

**Hurricane Preparedness and Response at UNC Wilmington**

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## **Abstract**

*The University of North Carolina at Wilmington (UNCW) is the only public teaching and research institution located in southeastern North Carolina. Because of its role and location, it is ideally suited to meet the needs of the region and be a global contributor in coastal research. However, its location also places over \$15 million in research and the services to nearly 12,000 students at risk to the natural hazards of hurricanes and other coastal storms. It is therefore necessary that UNCW develop and maintain an emergency management program that focuses especially on hurricanes and other severe storms. UNCW is anxious to share its experiences and techniques in hurricane response with other colleges and universities.*

## **Introduction of the Organization**

The University of North Carolina at Wilmington (UNCW), located on the southeast coast of North Carolina, has evolved into a strong, diverse institution since its founding in 1947. UNCW is part of the University of North Carolina System, a 16 campus university system chartered in 1789 as the first public school system in the United States. Integral to its surrounding community and region, UNCW serves its faculty, staff, students, and visitors with a mission and vision of integrity and knowledge. UNCW's coastal location, equidistant between the Cape Fear River and the Atlantic Ocean, provides it with a unique environment that evokes the dichotomy of the benefit of pioneer education and research opportunities with the vulnerability of the research and community to potential severe weather and natural disasters. The expectation and inevitability of such occurrences has greatly influenced the UNCW community in its mission, vision, and commitments and indicates the importance of using mitigation as a powerful tool to protect the campus community and structures.

Between the years of 1996 and 1999, four hurricanes made landfall within 50 miles of the UNCW campus. The university has also experienced close encounters with other natural disasters and severe weather as with the ice and snow storms of 1989, 2000, 2002, and 2004 and Hurricane Isabel in September 2003. Throughout these experiences, UNCW has become dedicated in upholding its mission, vision, and commitments through challenging times such as disasters. Chosen as one of the six Disaster Resistant Universities (DRUs) in the year 2000 and as the recipient of additional DRU funding in 2004, UNCW has instilled a disaster resistant culture throughout the campus community

and has applied this attitude toward present and future endeavors to maintain its core commitments.

UNCW is a comprehensive level I institution that offers over 70 bachelors degrees and 20 masters degrees in the arts and sciences, business, education, and nursing. The university also offers one doctoral program in marine biology through the Center for Marine Science, one of the newest and most technologically advanced coastal ocean science research facilities on the eastern seaboard. Along with higher education degrees, UNCW also offers a variety of pre-professional and post baccalaureate certification programs to over 12,000 students. Through these programs, the university as a whole seeks to stimulate students' intellectual curiosity, imagination, rational thinking, thoughtful expression, and love of learning.

Most of UNCW's property is located in New Hanover County in the City of Wilmington, North Carolina, a historic port city in the southeastern region of the state. Regional engagement and a positive effect on the community are two core commitments of UNCW because of its significant regional influence. UNCW is the second largest employer in the eight county area of Bladen, Brunswick, Columbus, Duplin, New Hanover, Onslow, Pender, and Sampson counties and also injects dollars into the economy of this region through over \$145 million of direct spending by students, faculty, staff, visitors, temporary residents, and others attracted to the region by UNCW.

Students pursue their education on a 650 acre arboretum campus and at other off-campus buildings such as the Center for Marine Science on the Intracoastal Waterway, the Center for Marine Science Operations complex, an underwater ocean laboratory located in the Florida Keys National Marine Sanctuary called Aquarius, historic

structures in downtown Wilmington, and a number of undeveloped conservation areas. UNCW utilizes classrooms for instruction 20 percent more than any other institution in the UNC system and is the only institution of its kind within 90 miles. Specialized facilities at UNCW cannot be duplicated closer than 120 miles.

UNCW's unique capabilities and location create the need for a comprehensive emergency management program specifically focused on natural disasters such as hurricanes and other severe storms.

### **Statement of the Problem/Initiative**

Because of its vulnerability to hurricanes and other severe coastal storms, UNCW has developed and practiced an emergency management program to address problems associated with these natural hazards. This program was developed with the safety and welfare of UNCW students, faculty, staff, and visitors in mind as well as the protection of critical infrastructure and academic resources. With a history of severe hurricanes hitting the Wilmington area, it became imperative that UNCW develop a strong program to react to such storms and ensure the continuation of the university's mission, vision, and objectives through and after such destructive storms.

### **Design**

UNCW has had the opportunity to practice hurricane response many times over the years, especially between the years of 1996 and 1999 when four hurricanes made landfall within 50 miles of the main campus. Because UNCW lies in a location so vulnerable to severe coastal storms, best practices to handle such incidents emerged from

repeated response. Formalization of plans and procedures began after these major incidents. In June 2003, the Environmental Health & Safety Department acquired an Emergency Management Coordinator to organize and develop the plans and procedures more fully as well as create an emergency management program on campus. The Emergency Management Coordinator was hired using funding from the FEMA Disaster Resistant University Initiative.

The Emergency Management Coordinator completed a major revision of the Hurricane Operations Plan using information from past plans and key personnel. The Hurricane Operations Plan describes UNCW's preparedness, response, recovery, and mitigation efforts for hurricanes and is updated and exercised annually. Eventually, this plan will become an annex to the All Hazards Emergency Operations Plan, which the Emergency Management Coordinator is writing. The All Hazards Plan will describe general preparedness, response, recovery, and mitigation procedures that can be applied to any disaster or major emergency situation at UNCW.

The Emergency Management Coordinator has also developed a training and exercise program to increase readiness for hurricane response. Key emergency personnel participated in a hurricane exercise at the beginning of the 2004 hurricane season, and disaster preparedness training sessions have been offered and given to faculty and staff. The Residence Assistants and Residence Coordinators in the residence halls also received hurricane training before the beginning of the school year in August to increase preparedness in on-campus housing.

Along with the Emergency Management Coordinator, key groups of emergency personnel provide the knowledge and skills to prepare for and respond to hurricanes. The

Crisis Decision Team, a group consisting of university senior management, makes critical decisions during a hurricane emergency, including when to cancel classes, when to evacuate the campus, and when to reopen after a hurricane. These decisions take place in coordination with decisions made by New Hanover County officials and UNCW keeps constant communication with the county throughout a hurricane emergency. The Emergency Operations Group maintains operations throughout a hurricane by working in the Emergency Operations Center and completes recovery activities after a storm. The Emergency Operations Groups consists of key campus personnel from a variety of departments including University Police, Physical Plant and Facilities, Human Resources, Housing & Residence Life, Telecommunications, Information Technology, and Environmental Health & Safety.

These groups all participate in communication and public outreach to the UNCW community during a hurricane emergency. This extremely important part of hurricane operations takes place through the coordination of many university departments to reach the public using web pages, an emergency hotline, and local media. UNCW strives to not only reach students, faculty, and staff, but family members of those individuals as well, especially parents of students attending UNCW.

UNCW is also one of only nine universities in the United States that is designated a StormReady University. An initiative under the National Weather Service, a StormReady designation signifies the capabilities of a community to recognize and respond to severe storms. UNCW worked with the National Weather Service in Wilmington to enhance the university's preparedness capabilities to encompass all types of severe storms by training storm spotters, providing weather radios to critical buildings

on campus, increasing communication capabilities, and promoting an increase of general knowledge of severe storms throughout the campus community. UNCW's StormReady classification and capabilities is now being used as a model for other universities in the southeast region of the United States to become StormReady.

## **Implementation**

UNCW has perfected hurricane procedures by implementing these plans and initiatives in real disasters. By using the four phases of emergency management, UNCW has succeeded in developing an effective hurricane operations program through plans and procedures, training and exercises, and actual response and recovery.

## *Preparedness*

UNCW's emergency management program is focused on a strong preparedness component. Written plans, such as the Hurricane Operations Plan and the Hazards Assessment (which analyzes the hazards UNCW is most vulnerable to) as well as planned initiatives, such as a vulnerability assessment (which will analyze each building on campus and its potential for disaster damage) are the cornerstone of the preparedness portion of UNCW's emergency management. Training and exercises add to the preparedness portion of UNCW emergency management to ensure response procedures are practiced and improved. In September 2004, Hurricane Isabel tested hurricane preparedness at UNCW and the newly revised Hurricane Operations Plan. Though the real-time practice brought forth additional issues and preparedness measures that needed

to be taken, the overall response went smoothly due to the advanced planning and coordination.

### *Response*

UNCW has had many chances to respond to hurricanes and most recently during the 2004 hurricane season. Hurricanes Fran and Bertha made landfall near UNCW in 1996, Hurricane Bonnie made landfall near UNCW in 1998, and Hurricanes Dennis and Floyd made landfall near Wilmington in 1999. This four year time period of hurricanes making landfall near Wilmington gave UNCW the chance to practice hurricane response skills. These skills were exceptional in the Housing & Residence Life aspect, where student evacuations, when necessary, were performed according to plan and without major incident. Operations personnel also excelled in their response during these storms, as well as during Hurricane Isabel in September 2003 and during Charley in August 2004.

### *Recovery*

Recovery operations have also run smoothly during these hurricanes. Damage assessment teams immediately survey campus damage once it is safe to do so after a storm. Persons responsible for repairs and debris clean-up arrive shortly after a hurricane passes the area and begin recovery efforts. Because of these quality recovery efforts, UNCW remains closed for a minimal amount of time during hurricane emergencies and it always reopens as soon as possible. Even after Hurricane Fran, which caused the most extensive damage from a hurricane at the university to date, UNCW reopened in four

days. Quick recovery and reopening allows for continuity of operations and the continuance of UNCW's mission to provide education and continue research.

### *Mitigation*

UNCW also strives to pursue mitigation measures to lessen the effects of hurricanes and other natural disasters on campus. Through DRU funding, UNCW has completed a main ditch drainage improvement project to reduce flooding on campus and has plans to outfit important critical facilities with impact resistant windows. Other DRU projects include protection of critical research facilities and extra protection for a new computing center. Construction plans for new buildings are now reviewed for disaster resistance and improved upon if necessary. All of these mitigation measures will ensure UNCW remains a disaster resistant university to protect its students, faculty, and staff.

### **Benefits**

Improving and perfecting UNCW's hurricane operations has greatly benefited the university. Because of the region's vulnerability to hurricanes, it is absolutely necessary for UNCW to prepare for disasters. Protection of the students, faculty, staff, and mission to provide education and conduct research is critical to the future of UNCW. Emergency personnel have had the chance to practice plans and procedures and develop a well-rounded, successful program to prepare for, respond to, recover from, and mitigate the damages of hurricanes and other disasters. Expanding the program to include an emergency management professional has further improved it, and participating in

initiatives such as StormReady have made UNCW recognizable in the community as a disaster resistant, prepared university.

### **Retrospect**

UNCW has always responded to hurricanes using effective strategies. However, only recently was the program organized into a comprehensive emergency management structure and plans and procedures written to incorporate response and operations actions that already took place. Organizing and improving the program has increased its effectiveness. Many areas still need revision and improvement but through preparedness, response, recovery, and mitigation, these areas will continue to improve through time.