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REVIEW OF THE PRINCIPLES FOR ESTABLISHING THE SAFE MANNING LEVELS OF SHIPS

Fatigue with respect to Ships Manning Levels

Submitted by ICFTU

SUMMARY

Executive summary: The resolution A.890(21) was adopted in 1999 and clearly has not been effectively implemented. The issue of manning and fatigue are inextricably linked and fatigue has now become endemic. This document highlights crucial factors identified in a recent study including consequences to the seafarer and safety of the maritime industry.

Action to be taken: Paragraph 14

Related documents: MSC 81/23/3 and MSC 81/25

General

1 This document provides advance information and conclusions from a study on seafarers' fatigue recently commissioned by the ITF. The study, undertaken by Prof. Andy Smith of the Centre for Occupational and Health Psychology at Cardiff University and widely reviewed by international academics in the field, seeks to evaluate the evidence base for seafarers' fatigue by considering the international literature and by providing comparative analysis of fatigue research and regulation in other transport sectors.

2 The study acknowledges the relatively limited work carried out on the subject in the maritime sector and the difficulties in objectively quantifying the problem of fatigue but concludes that the current knowledge base, combined with evidence of indicators of fatigue from other, more widely researched sectors, is sufficient to support the strong *a priori* case for fatigue at sea.

“Given the evident presence of risk factors for fatigue in the maritime environment, and the absence of mitigating factors, it seems likely that the prevalence of fatigue amongst seafarers would be significantly higher than in the general working population.” (*Fatigue in the general working population has been estimated to be as high as 22%.*)

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3 In addition to corroborating the likely existence of fatigue in seafarers, non-maritime specific research also supports the link between fatigue and impaired performance/compromised safety. One study equated the effects of fatigue with the impaired judgment and co-ordination of a person having consumed more than the legal driving limit of alcohol. Research in the road transport sector indicates that the risk of accidents at work is directly linked to hours of work and sleep deprivation.

“There is an exponentially increasing accident risk beyond the 9th hour at work. The relative accident risk is doubled after the 12th hour and tripled after the 14th hour at work... In the majority of industries there is appropriate regulation to minimize the risk of accidents. However, ships have the potential to cause billion dollar accidents and yet there often appears to be minimal regulation of the human element in this sector.”

4 Furthermore other transport industries have recognized the existence and breadth of the problem and the need to address it in a holistic manner.

“It has been acknowledged that fatigue is a problem in many jobs in the rail industry (train crews, signalmen, track workers) and that prevention of fatigue, alertness enhancement strategies and advanced technologies need to be used to address the issue. Better labour management agreements are needed, as are fatigue-related educational programs, improved schedule regularity and more practical and adaptable federal laws and regulations.”

5 Seafarers are subject to a high number of risk factors associated with fatigue. These include: hours of work, tour length, shift work, rapid port turnarounds, poor quality sleep, environmental and ergonomic factors and job demands. In recent years these stresses have been compounded by reduced crew sizes, increased economic pressures and a greater burden of paperwork and responsibilities, related to security concerns and environmental legislation. Impaired health as a result of fatigue has been found to increase almost exponentially as a function of the frequency of exposure to risk factors (1-2 factors double the risk, 7 or 8 increase the risk by 30 times).

“Many of these problems reflect organizational factors such as manning levels or the use of fatigue-inducing shift systems. It is often the combination of risk factors that leads to impaired performance and reduced well-being and few would deny that seafarers are exposed to such high risk combinations.”

6 The findings of research quoted in the study suggest that seafarers routinely work excessively long hours, particularly when compared with workers from more regulated shore-based industries. Almost two thirds of a sample of 2,500 seafarers of 60 nationalities, serving under 63 flags stated that they worked, on average, more than 60 hours/week, 25% reported a working week of over 80 hours. In a case study on mini-bulkers, deck officers were found to be unlikely to get any days off in a 4-month contract unless the vessel needed serious repairs.

“The standard working arrangement for the deck officers was therefore 12 hours a day, 7 days a week for 4 months without leave. Whilst such a working schedule appears patently excessive by onshore standards, 84 hours a week is actually very much the best case scenario for seafarers working a 6-on/6-off two man watch.”

7 Compounding the endemic problem of long hours, the maritime industry suffers from a culture where under-reporting is rife.

“...hours are likely to be under-recorded, either by management, or by individual seafarers wary of jeopardizing their current or future employment by bringing the company under legislative scrutiny.”

This statement is supported by Deck Officers quoted in research from the Seafarers International Research Centre:

“Even if a duty officer says I cannot do it, the company will within 24 hours say OK I will find somebody who can.”

“Everyone knows that the documentation is fudged.”

8 In taking a holistic approach to the problem of fatigue, the study considers a range of other contributing factors, including:

- .1 disruption of circadian rhythms;
- .2 working patterns and shift schedules offshore;
- .3 noise and motion; and
- .4 sleep deprivation and reduced quality of sleep.

9 A particular concern raised by the cumulative outcomes of research reported in the study relates to the physical and mental health effects of fatigue on seafarers. Not only are accidents more likely to occur when a person is fatigued, there is evidence of association with *inter alia* cardiovascular and gastrointestinal diseases and as well as with psychological disorders (as mentioned recently in the North of England P&I Club report).

“Fatigue increases the risk of mental health problems (depression, anxiety, sleep disorders) and these not only reduce quality of life but also increase the risk of chronic disease and possibly death. Suicide is also caused by psychopathology and there have been suggestions that the current working conditions of seafarers, especially under-manning, have increased the risk of self-harm.”

Given the limitations of research and rates of attrition, the extent of long-term damage is difficult to quantify. It is also suggested that inability to deal with fatigue may be a factor in losing recruits to the industry.

10 Aside from the question of adverse health effects for seafarers, fatigue clearly has serious economic implications for the industry as a result of impaired seafarer performance. The study cites examples of the role of fatigue in maritime accidents and the ever-present threat of another ecological disaster, with all the associated political consequences.

11 Although various ‘fatigue management systems’ are described in some detail and generally perceived to provide useful guidance on the avoidance of fatigue – particularly the need for a multi-dimensional approach, it is noted that there is a clear distinction between personal and operational/legislative measures. Often suggestions are made that are beyond the control of the individual. The same criticism is offered of IMO guidelines on fatigue.

“A distinction can clearly be made between personal and operational/legislative fatigue management approaches. Whilst both forms of approach to fatigue management have obvious strengths and limitations, the IMO guidelines fall indisputably towards the personal side of this continuum. Given that many seafarers find themselves working in

situations over which they have little or no control, such an approach is of little value... Advice and best practices cannot compete with economic pressures. There is often little contingency in terms of crew, as many vessels operate at minimum 'safe manning levels' and are under pressure to complete port turn-arounds quickly. Under such conditions, it appears unrealistic to suggest fatigue-reducing interventions which do not involve some form of economic trade-off, an issue that is not addressed in the IMO guidelines."

12 This sentiment is not always lost on the industry as reflected in the following indirect quote:

"Bowring (2004) points out that extra costs due to increased manning can be acceptable to the industry as long as all players in the open market are forced to face the same expense, thus levelling the field competitively."

13 The report concludes with the following recommendations:

- .1 industry and its regulators must acknowledge the serious risks and consequences inherent in allowing vessels to be manned by fatigued seafarers. These include:
 - .1 potential for more environmental disasters;
 - .2 economic losses due to fines for accidents and losses or insurance premiums; and
 - .3 serious health implications for seafarers,
- .2 States must take a robust view with regard to regulation. It is essential that they:
 - .1 insist on realistic manning levels and prevent economic advantage accruing to those who operate with bare minimums; and
 - .2 accept the need for more than minimum levels to operate a vessel – having regard for maintenance requirements, recovery time, redundancy, and the additional paperwork burden,
- .3 States should enforce existing guidelines with mandatory provisions and take seriously measures to overcome the problem of false record-keeping;
- .4 seafarers should be provided with appropriate training and guidance regarding avoidance of fatigue and enhancement of optimum working conditions; and
- .5 the maritime industry should seek to learn from examples of best practice in other comparable fields.

Action requested of the Sub-Committee

14 The Sub-Committee is invited to consider the advance findings of the study and to be informed by them when considering the issue of minimum safe manning levels.