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.

Date & Time		Location
1300 – 1630	Thursday 19th April 2018	QV1 Theatrette 250 St Georges Terrace Perth http://qv1.com.au/

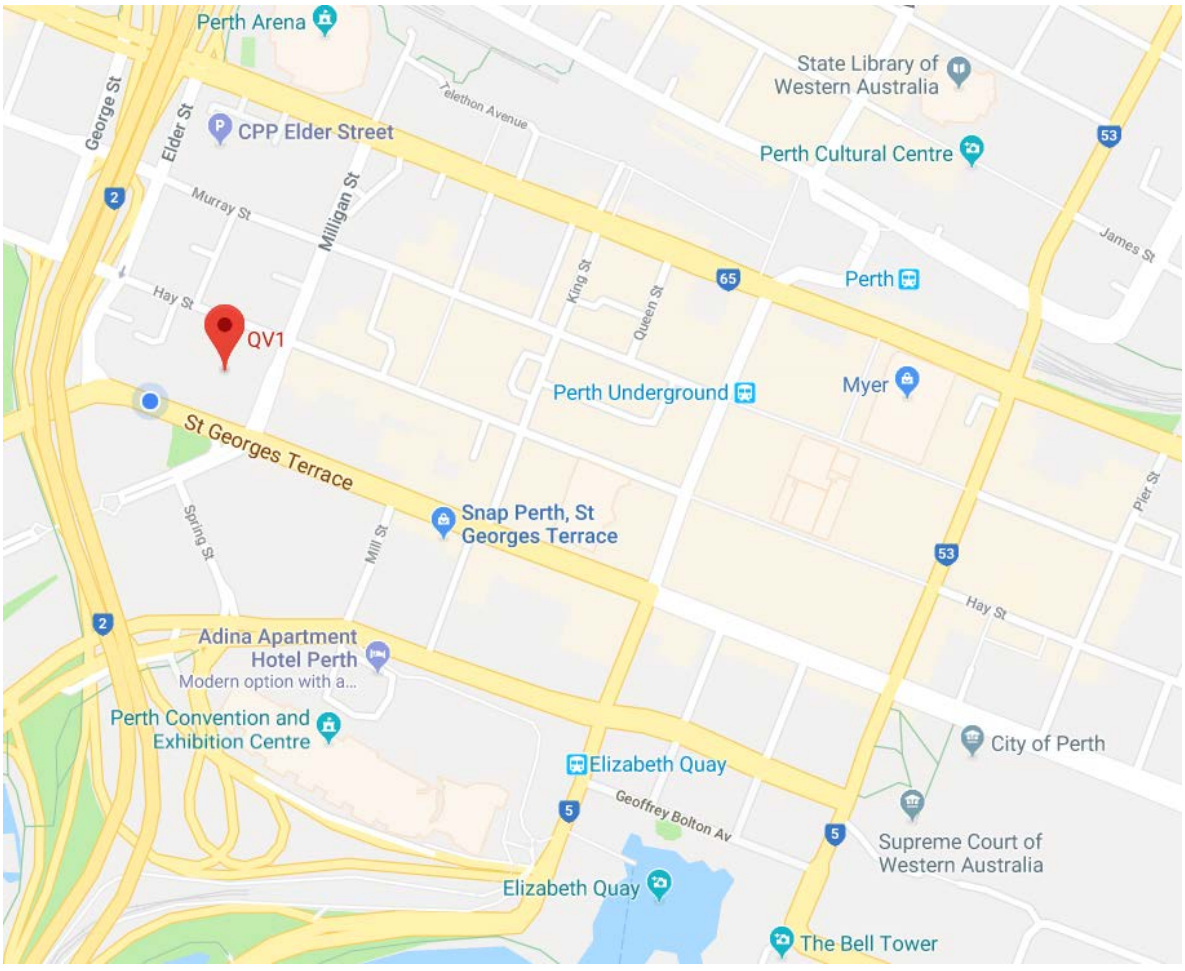
To register for this event please visit the following link:

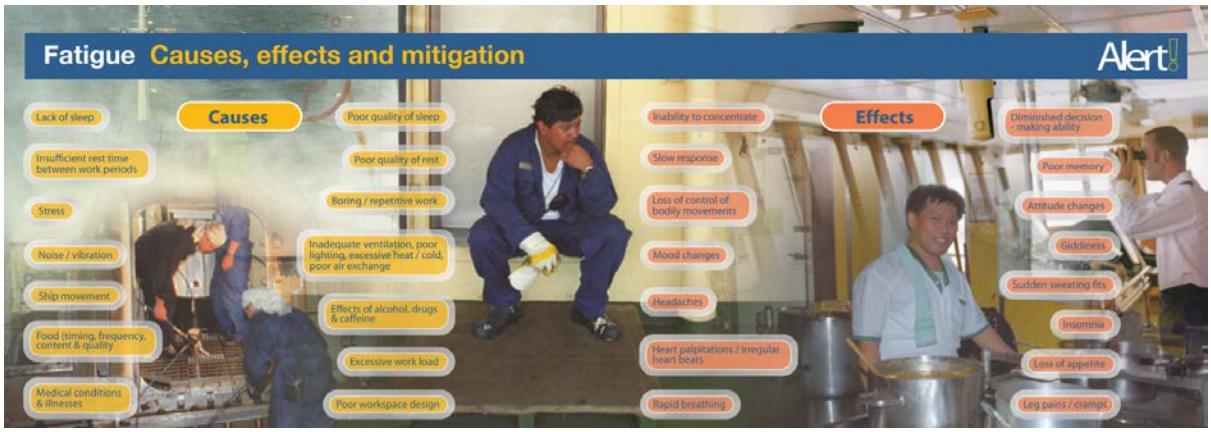
https://www.eventbrite.com.au/e/managing-fatigue-in-the-workforce-tickets-44357498472

Time	Speaker	Organisation	Title
1300-1305	Arrive at venue		
1305-1310	MC	NI-WA	Welcome to venue
1310-1315	Chairman	NI-WA	Opening address
1315-1340	Andrew Bennet	Shell Australia	Managing Fatigue at Shell's Assets
1340-1405	Carlo Di Meglio	AMSA	A risk based approach to fatigue management and fleet performance
1405-1430	Gemma Maisey	Circadian Australia	Digital Analytics: Enhancing Alertness, Safety and Sustainable Performance
1430-1445	Intermission		
1445-1510	Soudy Eshraghi	Woodside Energy	Woodside's Fatigue Management
1510-1535	Stuart Davey	Fremantle Port Authority	Managing Fatigue in Port Operations
1535-1600	Rory Main	Fremantle Pilot	Fatigue and Pilotage
1600-1605	Chairman	NI-WA	Presentation to South Metropolitan TAFE
1605-1610	MC	NI-WA	Closing remarks

The Nautical Institute

Western Australia Branch





Fatigue Research

January 2018 CHIRP Maritime - have released of 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, BirgittaThorslund, 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*

Photography (except bridge image): jalens - joachim affeldt

Fatigue Causes, effects and mitigation

Alert!

Causes

- Lack of sleep
- Insufficient rest time between work periods
- Stress
- Noise / vibration
- Ship movement
- Food (timing, frequency, content & quality
- Medical conditions & illnesses
- Poor quality of sleep
- Poor quality of rest
- Boring / repetitive work
- Inadequate ventilation, poor lighting, excessive heat / cold, poor air exchange
- Effects of alcohol, drugs & caffeine
- Excessive work load
- Poor workspace design

Effects

- Inability to concentrate
- Slow response
- Loss of control of bodily movements
- Mood changes
- Headaches
- Heart palpitations / irregular heart beats
- Rapid breathing
- Diminished decision - making ability
- Poor memory
- Attitude changes
- Giddiness
- Sudden sweating fits
- Insomnia
- Loss of appetite
- Leg pains / cramps

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-sleep 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

Master

- Implement Company's fatigue management plan in respect of:
  - ISM Code requirements for clear, 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
  - Shore leave, onboard recreation & family communication
  - Workable & safe watchkeeping arrangements
  - Job rotation
  - Crew education & training to recognise & mitigate fatigue
  - Monitoring & effective management of crew hours of work & rest
- 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 utilization of resources
- Ensure adequate heating, ventilation, air-conditioning & lighting
- Minimize noise & vibration
- Establish shipboard practices for dealing with fatigue incidents
- Encourage healthy lifestyle

Shipowner/Shipmanager

- Develop fatigue management plan to cover:
  - ISM Code requirements for clear, 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
  - Interpersonal relationships, stress, loneliness, boredom, social deprivation & increased workload as a result of small crew numbers
  - Provision for shore leave, onboard recreation & family communication
  - Workable & safe watchkeeping arrangements
  - Job rotation
  - Crew education & training to recognise & mitigate fatigue
  - Monitoring & effective management of crew hours of work & rest
- Provide adequate & comfortable accommodation (including bunks)
- Provide adequate quality & quantity of food for proper nutrition
- Modify ship designs to minimize fatigue stressors
- Keep telephone calls & e-mails to the Master to a minimum & have due regard for time zone differences

Naval Architect/designer

- Provide for adequate and comfortable accommodation, galleys, messrooms & recreational spaces, having due regard for variations in size, shape & gender of seafarers, and for the various environmental stressors such as noise, heat, cold, humidity & vibration
- Minimize fatigue inducing environmental stressors including ship movement, excessive noise, vibration, inadequate ventilation, poor lighting, excessive heat or cold, too much/too little humidity & poor air exchange in enclosed working & accommodation spaces. Minimize unnecessary sustained exertion (physical or mental) in the workplace
- Design operational maintenance tasks to be rapid, safe and effective to allow equipment & systems to achieve a specified level of performance, with the minimum of sustained exertion
- 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

Keeping awake & alert

- Bright lights, cool dry air, obtrusive or loud music, and some invigorating aromas (such as peppermint) may temporarily increase alertness
- Caffeine may combat sleepiness but only for short periods
- Running, walking, stretching & chewing gum can stimulate levels of alertness
- Active conversation can help you stay awake
- Mixing tasks requiring high physical or mental work with low-demand tasks can be beneficial

NB: Alcohol, caffeine and some over-the-counter medications DISRUPT sleep