

Florida Division of Emergency Management



State of Florida Enhanced Hazard Mitigation Plan Executive Summary

2013





Enhanced State Hazard Mitigation Plan

Executive Summary

Hazard mitigation is defined as any action taken to reduce or eliminate the long term risk to human life and property from man-made or natural hazards.

Purpose

State level hazard mitigation plans are required under Section 322 of the Robert T. Stafford Disaster Relief and Emergency Assistance Act (Stafford Act) as enacted under the Disaster Mitigation Act of 2000 (DMA2K) in order to receive federal hazard mitigation grants. Similarly, local or regional plans are required in order for communities to be eligible for these same mitigation grant funds. Mitigation plans identify potential hazards and vulnerabilities, set goals and establish specific mitigation actions to reduce risk to people, buildings, infrastructure, and the environment.

As a state that's prone to hazards, Florida has built a comprehensive mitigation program and remains one of the most proactive programs in the United States. Consequently, Florida's updated 2013 Enhanced State Hazard Mitigation Plan (SHMP), including appendices, is roughly 1,500 pages. This executive summary is intended to give readers a basic understanding of what is included in the plan and a general idea of where it can be found.

Introduction

The overarching goal of Florida's Enhanced SHMP, as discussed in Section 1, is to reduce death, injuries and property losses caused by natural or man-made hazards. A hazard is any event or condition with the potential to cause fatalities, injuries, property damage, infrastructure damage, agricultural loss, environmental damage, business interruption, or other structural and financial loss. Florida is the fourth largest state by population with over 18 million residents according to the 2010 U.S. Census. Florida's population is particularly vulnerable to hazards because 38 percent of the population is composed of minors and senior citizens. Florida is home to four metropolitan areas with over one million residents, three of which lie on the coast.

As Florida's communities continue to grow, hazard mitigation will play an important role in the government's primary objective of protecting its citizens' health, safety, and welfare. Mainly funded by grants from state and federal resources, mitigation has been successful in avoiding flood losses, reducing the need for public sheltering, and reducing the cost of disaster response and recovery. By altering the built environment, changing the way future buildings are constructed, and planning for future hazards, it's possible to break the damage and repair cycle.

The 2013 SHMP addresses all of the federal requirements in order to achieve enhanced status. Achieving enhanced status proves that a state has built a successful mitigation program and is able to successfully implement federal grant programs. Receiving enhanced status means Florida receives an additional five percent of post-disaster funds to put towards mitigation activities after a major disaster is declared. Florida has maintained its enhanced status since September 2008, which has resulted in more than 5 million additional mitigation dollars to the state.





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Planning Process

The planning process for each SHMP update is time and labor intensive. Update efforts began nearly two years before the finished product was due to the Federal Emergency Management Agency (FEMA) for review and approval. The update process for the 2013 SHMP in Section 2 began with discussions of the hazard vulnerability and risk assessment section in January 2011. Over the following two years, other sections of the plan were evaluated and updated. Formal plan submission to FEMA occurred in late February 2013 and the SHMP received approval by FEMA in April 2013. The 2013 SHMP became effective on August 24, 2013, upon the expiration of the 2010 SHMP.

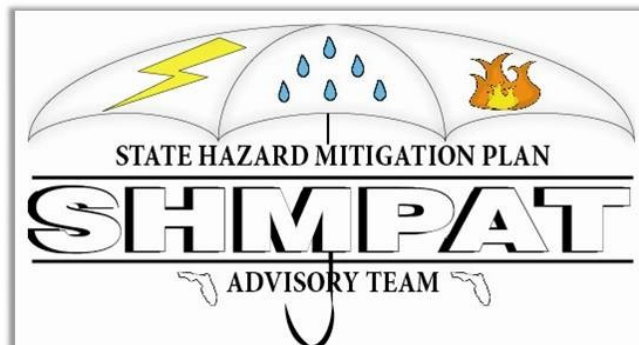
State Hazard Mitigation Plan Advisory Team

The State of Florida recognizes the importance of an integrated, comprehensive approach to disaster loss reduction. To help accomplish this during the update, the Florida Division of Emergency Management (DEM) ensured an active level of coordination with local, state, and federal agencies, as well as other interested groups involved in hazard mitigation and the general public. Collectively, participating members and organizations make up the State Hazard Mitigation Plan Advisory Team (SHMPAT).

The entire SHMP update process consisted of 12 regular quarterly SHMPAT meetings in addition to various sub-group and review meetings. The SHMPAT decided to continue using three distinct sub-groups, as done in previous plan updates, because they felt it was the most efficient and effective way to harness member expertise. Participants were asked to join a sub-group based on their experience, interest, or involvement. The groups were broken down by the following plan sections:

- Risk Assessment Sub-group (Section 3): Risk and Vulnerability Assessment
- Strategy Sub-group (Sections 4 and 5): Goals and Capabilities, Funding and Projects
- Planning and Maintenance Sub-group (Sections 1, 2 and 7): Introduction, Planning Process, and Plan Maintenance

Subgroups reported back to the entire SHMPAT at each quarterly meeting throughout the update process. Contractors were used to help facilitate complex updates to the plan's risk assessment section while DEM's mitigation planners coordinated SHMPAT meetings, compiled information, and implemented changes to the plan.





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State Risk Assessment

The risk assessment portion of the plan, Section 3, is essentially the backbone for the mitigation strategy. As required by FEMA, the plan addresses all natural hazards that pose a threat to the State of Florida. The most common natural hazards in Florida are floods, tropical cyclones (hurricanes and tropical storms), severe storms, tornadoes, and wildfires. In addition, the SHMPAT decided to analyze a number of technological and human-caused hazards to various degrees. The risk assessment section includes information on the following:

- Why specific hazards were profiled
- Previous occurrences
- Probability of future occurrences
- Potential impacts
- Vulnerable populations, buildings, and infrastructure
- Hazard information from each of the Local Mitigation Strategy (LMS) plans
- Dollar values for potential losses

A number of different resources were used in the development and update of the risk assessment including, but not limited to, FEMA's Hazus-MH, ArcGIS, hazard data layers, the statewide parcel database, the National Climatic Data Center (NCDC), and the state facilities database. Information concerning risk assessments can be found in Section 3, Appendix C: Risk Assessment Tables, Appendix D: Hazard Summary Sheets, and Appendix E: Wildfire Mitigation Annex.





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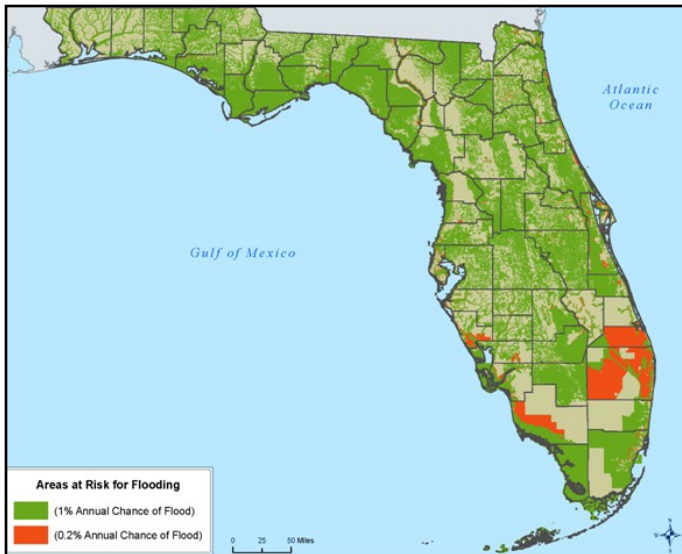
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Floods

Flood, or flooding, refers to the general or temporary conditions of partial or complete inundation of normally dry land areas from the overflow of inland or tidal water or of surface water runoff from any source. The State of Florida is repeatedly impacted by flooding as 23 of the 64 FEMA-declared disasters from 1953 to October 2012 in Florida involved a flooding component. Many of the remaining declarations were tropical cyclones that also included significant impacts from water, caused by storm surge and heavy rainfall.

The entire state is particularly susceptible to flooding due to its many miles of coastline, significant drainage systems, and the relatively low elevations. Many other factors contribute to flooding in Florida and therefore help to define the geographical area impacted by flooding. Areas along waterways, including lakes, rivers, streams and wetlands, are particularly susceptible to flooding resulting from heavy rain or storm surge. Flood events can generally be grouped into four categories: coastal flooding, inland or riverine flooding, flash flooding, and dam/dike failure.

Florida is extremely vulnerable to flooding and it poses the greatest risk of any natural hazard in the state. Loss of life, personal property, crops, business facilities, utilities, and transportation are major impacts of flooding. Floodwaters can also present a public health hazard when they inundate drinking water facilities, chemical and waste storage facilities, wastewater treatment facilities, and solid waste disposal sites. Based on data collected by the NCDC, there were 128 flooding events in Florida between January 2006 and December 2012. Total property damages were estimated at \$3.16 billion with an additional \$25 million in crop-related damages.



This figure shows the areas at risk for flooding in Florida using the annual chance in percentages as of April 2012. The green areas have a 1% annual chance of flooding (100 year flood event) and the red areas have a 0.2% annual chance of flooding (500 year flood event).

Total Value of all Structures at Risk (in millions of dollars)	
Inland Flood 1% Annual Chance	\$668,240,949.64
Inland Flood 0.2% Annual Chance	\$667,860,946.35
Coastal Flood (low impact event)	\$313,027.04
Coastal Flood (high impact event)	\$600,047.05

National Flood Insurance Program Florida Policies (as of 1/16/13)	
Flood Policies in Force	2,059,797
Total Premium for Policies	\$1,021,351,301
Total Coverage for Policies	\$476,463,660,400
Average Coverage of Policy	\$219,180
Total Number of Reported Claims	238,547





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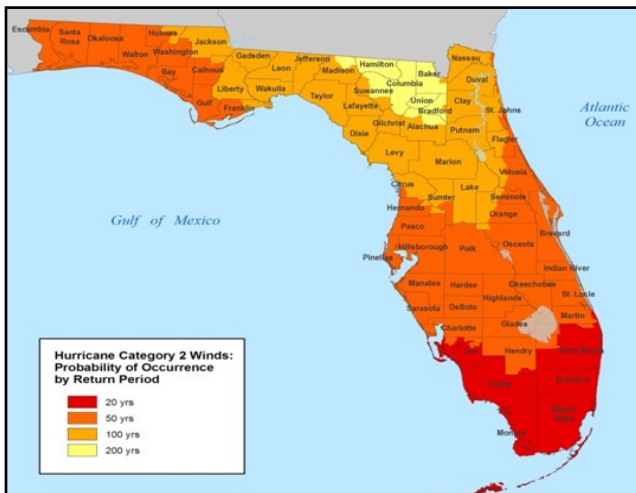
Tropical Cyclones

A cyclone is any closed circulation developing around a low-pressure center in which the wind rotates counterclockwise in the northern hemisphere (or clockwise in the southern hemisphere) and whose diameter averages 10 to 30 miles across. A tropical cyclone refers to any such circulation that develops over tropical waters. Common to Florida, both hurricanes and tropical storms fall under the category of tropical cyclones.

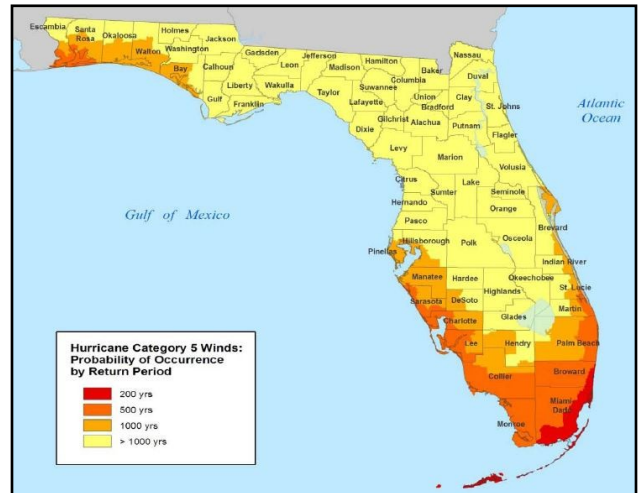
The entire State of Florida is subject to the effects of a tropical cyclone, but some areas are much more vulnerable than others due to Florida’s vast shorelines bordering the Atlantic Ocean and Gulf of Mexico. Of the state’s 67 counties, 35 have coastlines bordering either the Atlantic Ocean or the Gulf of Mexico. These counties comprise approximately 1,350 miles of general coastline and 8,436 miles of tidal inlets, bays, and waterways and contain 75 percent of the state’s population. The population in Florida is growing; however, the number of those who have experienced the impact of a major hurricane is declining. Between 1906 and 2012, there have been 27 major (Category 3 or higher) hurricanes that have affected the state.

Tropical cyclones will negatively affect the State of Florida with a variety of impacts including:

- Severe coastal flooding
- Significant building damage from flooding and from high winds (roofing and building openings are particularly susceptible to damage)
- Deaths and injuries from flooding and windblown debris
- Extreme disruptions to the transportation networks and communications
- Requirements for sheltering, temporary housing, and humanitarian supplies
- Disruption of utility, sanitation, and drinking water services
- Damage to critical infrastructure that requires long-term recovery



The figure above shows the probability of occurrence for Category 2 hurricane winds by return period. South Florida has the highest probability with a 20 year return period (a 5% annual chance).



The figure above shows the probability of occurrence for Category 5 hurricane winds by return period. The coastal areas of Monroe, Miami-Dade, and Broward Counties have the highest probability with a 200 year return period (a 0.5% annual chance).





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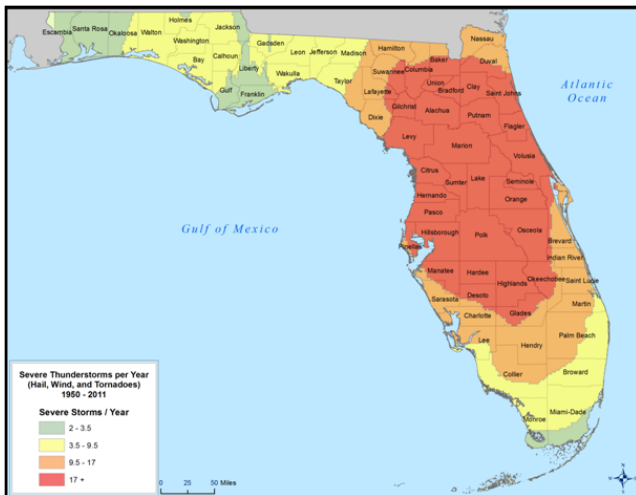
Severe Storms and Tornadoes

The National Weather Service (NWS) considers a thunderstorm to be severe if it produces hail at least one inch in diameter, has winds of 58 mph or stronger, or produces a tornado. The three key elements of a thunderstorm are wind, rain, and lightning. Florida is considered the lightning capital of the United States.

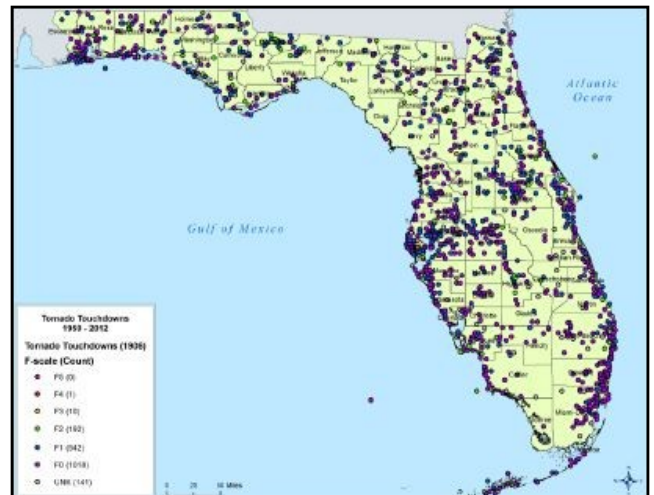
A tornado is a violent windstorm characterized by a twisting, funnel-shaped cloud whose wind speed can range from 40 to more than 300 miles per hour. Florida has two tornado seasons. The summer tornado season runs from June until September and has the highest frequencies of tornado generation, with usual intensities of EF0 or EF1 on the Enhanced Fujita Scale; this includes those tornadoes associated with land-falling tropical cyclones. The deadly spring season, from February through April, is characterized by more powerful tornadoes, with usual intensities of EF1 or EF2.

When compared with other states, Florida ranks first as the state that experiences the most tornadoes per square mile. The coastal portion of the state’s Gulf Coast, along with inland portions of the Panhandle region, have generally experienced more tornadoes than other areas of the state, primarily due to the high frequency of severe storms making their way east through the Gulf of Mexico.

Tornadoes and severe storms can occur anywhere throughout the State of Florida. As the population and number of structures, including state facilities, increase, the probability that a tornado or severe storm will cause property damage or casualties also increases unless proper mitigation techniques are implemented. Agriculture in Florida is also extremely susceptible to severe storms and tornadoes, especially from hail damage.



The figure above shows the historical occurrences per year of severe storms in Florida from 1950 to 2011 that included hail, wind, and tornadoes. The portion of the state between North and Central Florida have the highest occurrences per year with 17 or more severe storms.



The figure above shows all of the confirmed tornado occurrences in Florida from 1950 to 2012. A majority of the tornadoes have intensities of EF2 or less. Only one confirmed F4 tornado has ever occurred in Florida, which was on April 15, 1958.





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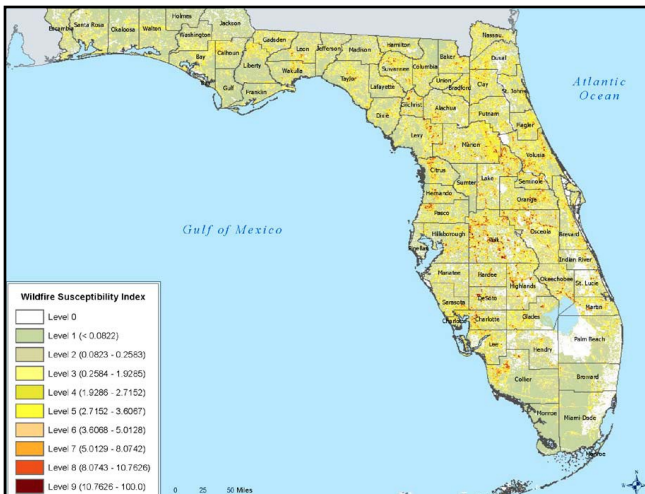
Wildfires

A wildfire is defined by the Florida Forest Service (FFS) as any fire that does not meet management objectives or is out of control. Wildfires occur in Florida every year and are part of the natural cycle of Florida’s fire-adapted ecosystems. The type and amount of fuel, as well as its burning qualities and level of moisture, affect wildfire potential and behavior. Topography, temperature, humidity, and wind all affect the severity and duration of wildfires as well. Wildfires can be classified into four different categories— surface fires, ground fires, crown fires, and wildland urban interface fires.

Florida has a year-round fire season with the most active part taking place from April to July. The majority of wildfires in Florida (70-80 percent) are caused by humans from arson or escaped debris burning. Many of these fires occur within one mile of the Wildland Urban Interface (WUI), which is defined as area where structures and other human development meet or intermingle with undeveloped land. In Florida the size of the WUI is increasing and creates an environment for fire to move readily between vegetation fuels and structural fuels. Wildfires will negatively affect the State of Florida with a variety of impacts including:

- Destruction of land, property, and structures
- Loss of life and injuries, especially to first responders
- Disruption to transportation including closed interstates and major thoroughfares

An index was developed by the FFS, called the Wildland Fire Susceptibility Index (WFSI) to calculate the probability of a given acre burning, given a probability of ignition based on historical data and the expected fire size based on a rate of spread. The WFSI gives a relative comparison of index values between areas within Florida to help determine vulnerability around the state. The index is classified by 9 Levels of Concern (LOC) where 1 is of low concern and 9 is of high concern. Approximately 1,848,394 people live in an area of high wildfire risk (LOC 7-9) and another 2,112,245 people live in an area of medium wildfire risk (LOC 4-6). There are almost 1.4 million structures within the medium to high wildfire risk locations (LOC 4-9), a majority of which are single family homes.



Historical Wildfire Summary in Florida (from 2006 to 2012)

National Climate Data Center Reports	97
Average Wildfires per Year	16
Annualized Property Loss (in millions of dollars)	4.67

The figure to the left shows the Wildland Fire Susceptibility Index (WFSI), which was computed for 30x30 meter cells of burnable vegetation. Much of the state is vulnerable to wildfires.





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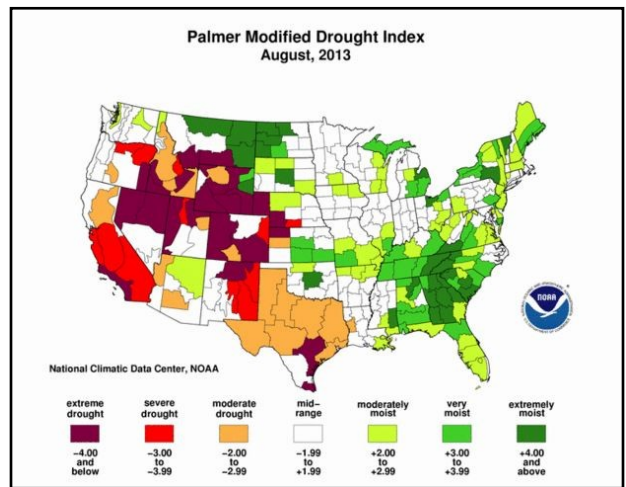
Other Natural Hazards

A number of other natural hazards affect the State of Florida, though their effects are typically less common and not as severe or widespread as floods, tropical cyclones, severe storms, tornadoes, or wildfires. The less significant natural hazards examined in the 2013 SHMP include:

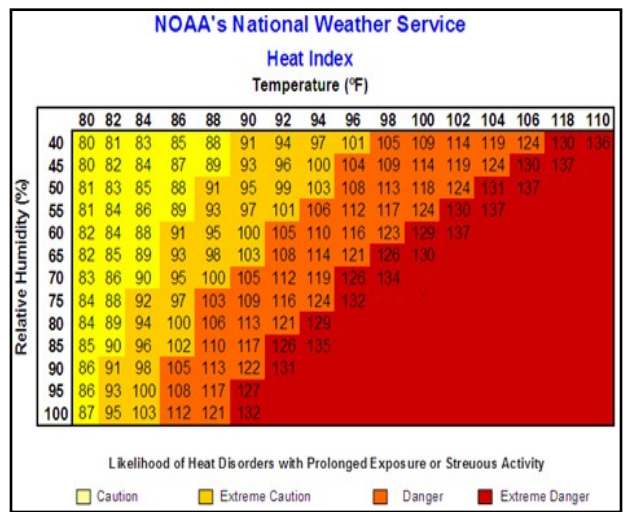
- Drought
- Extreme Heat
- Winter Storms and Freezes
- Erosion
- Sinkholes
- Earthquakes
- Tsunamis and Rogue Waves
- Solar Storms

More detailed information on each of these hazards can be found in Section 3 of the State Hazard Mitigation Plan.

Drought: Originates from a deficiency of precipitation over an extended time period, resulting in a water shortage for some activity, group, or environmental sector. The State of Florida experiences cyclical drought on a regular basis. A prolonged drought can have major financial impact to farmers but rarely causes any impacts to buildings and infrastructure. Several indices exist and are used to help measure drought conditions. The Palmer Drought Severity Index (PDSI) is commonly used for monitoring long-term drought conditions while the Keetch-Byram Drought Index (KBDI) serves as a useful indicator for short-term drought conditions.



Extreme Heat: An extended period of time where the temperature and relative humidity combine to form a dangerous heat index. Extreme heat can occur throughout the entire state, but it only typically occurs in the summer months between June and September. Extreme heat can cause illnesses, disorders, and ultimately death to humans. On average, 175 people die per year from heat-related illnesses throughout the United States. Florida has always been known for its high humidity and heat, which combine to affect its population. There have been 34 occurrences of extreme heat in Florida since 2007. While the entire state is susceptible to extreme heat events, the southern counties tend to exhibit more extreme heat tendencies.





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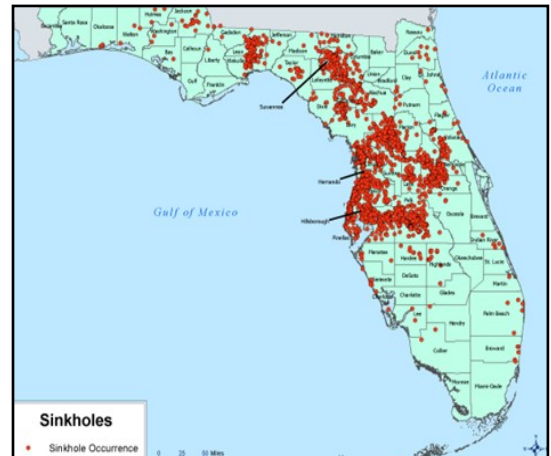
Winter Storms and Freezes: Severe winter weather includes extreme cold, snowfall, ice storms, and/or strong winds, and can affect every state in the United States in some fashion. Areas where this weather is uncommon, such as Florida, are typically more affected by winter weather than regions that experience this more frequently. Agriculture is the state’s primary vulnerability to this hazard since freezing temperatures can kill or damage winter crops. Significant economic impacts in Florida led the NCDC to maintain freeze and frost data throughout the state. Eighteen of the 86 sensors maintain a five percent probability or higher of a freeze or frost annually, all of which are located in the upper half of Florida.

Type of Weather Event	NCDC Reports	Average per Year
Extreme Cold	14	2.8
Freeze	350	70
Winter Storm	18	3.6
Total	382	76.4

Erosion: Coastal erosion is the wearing away of land or the removal of beach, dune, bluff, or wetland sediments by wave action, tidal currents, long-shore and cross-shore currents, or wind. Erosion is one phase of the dynamics of coastal landform change that may result in long-term recession (retreat) or accretion (expansion) of shorelines. Nearly 495 miles of Florida’s beaches, approximately 60 percent, are currently experiencing erosion. Erosion can have significant economic impacts on the state due to property damages, loss of beachfront property, and effects to tourism. Florida’s rivers also routinely experience erosion. This is a high probability hazard for Florida and is constantly being monitored by local, state, and federal entities.



Sinkholes: Landforms created when the overburden (mixture of sand and clay) subsides into voids below that have formed from the dissolution of underlying carbonate rock. Through a slow chemical process these carbonate rocks may dissolve, resulting in karst terrain topography, characterized by sinkholes, caves, springs, streams, and other land surface depressions. Vulnerability of an area to sinkhole formation is dependent upon both natural and human factors. Sinkholes can vary greatly in size, with diameters of a few feet to hundreds of feet. More than 3,400 unconfirmed sinkholes have been reported in the state since the 1940’s.

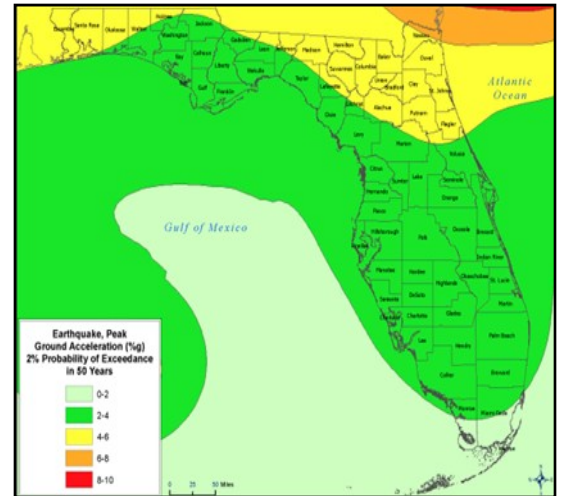




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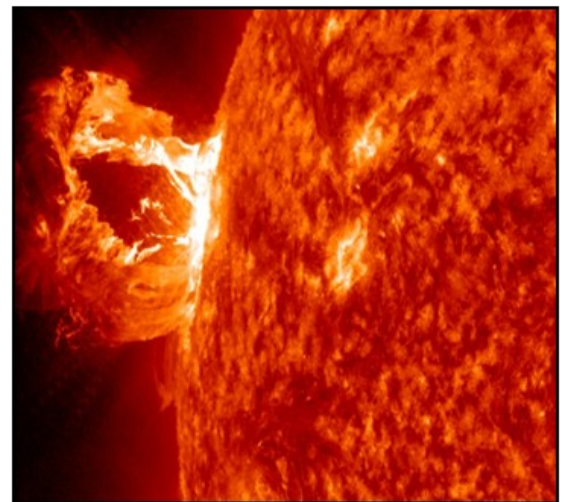
Earthquakes: A sudden, rapid shaking of the earth caused by the breaking and shifting of rock beneath the earth's surface that creates seismic waves. Earthquakes are also known as quakes or tremors. This shaking can cause buildings and bridges to collapse, disrupt gas, electric, and phone service, and sometimes trigger landslides, flash floods, fires, and tsunamis. Earthquakes and their impacts are rare in Florida due to being situated on the trailing (or passive) margin of the North American Plate. Since 1900, there have only been 15 seismic activity reports in the State of Florida and none have been greater than a V on the Modified Mercalli Intensity Scale, which measures earthquake intensities from I to XII.



Tsunamis and Rogue Waves: A tsunami is a series of waves created when part of a body of water, such as an ocean, is rapidly displaced. Rogue waves, often confused with tsunamis, can pose a threat to beachgoers and boats due to their unpredictable nature and large height. Florida is located within the Caribbean area and over the past 156 years, the Caribbean has experienced many tsunami events, which have ultimately resulted in over 2,500 deaths. However, Florida has directly experienced few destructive tsunami and rogue wave events since 1900, with only five small recorded occurrences. The probability of future tsunami and rogue wave events in Florida is low.



Solar Storms: A broad term used to describe a number of atmospheric events that have the potential to adversely affect conditions on earth. These events can include solar flares and coronal mass ejections. Solar flares are large explosions in the sun's atmosphere which can cause radio wave interference, and coronal mass ejections occur when a burst of solar wind and magnetic fields are released from the Sun's atmosphere. If the charged particles reach Earth's atmosphere impacts can include diversion of air traffic, disruption of satellites, and potential interference with the electrical power grid. This is an emerging threat and specific vulnerabilities to Florida's infrastructure have yet to be thoroughly analyzed. Subsequent updates will evaluate new data and analyses to better understand the risk to Florida.





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Technological and Human-Caused Hazards

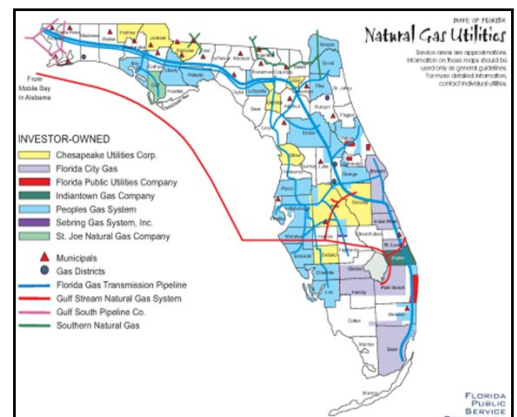
The State Risk Assessment also addresses technological and human-caused hazards in addition to natural hazards that affect the State of Florida. Technological hazards are those that are caused by tools, machines, and substances that are used every day. Human-caused hazards are those hazards caused by direct human intervention and create a potential threat to the health, safety, and welfare of citizens. The major technological and human-caused hazards that are assessed in the plan include:

- Hazardous Materials
- Oil Spill
- Pipeline Vulnerability
- Radiological Accidents
- Civil Disturbances
- Mass Immigration
- Mass Casualty Incidents
- Terrorism
- Biological Incidents

Hazardous Materials (HazMat): Refers generally to hazardous substances, petroleum, natural gas, synthetic gas, and acutely toxic chemicals. The term Extremely Hazardous Substance (EHS) is used to refer to those chemicals that could cause serious health effects following short-term exposure from accidental releases. With the passage of the Federal Emergency Planning and Community Right-To-Know Act (EPCRA) in 1986, the DEM began implementation of a statewide planning program and allowed emergency planners, responders, and the public access to facility-specific information regarding the identification, location, and quantity of particular hazardous materials at fixed sites. Florida has more than 4,500 fixed facility locations that report the presence of an EHS in federally mandated threshold amounts. Hazardous material incidents are common in Florida, but usually have minimal impacts to health and life safety because of safety protocols and the size of the impacted area.

Oil Spill: Given Florida’s dependence on tourism and the related sales tax revenue, an oil spill that affects any of Florida’s many natural treasures could be catastrophic. The Florida impacts from the 2010 BP Deepwater Horizon blowout were mostly limited and contained, but the predictions at the time were severe. Moody’s Analytics released a report which stated that should a significant amount of oil wash onto Florida’s shores, the economic impact from tourism-related tax revenue and job losses could rival that of the ongoing recession and “simulate a double dip recession”. In addition to economic impacts, an oil spill in Florida or off its shores could have severe consequences to wildlife, ecosystems, and those who make a living by way of the water.

Pipeline Vulnerability: More than 30,638 miles of pipeline exists within Florida and an estimated 91 percent carry natural gas. Energy pipelines are a fundamentally safe and efficient means of transporting material key to energy supply, but given that they often carry toxic, volatile, or flammable material, energy pipelines have the potential to cause personal injury, infrastructure and environmental damage. Between 2002 and 2011, there were 36 “serious or significant incidents” in Florida, resulting in one fatality, eight injuries, and \$8.1 million in property damage. Natural, technological, and human-caused hazards can endanger the safety of pipelines.





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Radiological Accidents: Nuclear power-generating facilities have the greatest concentration of radioactive materials of any private source. Florida has three nuclear power plants: Crystal River in Citrus County, Turkey Point in Miami-Dade County, and St. Lucie on Hutchinson Island in St. Lucie County. Florida is also in the Ingestion Pathway Zone (a 50-mile zone around each site) for the Farley Plant in Dothan, Alabama. Though major radiological events are rare, in order to be in compliance with federal regulations, there must be a demonstrated ability to respond to and mitigate impacts to any event that could occur at a site.

Civil Disturbances: Defined as public crises that occur with or without warning that may adversely affect significant portions of the population. These disturbances may be the actions of any number of persons causing disruption of the populace, which can and do occur anywhere and at any time. In most cases, they result in injuries, possible loss of life, damage to infrastructure, property, and the environment as well as the threat of further violence or consequences.

Mass Immigration: Florida's proximity to the Caribbean basin makes it a vulnerable point of entry for a massive influx of refugees entering the United States illegally. Even though all of Florida's counties are subject to receiving illegal arrivals, the most vulnerable counties are Monroe, Miami-Dade, Broward, Palm Beach, Martin, St. Lucie, Indian River, Lee, and Collier. The consequences of a mass arrival of illegal immigrants include the threat of health, safety, and welfare if entrants are detained closely for an extended length of time. The state has partnered with the federal government in the development of a Mass Immigration Annex and has held several full-scale exercises.

Mass Casualty Incidents: The result of injuries or death to numerous individuals at the same time. Examples of mass casualty incidents include structural failures, airplane or bus crashes, train derailments, and multiple collisions on interstate highways. Florida is susceptible to mass casualty incidents on a daily basis.

Terrorism: Defined in the Code of Federal Regulations as "the unlawful use of force and violence against persons or property to intimidate or coerce a government, the civilian population, or any segment thereof, in furtherance of political or social objectives." Terrorists aim to achieve producing a large number of victims, inducing mass panic, attacking places with symbolic value, and gaining media attention. Florida is considered to be vulnerable because the chief objective of a terrorist is to spread fear and create economic damage, and Florida is a major tourist attraction with large theme parks, beaches, cruises, and military bases. There have been six terrorism events in Florida since September 11, 2001.

Biological Incidents: Biological incidents can fall into three categories: bacteria, viruses, and toxins with bacteria. All three types can potentially be deadly to people and animals. Disease transmission can occur via direct contact with contaminated environment, infected people, animals or arthropods, ingestion of contaminated food or liquids, and natural or artificial infectious aerosols or droplets. The severity of incidents will range from mild to severe forms of a disease with attendant high mortality. The entire state of Florida is vulnerable to biological incidents. By definition, a biological agent will probably affect multiple states due to the nature of both air travel and international business structures.





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Mitigation Strategy

The mitigation strategy outlined in Section 4, identifies the work of the state's mitigation partners and serves to guide the work of the SHMPAT over the upcoming years. Goals and objectives help capture the overall purpose of the plan and ensure that the state is headed in the right direction when it comes to hazard mitigation planning. In addition, the goals and objectives help inspire new projects and provide an example to communities who are developing their own mitigation strategies.

Goal 1: Implement an effective comprehensive statewide hazard mitigation plan.

Objective 1.1: Provide training and encourage staff to pursue professional development.

Objective 1.2: Pursue methodologies that will enhance mitigation successes.

Objective 1.3: Integrate mitigation practices throughout all state plans, programs, and policies.

Goal 2: Support local and regional mitigation strategies.

Objective 2.1: Maintain current risk assessment information in coordination with local communities.

Objective 2.2: Assist in integrating hazard mitigation into other local and regional planning efforts such as Local Mitigation Strategies or Comprehensive Emergency Management Plans.

Objective 2.3: Ensure communities are aware of available mitigation funding sources and cycles.

Objective 2.4: Assist in the integration of climate change and sea level rise research into state, local and regional planning efforts.

Objective 2.5: Conduct all possible actions to mitigate severe repetitive loss properties.

Goal 3: Increase public and private sector awareness and support for hazard mitigation.

Objective 3.1: Work with other state and regional entities to incorporate mitigation concepts and information into their outreach efforts.

Objective 3.2: Educate Florida's private sector about mitigation concepts and opportunities.

Objective 3.3: Develop and integrate hazard mitigation curriculum into higher education.

Objective 3.4: Educate state risk management entities on mitigation incentives.

Objective 3.5: Support hazard mitigation research and development.

Goal 4: Support mitigation initiatives and policies that protect the state's cultural, economic, and natural resources.

Objective 4.1: Support land acquisition programs that reduce or eliminate potential future losses due to natural hazards and that are compatible with the protection of natural or cultural resources.

Objective 4.2: Support restoration and conservation of natural resources wherever possible.

Objective 4.3: Seek mitigation opportunities that reduce economic losses and promote responsible economic growth.

Objective 4.4: Retrofit existing state-owned facilities.

Objective 4.5: Participate in climate change and sea level rise research that will further the state and local government's ability to plan for and mitigate the impacts of future vulnerability.

Objective 4.6: Coordinate effective partnerships between state agencies for floodplain management.





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Coordination and Integration of Local Mitigation Planning

The federal Disaster Mitigation Act of 2000 (DMA2K) significantly expanded the mitigation planning requirements imposed on both state and local jurisdictions to maintain eligibility to receive federal mitigation funds. Similar to the state's mitigation plan, the purpose of Local Mitigation Strategy (LMS) plans is to reduce or eliminate the impact of hazards within a community and diminish the loss of life and property damage.

The SHMP is integrated into a variety of other state and local plans and planning mechanisms. The plan continues to serve as a reference tool for the development and update of LMS plans and other planning mechanisms. Additional planning mechanisms and programs that integrate the SHMP include, but are not limited to, the following:

- Local Comprehensive Plans
- The Florida Building Code
- Local Comprehensive Emergency Management Plans
- Post Disaster Redevelopment Plans
- Threats and Hazards Identification and Risk Assessment documents
- FEMA Hazard Mitigation Assistance Programs
- Emergency Management Accreditation Program
- Florida's Silver Jackets Team

The state intends to continue this dialogue with state agencies, regional planning councils, water management districts, local jurisdictions, and others for amplified integration of mitigation measures into comprehensive planning, growth management activity, economic development, capital improvement opportunities, and emergency management plans.

Funding and Projects

Section 5 of the 2013 plan provides detailed information on the common programs Florida uses to fund and achieve its mitigation goals. Mitigation opportunities are pursued on a year-round basis and achieving these opportunities sometimes includes acquiring special appropriations from Congress and the State Legislature, as well as funds from local sources. While many opportunities exist to fund projects at the local level, both state and local applicants rely heavily on the use of federal funds to implement mitigation projects. The state attempts to make full use of FEMA mitigation grant program funding and encourages local communities to leverage state, local, and other funds to achieve as many mitigation initiatives as possible.

In addition to detailing available funding resources, prioritization procedures, and previous allocations, Section 5 highlights a few of the successful mitigation projects that have been completed throughout the implementation period of the previous plan. These projects help showcase Florida's ability to use mitigation dollars effectively while providing examples for communities and other states.





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Severe Repetitive Loss Outreach Strategy

Identified as some of the most vulnerable structures to flooding, Section 6 analyzes Florida's Severe Repetitive Loss (SRL) properties and lays forth a plan of action for mitigating as many of the structures as possible. The Biggert-Waters Flood Insurance Reform Act of 2012 includes measures that ultimately bring all properties' flood insurance premiums to actuarial rates over time. This new legislation will cause more SRL property owners to mitigate, with or without federal funding.



The core of DEM's SRL strategy depends heavily on an outreach component that defines the true risks of owning an unmitigated SRL property and the proactive measures that can be taken to break the damage cycle. Education and awareness are the keys to achieving the goal of increasing the number of mitigated structures in Florida and reducing reliance on the National Flood Insurance Fund.



Plan Maintenance

Section 7 of the 2013 plan describes the state's process and schedule for monitoring, evaluating, and updating the SHMP. The process, referred to as Strategy Implementation, Tracking and Evaluation (SITE), was the result of SHMPAT's deliberation over past monitoring failures and a desire to implement a pro-active, day-to-day process that would not be abandoned over time. SITE is a six component monitoring plan designed to track and evaluate the implementation of the SHMP.

SITE was devised to serve as evidence that the 2010 plan was implemented as planned, to document areas for improvement, success stories, and to evaluate the process on a rolling basis. Additionally, it was to be used to update the plan as progress, roadblocks, or changing circumstances were recognized. SITE was also intended to ensure all state mitigation actions during the three year period were in conformance with the SHMP. The six components of SITE include the following:

- SHMPAT relationships, response, and capacity cultivation
- Mitigation related projects, initiatives, process, and activities
- Local government and agency capabilities
- Goals and objectives
- Hazards and incidents
- Funding opportunities

The tracking methods outlined in SITE intend to facilitate inter-agency cooperation by consolidating Florida's statewide and regional mitigation efforts into one database for viewing and reconciling. SITE has been the chosen method for maintaining the plan since April 2010 and will continue to be implemented throughout the lifecycle of the 2013 plan.





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Appendices

The SHMP includes a number of relevant appendices that help support information in the plan and showcase mitigation efforts around the state. A brief overview of each appendix has been provided below.

Appendix A: Reviewed, Revised, and Changed Materials

A summary of major changes made to the 2013 SHMP from the 2010 SHMP.

Appendix B: Planning Process Documentation

A compilation of documentation related to the update of the 2013 SHMP including a list of agencies and groups invited to participate, SHMPAT meeting summaries, sign-in sheets, and all supporting documentation since July 2010.

Appendix C: Risk Assessment Tables

A compilation of large tables produced during the state risk assessment process. Many of the tables in this appendix contain data for each county, and often multiple values for each county, which can be found summarized throughout Section 3. The in-depth tables and data that support many of the maps and text can be found in this appendix.

Appendix D: Hazard Summary Sheets

A brief overview of hazards assessed in Section 3 of the SHMP that can be used for a quick reference. The hazard summary sheets cover information such as frequency of occurrence and impacts on public, responders, continuity of operations, program operations, property, facilities, infrastructure, delivery of services, public's confidence in jurisdiction's governance, economic condition, and environment.

Appendix E: Wildfire Mitigation Annex

A comprehensive risk analysis and mitigation strategy coordinated by the Florida Forest Service for Florida's wildfire hazard.

Appendix F: HMGP Administrative Plan

A plan that outlines the administrative procedures and establishes basic responsibilities regarding Hazard Mitigation Grant Program (HMGP) activities related to Tropical Storm Debby (FEMA-4068-DR-FL). The document details how the HMGP is administered within the State of Florida, and serves as an example administrative plan for future disaster declarations.

Appendix G: Governing Policies and Legislation

An overview of legislation and rules relating to mitigation, growth, and development in hazard prone areas. It discusses existing, updated, and new legislation, as well as an evaluation of the state's policies that relate to mitigation.

Appendix H: NFIP Policy Statistics

A compilation of National Flood Insurance Program (NFIP) policy statistics broken down by a variety of factors including premium coverage and claims paid since 1978.





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Appendix I: Community Assistance Program Work

A compilation of quarterly reports for the work completed by State Floodplain Management Office employees from January 1, 2010 through June 30, 2011.

Appendix J: Outreach Activities

A list of all outreach activities conducted by FDEM's Bureau of Mitigation since the approval of the 2010 SHMP. Outreach is defined as any activity where mitigation staff present at meeting or provide training.

Appendix K: Sea Level Rise Compendium

Following an objective from the 2010 SHMP, climate change and sea level rise research was monitored and a compendium of existing studies and data was created. This appendix contains a list of all outreach and participation by FDEM employees relating to climate change since 2010, as well as a compendium of climate adaptation research from different countries and states, including Florida.

Appendix L: LMS Update Cycle After Action Report

A report synthesizing the perspectives of Florida counties on their LMS planning experience. It is intended to be a tool for DEM to identify strengths and weaknesses and provide better support to the counties for future mitigation plans and activities.

Appendix M: Tropical Storm Debby Loss Avoidance Report

A report that assessed the losses avoided for flood mitigation projects funded through FEMA's programs and completed by June 23, 2012. The effectiveness of the projects were evaluated for four different events and produced return on investment numbers.

Appendix N: State Managed Projects

A set of tables detailing current and proposed state managed mitigation projects.

Appendix O: Florida State University (FSU) LMS Internship Project Report

An overview of the two year grant program between the Florida Planning and Development Lab (FPDL) and DEM to assist with completing and updating Florida counties' LMS plans from 2009-2010. Over 20 students assisted 17 different counties throughout the state.

Appendix P: Getting to Drier Ground

A guide prepared by FPDL at FSU that consists of best practices for addressing repetitive flood losses in Florida through the implementation of structural and non-structural mitigation measures. The guide presents a range of successful mitigation measures applied to a diverse set of communities.

Appendix Q: Recommended Integration Practices: Strengthening the Floodplain Portions of the Local Mitigation Strategy

A guidance document to suggest practices to reinforce plans and programs, specifically related to the floodplain portions of the LMS. Recommendations range from improving data collection to integrating fully with the Community Rating System (CRS) plans.

