Passage Planning Explained (2)

The Workboat Association

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Why do we need to make Passage Plans?

- *This tool is based on the 'IMO Guidelines for Voyage Planning' and the 'UK Merchant Shipping Regulations: MGN 610 (M+F) SOLAS V:34'*

The development of a plan for voyage or passage, as well as the close and continuous monitoring of the vessel's progress and position during the execution of such a plan, are of essential importance for safety of life at sea, safety and efficiency of navigation and protection of the marine environment.

The need for voyage and passage planning applies to all vessels. There are several factors that may impede the safe navigation of all vessels and additional factors that may impede the navigation of large vessels or vessels carrying hazardous cargoes. These factors will need to be taken into account in the preparation of the plan and in the subsequent monitoring of the execution of the plan.

UK Shipping Regulation: 34 - *Safe navigation and avoidance of dangerous situations*

In Summary;

- Voyage planning is required on all vessels which go to sea
- Master to ensure plan is drawn up
- Details of factors to take into account.

The Regulation

1. Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned, taking into account the guidelines and recommendations developed by the Organization. *Resolution A.893(21)*
2. The voyage plan shall identify a route which:
    - 2.1 takes into account any relevant ships' routeing systems
    - 2.2 ensures sufficient sea room for the safe passage of the ship throughout the voyage
    - 2.3 anticipates all known navigational hazards and adverse weather conditions; and
    - 2.4 takes into account the marine environmental protection measures that apply, and avoids, as far as possible, actions and activities which could cause damage to the environment

Voyage and passage planning includes **appraisal**, i.e. gathering all information relevant to the contemplated voyage or passage; detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot; **execution** of the plan; and the **monitoring** of the progress of the vessel in the implementation of the plan. These components are all detailed further;

Appraisal

All information relevant to the contemplated voyage or passage should be considered.

The following items should be taken into account in voyage and passage planning:

1. The condition and state of the vessel, its stability, and its equipment; any operational limitations; its permissible draught at sea in fairways and in ports; its manoeuvring data, including any restrictions
2. Any special characteristics of the cargo (especially if hazardous), and its distribution, stowage and securing on board the vessel
3. The provision of a competent and well-rested crew to undertake the voyage or passage; .
4. Requirements for up-to-date certificates and documents concerning the vessel, its equipment, crew, passengers or cargo;
5. Appropriate scale, accurate and up-to-date charts to be used for the intended voyage or passage, as well as any relevant permanent or temporary notices to mariners and existing radio navigational warnings
6. Accurate and up-to-date sailing directions, lists of lights and lists of radio aids to navigation, and

7 Any relevant up-to-date additional information, including:

i. *Mariners' routeing guides and passage planning charts, published by competent authorities*
ii. *Current and Tidal atlases, and Tide Tables*
iii. *Climate, hydro and oceanographic data, as well as other appropriate meteorological information.*
iv. *Availability of services for weather updates*
v. *Existing vessel routeing and reporting systems, vessel traffic services, and marine environmental protection measures*
vi. *The volume of traffic likely to be encountered throughout the voyage or passage*
vii. *If a pilot is to be used; information relating to pilotage including contact and (dis)embarkation points*
viii. *Available Port information, including information pertaining to the availability and location of a suitable berth for the size/ type of vessel*
ix. *Any additional items pertinent to the type of the vessel or its cargo, the particular areas the vessel will traverse, and the type of voyage or passage to be undertaken*

On the basis of the above information, an overall appraisal of the intended voyage or passage should be made. This appraisal should provide a clear indication of all areas of danger, those areas where it will be possible to navigate safely *(including any existing routeing or reporting systems and vessel traffic services)* and any areas where marine environmental protection considerations apply.

Planning

On the basis of the fullest possible appraisal, a detailed voyage or passage plan should be prepared which should cover the entire voyage or passage from berth to berth, including those areas where the services of a pilot will be used.

The detailed voyage or passage plan should include the following factors:

1. The plotting of the intended route or track of the voyage or passage on appropriate scale charts, the true direction of the planned route or track should be indicated, as well as all areas of danger, existing ships' routeing and reporting systems, vessel traffic services, and any areas where marine environmental protection considerations apply
2. The main elements to ensure safety of life at sea, safety and efficiency of navigation, and protection of the marine environment during the intended voyage or passage; such elements should include, but not be limited to:
    i. *safe speed, having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth*
    ii. *necessary speed alterations en-route, e.g: where there may be limitations because of night passage, tidal restrictions, areas of known rough waters etc.*

3 Minimum clearance required under the keel in critical areas with restricted water depth

4 Positions where a change of the vessel’s systems is required, e.g.: to better communication, meet local regulations or prepare for future necessity

5 Course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents; .

6 The method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained; .

7 Use of ships' routeing and reporting systems and vessel traffic services; .

8 Considerations relating to the protection of the marine environment; and

9 Contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shore-based emergency response arrangements and equipment and the nature of the cargo and of the emergency itself.

The details of the voyage or passage plan should be clearly marked and recorded, as appropriate, on charts and in a voyage plan notebook or computer disk.

Each voyage or passage plan as well as the details of the plan, should be approved by the ships' master prior to the commencement of the voyage or passage.

Execution

Having finalized the voyage or passage plan, as soon as time of departure and estimated time of arrival can be determined with reasonable accuracy, the voyage or passage should be executed in accordance with the plan or any changes made thereto.

Factors which should be taken into account when executing the plan, or deciding on any departure therefrom include;

1. The reliability and condition of the vessel's navigational equipment
2. Estimated times of arrival at critical points for tide heights and flow
3. Meteorological conditions, (particularly in areas known to be affected by frequent periods of low visibility) as well as weather routeing information
4. Daytime versus night-time passing of danger points, and any effect this may have on position fixing accuracy, and
5. Traffic conditions, especially at navigational focal points

It is important for the Master to consider whether any particular circumstance, such as the forecast of restricted visibility, means that at any critical point there is introduced an unacceptable hazard - thus causing that particular section of the passage to be postponed.

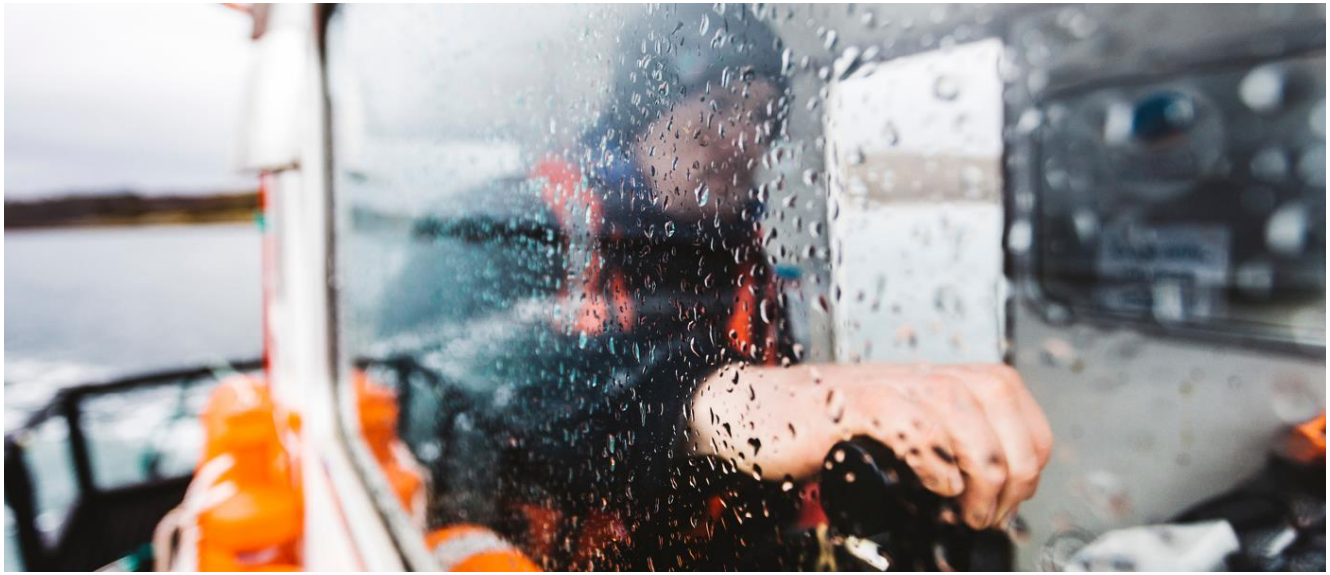
The Master should also consider at which specific points of the voyage / passage there may be a need to utilise additional bridge, deck or engine room personnel.

Monitoring

The plan should be available at all times to allow those at the control of the vessel [on the bridge to allow officers of the navigational watch] immediate access and reference to the details of the plan.

The progress of the vessel in accordance with the voyage and passage plan should be closely and continuously monitored and recorded.

Any changes made to the plan should be made consistent with these Guidelines and clearly marked and recorded as necessary.



Implementation

How can we implement the *'UK Shipping Regulation: 34 - Safe navigation and avoidance of dangerous situations'* and the *'IMO Guidelines for Voyage Planning'*?

1) Create a template for a Passage Plan based on these previously mentioned considerations to be completed by yourself or your crew when preparing for future movements.

2) Share this document with your colleagues and associates, ensure that all appropriate resources (where practicable) are made available in order to follow this guidance.

3) Highlight the key lessons from this document and ensure your crew on board (where appropriate) are aware of them.

4) Provide clear detail to the appropriate crew on the whereabouts of the relevant Passage Plan, how and when it should be monitored, updated and corrected as necessary for the intended voyage.

References

- *This tool is based on the **'IMO Guidelines for Voyage Planning'** and the **'UK Merchant Shipping Regulations: MGN 610 (M+F) SOLAS V:34'***

- *IMO Guidelines for Voyage Planning*

https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/AssemblyDocuments/A.893(21).pdf

- *UK Merchant Shipping Regulations: MGN 610 (M+F) SOLAS V:34*

https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/904612/MGN_610_2020.pdf

Another relevant reference is:

- *Safety flyer to the fishing industry - Coelleira*

https://www.gov.uk/government/publications/safety-lessons-passage-planning-is-key-to-safe-navigation/safety-flyer-to-the-fishing-industry-coelleira

MIAB: Vessel ‘Coelleira’ Safety Flyer

[Safety flyer to the fishing industry - Coelleira]

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Narrative

Coelleira grounded on Ve Skerries, a group of low-lying reefs 3nm north-west of Papa Stour on the west coast of Shetland, Scotland. The vessel’s 15 crew quickly mustered, donned lifejackets, launched liferafts, and determined that there was no water ingress. The coastguard was informed, and the crew were safely evacuated by rescue helicopter. Attempts by salvors to re-float Coelleira were unsuccessful and it was declared unsalvageable. Coelleira eventually slid off the rocks into deeper water and sank.

Safety lessons

1. Passage planning is a prerequisite of safe navigation, particularly in unfamiliar waters. Plotting an intended route either on a paper chart or in a chart plotter not only provides an overview of the planned passage, but it also enables all potential hazards to be identified and avoided.

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