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Emergency Management Plan

Section 7

**7-6 Tsunami Plan**

**June 2006**



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## **I. Introduction**

This plan is subordinate to the Horry County Emergency Management Plan and is to be used in conjunction with each relative section of the EMP. This plan establishes specific procedures to be followed in the event of a tsunami incident in Horry County.

A Tsunami Warning System has been put into place to help minimize loss of life and property. The NOAA Tsunami Warning Center in Palmer, Alaska monitors for earthquakes and subsequent tsunami events in both the Pacific and Atlantic Oceans. If a tsunami is generated, the Tsunami Warning Center issues tsunami watches and warnings, as well as tsunami information bulletins for both the U.S. West and East Coast, including the South Carolina coast.

## **II. Situation and Assumptions**

- A. Horry County is at a very slight risk for tsunamis. Tsunamis are sea waves produced by an undersea earthquake, below or above water landslide causing water disruption, or volcanic activity in or around the Atlantic Basin.
- B. The best information available indicates Horry County's greatest risk is from a magnitude 9.0 earthquake along the Puerto Rico Trench. The tsunami could have a wave height of 1.4 meters (4-5 feet) and reach the Horry County coast in about 4-5 hours.
- C. Horry County is a part of the Grand Strand Resort area, which has over 13 million visitors each year. Life safety is the highest priority for those in the risk area.
- D. Horry County's greatest risk during a tsunami is the immediate coast-line. During the summer months, over 100,000 people may be on the beach any time during daylight hours. During the off-season, there could be several thousand people on the beach.
- E. People in the at risk area of the coast-line will need to evacuate at least 300 feet inland and/or 15 feet vertically prior to the arrival of tsunami waves.
- F. The prompt and effective evacuation of high-risk areas requires the cooperation and coordination of the Horry County and local jurisdiction Public Safety Departments. Horry County Emergency Management Department will assist in coordinating this effort.

## **III. Concept of Operations**

### **A. General**

- 1. Response and coordination of action will be in accordance with the Horry County Emergency Management Plan.
- 2. Coordinate evacuation notifications through Horry County Emergency Management, E-911 Communications Center, the NWS Wilmington Office and the Horry County Public Information Office for the entire coastal area including local jurisdictions.
- 3. Coordinate beach evacuation notifications through the Horry County Police and Horry County Fire/Rescue departments.

4. Coordinate State and Federal agencies

#### B. Operational Issues

1. Once a tsunami wave has been detected that may affect the Horry County coast, the Horry County Emergency Management Director, or his designee and/or National Weather Service will activate the Emergency Alert System advising the need to evacuate the beach area.
2. The Horry County E-911 Communications Center will be notified to contact the law enforcement and fire/rescue units closest to the beach front to respond to the beach and announce the evacuation of the beach.
3. The Emergency Management Department will activate either the Reach SC Emergency Notification System or the Horry County GeoAlert calling system (reverse 911) to contact each coastal property in the evacuation zone (300 feet from the shoreline). The Horry County E-911 Communications Center can activate the GeoAlert calling system in place of Emergency Management.
4. In the event of an actual event of observation of severe water draw-back by first responders, an evacuation order may be given by the officer in charge. The E-911 Communications Center will be notified immediately. They will contact the Horry County Emergency Management Director and the NWS and activate the GeoAlert calling system.
5. Once an evacuation becomes necessary, the Horry County Public Information Office will broadcast warning and evacuation instructions through the local media outlets.

### IV. Plans Development and Maintenance

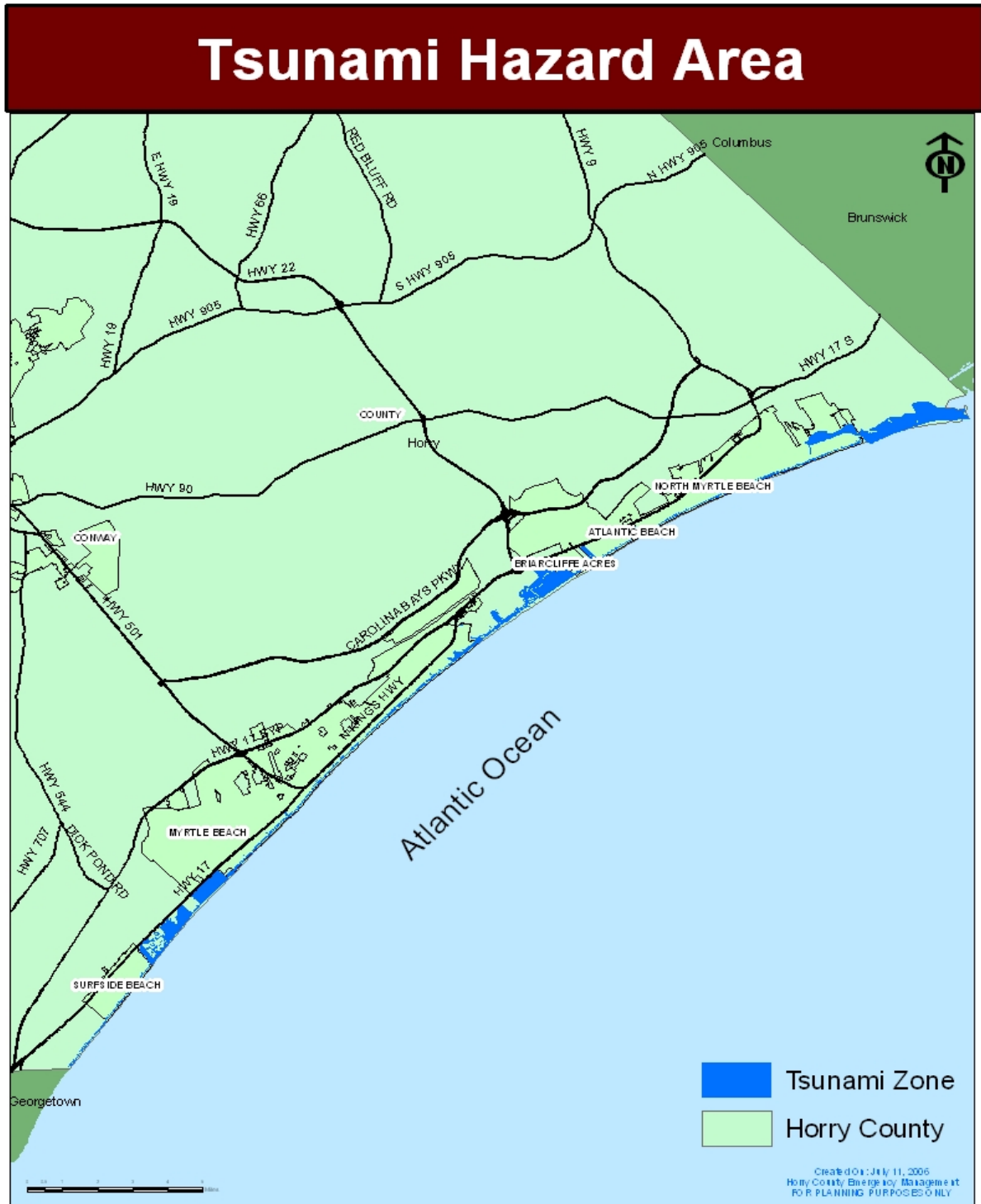
This plan addresses specific procedures to follow in the event of a tsunami impacting the coast-line of Horry County. The Horry County Emergency Management Director will review and update this plan on an annual basis.

#### A. Watches and Warnings

1. Tsunami Watch – An Alert issued to areas outside the warned area. The area included in the watch is based on the magnitude of the earthquake. For earthquakes over magnitude 7.0, the watch area is a 1 hour tsunami travel time outside the warning zone. For all earthquakes over magnitude 7.5, the watch area is 3 hours tsunami travel time outside the warning zone. The watch will either be upgraded to a warning in subsequent bulletins or will be cancelled depending upon the severity of the tsunami.
2. Tsunami Warning – Indicates that a tsunami is imminent and that coastal locations in the warned area should prepare for flooding. The initial warning is typically based upon seismic information alone. Earthquakes over magnitude 7.0 or a major landslide trigger a warning covering the coastal regions within 2 hours tsunami travel time from the epicenter. When the magnitude is over 7.5, the warned area is increased to 3 hours tsunami travel time. As water level data showing the tsunami is recorded, the warning will either be cancelled, restricted, expanded incrementally, or expanded in the event of a major tsunami.

### B. Tsunami Travel Time Chart

Puerto Rico Trench 9.0M Earthquake generated Tsunami travel time and landfall height based on recent model output from NOAA Tsunami Warning Center



Location	Region	Travel Time (hr-min)	Peak SSH(cm)	Initial Motion	Period (hr-min)
Flagler_FL	Atlantic	4 hours 15 min	116	elevation	1 hour 1 min
Fernandiana_FL	Atlantic	5 hours 13 min	23	elevation	xxx
St Simons_GA	Atlantic	5 hours 15 min	43	elevation	1 hour 18 min
Altamaha_GA	Atlantic	5 hours 17 min	52	elevation	1 hour 1 min
So Santee_SC	Atlantic	4 hours 22 min	86	elevation	1 hour 15 min
Springmaid_SC	Atlantic	4 hours 42 min	138	elevation	38 min
Charleston_SC	Atlantic	4 hours 45 min	51	elevation	1 hour 28 min
Wrightsville Bch_NC	Atlantic	4 hours 18 min	133	elevation	42 min
Surf City_NC	Atlantic	4 hours 17 min	116	elevation	1 hour 5 min
Beaufort_NC	Atlantic	3 hours 48 min	125	elevation	47 min
D41420	Atlantic	22 min	128	elevation	xxx
D42407	Caribbean	22 min	-48	depression	xxx
Bermuda	Atlantic	1 hour 52 min	458	elevation	15 min
Limetree_StCroix	Caribbean	0 min	227	depression	15 min
Punta_Guayanilla	Caribbean	0 min	226	elevation	19 min