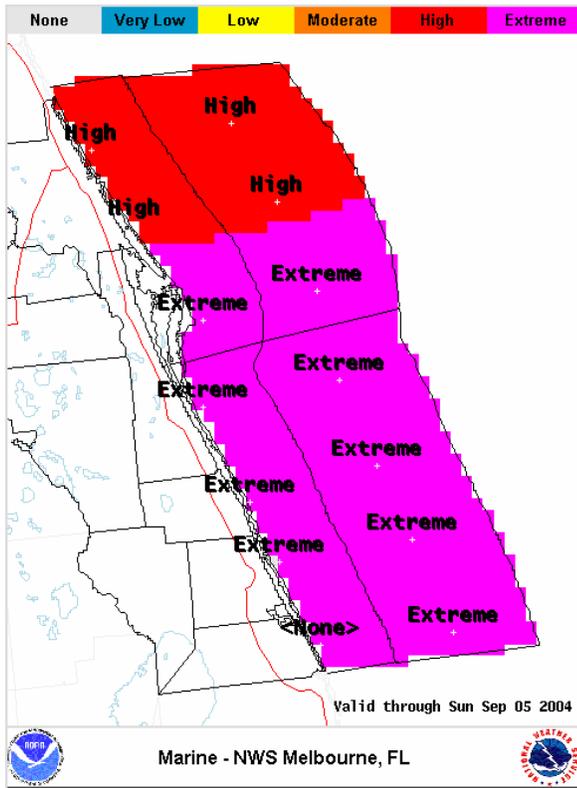




Experimental

Tropical Cyclone Marine Impact Product



Description: Issued by the local Weather Forecast Office (WFO) during tropical cyclone situations, the *Tropical Cyclone Marine Impact* product depicts the potential impact of the associated marine wind and seas from a location-centric perspective. It responsibly converts the most relevant threat assessment information into descriptions of potential impact using a color-coded index scale ranging from 0 to 5, *None* to *Extreme*. It combines the forecasting expertise of the National Hurricane Center and the local WFO by considering the larger-scale maximum wind speed and significant wave height forecast along with local-scale enhancements, while also accounting for inherent forecast uncertainties in track, intensity, and size of the tropical cyclone. Thus, it effectively employs both deterministic (e.g., wind speed and/or sea height) and probabilistic (e.g., uncertainty) components of the forecast for a more complete expression of the marine threat and corresponding impact. Product release is triggered by the issuance of a tropical cyclone Watch or Warning anywhere within the defined marine area and is valid throughout the projected duration of the event.

Routine updates are provided shortly after each official advisory and are continued until tropical cyclone winds are no longer an immediate threat to the coastal waters.

Utility: The *Tropical Cyclone Marine Impact* product uses an index scheme to distill an abundance of wind and sea state information into a single plan-view map that is easy-to-understand. The product is designed to motivate the marine community to action regarding preparedness activities, while helping to prevent information paralysis. Importantly, it highlights the minimum actions to be taken and relates them to generalized impacts, making it an excellent complement to the Coastal Waters Forecast. For more-sophisticated users, this product serves as an excellent starting point for critical decision-making and is a coherent briefing tool during tropical cyclone events.

For Example: Upon the issuance of a tropical cyclone Watch or Warning, a charter boat business might investigate the *Tropical Cyclone Marine Impact* product to determine the extent to which the company's interests are being threatened by the associated wind and seas throughout the projected duration of the event, as accompanied by a generalized description of potential impacts. Captains would be better equipped to make responsible decisions regarding potential cancellations. When evaluating both storm surge and marine impact products, marinas would be able to determine whether it's best for boats to remain securely docked or to relocate. More so, officials would have greater indication of the extent to which certain ports, marinas, and maritime routes are being threatened, as well as the particular marine industries in danger of being hardest hit. Coast Guard response and recovery resources can be more safely positioned and managed, with other resources safely secured.

Note: The example image depicts the potential wind impact associated with Hurricane Frances (2004) as expressed within 24 hours of landfall in east central Florida. Graduated definitions are based on the forecast strength of the wind and/or significant wave height of combined seas, but also accounting for inherent forecast uncertainty in the track, intensity, and size of Frances.

Tropical Cyclone Marine Impact Definitions

Impact Levels	Description
Extreme	<ul style="list-style-type: none"> • Threat - An extreme threat to life and property aboard marine vessels, especially small craft; the likelihood for sustained winds of 48 knots or greater along with higher gusts (Beaufort Scale 10+) and/or combined seas 32 feet or greater (if left to fully develop). • Minimum Action - Prepare for the likelihood of <i>Strong Tropical Storm</i> or <i>Hurricane</i> conditions with extreme prevailing winds and/or extreme combined seas. Small craft should seek safe harbor or remain in port. • Potential Impact – An extreme impact to mariners in the specified area. At Beaufort Scale 10, very high waves with long overhanging crests form. Visibility is very seriously affected from blowing dense foam and spray. At Beaufort Scale 12, medium sized ships may be lost to view behind the exceptionally high waves as the air also fills with foam and spray. Bay and inland waters extremely rough.
High	<ul style="list-style-type: none"> • Threat - A critical threat to life and property aboard marine vessels, especially small craft; the likelihood for sustained winds of 34-47 knots with higher gusts (Beaufort Scale 8-9) and/or combined seas of 19 to 32 feet (if left to fully develop). • Minimum Action - Prepare for the likelihood of <i>Tropical Storm</i> conditions with intense prevailing winds and/or very large combined seas. Small craft should seek safe harbor or remain in port. • Potential Impact – A high impact to mariners in the specified area. At Beaufort Scale 8, high waves of greater length form. At Beaufort Scale 9, high waves with the visibility becoming affected by blowing foam and spray. Small ships possibly lost to view behind waves. Bay and inland waters very rough to extremely rough.
Moderate	<ul style="list-style-type: none"> • Threat - A significant threat to life and property aboard marine vessels, especially small craft; the likelihood for sustained winds of 22-33 knots with higher gusts (Beaufort Scale 6-7) and/or combined seas of 10 to 18 feet (if left to fully develop). • Minimum Action - Prepare for the likelihood of <i>Small Craft Advisory</i> conditions with strong prevailing winds and/or large combined seas. Small craft should remain in port. • Potential Impact – A moderate impact to mariners in the specified area. At Beaufort Scale 6, larger waves form. At Beaufort Scale 7, even larger waves form, but with seas beginning to heap up. Bay and inland waters rough to very rough.
Low	<ul style="list-style-type: none"> • Threat - An elevated threat to life and property aboard marine vessels, especially small craft; the likelihood for sustained winds of 17-21 knots with higher gusts (Beaufort Scale 5) and/or combined seas of 7 to 9 feet (if left to fully develop). • Minimum Action - Prepare for the likelihood of <i>Small Craft Advisory</i> conditions with moderate prevailing winds and/or moderate combined seas. Small craft should remain in port, but if they must go out they should not venture far from port. • Potential Impact – A low impact to mariners in the specified area. At Beaufort Scale 5, moderate waves develop but with a more pronounced long form. Bay and inland waters very choppy to rough.
Very Low	<ul style="list-style-type: none"> • Threat - A limited threat to life and property aboard marine vessels, especially small craft; the likelihood for sustained winds of 14-16 knots (Beaufort Scale 4) and/or combined seas of 4 to 6 feet (if left to fully develop). • Minimum Action - Prepare for the likelihood of <i>Small Craft Exercise Caution</i> conditions with prevailing winds and/or combined seas becoming moderate. Small craft should not venture far from port. • Potential Impact – A very low impact to mariners in the specified area. At Beaufort Scale 4, small to moderate waves develop but with a long form. Bay and inland waters choppy.
None	<ul style="list-style-type: none"> • Threat - No discernable threat to life and property aboard marine vessels, even small craft; prevailing winds and combined seas are non-threatening. • Minimum Action - Evaluate tropical cyclone emergency plans and ensure seasonal preparedness activities are complete onboard. • Potential Impact – Impact to local mariners should be negligible; some swell may still be present while bay and inland waters may also have some chop.