



Hurricane Season Officially Begins June 1

A hurricane response plan is far more than a checklist.


Alan C.
McCLURE ASSOCIATES, INC.
Naval Architects • Engineers

The Importance of a Hurricane Response Plan

Hurricane Season Is Approaching

As the June 1st start of the 2026 hurricane season quickly approaches, vessel owners and operators need to review their hurricane preparation plans. Do you have well-defined plans in place to deal with hurricanes? Is remaining at, or moving out to sea, a viable option?

What ports of refuge are available and, once there, what docks can you secure your vessel to? Are there enough shoreside bollards of sufficient capacity to secure the vessel?

Are adequate fenders available, and can the bulkhead withstand the expected fender loads? Are your mooring lines in good condition and of adequate length? Is your crew adequately trained to install a hurricane mooring system?

Planning Ahead Matters

Planning ahead should include a proper mooring analysis considering dockside geometry, including bollard locations and bulkhead configuration, exposure to waves and currents under hurricane surge conditions, and varying wind speeds from all directions.

Additional mooring lines and pneumatic fenders adequate for the intended mooring layout should be procured well ahead of time. Shoreside bollard strength at proposed docks should also be investigated to ensure the bollards can withstand the loads imposed by the mooring lines.

Communication and Operational Readiness

A thorough understanding of applicable Port Authority regulations and USCG regulations must be conveyed from company management to the vessel captain and crew.

Agreements with dock facility owners should be obtained well before a hurricane event. Clear communication and preparation before storm season can significantly improve operational response when conditions begin to deteriorate.

Rapidly Changing Storm Conditions

Even hurricanes passing 75 miles away can produce an array of highly variable environmental conditions.

Local wind speeds and directions can change quickly due to high-intensity squalls generated by the hurricane itself. Wind direction and velocity will shift as the hurricane passes, depending on the vessel's distance from the hurricane's eye.

Vessel height relative to the shoreside bollards will also change due to storm surge, while fetch conditions may worsen as barrier islands are overtopped, allowing waves to impinge directly on the vessel.

All of these variables can be systematically addressed in a properly developed hurricane mooring analysis.

Evaluating Survivability

Hurricane mooring analyses should be performed for multiple levels of hurricane intensity, from Category 1 through Category 5.

Survivability risk can then be determined for the specific site. A Category 1 hurricane may require only minimal mooring arrangements at a given location, while a Category 4 or 5 storm at the same site may not be survivable under any mooring configuration.

Understanding these limitations ahead of time allows vessel operators to make informed decisions before a storm arrives.

Relocation and Decision Trees

A decision tree can then be prepared to support decisions regarding relocation to alternative sites based on the predicted severity of the hurricane and the projected storm track.

Can the vessel be moved within a realistic timeframe? Are repairs ongoing that would prevent relocation?

Additional considerations include the travel time required to move the vessel, predicted hurricane arrival time, agreement between hurricane prediction models, availability of towing assist vessels if needed, and the suitability and availability of alternative sites.

How ACMA Assists Vessel Owners

Alan C. McClure Associates, Inc. (ACMA) has prepared hurricane response plans for many different vessel types operating at numerous ports.

Some sites have been subjected to barrier island overtopping risks during Category 4 and 5 storms, while other vessels were undergoing extensive repair or conversion work that eliminated the possibility of relocation to an alternative site.

ACMA uses the time-domain software program OrcaFlex (by Orcina) to model vessel hydrodynamics, aerodynamics, and mooring system behavior while applying multiple environmental conditions from all directions.

Engineering Analysis and Guidance Plans

Post-processing the results into survivability plots by storm category and other key factors provides the basis for developing operational decision trees.

Mooring plans can then be tailored to the anticipated storm's intensity. Hurricane Mooring Guidance plans are developed for use by the vessel captain and crew to deploy suitable mooring arrangements for the expected conditions at a specific site.

Consultation with relevant weather services, as well as the USCG and Port Authorities, is also a critical part of the preparation process.

Preparing for Recovery

With proper planning ahead of time, vessel managers and the Captain can implement the appropriate response strategies to help the vessel withstand hurricane conditions and return to work quickly once the storm passes.

Let ACMA assist you in developing your hurricane response plan.



Learn More about ACMA: acma-inc.com

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713.789.1840