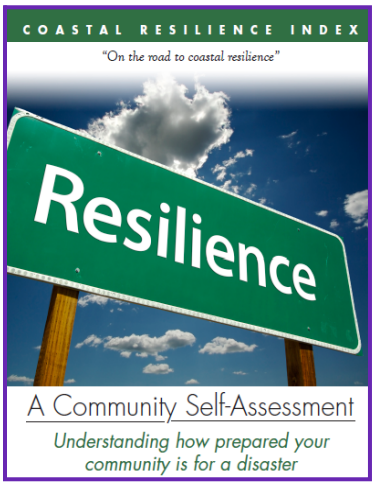
Resiliency & Natural Hazards: Evaluating Your Assets

Natural hazards affect large geographic areas, but their impacts on people, structures and the environment differ across the landscape. Resilient communities strengthen their social, economic, institutional, and ecological assets *before* disaster strikes. The first step towards creating a safer environment is learning what must be protected by characterizing the following community assets.

- Population
- Critical Buildings & Infrastructure
- Natural Assets

Population



The Gulf of Mexico region has more than doubled its population in the past forty years. With more people living on or near the coast, there are more people to protect from hazards. Because certain social characteristics are proven to correlate with increased vulnerability to natural hazards, mitigation can be designed to take into account demographic characteristics such as age, income level, insurance status, and ethnicity, resulting in better post-disaster outcomes[1]. The Coastal Resilience Index Community Self-Assessment (prepared by NOAA, the MS/AL Sea Grant and the Gulf of Mexico Alliance) offers tools to evaluate how equipped a community is to protect its people and economy.

Changes in the economy and job market also come with population growth. Jobs dependent on natural resources may take a long time to recover. Employees may be without wages for an extended period. Hurricane Katrina and the 2010 Deepwater Horizon Oil Spill illustrated these potential impacts on local livelihoods. Thousands of coastal jobs, like tourism, commercial fishing, shipping, and domestic crude production, are dependent on natural resources.

Critical Buildings & Infrastructure

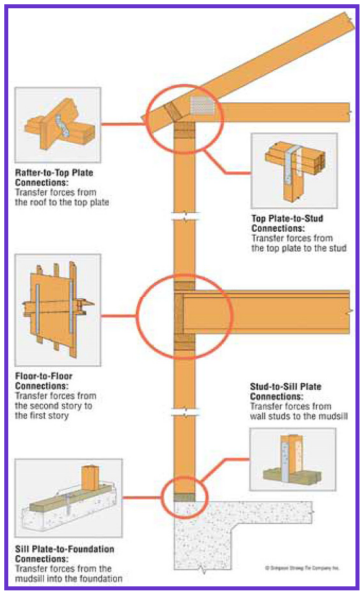


Diagram of reinforced structure from MS Homeowners Handbook to Prepare for Natural Hazards.

Evaluating the age and structural strength of buildings is essential in making them more resilient to natural hazards. Strengths and vulnerabilities can be determined through flood plain maps and local records on age, construction type and improvements. Gulfport, Mississippi set priorities to improve the future resiliency of its housing stock through the city's participation in the Community and Regional Resilience Initiative (CARRI). Even homes that currently fail to meet standards for wind and high water can be retrofitted for protection. It is important to know the replacement value of public buildings and their content so they are properly insured and funds are available to cover replacement and repair. Infrastructure that meets the demands of the natural environment is also key. After Hurricane Katrina, MDOT replaced bridges over the Biloxi Bay and Bay of St. Louis with larger structures built to withstand future storms. However, small bridges are still prone to flooding and other hazards. In addition, it is important to know the location and condition of power and water networks, since they maintain a community's health, safety and economy. Evaluating the replacement value of infrastructure and potential opportunities for mitigation can better prepare a community to resume operations quickly after a disaster.

Photo by Kimberly Miller, AICP.

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Natural Assets

Natural assets are the foundation for the Gulf Coast's culture and economy. The Mississippi Coastal Improvements Program (MsCIP)'s Comprehensive Plan evaluates and promotes the protection and resiliency of coastal resources. In addition, The Gulf of Mexico Alliance (GOMA) is a partnership of the Gulf States of Mississippi, Alabama, Florida, Louisiana and Texas working to increase regional collaboration to strengthen the Gulf's ecological and economic health. One of its top priorities is to ensure that conservation and restoration projects improve fish and wildlife habitats while maximizing flood and storm surge protection benefits. GOMA and its partners in the MsCIP are protecting the Gulf's environmental and economic resources, like the 1.2 billion pounds of fresh seafood the Gulf produces each year. From the 1950s to the 1990s, the Mississippi Gulf Coast lost over 8,000 acres of marshes and wetlands that provide critical fish and wildlife habitat and a natural buffer against storm surge[2]. The MsCIP website provides information about specific studies and projects that promote a strong environment and economy by reducing hurricane and storm damage, slowing shoreline erosion, and preserving fish and wildlife.

Shrimping is a natural coastal asset. Photo by Paul Wallace, NRCS.

Biloxi's Ethnic Shrimping Communities, Biloxi, MS. Photo by Francis Lam, Southern Foodways Alliance.

Tools

Actions	Policies • Tools • Techniques
Encourage Community and Stakeholder Collaboration in Development Decisions	Consult with the Mississippi Department of Marine Resources to identify your community's natural assets Involve your community in developing greater resilience to natural disasters and other changes in climate Examine data indicators to evaluate your community's disaster resilience Anticipate the effects of Sea Level Rise Conduct a community self-assessment to determine your level of disaster preparedness
Preserve Open Space, Farmland, Natural Beauty, and Critical Environmental Areas	Evaluate the habitats in your coastal ecosystem Improve the quantity and quality of Coastal habitats Identify and protect critical coastal resources through the Coastal Impact Assistance Program (CIAP) Use Best Management Practices to promote on-site stormwater infiltration, native species, and living shorelines

**For a complete list of tools and resources, please see the "Tools & Resources Index" section of the Smart Growth and Sustainability Toolbox.*

[1] *Burton, Christopher G. Social Vulnerability and Hurricane Impact Modeling Natural Hazards Rev. 11, 58 (2010).*

[2] *Schmid, Keil. Mississippi Department of Environmental Quality; Office of Geology. Coastal Change in Mississippi: A Review of 1850-1999 Data. March 15, 2001.*