gov) & Richard Wade (Richard.Wade@twdb.texas.gov)

Texas Water Data Hub

- Goal➔ To create an intuitive system to index, document, search and access water data across Texas.
- Developing a water data catalog
- Working with Texas partners (e.g., TDIS)
- When the hub has been developed, it will be a source for all TWDB as well other entities' flood data across the state.
- POC: Taylor Christian (taylor.christian@twdb.texas.gov) and Sam Hermitte (Sam.Hermitte@twdb.texas.gov)

USGS
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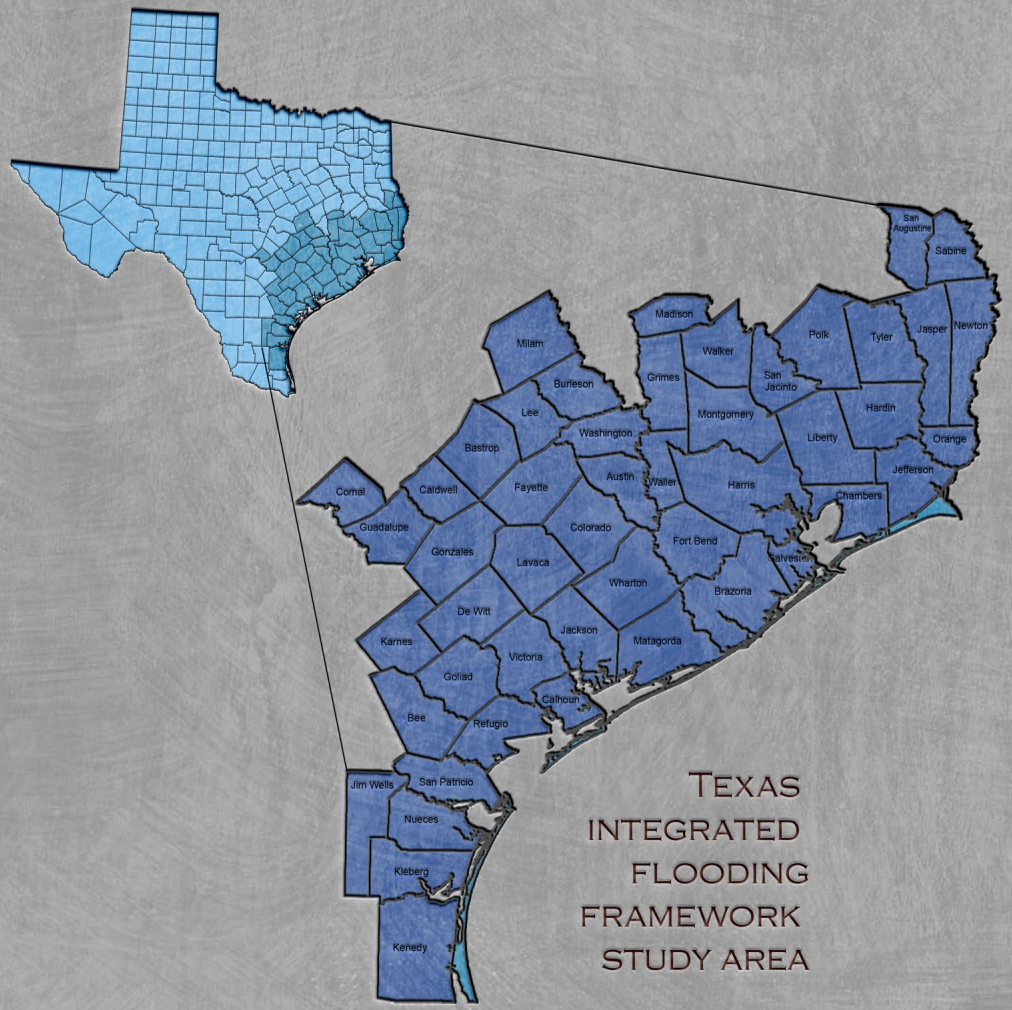
Texas Water Development Board



Texas Integrated Flooding Framework study area

TIFF

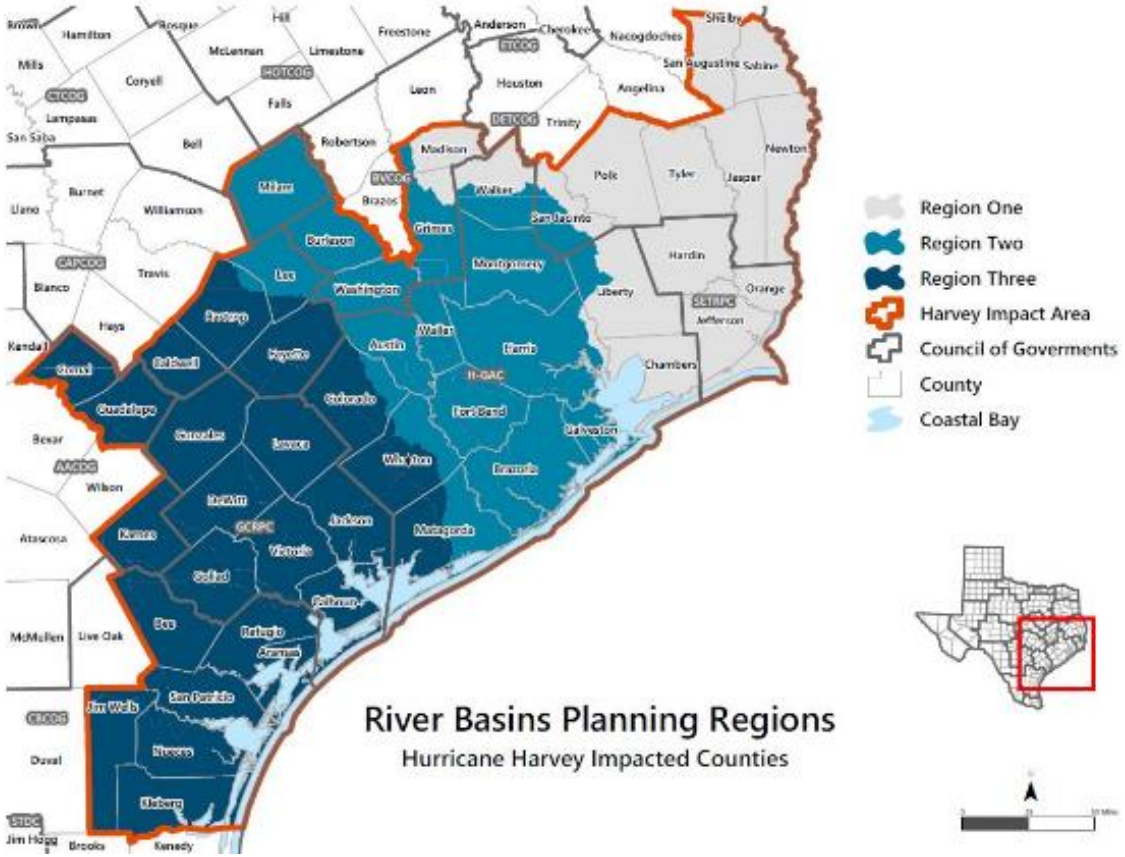
Texas Integrated Flooding Framework

Data collection • Visualization • Modeling • Planning

A collaboration between the Texas Water Development Board, the U.S. Geological Survey, the Army Corps of Engineers, and the Texas General Land Office

Texas Integrated Flooding Framework (TIFF)

- Goal: Support comprehensive flood planning and mitigation in Hurricane Harvey impacted areas.
- Team: TWDB, USGS, and USACE-Galveston
- Budget: $3M
- Timeframe: November 30, 2020 – June 30, 2024
- Four-component study
  - Data and Monitoring Gap Analysis
  - Data Management and Visualization
  - Integrated Flood Modeling Framework
  - Planning and Outreach



Each component designed in coordination with *Technical Advisory Teams*

TIFF Steering Committee

TEXAS WATER DEVELOPMENT BOARD

Caimee Schoenbaechler
Manager, Coastal Science

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TIFF Project Manager

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Texas Integrated Flooding Framework

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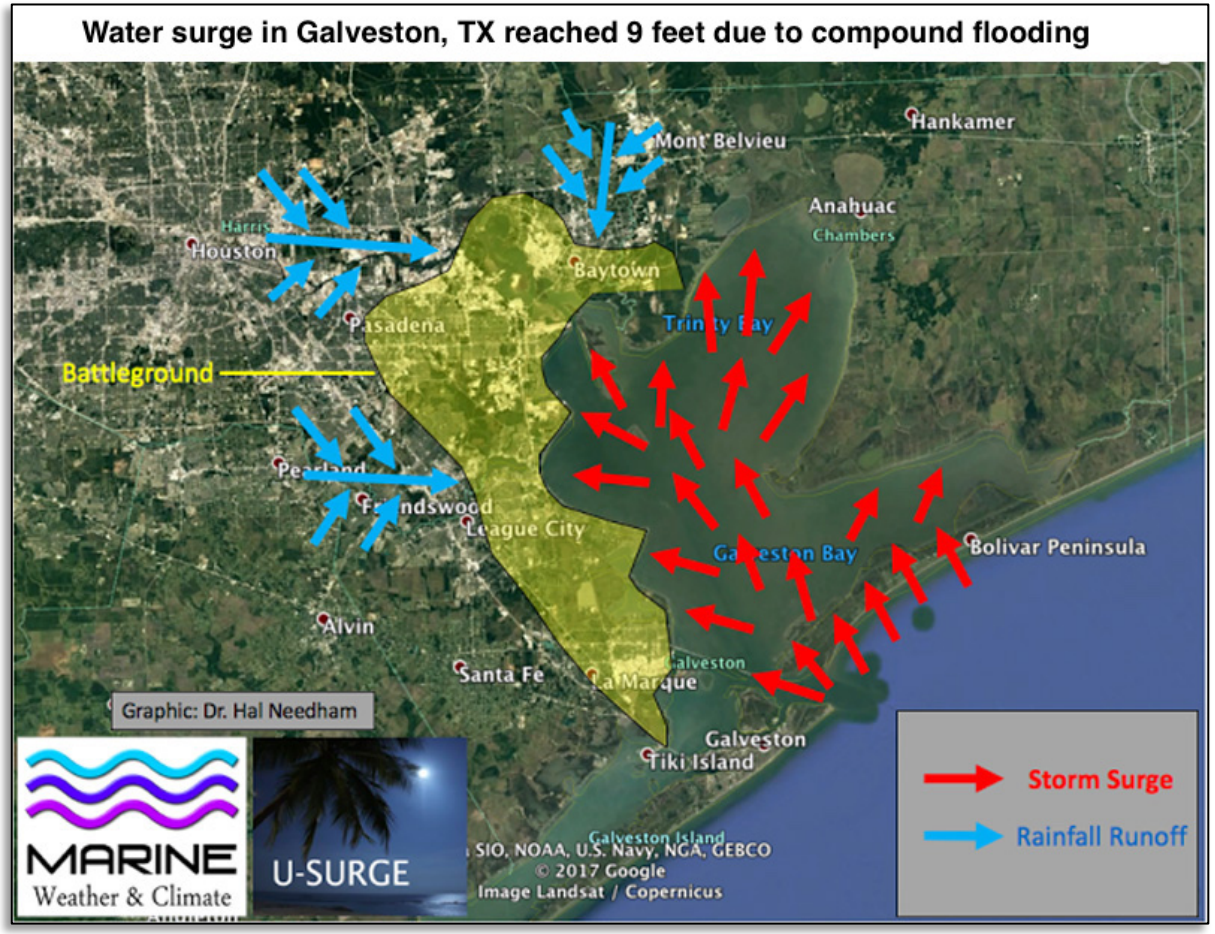
The TIFF Vision

- Focus on compound flooding
- Facilitate access to compound flood-related information for decision makers at all levels
- Utilize quality data, robust models, and sound science
- Collaborative planning approach
- Develop trusted relationships among agencies
- Enable reliable coastal compound flood risk planning
- Minimize duplicative effort



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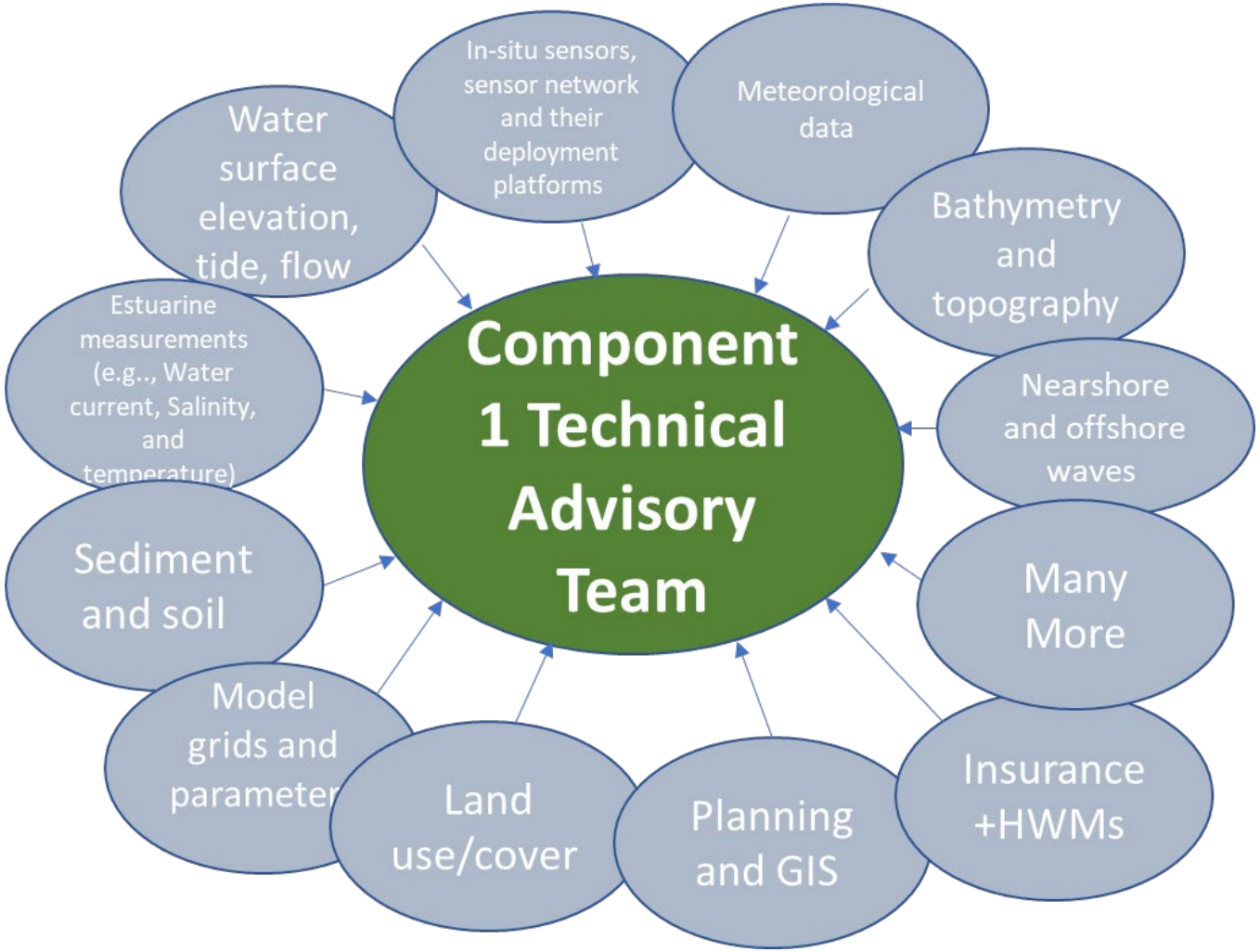
Component 1

Data and Monitoring Gap Analysis

- Inventory all hydrologic, hydrodynamic, meteorological, and planning data currently available, including data necessary for model calibration and verification.

- Perform gap analysis using geospatial and analytical tools to identify and prioritize data needs for planning.

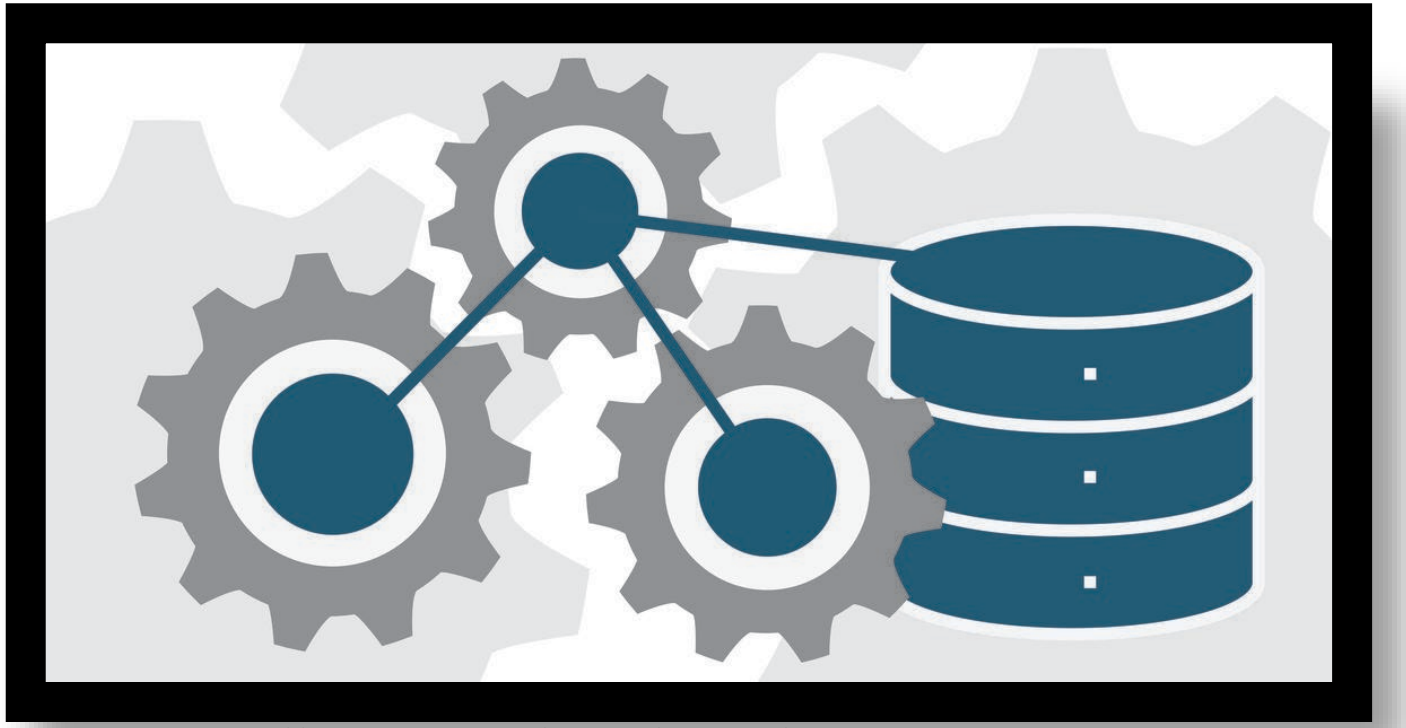
- Evaluate new monitoring technologies



Component 2

Data Management and Visualization

- Identify uniform data standards and methods for interoperability
- Integrate these into the systems maintained by agency partners
  - Texas Disaster Information System (TDIS)
  - Interagency Flood Risk Management (InFRM)
  - TWDB Data Hub
  - Flood Decision Support Toolbox (FDST)



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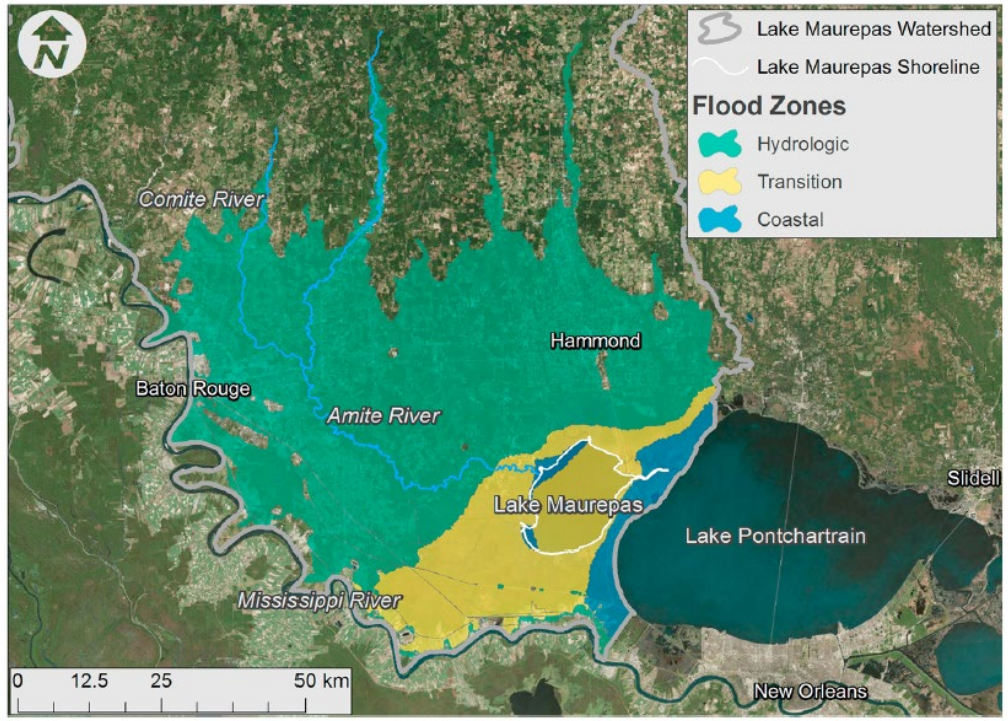
Component 3

Integrated Flood Modeling Framework

- Inventory existing and proposed models for planning, real-time, and forecasting.
- Assess and vet potential meteorological, hydrologic, hydraulic, and hydrodynamic models for evaluating and mitigating flood risk for Texas.
- Develop a conceptual model-coupling strategy, including coupling of hydrologic-hydraulic and estuarine-surge models.
- Develop scenarios and an evaluation matrix to test effectiveness of the conceptual model integration strategy.

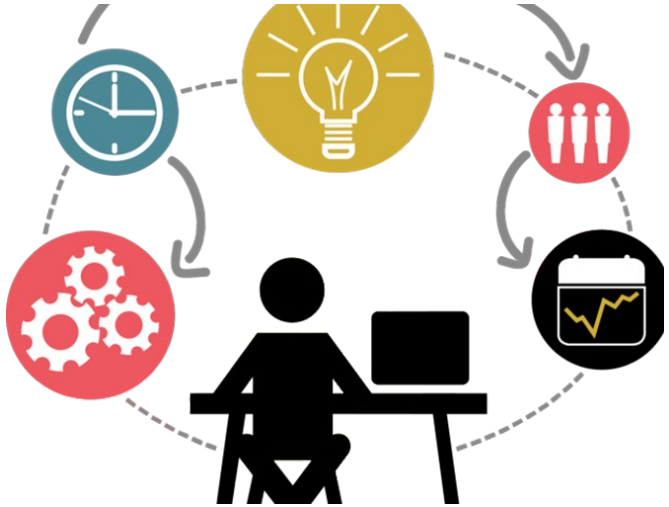


- ❑ **Hydrologic flooding zone**
- ❑ **Transition flooding zone**
- ❑ **Coastal flooding zone**

Component 4

Outreach and Planning

- Conduct and coordinate outreach with Regional Flood Planning Groups and other stakeholders to ensure that resiliency and mitigation planning needs are incorporated into the integrated framework.



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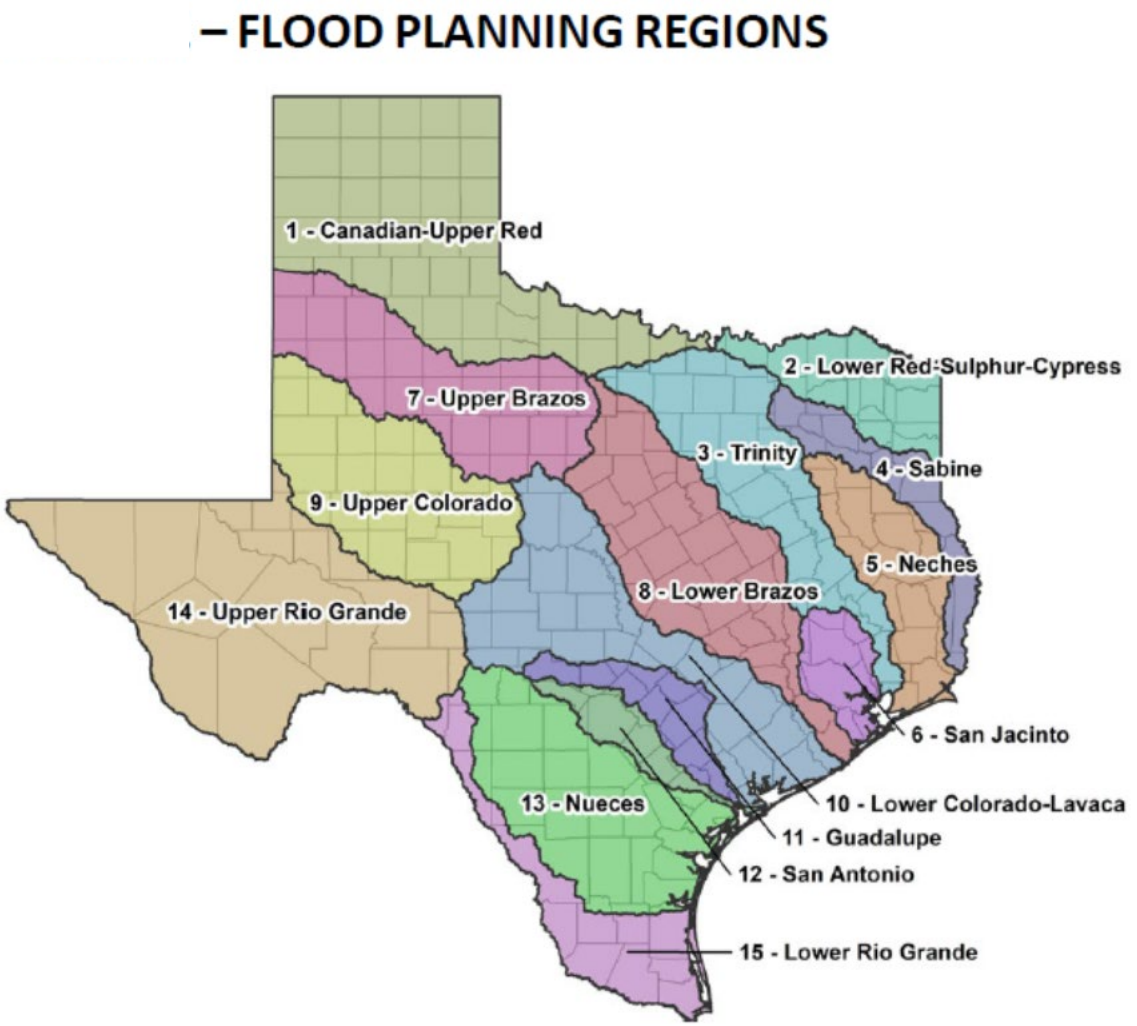
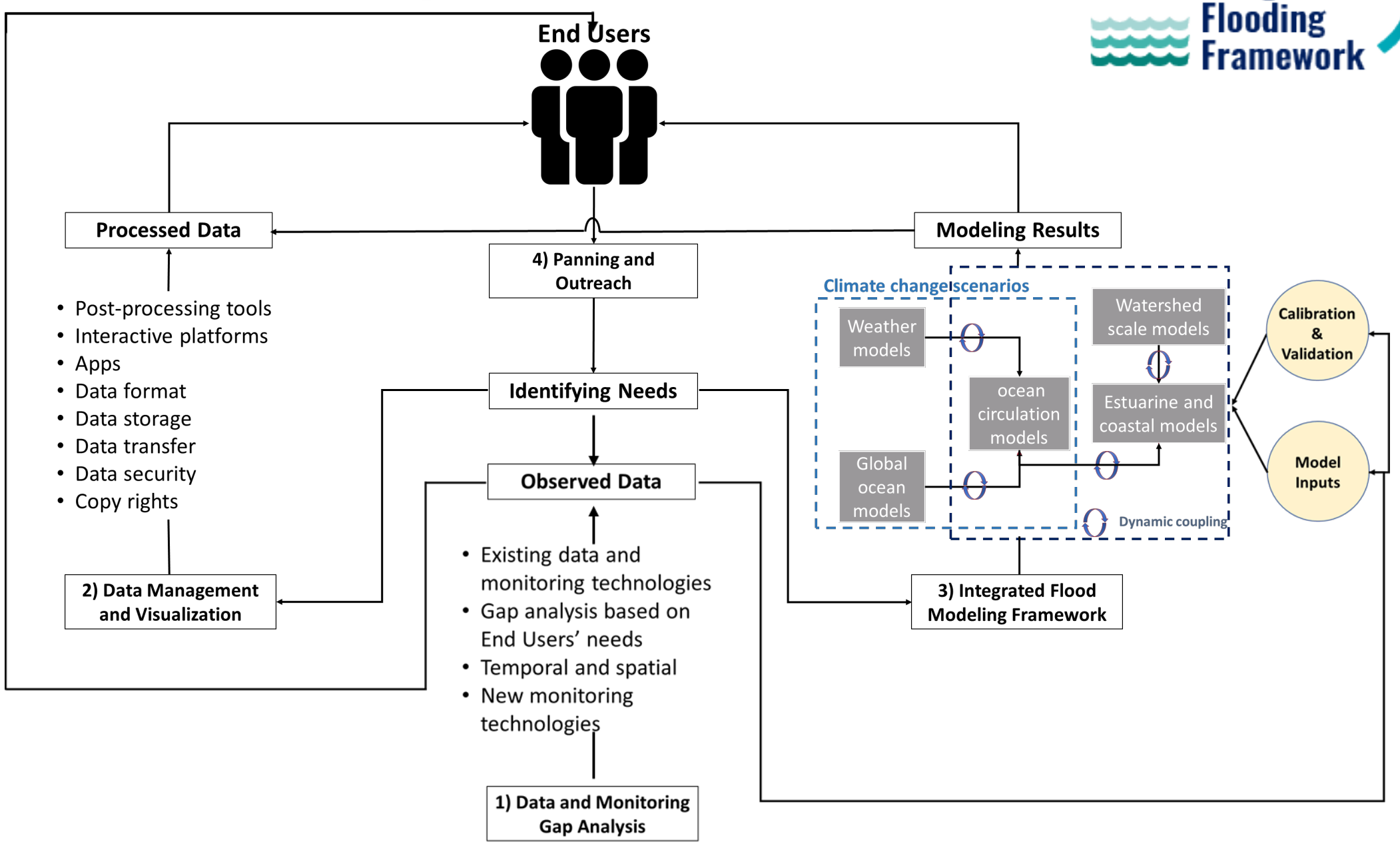


How it all comes together

Texas Integrated Flooding Framework



Recent progress

- Agency contracts are executed!
- The Meadows Center for Water and the Environment has been selected as the Facilitation Team
- Four Technical Advisory Teams were formed
- Kickoff meeting was held on April 5, 2021
- TIFF website:

https://webapps.usgs.gov/tiff/

Thank You!

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