HEAVY WEATHER PRECAUTIONS

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Weather has been a critical aspect of life at sea from time immemorial. Understanding its impact remains as crucial to today's seafarers as it was centuries ago. With the advancement in technology and improved communication systems, weather forecasting has radically improved, becoming more detailed, accurate and extending further out in time.

However, climate change in recent times has brought about a change in weather patterns and more unusual and severe weather phenomena are being witnessed. The impact of this change has been felt at the Club where an increasing number of weather related claims, including multiple casualties linked to a single weather event, have been experienced.

To assist our Members in being better prepared to deal with the challenges posed by heavy weather, the Club has created a checklist that details aspects to be considered from an operational perspective.

In the context of this guidance, it may not be appropriate to define heavy weather, since it would vary for different vessel types and be dependent upon factors such as particulars of a voyage, operational conditions, limitations of the vessel, trading area and season of the year. Therefore, what constitutes heavy weather would vary largely between a larger ocean going vessel and a smaller vessel operating only inland or within port limits. Nonetheless, operating procedures of a company would usually define various parameters regarding heavy weather for vessels operating in the fleet. These procedures would also offer guidance towards forecasting, preparing for and encountering heavy weather. It must be ensured that all shipboard and shore personnel are familiar with such procedures to ensure full compliance with the same.

We trust that Members will find this checklist useful in providing guidance to their personnel. *The Club would like to emphasise that the checklist below is for guidance purposes only and to complement, not replace, any statutory/local requirements or Members' own due diligence and individual operating procedures.*

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WEATHER MONITORING 1/2

Monitoring of weather (synopsis and prognosis) plays the most critical role in dealing with heavy weather conditions. Timely receipt and review of weather reports allow vessels to plan and in most cases, either avoid heavy weather conditions or at least, be suitably prepared (if area of heavy weather cannot be avoided).

Check		Remarks
Confirmation that, as a minimum, all weather monitoring equipment, as required statutorily are available.	☐	
Consider the possibility of installing additional weather monitoring equipment (such as those required when subscribing to third party weather routing services or weather facsimile systems).	☐	
All weather monitoring equipment is functional.	☐	
Crew are familiar with the operation of the weather monitoring equipment.	☐	
Clear instructions have been provided to the crew regarding monitoring of weather reports to get early warning of severe weather.	☐	
Rolling 3-5 days weather forecast is obtained for immediate trading area including local passages.	☐	
An extended period of rolling weather forecast is obtained for longer ocean passages.	☐	

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WEATHER MONITORING 2/2

Check		Remarks
When at anchor or berthed, close liaison to be maintained with local agents and port authorities to monitor weather.	☐	
Crew to be mindful of local weather phenomena such as monsoon surges, squalls, localised thunderstorms.	☐	
Crew are trained on how to read weather reports and understand data obtained from on board equipment e.g., a rapidly falling barometer reading and threatening sky formations are possible signs of impending bad weather.	☐	
Latest weather report and synopsis are compared with actual weather conditions.	☐	
Any limiting weather conditions, as identified either via the Risk Assessment or basis conditions set by Flag/Class (Certifying Authority) have been made known to all relevant parties.	☐	
To ascertain if an external weather routing service is to be employed.	☐	

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RISK ASSESSMENT 1/2

A comprehensive Risk Assessment to be carried out to clearly identify possible risks, consequences of those risks and application of adequate control measures.

Aspects to consider (including but not limited to) when assessing the risk -

Check		Remarks
Vessel particulars	☐	
Operational limitations	☐	
Freeboard of the vessel	☐	
Navigational matters such as ship handling, poor visibility, navigation hazards (e.g. oil fields and wind farms), available sea room, traffic density	☐	
Seasonal and local weather phenomena	☐	
Loss of stability, over stressing, flooding of compartments	☐	
Machinery and/or equipment failures	☐	

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RISK ASSESSMENT 2/2

Aspects to consider (including but not limited to) when assessing the risk (Con'td):

Check		Remarks
Shifting of cargo, heavy machinery, on board Equipment	☐	
Crew fatigue, illness and injury	☐	
Safety of life, property and environment	☐	
All risks identified are to be assessed with all preventive measures agreed upon and implemented.	☐	

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PREPARATION FOR HEAVY WEATHER 1/7

Once it has been anticipated that heavy weather may be encountered, following a comprehensive risk assessment, it is imperative that corrective measures are implemented. This would ensure that the vessel would be better prepared to deal with heavy weather, if encountered.

Check		Remarks
All relevant parties ashore and on board (deck, engine and catering staff) are to be informed and confirmation sought when their department specific preparations are completed.	☐	
Alternate routes, shelter anchorages, ports of refuge are included in the passage plan.	☐	
Stability conditions to be assessed including minimising any Free Surface Effect. Where necessary, heavy weather ballast to be taken up in accordance with the approved Stability Booklet.	☐	
Bilges to be kept dry, bilge alarms and pumping arrangements to be checked and tested.	☐	
Drip trays/save-alls are to be emptied.	☐	

Lashing of cargo:

To be in accordance with the approved Cargo Securing Manual.	☐	

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PREPARATION FOR HEAVY WEATHER 2/7

Lashing of cargo (Con'td):

Check		Remarks
To be inspected and tightened.	☐	
Additional lashing may be required to be fitted.	☐	
Any additional items on deck to be secured properly and ensured to be clear from any tank openings such as air vents/sounding ports.	☐	
Hatch covers (where applicable) are checked and ensured to be weathertight and battened properly.	☐	
All opening to tanks (where applicable) – tank domes, tank lids, sighting ports, ullage ports, air vents etc. are to be shut watertight.	☐	
All doors, hatches and vents on deck are closed shut and secured properly.	☐	
All portholes around the vessel are closed and secured.	☐	

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PREPARATION FOR HEAVY WEATHER 3/7

Check		Remarks
All sounding pipe covers on the upper deck are inspected to ensure that they have been screwed tight.	☐	
Engine Room skylights are to be confirmed as closed.	☐	
Freeing ports to be ensured clear of any debris, obstructions. Drainage systems should be checked for their effectiveness.	☐	
Anchors are to be housed and secured properly (additional lashing may be required).	☐	
Spurling pipe covers to be in place.	☐	
Bow stopper to be in correct position, windlass placed out of gear and anchors to be left on tightened brakes.	☐	

The following to be secured:

Heavy machineries and spares	☐	

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PREPARATION FOR HEAVY WEATHER 4/7

The following to be secured (Con'td):

Check		Remarks
Loose items on deck such as mooring ropes, lashing equipment, hoses	☐	
Stores and tools	☐	
Paints, chemicals and other drums	☐	
Mooring ropes	☐	
Individual items in personal cabins	☐	
Crockery, glass and table ware, knives, sharp objects in galley	☐	
Furniture	☐	

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PREPARATION FOR HEAVY WEATHER 5/7

The following to be secured (Con'td):

Check		Remarks
Loose items on Bridge such as PCs/ Monitors	☐	
Additional lashing to be put on accommodation ladders, as necessary.	☐	
The gripes of lifeboats are to be confirmed tight and that locking pins of davits are in place.	☐	
Lifeboats and Liferafts are NOT to be provided with additional lashing (as it would hamper quick launching in an emergency).	☐	
All lifting gear (such as cranes, derricks, monorails) are to be properly secured.	☐	
Weather reports to be regularly received and monitored continuously to assess the impending heavy weather.	☐	
Lifelines should be rigged at appropriate locations on deck. Means of safe access to bow, where required, to be rigged.	☐	

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PREPARATION FOR HEAVY WEATHER 6/7

For towed voyages:

Check		Remarks
The bollard pull of the tug is to be confirmed as sufficient for the displacement of the barge regarding anticipated weather conditions.	☐	
Delaying departure until weather conditions improve may be considered.	☐	
Anchoring or tying up until weather conditions improve may be considered.	☐	
All towing gears and connections to be checked and confirmed to be in order.	☐	
Ensure that the quick release has been tested and operational for both local and remote operation.	☐	
Length of the tow (as practicable) may be increased to compensate for power surge and wire tension.	☐	
Speed and course may be altered.	☐	

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PREPARATION FOR HEAVY WEATHER 7/7

For towed voyages (Cont'd)-

Check		Remarks
Astern towage may be employed instead of towing alongside for better control of the tow in rough weather.	☐	
Emergency towing arrangements are rigged.	☐	
Where applicable, consult with the Fitness to Tow/Marine Warranty Surveyor for advice.	☐	

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DURING HEAVY WEATHER 1/5

Whilst every effort should be taken to avoid heavy weather, at times, vessels will inevitably encounter adverse conditions. In such scenarios, in addition to the preparations for heavy weather as highlighted earlier, the following actions should also be undertaken.

Check		Remarks
Manning levels of the Wheelhouse and Engine Room teams to be assessed and watch arrangements adjusted, as required.	☐	
Navigation equipment (such as RADAR, AIS) to be in full operational use.	☐	
Speed and/or course adjusted.	☐	
Ensure that headway and steering is maintained, even in reduced speed.	☐	
Change over from auto to manual steering.	☐	
Where feasible, ensure that all steering motors are running.	☐	
Take into consideration the effect of wind (windage area) on vessel's manoeuverability.	☐	

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DURING HEAVY WEATHER 2/5

Check		Remarks
Any action to avoid collision to be taken well in advance and with great caution.	☐	
Minimum passing distance off objects and other ships to be increased in comparison to good weather.	☐	
Log entries of meteorological conditions and vessel's behaviour to be made hourly.	☐	
Weather reports to be monitored to continuously assess the movement and strength of the heavy weather.	☐	
Regularly report vessel's position, condition and state of weather to shore management.	☐	
Decision to be made whether to stay out at sea or seek shelter / refuge.	☐	
When approaching shelter/refuge, crew to be aware that handling of the vessels may get progressively difficult (heavy rolling, pitching, difficult to maintain course/speed).	☐	

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DURING HEAVY WEATHER 3/5

Check		Remarks
Master/Navigating Officers to be aware of the first signs of Parametric Rolling (PR) and steps to be taken when encountering PR.	☐	
No crew to be on deck during heavy weather unless necessary for the safety of the ship, passengers and crew.	☐	
If crew is required to proceed to deck during heavy weather:		
Authorisation to be obtained from Master.	☐	
Risk assessment / Permit to Work to be undertaken.	☐	
Lifejacket to be donned.	☐	
Safety harness to be attached to the rigged lifeline.	☐	
Personal Protective Equipment (PPE) to be used.	☐	

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DURING HEAVY WEATHER 4/5

If crew is required to proceed to deck during heavy weather (Cont'd):

Check		Remarks
Radio to be provided and communication channels (especially with Wheelhouse) established.	☐	
Crew should work in pairs/teams.	☐	
As is feasible, the weather/watertight integrity of the vessel to be monitored.	☐	
If any damage/water ingress is suspected, damage stability of the vessel to be checked. Inform Class/Flag/nearest coastal Authorities and seek assistance. Where the vessel has access to shore-based damage stability assessment, same to be sought.	☐	
Continue to monitor parameters of the main/auxiliary engines and all other machineries.	☐	
Where possible (and required), run additional auxiliary engine on parallel (or at least keep it on stand-by).	☐	
Frying of food to be avoided and hence menu to be adjusted accordingly.	☐	

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DURING HEAVY WEATHER 5/5

On passenger vessels:

Check		Remarks
Announcements to be made (and duly logged) to warn the passengers. Inform passengers what they can/cannot do until further advised.	☐	
Request that passengers store their loose items.	☐	
Movement of passengers to be restricted.	☐	
Service of hot beverages to be suspended.	☐	
Seatbelts to be fastened (where provided).	☐	
Seasick tablets and bags to be provided.	☐	

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AT BERTH 1/3

Being alongside a berth in port is not a guarantee of safety; on the contrary it may be more hazardous to be alongside in the event of heavy weather, since the potential of damage to vessel/berth is large in such instances.

Check		Remarks
Assessment to be carried out to determine if it would be safer to stay alongside or head out to sea, shift to another (safer) berth or to a more sheltered anchorage.	☐	
Liaise with the local agent, local port/harbour authorities and seek latest weather updates and instructions.	☐	
Master to be familiar with the local system of warnings of extreme weather and monitor those closely.	☐	
Contact details of local authorities and emergency services to be readily available.	☐	
Where evacuation is advised, same to be complied with immediately.	☐	
Shore leave suspended and due consideration to be given whether it is safe for crew to remain on board.	☐	
Mooring lines to be checked on a regular basis and additional lines to be deployed, as necessary.	☐	

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AT BERTH 2/3

Check		Remarks
Request for stand-by tug, if needed and feasible.	☐	
Main Engine to be in a state of readiness.	☐	
No repairs/overhauling of machinery to be ongoing.	☐	
Cargo operations to be suspended.	☐	
Gangway to be lifted clear of jetty and/or obstructions on the quay.	☐	
All non-essential personnel to be asked to leave the vessel.	☐	
Stability of the vessel in its current state to be assessed.	☐	

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AT BERTH 3/3

Check		Remarks
Ensure that the vessel is not double banked.	☐	
Vessel to be secured as if it were proceeding to sea (weather/watertight integrity to be maintained).	☐	
Any shoreline connections to be disconnected and coiled.	☐	
Condition of the shore bollards, wharf, fenders to be assessed and any deficiencies brought to the attention of the local agent/port authority.	☐	
Monitor the condition of vessels berthed forward and aft of own vessel to ascertain if they are moored correctly.	☐	
Keep a look out for floating debris and logs.	☐	

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AT ANCHOR / MOORING BUOY 1/4

Vessels that are at anchor or moored to a buoy (either on short-term or long-term moorings) would need to consider the following aspects when heavy weather is predicted in the vicinity.

Check		Remarks
Assessment to be carried out to determine if it would be safer to stay at anchor/mooring buoy or proceed to sea to ride out the heavy weather or shift to a more sheltered anchorage.	☐	
If at anchor:		
Confirm vessel is anchored at designated anchorage.	☐	
Assess the holding ground.	☐	
Pay out extra cables, if required.	☐	
Drop the other anchor, if required.	☐	
Anchor winch 'not' to be clutched in.	☐	
Anchor position to be monitored and logged regularly to get early indications of anchor dragging.	☐	

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AT ANCHOR / MOORING BUOY 2/4

If at anchor (Cont'd):

Check		Remarks
Consider picking up anchor sooner rather than later. While picking up anchor in rough weather, ensure that windlass machinery is not overstressed.	☐	

If at mooring buoy:

Confirm vessel is moored to an approved Buoy (for the expected weather conditions).	☐	
Connections between the vessel and the mooring buoy to be checked.	☐	
Condition of mooring buoy to be assessed and any deficiencies brought to the attention of the local agent/port authority.	☐	
Continuous monitoring of the vessel's position to ensure that the mooring buoy is holding and/or the connection to the buoy remains intact.	☐	
Liaise with the local agent, local port/harbour authorities and seek latest weather updates.	☐	
Master to be familiar with the local system of warnings of extreme weather and monitors those closely.	☐	

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AT ANCHOR / MOORING BUOY 3/4

Check		Remarks
Contact details of local authorities and emergency services to be readily available.	☐	
Shore leave suspended and due. Consideration to be given whether it is safe for crew to remain on board.	☐	
Request for stand-by tug, if needed and feasible.	☐	
Main Engine to be in a state of readiness.	☐	
No repairs/overhauling of machinery to be ongoing.	☐	
Swinging circle of the vessel to be ascertained and confirmed as being safe.	☐	
Gangway to be secured.	☐	

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AT ANCHOR / MOORING BUOY 4/4

Check		Remarks
Distance to other vessels, fixed and floating installations, underwater cables, pipelines to be monitored.	☐	
Stability of the vessel to be assessed.	☐	
Ensure that no other vessel is alongside own vessel.	☐	
Vessel to be secured as if it were proceeding to sea (weather/watertight integrity to be maintained).	☐	
Keep a look out for floating debris and logs.	☐	

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AFTER ENCOUNTERING HEAVY WEATHER 1/2

After a vessel has encountered heavy weather, whether for a short duration or a sustained period, it is important that inspections and tests are carried out on board to check for any damages. Such checks should be carried out at the earliest opportunity upon the passing of heavy weather and with due consideration always given to personnel safety and safe operating procedures.

Check		Remarks
Nature and extent of damage, if any, to be assessed and shore management/Class/Flag informed, as appropriate.	☐	
Check for crew/passenger illness or injury.	☐	
All tanks, bilges and void spaces to be sounded.	☐	
Stability to be re-assessed especially if there has been any ingress of water, shifting of cargo etc.	☐	
Any corrective measures (such as alteration of speed, course or temporary repairs etc) to mitigate further damage to be considered.	☐	
Ascertain if vessel needs to divert to a port of refuge.	☐	
All interested parties to be informed.	☐	

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AFTER ENCOUNTERING HEAVY WEATHER 2/2

Check		Remarks
Entries to be made in the logbooks.	☐	
Monitor further weather to plan the progress of the voyage.	☐	

In addition to the above guidance, Members may also find the following additional resources useful:

- Weather forecasts, safe passage and safe berths
- Precautionary guidance when expecting storms
- Revised guidance to the Master for avoiding dangerous situations in adverse weather and sea conditions

We welcome all feedback on this or any other Loss Prevention guidance. Please feel free to contact the team should you have any further queries on this matter.