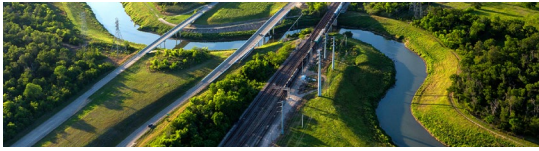
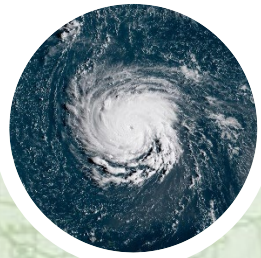
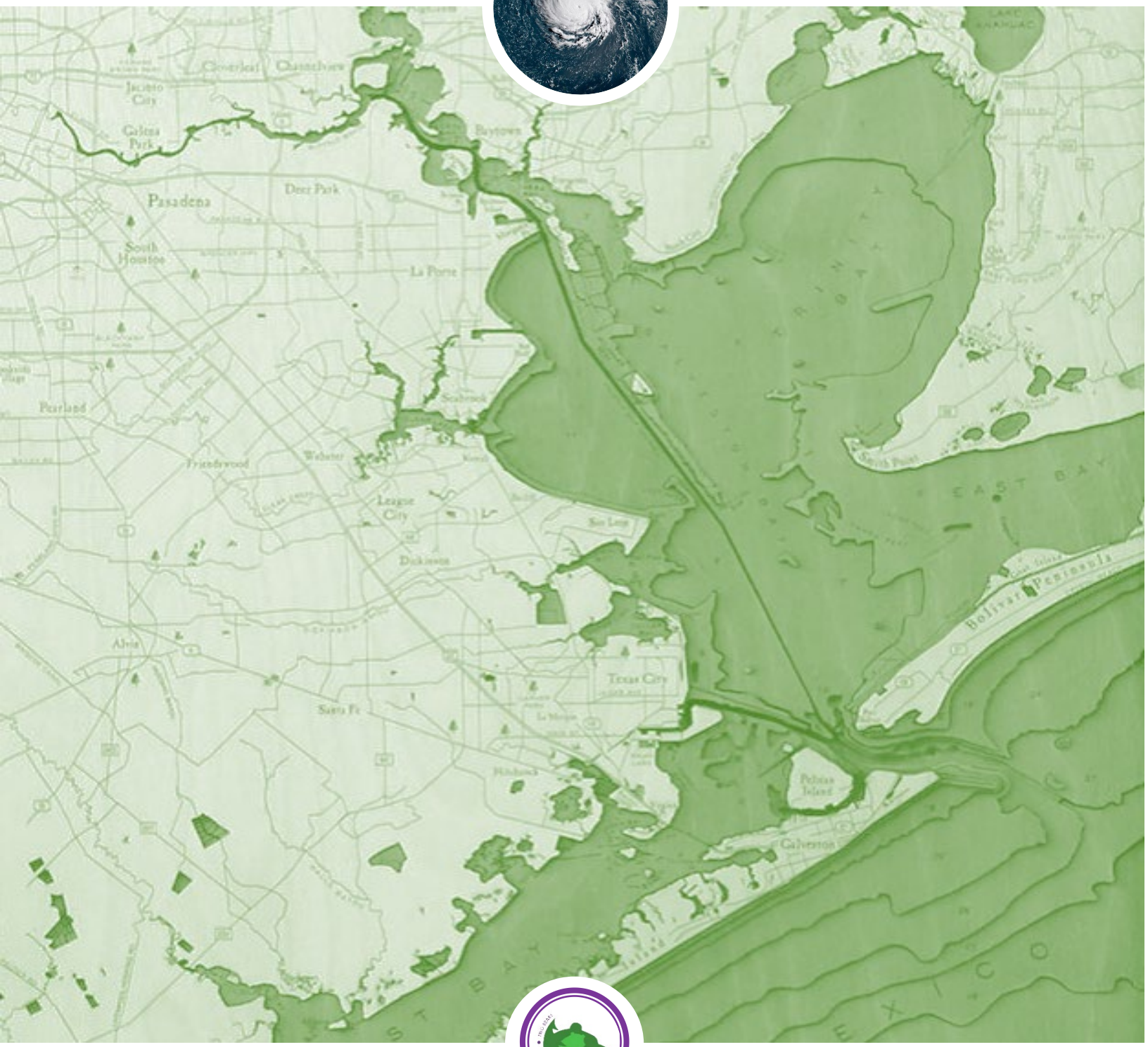


ADAPTATION FOR FUTURE RESILIENCE





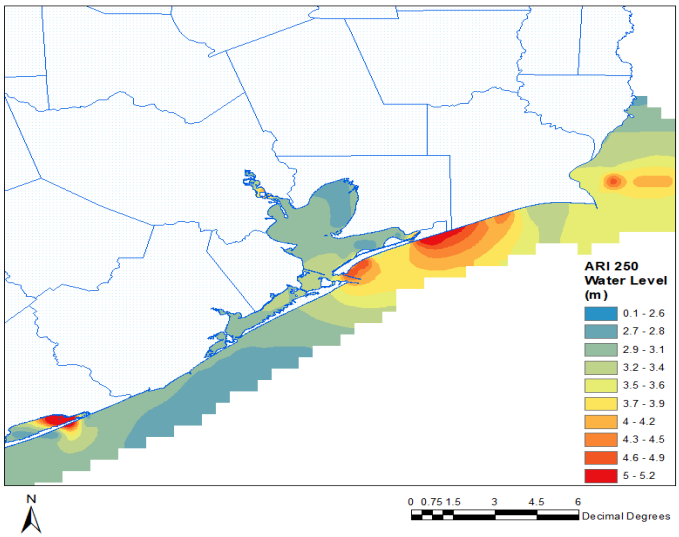
TWO BEARS ENVIRONMENTAL CONSULTING, LLC.

Your Partner in Environmental Risk Assessments and Adaptation Planning

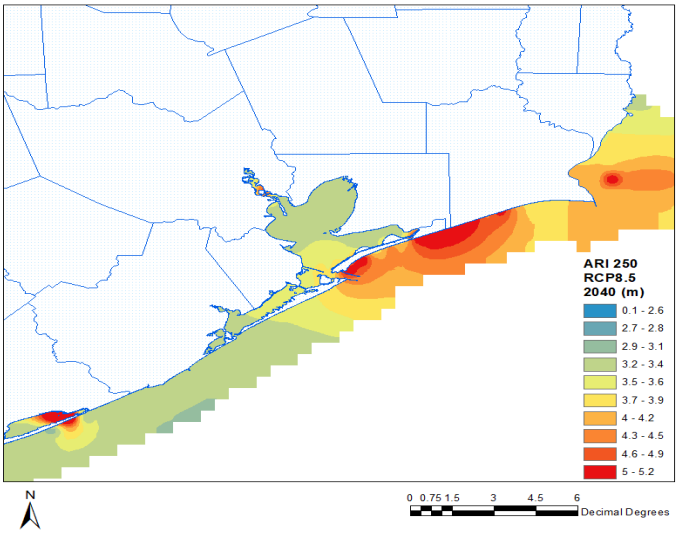
WHAT WILL THE FUTURE LOOK LIKE? WHAT ARE THE RISKS TO ME?

Applying the Latest General Circulation Model and Regional Climate Model Data for Risk Assessments and Planning

Texas Historical ARI 250 Extreme Water Level (m)



Texas 2040 RCP8.5 ARI 250 Extreme Water Level (m)



TBEC hosts a diverse team of highly professional individuals experienced in environmental risk and adaptation assessments. The goal of TBEC's work is to reduce risks and increase resilience. Our mission is to improve the understanding of extreme storm events and how to adapt to and recover from the impacts; effectively "future proofing" homes, lifestyles, cultures and businesses.

We have extensive experience collaborating with and managing complex, multifaceted projects involving diverse stakeholders, such as industry, government, non-profit, native organizations, non-governmental organizations, scientists, and local communities.

We provide the fit-for-purpose data and insight needed for informed decisions.

Two Bears Environmental Consulting, LLC. (TBEC) applies the latest high-resolution data for sea level rise, storm surge, extreme rainfall, flooding, permeability, extreme heat and a range of specialty outputs for engineering applications. This data is used to increase infrastructure resilience and provide fit-for-purpose decision making. Figures above show the historical and projected (Year 2040) water level of an Annual Return Interval (ARI) for an extreme water event.

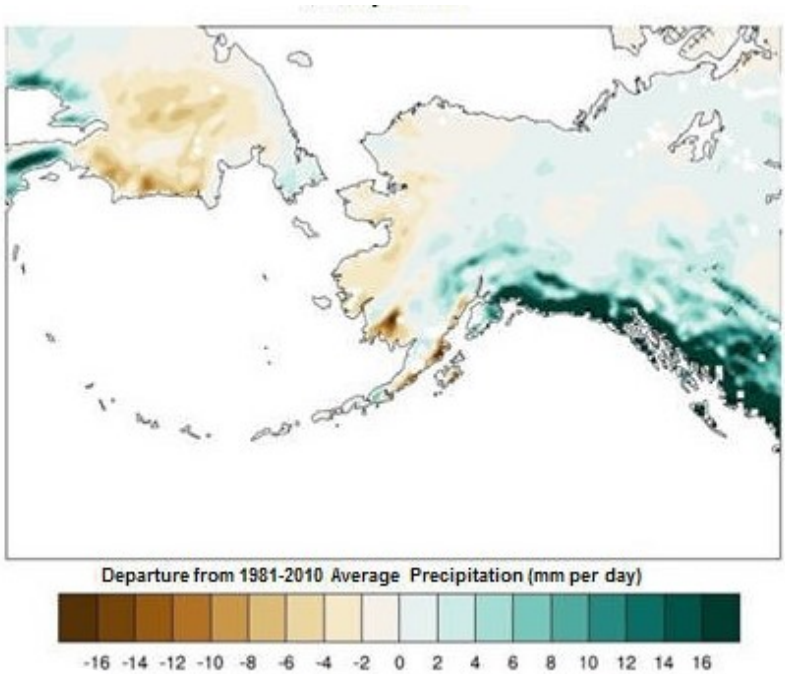
Climate data links with multiple third-party models including models for basin hydrology, flood modeling, agriculture, wildfire, storm management, and engineering-specific models. Outputs are tailored to the needs of the end users, such as collaborators or communities.

The data identifies the types and onset of environmental risks, including risks to the built environment, to determine whether 'protect-in-place' is more cost effective than replacing existing infrastructure; information which can be used to identify, develop and promote comprehensive and sustainable best management practices for informing flood risk management decisions. As funding is often difficult to obtain, minimizing the risk of project failure while improving resilience is increasingly important and may impact insurance, as well as current and future costs.

TBEC links science and social priorities in community-based adaptation planning to obtain powerful mapping and analytical tools for generating high quality actionable data and reports, including cost benefit analysis of proposed projects.

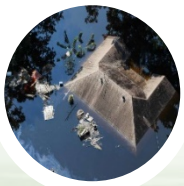
ENVIRONMENTAL ATLAS

What will Texas look like in 25, 50, or 100 years?
Environmental Atlases provide information on climate and biophysical variables



Environmental Atlases compare historical climate to predicted future conditions (example for Alaska is shown to the left, courtesy UAF). We include over 25 slow onset climate variables, more than five extreme weather events and include biophysical maps, and linked impacts such as storms at high tide or on dry soils.

For flood projections, we add detailed future scenarios as input for our flood models, providing instructive maps and guidance for flood management, emergency response, and for the recovery and rebuilding of communities. The data is invaluable for building resilient infrastructure and reducing the risks and costs of project failure.



WE OFFER A RANGE OF SERVICES

Environmental Risk Assessments - Biophysical Adaptation & Resilience
Incorporating Ecological and Socioeconomic Challenges

- Cost-Benefit Analysis
- Cost-Risk Modeling Analysis
- Hydrological Modelling
- Evaluating the impacts of weather events given the built environment, e.g., infrastructure and impermeability
- Developing guidelines for building resilient infrastructure
- Developing Resilient Sanitation
- Working directly with communities and collaborators to provide fit-for-purpose results and to inform decisions making and policy
- Evaluating changes in Ecosystem Services