

Tsunami Ready Plan for New Hanover County

2008



New Hanover County Tsunami Plan

I. Introduction

This plan is subordinate to the New Hanover County Emergency Operations Plan and is to be used in conjunction with each relative section of the Emergency Operations Plan. This plan establishes specific procedures to be followed in the event of a tsunami incident in New Hanover 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, which includes the North Carolina coast.

II. Situation and Assumptions

- A. New Hanover County is at 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 New Hanover County's greatest risk from a magnitude 9.0 earthquake along the Puerto Rico Trench. Tsunami behavior would be similar to a rapid (less than 10 minutes) rising tide coastal flood. Recent studies estimate the tsunami could have a wave height of 1.3 meters (4-5 feet) and reach the New Hanover County coast in about 4 hours.
- C. New Hanover County population significantly increases during the summer season especially along the "risk area".
- D. New Hanover County's "risk area" during a tsunami is the immediate coastline, especially the beaches. During the summer months, over 100,000 people may be on the beaches of New Hanover County at any time during day time hours. During the off-season, there could be several thousand people on the beach.
- E. A default evacuation zone has been established, that people in the "risk area" will need to evacuate at least 300 feet inland and/or 15 feet vertically prior to the arrival of tsunami waves. This zone may be modified for expected conditions depending on the characteristics of the tsunami.
- F. The prompt and effective evacuation of high-risk areas requires coordination between New Hanover County and local jurisdictions, including municipal administration and public safety providers. Local utility providers will also have a role in response. New Hanover County Emergency Management will assist in coordinating this effort.

III. Concept of Operations

A. General

1. Response and coordination of actions will be in accordance with the New Hanover County Emergency Operations Plan.
2. Coordination for protective actions including evacuation recommendations and notifications will be done through New Hanover County Emergency Management, New Hanover County Public Safety Communications Center, National Weather Service Wilmington Office, New Hanover County Sheriff's Office and local municipal governments.
3. New Hanover County Emergency Management will coordinate all evacuation through the County Emergency Operations Center (EOC), working directly with all stakeholders to include Federal, State and Local partners.

B. Operational issues

1. When a tsunami warning has been issued for the region by the NOAA Tsunami Warning Center, the National Weather Service in Wilmington will activate the Emergency Alert System with a Civil Emergency Message (CEM is the code) providing details on the tsunami warning and the need to evacuate the beach. The CEM will activate area NOAA Weather Radios and the Broadcast Media. The National Weather Service in Wilmington will contact the New Hanover County Public Safety Communications Center.
2. The New Hanover County Public Safety Communications Center will notify Emergency Management and the municipal law enforcement and fire/rescue units along the beach of the tsunami warning. The municipal law enforcement and fire/rescue units will then work to evacuate the beaches, as necessary.
3. The Emergency Management Department will activate the Dialogic System (better known as the reverse 911 system) to contact each coastal property in the evacuation zone (300 feet from the shoreline).
4. In the event of an observation of severe water draw-back by first responders, an activation order may be given by the officer in charge. The Public Safety Communications Center will be notified immediately. The Public Safety Communications Center will in turn contact the National Weather Service in

Wilmington, who will make the determination of whether to activate both the calling system and the EAS system.

5. Once an evacuation becomes necessary, the New Hanover County Public Information Officer will broadcast warning and evacuation instructions through the local media outlets.
6. Any sheltering or other emergency operations as a result of a Tsunami will be in accordance with the New Hanover County Emergency Operations Plan.

IV. Plans Development and Maintenance

This plan addresses specific procedures to follow in the event of a tsunami impacting the coast-line of New Hanover County. The New Hanover County Emergency Management Department will review and update this plan every three years.

A. Warnings and Watches

1. 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 may 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 data are collected, the warning may be cancelled or in the event of a major tsunami, expanded with follow-up information statements.
2. 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 and tsunami travel time. For earthquakes over magnitude 7.5, the watch includes the area affected by the tsunami 3 to 6 hours after the earthquake. The watch will either be upgraded to a warning in subsequent bulletins or will be cancelled depending upon severity of the 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

| <i>Tsunami Model Output of Puerto Rico Trench M9.0 Earthquake</i> | | | | | |
|--|-----------------|-----------------------------|-------------------------|-----------------------|------------------------|
| Location | Region | Travel Time (hr-min) | Height (cm) | Initial Motion | Period (hr-min) |
| <u>SE US Coast</u> | | | | | |
| Flagler FL | Atlantic | 4 hours 15 min | 116 | elevation | 1 hour 1 min |
| Fernandina 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 |
| Charleston SC | Atlantic | 4 hours 45 min | 51 | elevation | 1 hour 28 min |
| South Santee SC | Atlantic | 4 hours 22 min | <i>about 3 ft</i> 86 | elevation | 1 hour 15 min |
| Myrtle Beach SC | Atlantic | 4 hours 42 min | <i>about 4.5 ft</i> 138 | elevation | 38 min |
| <i>Wrightsville Bch NC</i> | <i>Atlantic</i> | <i>4 hours 18 min</i> | 133 | <i>elevation</i> | <i>42 min</i> |
| Surf City NC | Atlantic | 4 hours 17 min | <i>about 4 ft</i> 116 | elevation | 1 hour 5 min |
| Beaufort NC | Atlantic | 3 hours 48 min | 125 | elevation | 47 min |
| <u>DART Buoys</u> | | | | | |
| D41420 (North) | Atlantic | 22 min | 128 | elevation | xxx |
| D42407 (South) | Caribbean | 22 min | -48 | depression | xxx |
| <u>Islands</u> | | | | | |
| Bermuda | Atlantic | 1 hour 52 min | 458 | elevation | 15 min |
| Limetree StCroix | Caribbean | 0 min | 227 | depression | 15 min |