

7 Fact Sheet What is Resilience?

Resilience is minimizing human and economic impact from disasters and recovering quickly, recognizing that disruption, displacement, and damages cannot be completely eliminated. Resilience is not preventing damages, but it is the ability of our economic, social and ecological systems to withstand and quickly recover from disaster, and the ability of these systems to anticipate and plan for future disruptions. Resilient communities manage their natural habitats in a manner that enables ecosystems to better tolerate disturbances and allows people, businesses, and neighborhoods to maintain essential functions and rebound quickly. Identifying and investing in ways for communities to enhance the resilience of their ecosystems will provide for swifter recovery and adaptation after severe weather events.

2001 Tropical Storm Allison	2005 Hurricane Rita	2010-2012 Drought	2015-2017 Inland floods	2016 Tax Day Flood
2001 Inland Floods	2008 Hurricane Ike	2011 Wildfires	2015 Memorial Day Flood	2017 Hurricane Harvey

Resilience and the Houston-Galveston Region

The Houston-Galveston metropolitan region has the fifth largest population in the U.S., and is a significant economic contributor to the global economy. The region, located on the Upper Texas Gulf Coast, has suffered from a number of severe weather events in the last twenty years, see the timeline above. Recurring cycles of disaster, disruption, and recovery, culminating most recently with Hurricane Harvey in August 2017, result in detrimental economic and environmental impacts on community, economic, and ecosystem well-being.

Resilience Planning

Planning for the uncertainties of future events is vital for promoting sustainable and livable Gulf Coast communities. Communities face growing challenges as aging infrastructure is under pressure from growing population, increasing development, increasing water prices, and extreme weather events. Communities need to contend with these increasing pressures and address risk in a manner that protects public health and the environment, enhances community vitality for current and future generations, and grows the economy. Communities must understand their assets and vulnerabilities and use risk-informed decision-making in order to create a resilient community.

Regional resilience collaboration allows community leaders, scientific and policy experts, and citizens to come together to talk through the tradeoffs associated with policies that may support a host of large and small adaptation strategies. This enables the formulation of practical solutions to overcome financial and institutional barriers to implementing local adaptation strategies.

Extreme weather, such as hurricanes or droughts, and man-made events, such as oil spills, have exposed vulnerabilities of energy and water infrastructure and subsequently the fragility of Gulf Coast communities. The vulnerability comes from the lack of effective tools to help coastal communities plan for both slow-burn (i.e., longer lasting or persistent) disasters, such as drought, heat waves, and extended wildfire seasons, or more rapidly occurring events such as hurricanes or flash floods. Water quantity and quality along with energy resources could be significantly impacted by climate variability and hazards. Reducing vulnerability in energy and water infrastructure is essential to support growing coastal communities and the development of industries that are vital to our nation's economy. The more resilient a community is, the better the community is positioned to support future economic development in ways that grow the economy, protect the environment and public health, and enhance community vitality to meet the needs of current and future generations.

“Hurricanes Harvey, Irma and Maria combined with devastating Western wildfires and other natural catastrophes to make 2017 the most expensive year on record for disasters, the National Oceanic and Atmospheric Administration reported Monday. The disasters caused \$306 billion in total damage in 2017, with 16 separate events that caused more than \$1 billion in damage each.”

Washington Post, Chris Mooney

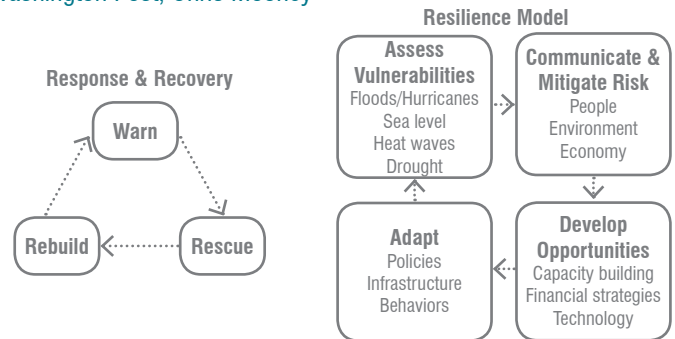


Figure 1 Traditional disaster and recovery cycle and proposed resiliency model. Modified image, courtesy of HARC.

KEY POLICY QUESTIONS

- How can we implement resilience planning in our region?
- What criteria should we establish for determining and assessing regional resilience?
- How can we achieve resilience equitably across the region?
- What funding strategies exist to support the development of community resilience across the Greater Houston Region?

For more information visit

Houston Advanced Research Center (HARC)
harcresearch.org/focus/resilience

Gulf Coast Resilient Communities
iscvt.org/program/gulf-coast-resilient-communities/

Coastal Resilience
coastalresilience.tamu.edu/

Gulf of Mexico Coastal Resilience
gulfofmexicoalliance.org/our-priorities/priority-issue-teams/community-resilience-team/
U.S. Climate Resilience Toolkit
toolkit.climate.gov/

Greater Houston Flood Mitigation Consortium
houstonconsortium.com