Managing Fatigue in the Workforce

“Fatigue is a safety hazard that impairs individual performance, wellbeing and can lead to accidents. The nature of vessel operations means seafarers are exposed to conditions which lead to fatigue. Insufficient sleep, night work, irregular and long working hours, monotonous tasks, high work demands are all frequently present in seafaring jobs. These are the primary factors that lead to fatigue. The need to manage the risk of fatigue - both at the individual and management level - is critical.” AMSA 2017

The Nautical Institute has identified issues surrounding manning and fatigue as one if its key priorities that requires addressing. In support of this strategic objective the Western Australian branch of the Nautical Institute is holding its first information session of 2018 on the topic of “Managing Fatigue in the Workforce”

With speakers from Shell Australia, Woodside Energy, Circadian Australia plus more this promises to be an interesting event.

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<td>1305-1310</td>
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<td>1315-1340</td>
<td>Andrew Bennet</td>
<td>Shell Australia</td>
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<td>1340-1405</td>
<td>Carlo Di Meglio</td>
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<td>Gemma Maisey</td>
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<td>Soudy Esraghi</td>
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<td>Stuart Davey</td>
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To register for this event please visit the following link:

Fatigue Research

January 2018 CHIRP Maritime - have released a booklet and accompanying video on “Perception, Decision Making and Fatigue at Sea”.

This work is a summary of findings and recommendations in collaboration with the Arts & Sciences, and Neuroscience Departments at University College London. The report includes recommendations important for seafarers, managers and maritime regulators. It illustrates how the eyes work with the brain. Giving attention to “What and Where”: The “What” delivers information on detail and colour. Whilst the “Where” system works better in dim light using peripheral vision, and is better adapted to transient event moments, such as moving objects. But “What and Where” use different parts of the brain – so they can’t both be at peak performance at the same time!

The report can be downloaded HERE and the accompanying video can be viewed HERE

Project MARTHA

The three-year MARTHA research project into seafarer fatigue concluded in 2016, and the final report was presented to delegates at the IMO’s human element, training and watchkeeping committee on 30 January 2017.

The study found that fatigue can result in long-term physical and mental health issues and individual motivation decreases over the length of the voyage. It also highlighted that night watchkeepers get significantly less total sleep than others onboard, and that Masters suffer more stress and fatigue than their crews.

Fatigue - Can we measure it?

Paper by Dr. (Capt) Nalaka Jayakody AFNI, Director - Administration / Development, CINEC Maritime Campus, Sri Lanka. October 2012

European Commission - Study on health and safety aspects of working time - December 2010

Factors contributing to fatigue and its frequency in bridge work - AIB Finland 2008

Fatigue at Sea - A Field Study in Swedish Shipping
Margareta Lützhöft, Birgitta Thorslund, Albert Kircher, Mats Gillberg - 2007

Project Horizon Report 2012
Research into the effects of sleepiness on the cognitive performance of maritime watchkeepers under different watch patterns, using ships’ bridge, engine and liquid cargo handling simulators

Seafarer fatigue - Where next? - ITF - a summary document based on recent research from the Centre for Occupational and Health Psychology, Cardiff University

Fatigue at Sea
Cardiff University 30 minute documentary film exploring aspects of Seafarers' Fatigue

Seafarer Fatigue: The Cardiff Research Programme
Andy Smith, Paul Allen and Emma Wadsworth, Centre for Occupational and Health Psychology, Cardiff University November 2006
### Fatigue Causes, effects and mitigation

#### Causes
- Lack of sleep
- Insufficient rest time between work periods
- Stress
- Noise / vibration
- Ship movement
- Food timing, frequency, content & quality
- Medical conditions & illnesses

#### Effects
- Inability to concentrate
- Slow response
- Loss of control of bodily movements
- Mood changes
- Headaches
- Heart palpitations / irregular heart beats
- Rapid breathing

#### Mitigating fatigue

**Seafarer**
- Try to get deep, uninterrupted sleep 7 to 8 hours per 24-hour day
- Take strategic naps (up to 20 minutes)
- Develop pre-deplop routine, eg. warm shower, light reading, write up personal diary, meditation/yoga
- Ensure dark, quiet, cool sleeping environment & comfortable bed
- Avoid interruptions during extended period of sleep.
- Eat/drink lightly before bed
- Visit toilet before trying to sleep
- Avoid alcohol & caffeine prior to sleep
- Avoid caffeine at least 6 hours before bedtime
- Minimize disturbance of rest/sleep periods
- Take break between work periods
- Get sufficient sleep before high activity periods
- Maintain fitness for duty
- Eat regular, well-balanced meals
- Exercise regularly
- Accurately record hours of work & rest

**Mastey**
- Implement Company’s fatigue management plan in respect of:
  - ISM Code requirements for crew, concise guidance on operational procedures
  - Adequate rest for joining crews before assuming duties
  - Allowing time for proper hand over on crew change
  - Language barriers, social, cultural and religious isolation
  - Interpersonal relationships, stress, loneliness, boredom, social deprivation & increased workload as a result of small crew numbers

**Shipowner/Shipmanager**
- Develop fatigue management plan to cover:
  - ISM Code requirements for crew, concise guidance on operational procedures
  - Adequate rest for joining crews before assuming duties
  - Allowing time for proper hand over on crew change
  - Voyage length, time in port, length of service & leave ratios
  - Language barriers, social, cultural and religious isolation

**Naval Architect/designer**
- Design control centres, machinery control rooms, cargo control rooms etc, bearing in mind the integration of people with equipment, systems and interfaces, & the need to avoid boredom monotony, reduced vigilance and mental overload

**Caffeine & medications**
- Caffeine may combat sleepiness but only for short periods
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**Shipowner/Shipmanager**
- Provision for shore leave, onboard recreation & family communication
- Workable & safe watchkeeping arrangements
- Create open communication environment for reporting fatigue
- Establish procedures for scheduling shipboard work & rest periods
- Rotate tasks requiring high physical or mental demand with low-demand tasks
- Schedule potentially hazardous tasks for daytime hours, & ensure crew adjusted for working in their day time
- Ensure that adequate rest is received by all – encourage napping
- Promote individual record keeping of hours rested/worked.
- Re-appraise traditional work patterns & areas of responsibility to establish most efficient utilisation of resources
- Ensure adequate heating, ventilation, air-conditioning & lighting
- Minimize noise & vibration
- Establish shipboard practices for dealing with fatigue incidents
- Encourage healthy Lifestyle

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