

Hurricane Evacuation Plans Need Reconsideration

The 2004 hurricane season demonstrated the catastrophic damage hurricanes can wreak both on coastal and "inland" structures, as well as on boats and boating infrastructure. However, despite the recurrent threat, many marinas do not have effective hurricane response plans to evacuate boats and protect infrastructure when an actual hurricane is looming.

Many marinas in hurricane prone areas are not designed to provide safety to boats tied to their docks during a hurricane. Special berthing structures that can withstand wind and wave loads in basins exposed to full hurricane conditions are not traditionally incorporated into marina designs. The basis of this standard design assumption is that such marinas can--and should--be evacuated before a hurricane hits. "This is a hard fact of which many boaters and people in the industry are not fully aware", says Tim Mason, P.E., Marina Team Leader at ATM. When boats remain docked and the structures' design loads are exceeded as a result of hurricane conditions, catastrophic failures may occur, and can lead to the complete loss of boats, docks, and marine infrastructure.



To prevent major damage, an increasing number of marinas are drafting hurricane response plans. "There has been a noticeable increase since last year in the number of marinas implementing hurricane plans," says Lou Daniello, President of the Marine Industry Association of Palm Beach (MIA-PB). "Marinas in Palm Beach County that already had plans have improved upon them; and those that didn't have them are drafting new ones."

Similarly, the number of marinas requiring boaters to provide proof of insurance before leasing slips has increased significantly since the onslaught of 2004, says Craig Dunstan, an accounts executive at Lutgert, Smith & Leshner Insurance, a Florida-based company that provides insurance for boats. "In order to get coverage for boats and mega yachts, insurance companies require that owners have written documentation of their specific hurricane plans. "Our underwriters review every vessel's hurricane plan," he says, adding that the requirements are stringent, and owners are often required to revise and resubmit their plans for approval.

Unfortunately, most boats and boaters do not have written hurricane plans - and remain uninsured against hurricanes and storm damage, confirms Dunstan. And despite the increase of hurricane planning throughout the marine industry, the majority of marinas still do not have evacuation plans in place.

Legal Challenges

One of the main challenges of developing an evacuation plan is determining when the evacuation should begin and how it should be enforced. This is particularly challenging for marinas in Florida, where a state law adopted after the devastation of Hurricane Andrew in 1992 (F.S. 327.59) dictates that "marinas may not adopt, maintain, or enforce policies pertaining to evacuation of vessels which require vessels to be removed from marinas following the issuance of a hurricane watch or warning, in order to ensure that protecting the lives and safety of vessel owners is placed before interests of protecting property." In other words, boat owners are not legally obliged to move their boats from a marina after a hurricane warning has been issued.

"Of all the states located in the 'hurricane alley,' Florida is unique in that marinas cannot activate their evacuation plans and get boats out of their water after a hurricane watch has been issued," says Daniello. Even more frustrating to marina owners with storm-damaged facilities, he says, is the fact that boaters cannot be held responsible for damage caused by their "unmoved" vessels.

Exploring Alternatives

Not surprisingly, it is mostly the private sector - marina owners, boat owners, waterfront facilities, etc. - that is driving the effort for change and increased hurricane preparedness, says David Roach, Executive Director of the Florida Inland Navigation District (F.I.N.D.). Earlier this year, F.I.N.D. and MIA-PB held the "2005 Marine Summit: Hurricane Preparedness for Marine Facilities and Vessels," which gathered more than 80 members from various sectors of the marine industry to brainstorm ideas for improving current hurricane protection and preparation throughout the industry. Although F.I.N.D. and MIA-PB will publish a report of their findings and recommendations later this summer - with the goal of better educating and preparing marinas and boaters, - Roach says the most important lesson to take away from the summit is simple and straightforward: When a hurricane threatens, get your boats out of the water and out of harms way.

"Everyone has to have a plan," Roach says. "Marinas and boaters can no longer sit back and hope the storm will change course, as they so often have in the past." Roach said that Andrew, Charlie, Frances, Ivan and Jeanne "demonstrated beyond question" that the best course of action is to get the boats out of the water and strapped down on dry ground. "The combined forces of

[Hurricane Evacuation, continued]



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Hurricane Resources

National Hurricane Center (NHC)
www.nhc.noaa.gov

NOAA Coastal Services Center - Hurricane Preparedness Guidelines for Marinas
[Http://www.csc.noaa.gov/hes/general.html](http://www.csc.noaa.gov/hes/general.html)

BoatUS - Hurricane Resources and Brochure
[Http://www.boatus.com/hurricanes](http://www.boatus.com/hurricanes)

FIND - Hurricane Manual and Other Publications
[Http://www.aicw.org/electronicpub.htm](http://www.aicw.org/electronicpub.htm)

Miami-Dade OEm - Hurricane Manual for Marine Interests
[Http://www.co.miami-dade.fl.us/oem/pdfs/HurricaneManual_marine.pdf](http://www.co.miami-dade.fl.us/oem/pdfs/HurricaneManual_marine.pdf)

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wind and wave action during a hurricane are extremely difficult to handle. But if you remove the wave action, the wind can be dealt with relatively easily.”

“Boats that were removed from the water and moved inland or strapped securely to the ground on their trailers remained relatively unscathed compared to those that remained anchored at the docks,” concurs Daniello. As a result, FIND and the MIA-PB are investigating plans for using nearby public land and parks as places to store boats during storm events, and forming partnerships with lift operators, insurance companies, and government entities needed to effect the plans.

“Hurricane evacuation of a marina is both an individual and community concern. We have to look at this problem with a regional system approach” says Esteban L. Biondi, Senior Engineer with ATM. “For an evacuation to be effective, boaters need to have a plan to evacuate, but should also have some assurance that the evacuation destination will be available. The planning challenge is to ensure that every boat has a place to go,” highlights Biondi.

An increasing number of marinas are drafting and implementing hurricane response plans that include detailed guidance for boat evacuation.

“Time is of the Essence”

“Since the structural engineering and design of most marinas does not allow for boats to remain safely docked during a hurricane event, marina owners and management need the means to evacuate the marina in advance of an impending hurricane,” says Mason. “They should also be able to execute their evacuation plan within a timeframe that does not endanger the life and personal safety of the boaters.”

Coordination and advanced planning are the keys to success. “Put together a plan for you and your customers, and do it now,” urges Roach. “Boat owners and marinas are reliant on each other, and must work together to ensure the success of each other’s plans.”

In all cases, it is essential that harbor masters trigger evacuation plans at the right time. With current Florida legislation only permitting such evacuation orders to be issued prior to the National Hurricane Center’s (NHC) issuance of a hurricane watch or warning, the possibility of premature or overly cautious action is a reality. “This places a huge burden on the marina management,” expresses Biondi.

The Crux of the Issue

The solution to the challenge of protecting boating infrastructure seems reasonable and obvious. It would include: (1) a reasonable and effective hurricane evacuation plan for all marinas, (2) a commitment from slip holders to know and carry out the evacuation plan, and (3) the ability to “trigger” the plan early enough to allow for its safe execution by all parties.

The 2004 hurricane season proved that this solution, though “obvious,” is difficult to achieve and not as encompassing as it needs to be. While the brunt of the responsibility for protecting boating infrastructure as a part of hurricane preparedness falls on marinas, cooperation among all parties is needed to create and implement thorough responses that benefit all. Some suggestions are:

- **Marina Management and Harbor Masters** - should make sure that a marina evacuation plan is in place and that is feasible to implement under pressure and cramped timelines. Management can assist boaters by verifying that they have feasible individual evacuation plans.
- **Marina Owners** - should review their marina's management plans and insurance coverage to ensure they are adequate and that slip holders have the education, confidence and incentives in place for carrying out evacuation procedures.
- **Boaters** - should understand the marina's specific hurricane evacuation plans, develop personal plans to timely and safely relocate their boat(s), and have a strong commitment for its implementation. Ultimately, if their marina suffers serious damage, they may lose their slip.
- **Engineers and Designers** - should communicate the design assumptions above and beyond the current minimum reporting requirements and practices. Technical information stating the need for evacuation due to design assumptions may be stated in writing in various documents, including contract leases and possibly permits.
- **Insurance Companies (of both Marina and Boat owners)** - can play a key role in assisting with evacuation decision-making, in addition to general prevention efforts. Strategic support to marinas and boaters may help minimize hurricane-related claims.

In summary - hurricane evacuation of a marina is both an individual and community concern, so it is expected that a regional systematic approach and collaboration must be accomplished for successful implementation.

For more information about hurricane response planning at your marina, contact Esteban Biondi, Senior Engineer at ATM, @ (561) 659-0041 or ebiondi@appliedtm.com. ☉