

SUB-COMMITTEE ON HUMAN ELEMENT,  
TRAINING AND WATCHKEEPING  
4th session  
Agenda item 7

HTW 4/7  
21 November 2016  
Original: ENGLISH

## ROLE OF THE HUMAN ELEMENT

### Manning and Seafarer Fatigue

Submitted by New Zealand, International Federation of Ship Masters' Associations (IFSMA), International Ship Managers' Association (InterManager), International Transport Workers Federation (ITF) and The Nautical Institute (NI)

#### SUMMARY

<i>Executive summary:</i>	This document takes into account the discussions at STW 44, HTW 2 and HTW 3 and provides information relating to a major area of concern to seafarers, in particular the Master/Chief Mate two-watch system
<i>Strategic direction:</i>	5.2,5.4,12.1
<i>High-level action:</i>	5.2.2; 5.4.1;12.1.2
<i>Output:</i>	5.4.1.2; 12.1.2.1
<i>Action to be taken:</i>	Paragraph 20
<i>Related documents:</i>	STW 44/10, STW 44/19; A.890(21); HTW 2/WP.1, HTW 2/WP.5, HTW 2/INF.7; HTW 3/INF.8; A.1047(27); SOLAS V/14 and ISM Code

#### Introduction

1 The Role of the Human Element is a standing item on the agenda of the HTW Sub-Committee. At HTW 2, Member States and international organizations were invited to submit proposals for consideration relating to fatigue and manning issues. The report of STW 44 (document STW 44/19) stated that seafarer fatigue was an issue of serious concern and needed to be discussed urgently, and that the Working Group on Human Element Issues needed to address fatigue in the context of hours of work, hours of rest and minimum safe manning. Subsequent discussions at the Sub-Committee confirmed the view that fatigue was an issue of serious concern and needed to be discussed urgently.

2 This document reiterates that where a company applies for, and an Administration approves, the implementation of a six hours on/six hours off Master/Chief Mate watchkeeping system for a particular vessel, it generally compromises the requirements of

resolution A.1047(27) on *Principles of minimum safe manning* and clause 6.1.3 of the ISM Code. The effect of this is that the Master of the vessel cannot safely carry out the obligations with respect to keeping a proper navigational watch (STCW Code, section A-II/I), as well as complying with all other Administration and Company imposed duties and staying within their hours of rest and work.

### Manning Levels

3 The STCW Code, section A-VIII/2, on watchkeeping arrangements and principles to be observed, inter alia, states that maintaining a proper watch and lookout precludes all other duties such as, but not limited to, cargo-related documentation, safety drills, chart corrections, maintenance activities and safety compliance activities. The ISM Code specifically states in 6.1.3 "The company should ensure that the master is given the necessary support so that the master's duties can be safely performed."

4 SOLAS Convention, chapter V, regulation 14.1 on safety of navigation states that "All ships shall be sufficiently and effectively manned". Establishment of a minimum safe manning level directly relates to the number of hours which each seafarer is required to work.

5 The four reports referenced below<sup>1</sup> provide incident investigation reports that show that the manning level was not adequate for the watchkeepers to be able to comply with their watchkeeping duties, as set out in the STCW Code section A-VIII/2 part 4, and to carry out all other duties required by both the company and the Administration.

6 Following the grounding of the dry cargo vessel "Beaumont", the Marine Accident Investigation Branch of the United Kingdom made a recommendation to the United Kingdom Maritime and Coastguard Agency as follows:

*"Working closely with the European Commission and European Union member states, make a proposal to the International Maritime Organization that all vessels engaged in short sea trades be required to carry a minimum of two watchkeepers in addition to the master."*

### Analysis of the Issue

7 Fatigue, its causes and how best to address it, has been the subject of prolonged discussion at IMO. However, the six hours on/six hours off watchkeeping system in combination with only two watchkeepers, one of whom is the Master, can not only be linked to a higher risk of incidents, particularly at night, but also does not allow the Master to comply with all statutory and company requirements within his hours of work. The report of HTW 3 (document HTW 3/19) expressed a view that "fatigue has a linkage to manning levels on ships" and that "the linkage between fatigue and manning should be taken into account during the revision of the guidelines on fatigue mitigation" (HTW 3/19, paragraphs 7.3.1 and 7.3.3).

---

<sup>1</sup> MAIB Report No 14/2006 – Report on the investigation into the grounding of **M.V. LERRIX** off the Darss peninsular, *Baltic Sea, Germany, 10 October 2005, pages 23-24*  
[http://www.maib.gov.uk/publications/investigation\\_reports/2006/lerrix.cfm](http://www.maib.gov.uk/publications/investigation_reports/2006/lerrix.cfm)  
MAIB Report No 7/2009 – Report of the investigation of the grounding of **M.V. ANTARI** near Larne, Northern Ireland, 29 June 2008, page 9  
[http://www.maib.gov.uk/publications/investigation\\_reports/2009/antari.cfm](http://www.maib.gov.uk/publications/investigation_reports/2009/antari.cfm)  
MAIB Report No 14/2013 Beaumont 2012  
<https://www.gov.uk/maib-reports/grounding-of-dry-cargo-vessel-beaumont-on-cabo-negro-spain>  
MAIB Report No 8/2014 Danio 2013  
<https://www.gov.uk/maib-reports/grounding-of-general-cargo-vessel-danio-off-longstone-farne-islands-england>

8 Looking at other modes of transport, it can be seen that the hours of rest and work are fewer than the maritime requirements. The EU drivers working time rules (Directive 2002/15/EC) state that working time must not exceed an average of 48 hours per week with no opt out. There can be a maximum working time of 60 hours in one week provided that the average is not exceeded and a maximum working time of ten hours, if night work is performed. This can be extended under a collective agreement. There shall be 11 hours daily rest, which can be reduced to nine hours no more than three times a week, and there shall be 45 hours weekly rest.

9 From 1 August 2003, EU working time regulations entitle railway workers to an average 48-hour working week including sufficient rest periods.

10 There has been extensive research on seafarer fatigue carried out recently. Research was carried out by Southampton Solent University, Chalmers University in Sweden, the Stress and Research Institute of the University of Stockholm and other partners in the HORIZON Project, which demonstrated that people operating ships on a six hours on/six hours off watchkeeping regime were at a much higher risk of falling asleep than other watchkeeping regimes.

11 Current understanding on fatigue is that a person needs to sleep through a number of sleep cycles (a cycle being light sleep through deep sleep through REM sleep) in a single episode of uninterrupted sleep to acquire effective restorative sleep. This generally means a total of seven to eight hours of sleep supplemented as necessary by shorter periods of sleep. This is just not possible in a Master/Chief Mate watchkeeping routine with the Master/Chief Mate each working six hours on/six hours off.

12 The Martha Project is a more recent project which demonstrates unequivocally that fatigue is cumulative and is accompanied by reduced levels of motivation. There is also much concern about chronic health effects of fatigue.

13 Fatigued seafarers are less able to recognize fatigue in themselves and others and will, therefore, be less alert to the potential (and cumulative) danger they are heading into.

14 Manning levels need to be addressed in a realistic way that prevents gaining competitive advantage from manning levels that do not meet the actual safe operating conditions of the ship. Such manning levels if permitted by flag States place ships and seafarers at risk, and create risks to the environment and property that are primarily borne by coastal and port States. Such an approach must consider more than the bare minimum levels necessary to navigate a vessel under ideal conditions. Rather it must address the need for all the requirements on the watchkeeping officers including, but not limited to, maintenance, port operations including pilotage, mooring, cargo, ship inspections, regulatory compliance including drills associated with security and environmental issues, administrative tasks and real emergency situations.

15 Document MEPC 53/INF.7 (Sweden), in the executive summary states that, from a human element point of view, there is an implication of an inherent lack of safety in two-navigator ships trading on short voyages.

16 The explicit expectation by shoreside management and flag State administrations that their ships' crews observe the hours of work and rest laid down by regulation must be matched by operational and regulatory policies that allow them to actually be observed.

## Summary

17 Global concern with the extent of seafarer fatigue is widely evident in the shipping industry. This has also been expressed by serving seafarers who feel that the Master/Chief Mate two-watch system is inherently unsafe and does not allow the Master and the Officer to fulfil all the duties necessary for the safe operation of the ship. Given the number of incidents/accidents involving ships with this form of manning, it is clearly now time to seriously consider the elimination of the Master/Chief Mate two-watch system, and to ensure that a ship's Master is not considered part of the normal watchkeeping capability of the vessel.

18 It is only good fortune that has not seen a major accident involving loss of life or extensive pollution of the marine environment by a ship operating under this regime. With all the available incontrovertible evidence that is available on seafarers and fatigue, consideration should now be given to eliminating the Master/Chief Mate two-watch system. In particular, when determining minimum safe manning for any ship, the Master shall not be considered as part of the normal watchkeeping capability of the ship.

19 The co-sponsors are of the view that adoption of this proposal would address the concerns of seafarers, minimize the risk of fatigued officers falling asleep whilst on watch, reduce the risk of harm to the marine environment, and reduce the risk to the safety of seafarers.

### Action requested of the Sub-Committee

20 The Sub-Committee is invited to note the information and take action, as appropriate.

---