INTEGRATION OF THE PILOT INTO THE BRIDGE TEAM WHEN UNDER PILOTAGE

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Аннотация. Статья посвящена анализу взаимодействия и координации действий лоцмана с капитаном/командой мостика в целях обеспечения безопасности судна при следовании под лоцманской проводкой. Управления ресурсами мостика рассматривается как способ предотвращения аварийных ситуаций и рекомендуется в качестве обязательной профессиональной подготовки лоцманов.

Abstract. The paper introduces an analysis of the pilot’s role in good communication, coordination and cooperation with the Master/Bridge Team in order to ensure the safety of a ship being piloted to the berth. The Bridge Resource Management training for pilots is considered as a way of preventing accidents involving ships under pilotage.

Ключевые слова: управление ресурсами мостика, лоцманская проводка, команда мостика, планирование перехода от причала до причала, обмен информацией между лоцманом и капитаном.

Keywords: Bridge resource management (BRM), pilotage, Bridge Team, berth-to-berth passage planning, Master/Pilot information exchange (MPX).
In the International maritime legislation there is no instrument regulating the responsibility of pilots, although accidents as a result of a pilot’s error or omission which has not been revealed in proper time by the Bridge Team of a ship being under pilotage due to poor cooperation between the pilot and the Bridge Team become more frequent. The International Maritime Organization, Port Authorities, etc. take measures by adopting and implementing the appropriate documents to improve the professional level of both pilots and navigators. It is important because that can contribute to a safe navigation and prevention of accidents at sea. In this respect good communications and co-operation between the Pilot and the Captain/Bridge Team has an important role to play. Guidance with respect to the master/pilot relationship is contained in, inter alia, IMO Resolution A.960, the International Chamber of Shipping’s (ICS) Bridge Procedures Guide (BPG), and ‘International Best Practices for Maritime Pilotage’ jointly published by the ICS, Intertanko and OCIMF. The law has traditionally considered a marine pilot on board a ship ‘conducting’ its navigation as the employee of the ship owner.

IMO Resolution A.960 – Annex 2, Section 2 – Duties of master, bridge officers and pilot – stipulates that the pilot’s presence on board does not relieve the master or officer in charge of the navigational watch from their duties and obligations for the safety of the ship. On boarding the ship and before pilotage commences, the pilot, master and bridge personnel shall be aware of their respective roles. The master, bridge officers and pilot share a responsibility for good communications and understanding of each other’s role for the safe passage of the vessels in pilotage waters. Masters and bridge officers have a duty to support the pilot and to ensure that his activity is monitored at all times.

Chapter 5 of the ICS’s BPG lists the roles and responsibilities of the ship’s bridge team and the pilot when a pilot is on board. It underlines that the master has ultimate responsibility for the safety of the ship and prevention of pollution. The Bridge Team is not relieved of its responsibility for safe navigation after embarkation of the Pilot – The Pilot should effectively communicate expert local knowledge, information and advice to the Bridge Team in English or a working language that is understood by the Master, Pilot and Bridge Team. The Master and other members of the Bridge Team shall be able not only to operate navigation equipment but to provide assistance and advice to the Pilot as necessary, monitor the actions of the Pilot, monitor ship progress against the pilotage plan, identify misunderstandings and ensuring that clarifications are sought immediately if in any doubt…

Although the above documents provide actions for good communications between the pilot and the Bridge Team they are not sufficient to ensure it. The following Table is given to demonstrate only a few of the accidents happened when a vessel being piloted.

<table>
<thead>
<tr>
<th>Ship</th>
<th>Date</th>
<th>Details</th>
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<tbody>
<tr>
<td>Sea Empress</td>
<td>15 February 1995</td>
<td>On 15 February 1995, the motor tanker Sea Empress, loaded with a cargo of 130,018 tonnes of Forties light crude oil, grounded off the Middle Channel Rocks in the approaches to Milford Haven. A pilot was on board and the ship was entering the Haven via the West Channel. Although the main engine was stopped, put astern and both anchors dropped, the ship continued to run ahead and came to rest aground, approximately 5 cables north-east of the initial grounding position. The weather was fine and clear with a west-north-westerly force 4/5 wind. As a result of the investigation it was found: The master omitted to discuss the prepared ship’s approach plan with the pilot and finalise it with him. This should have been done before the pilot took the con and need only have taken a few minutes.</td>
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<tr>
<td>Skagern/Samskip Courier</td>
<td>7 June 2006</td>
<td>On 7 June 2006, the general cargo ship Skagern and the container ship Samskip Courier collided in the Humber estuary in dense fog. Both ships had experienced pilots on board at the time of the accident. As a result of the investigation it was found: An omission to apply long established collision avoidance methods by the masters and pilots. Poor pilot/master relationships. Masters’ reliance on the pilots and poor interaction and communications among the bridge teams.</td>
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<tr>
<td>Sea Mithril</td>
<td>18 February 2008</td>
<td>On 18 February 2008, the UK registered cargo ship Sea Mithril grounded in the River Trent on three occasions. A river pilot was embarked and dense fog had reduced visibility to about 20m. As a result of the investigation it was found: The master was unable to maintain a command overview of the ship’s passage. The master relied totally on the pilot for the safe navigation of his ship. Communication and co-ordination between the master and pilot prior to the groundings were poor. The pilot was not supported by the bridge team, which became dysfunctional after restricted visibility was encountered. Flaws in the bridge organization and available support were not identified by the master or the pilot.</td>
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<tr>
<td>Vallermosa</td>
<td>25 February 2009</td>
<td>On 25 February 2009, the oil product and chemical tanker Vallermosa, loaded with a full cargo of 35,000t of jet fuel and bound for the BP Hamble Terminal in Southampton Water, made contact with two oil tankers that were discharging alongside at Fawley Marine Terminal. The accident caused structural damage to all three ships, minor damage to the jetty and minor pollution.</td>
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As a result of the investigation it was found: **Vallemosa**’s approach was unnecessarily aborted for administrative reasons. The pilot’s effectiveness was reduced due to his heightened workload, frustration and increasing stress. The master and bridge team were not monitoring the pilot’s actions sufficiently, despite their obligation to ensure the ship’s safety.

### CMA CGM Vasco de Gama

On 22 August 2016, the 399m long ultra-large container ship CMA CGM Vasco de Gama grounded on the western side of Thorn Channel when approaching the Port of Southampton. The ship was the largest UK-flagged vessel at the time and had two of the port’s specialist container ship pilots on board.

As a result of the investigation it was found: The ship’s bridge team and the port’s pilots had the experience, knowledge and resources available to plan and execute the passage effectively. However, a detailed plan had not been produced; the lead pilot had not briefed his plan for the turn round Bramble Bank; the bridge team’s roles and responsibilities were unclear. There was an absence of a shared understanding of the pilot’s intentions for passing other vessels, or for making the critical turns during the passage.

At 1137 on 4 May 2017, the UK registered container ship **CMA CGM Centaurus** made heavy contact with the quay and two shore cranes while executing a turn under pilotage during its arrival at Jebel Ali, United Arab Emirates. The accident resulted in the collapse of a shore crane and 10 injuries, including one serious injury, to shore personnel.

The **CMA CGM Centaurus** was going too fast for the intended manoeuvre when the pilot started the turn. The pilot was aware that the ship might have been travelling a little faster than he would have liked when he initiated the turn, but was content that the ship would be able to complete it. The ship’s bridge team was uncertain of the maximum speed required to complete the turn safely. There was no agreed plan for the intended manoeuvre, and therefore no shared mental model between the bridge team and the pilot. Consequently, the pilot was operating in isolation without the support of the bridge team, allowing the pilot’s decision-making to become a single system point of failure.

The pilot’s decision to turn at high speed was not effectively challenged because the ship’s bridge team lacked the necessary knowledge and experience to be able to confidently intervene and correct the pilot’s action.

The increasing size of vessels within restricted waterways, is leading to reduced margins of operational safety, and therefore the importance of proper planning and monitoring of the passage cannot be over-emphasised.

Prior to proceeding to sea, masters are required to ensure that the intended voyage has been planned using appropriate nautical charts and nautical publications for the area concerned, taking into account the guidelines and recommendations developed by the IMO. The IMO’s guidelines and recommendations were set out in its Resolution A.893(21) – Guidelines for Voyage Planning. Appraisal and planning of a berth to berth passage plan should include the completion and approval by the Master of a pilotage plan. The pilotage plan may not be complete until after the Master/Pilot information exchange (MPX) has taken place.

Key considerations for the pilotage plan include: planned track with true course; safety depths and safety contours; safe water; decision points for critical manoeuvres; contingency plans; wheel over positions and turn radius for each course alteration.

SOLAS Regulation 34, as amplified by the guidance contained in IMO Resolution A.893(21), requires to have a comprehensive navigation plan for the safe conduct of the ship from berth to berth.

The MPX carried out on **CMA CGM Centaurus** lacked structure and detail. There was no formal exchange of information except for confirmation of the berth, ropes required and number of tugs to be used. The pilot did not explain the detail of the passage plan, how he intended to conduct it, or the speed profile. For his part, the master did not ask for any of this detail, nor did he brief the pilot on the vessel’s propulsion, steering and manoeuvring characteristics. Consequently, the ship’s bridge team were unable to monitor progress against the pilot’s intended plan and were always reacting to events, instead of being able to anticipate difficulties and take action to assist or intervene.

In this respect Bridge resource management (BRM) is the effective management and use of all available resources, both human and electronic, by the bridge team to ensure the safe navigation of a ship. The essence of BRM is a safety culture and management approach that facilitates communication, co-operation, and co-ordination among the individuals involved in a ship’s navigation. BRM incorporates concepts such as workload management, problem-solving, decision-making, communication and teamwork.

The ICS BPG provides detailed guidance on effective bridge organisation and BRM, and states that an effective Bridge Team will manage efficiently all the resources that are available and promote good communication and teamwork.

The International Convention on Standards of Training, Certification and Watchkeeping for Seafarers (STCW) requires all officers in charge of a navigational watch on ships of 500 gross tonnage or more to be competent in BRM. The competence is to be demonstrated through examination and assessment of evidence obtained from one or more of approved training, approved in-service experience or approved simulator training. This requirement became mandatory in 2012. A further STCW requirement that became mandatory in 2012 is for masters and chief mates on ships of 500 gross tonnage or more to be competent in the use of leadership and managerial skill.
The size of ships has grown at a rapid pace, yet ports remain largely the same. Margins for error are therefore decreasing. It is imperative that pilots and ships’ bridge teams work together and implement the best practices of Bridge Resource Management to ensure the safety of both ships and ports.

For evaluating the above competence with specific reference to pilotage, STCW requires that responsibility for the safety of navigation is to be clearly defined at all times including periods when the master is on the bridge and while under pilotage.

In order to work effectively with the bridge team, the pilot should be trained in the principles of both Bridge Team Management - the focus being internal and external relationships and operational tasks of the Bridge Team- and Marine Resource Management - the focus being cultural issues and the role of the pilot.

Based on the data provided by the Marine Accident Investigation Branch (MAIB) that was obtained by their inspectors as a result of their discussions with pilots on topics including manoeuvring large container ships, use of tugs, pilots’ expectations on boarding, berthing passage planning, MPX and bridge resource management training for pilots, the following was identified:

1) pilots boarding large container ships are routinely not provided with a pilotage passage plan prepared by the ship’s bridge team; 2) pilots are generally very comfortable in their role and, while recognising that the ship’s team has a duty to support the pilot, that support is often neither forthcoming nor requested by the pilot; 3) pilots have very little time to assess the competence of the ship’s bridge team after boarding a ship, and, in their experience, the competence of ships’ bridge teams varies significantly; 4) they also confirm that it is normal practice after boarding for the pilot to take conduct of a large container ship, and to retain conduct of the ship for berthing and unberthing operations; 5) pilots who have received BRM-P training see value in having done so.

IMO Resolution A.960 Annex 1 - Section 5.3 states that every pilot should be trained in bridge resource management with an emphasis on the exchange of information that is essential to a safe transit. This training should include a requirement for the pilot to assess particular situations and to conduct an exchange of information with the master and/or officer in charge of navigational watch. Maintaining an effective working relationship between the pilot and the bridge team in both routine and emergency conditions should be covered in training. Section 5.5 and subsection 5.5.4 state that competent pilotage authorities should be encouraged to provide updating and refresher training conducted for certified or licensed pilots to ensure the continuation of their proficiency and updating of their knowledge.

It is very important to have refresher or renewal courses in bridge resource management for pilots to facilitate communication and information exchange between the pilot and the master and to increase efficiency on the bridge. In recognition of the above-said various institutions and training providers, including some pilotage organisations, provide their own resource management training aimed specifically at the needs of pilots, often called ‘BRM-P’. This BRM-P training is to become obligatory for the pilots throughout the world in order to ensure communication, cooperation, and co-ordination among the individuals involved in a ship’s navigation.

Despite extensive industry guidance and the numerous recommendations of MAIB and those of other established accident investigation bodies, many masters still find it difficult to actively engage in the act of pilotage. Moreover, many pilots appear content to keep the interaction between themselves and the bridge team to a minimum. More effort clearly needs to be made to break down the cultural divide to ensure that mutual cooperation and respect between the bridge team and pilot becomes the norm. A requirement for port operators to insist that pilots attend the BRM-P course and actively apply its principles during all acts of pilotage, would help in this respect.

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