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INCIDENT CASE STUDY No.3

BRITANNIA COMMENTARY | JANUARY 2021

AS PART OF THE CASE STUDY MATERIAL, THE FOLLOWING COMMENTARY PROVIDES FURTHER ANALYSIS OF SOME OF THE KEY ISSUES TO SUPPORT REFLECTIVE LEARNING.

The first three pages of this commentary discuss some of the contributory factors and lessons learned in more detail with particular reference to best practices. The final page illustrates graphically some of the barrier control measures that could have potentially mitigated against the risks associated with the hazards using Britannia's interpretation of the Hierarchy of Barrier Controls triangle as a framework.

LONE WATCHKEEPING GROUNDING AT NIGHT

GROUNDINGS INVOLVING A LONE WATCHKEEPER AT NIGHT ARE UNFORTUNATELY NOT AN UNUSUAL EVENT. ALTHOUGH PERHAPS MORE COMMON ON SMALLER SHIPS OPERATING IN COASTAL WATERS, SUCH INCIDENTS ARE ALSO NOT UNHEARD OF WITH LARGER SHIPS WHEN THE BRIDGE TEAM HAS BEEN REDUCED TO A SINGLE WATCHKEEPER.

Such incidents could typically have been prevented had the decision to rely on a sole watchkeeper been based on an effective assessment of the associated risks and navigational hazards.

The investigation and resulting case study identified a number of factors and lessons learned as discussed below.

MONITORING AND SITUATIONAL AWARENESS

The primary factor contributing to the grounding of the ship was the OOW's failure to effectively monitor the ship's progress for about two hours, during which time the ship was set to the south of the planned track by the tidal stream. The ship's ability to deviate from the intended course was due to the maritime officer's decision to select the ship's standalone autopilot when he came on watch instead of track mode steering. This latter mode had been used by the cadet during the previous watch and would have enabled the ship to follow the planned track in the ECDIS, as the primary means of navigation, thereby avoiding the islands. The investigation was not able to determine the reason for the OOW's decision to use the autopilot and there were no onboard procedures or instructions from the master to guide the OOW when making this decision.

Chapter V Regulation 34 of the International Convention on the Safety of Life at Sea (SOLAS) requires that the master has to ensure that a voyage has been planned taking into account the guidance in IMO Resolution A.893(21) Guidelines for Voyage Planning. This guidance also requires the close and continuous monitoring of the ship's progress and position during the execution of the passage plan.

The monitoring of the ship's progress by the onboard OOWs was normally conducted by visually checking the plotted position in relation to the track on the ECDIS or radar. However, the position was generally not verified by any other means. Furthermore, the position fixing interval as a function of the proximity to danger was also not determined. This therefore reduced the ability for the maritime officer, when he came on watch, to ascertain the hazards ahead, as well as the expected navigational landmarks or depth changes, which should have provided further confirmation of the ship's position.

In this instance, the maritime officer's ability to monitor the ship's progress was further reduced by his decision to sit in the bridge chair and watch videos on his mobile phone. The position of the chair meant that he was unable to operate any of the navigation equipment on the console, which would have contributed to his lack of awareness of the ship's deviation from the planned track. Given the environment in the bridge at night, it is also possible that the OOW may have periodically fallen asleep while seated in the chair. As discussed later, the importance of adopting appropriate stimuli and safeguards to minimise the chance of falling asleep on the bridge is essential, as the risks of this occurring while sitting alone in a comfortable chair in the early hours of the morning are considerable.

Although the ship's OOW responded to two verbal warnings of the danger from shore authorities, the action taken by the OOW in response to the warnings was ineffective and indicated that his awareness of the surroundings was affected to a degree where he was unable to make a reasoned evasive manoeuvre. Furthermore, the OOW gave no consideration to

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MONITORING AND SITUATIONAL AWARENESS (continued)

reducing the speed up until the grounding even when warned of the proximity of danger , nor did he call the master to assist. The grounding could have been prevented had he been able to take timely and appropriate action based on a better understanding of the ship's situation.

USE OF AIDS TO SAFE NAVIGATION

A number of navigational alarms could have been used to warn the OOW of the danger but these were not activated. Various features on the ECDIS were not fully utilised to assist the OOW in navigating safely. The setting of an appropriate safety corridor would have enabled the ECDIS to provide an audible and visual alarm if the ship deviated off track, while appropriate warning zones could have provided a timely alert of the islands ahead. Furthermore, the 10m safety contour setting was inappropriate as it provides insufficient warning to take avoiding action. The selection of a 20m contour would have provided a more helpful and appropriate alarm setting.

Although the ship's officers had all attended generic ECDIS training and undertaken onboard familiarisation, the investigation identified that their level of competence in the system and awareness of the importance of the critical safety settings and associated alarms could have been improved.

When the OOW realised that the ship was off track at around 0400, there should have been sufficient time to recover the planned route. However, he instead chose an alternative route based only on the radar data which placed the ship in imminent danger. Reference to all available navigational information, in particular the ECDIS or selecting the chart overlay function on the radar, would have helped identify that the islands formed part of a shallow reef and passing between them was unsafe.

It is essential that all navigational means are utilised in order to provide an OOW with relevant and adequate information to assist with timely decision making and enhance situational awareness.

PASSAGE PLAN

Although the ship's chief officer had completed the Safety Management System (SMS) voyage planning checklist to form the passage plan, the SMS contained no guidance on the use of the ECDIS to prepare the passage plan. As indicated previously, the plan should have included the use of an ECDIS safety corridor and warning sectors. Furthermore, the passage plan lacked meaningful details of the navigational hazards associated with the transit of the Pentland Firth; inclusion of these hazards in the plan, such as navigational marks and anticipated depth, would have increased the OOW's awareness of the risks and provided further assistance in monitoring progress.

LONE WATCHKEEPING

It is evident that the posting of an additional lookout, as required by the ship's night watchkeeping routine, would have further assisted the OOW by providing navigational support as well as acting as a stimulus to help the OOW to remain alert. The decision to reduce the bridge team to one watchkeeper at night had not been effectively risk assessed, particularly considering the proximity of navigational hazards.

Although it is recognised that there might be additional pressure not to use an additional lookout at night due to the potential impact on their availability during the day, a dedicated lookout can assist the OOW with reporting sightings, including navigation marks. In this instance, this would have helped make the OOW aware of the developing situation and prompted appropriate actions.

The Standards of Training, Certification and Watchkeeping for Seafarers (STCW) Code allows the OOW to be the sole lookout only during daylight provided that *"the situation has been carefully assessed and it has been established without doubt that it is safe to do so"*, as well as assistance being immediately available if needed. The factors to be considered include weather conditions, visibility, traffic density and the proximity of navigational hazards. The UK's Maritime and Coastguard Agency's (MCA) Marine Guidance Note (MGN) 137(M+F) Lookout During Periods of Darkness and Restricted Visibility strongly advises the avoidance of lone watchkeeping at night.

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LONE WATCHKEEPING (continued)

The investigation also identified that the ship's hours of work and rest records had been falsified to incorrectly suggest that additional lookouts were being used. This is obviously an unacceptable practice and a possible signal that the company's safety culture was deficient.

FATIGUE

The investigation did not highlight any direct evidence of fatigue as a contributing factor to the OOW's lack of vigilance. However, the combination of the OOW's short rest period, his consumption of two beers the previous evening, and the fact that he was suffering from anxiety and restlessness, could have increased the risk of him falling asleep in the bridge chair. Possible signs of fatigue should be monitored and appropriate steps taken to minimise the risks.

BRIDGE NAVIGATIONAL WATCH ALARM SYSTEM (BNWAS)

If the bridge navigational watch alarm system (BNWAS) had been switched on, this would have assisted in keeping the OOW alert. It would also have acted as a prompt to periodically monitor the ship's position by forcing him to leave his chair at least every 12 minutes to reset the alarm on the console. Furthermore, the BNWAS would have alerted the crew in the event of the incapacitation of the OOW, thereby providing another safety barrier to protect the ship from an incident.

According to the company's SMS, the BWNAS should be switched on during periods of lone watchkeeping. However, it appears the protection that the BNWAS affords was not fully appreciated on board and its use was left to the discretion of the OOW.

It is important that a SMS provides a rigorous and clear policy on the appropriate use of a BNWAS. This should include clear guidance as to when the BNWAS may be deactivated in accordance with statutory requirements and also confirmation that only the Master has the authority to do so.

BRIDGE DISTRACTIONS

Using his mobile phone to watch videos while keeping watch was inappropriate and would have diminished the OOW's ability to monitor the ship's safe navigation and keep lookout.

The ship's SMS did not provide any policy guidance regarding the use of personal electronic devices during watchkeeping on the bridge. This lack of any restriction is likely to have normalised their use and created a potential distraction during safety critical duties. A company's SMS should include a clear policy on the use of personal electronical devices on the bridge during duty periods, including confirmation that their use should not be at the discretion of the OOW.

USE OF QUALIFIED CREW

Although not a direct contributing factor to this accident, it was inappropriate for the unqualified cadet to act as the lone watchkeeper on the bridge between 2300 and 0200. Cadets should only perform watchkeeping duties for training purposes and under strict supervision. The master's decision to employ the cadet in this capacity should have been challenged by the onboard officers, which further points to an issue with the company's safety culture.

See next page for Hierarchy of Barrier Controls diagram.

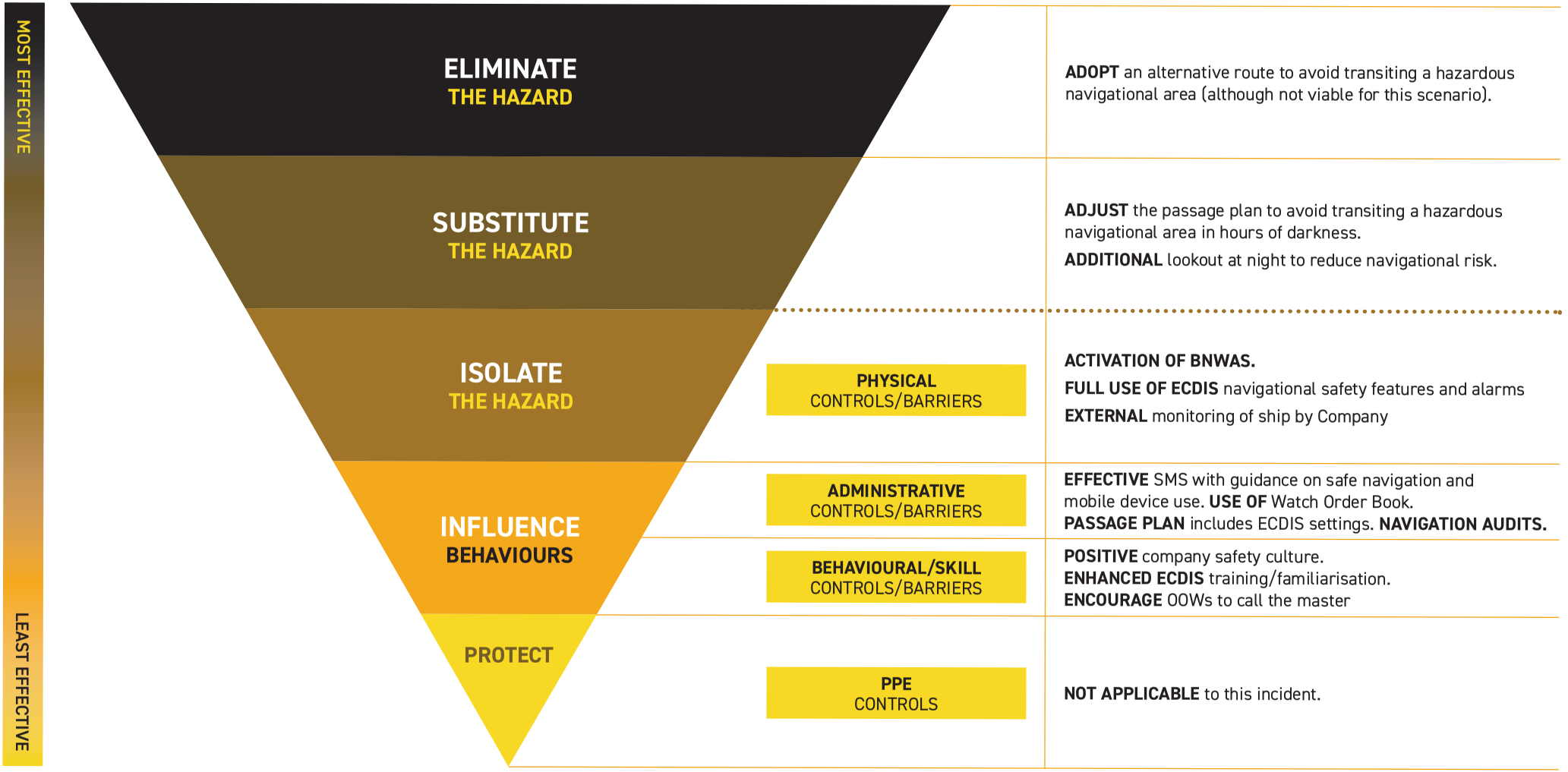
For more information on this incident, email: lossprevention@tindallriley.com

THIS CASE STUDY IS DRAWN FROM THE INVESTIGATION REPORT 12/2019 PUBLISHED BY THE MARINE ACCIDENT INVESTIGATION BRANCH AT:
https://www.gov.uk/maib-reports/grounding-of-general-cargo-vessel-priscilla

BSAFE CASE STUDY

LONE WATCHKEEPING GROUNDING AT NIGHT

HIERARCHY OF BARRIER CONTROLS



EXAMPLES OF POSSIBLE RISK MITIGATION CONTROL MEASURES RELATED TO THE CASE STUDY

ADOPT an alternative route to avoid transiting a hazardous navigational area (although not viable for this scenario).

ADJUST the passage plan to avoid transiting a hazardous navigational area in hours of darkness.

ADDITIONAL lookout at night to reduce navigational risk.

ACTIVATION OF BNWAS.

FULL USE OF ECDIS navigational safety features and alarms

EXTERNAL monitoring of ship by Company

EFFECTIVE SMS with guidance on safe navigation and mobile device use. **USE OF** Watch Order Book.
PASSAGE PLAN includes ECDIS settings. **NAVIGATION AUDITS.**

POSITIVE company safety culture.
ENHANCED ECDIS training/familiarisation.
ENCOURAGE OOWs to call the master

NOT APPLICABLE to this incident.

The suggested barriers/controls above are provided to help generate reflective discussions, and should not be considered as conclusive/definitive or comprehensive for the provided case study.
The risk and control measures relating to any similar scenario or activity must always be appropriately assessed based on the specific onboard arrangement and circumstances.