Stress and fatigue

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We have finally woken up to the fact that the phenomena defined above exist but it has taken decades for them to be recognised as clinical and measurable factors in this slow moving and fragmented industry of ours.

The airline industry and the armed forces have had specialists on the subject for a long time, ever since human factors like shell shock and battle fatigue were recognised, and there are various university departments dedicated to studying, recording, documenting and predicting the outcome of stress and fatigue. However until recently, any attempt to recognise stress and fatigue in the maritime industry was brushed under the carpet and dismissed out of hand. It was always the individual who cracked under pressure, and was labelled as a weak character, lacking in moral fibre, not the right stuff... Sometimes such individuals sought refuge in alcohol to the point where they rendered themselves useless and a danger to others.

Good old days?

And yet most of us have been around long enough to recall the days when we just got the job done, regardless of the physical or mental cost, which we did not in any case recognise because we were all trained and educated into a rigid mind-set of never letting the side down. Loyalty and blind obedience to the company were what governed our working lives then. Professional pride was paramount in those days – and how many of us still remember working ourselves to a standstill for weeks or months on end, without realising that we were draining and whittling away at non-renewable resources? None of us did.

Now commercial pressure has replaced loyalty and professional pride. And of course there is a whole new generation of vessels which, by their very nature, are far more physically, and mentally demanding: fast container ships calling at seven or eight ports in 10 days around north Europe or the Far East; chemical and product carriers loading and discharging numerous small parcels at various terminals within the same port; two-watch feeder container ships and coasters in and out of port in a couple of hours.

Add to that ruthless cost-cutting as owners look farther and further afield for ever cheaper officers and crews, plus lower standards of competence and experience and you have a situation that throws even more burdens and pressures on the top shipboard management team.

A tenfold increase in legislation and administration, with an ever -increasing round of inspections and audits at almost every port, detracts from what little rest or recreation time the officers and crew might have expected or even, dare I say it, looked forward to.

ISPS restrictions

The ISPS Code alone is responsible for even more restrictions on shore leave by some countries. And the requirement to keep round-the-clock gangway watches and deck patrols, with the constant fear of being boarded, robbed, kidnapped, beaten up or even killed by pirates and armed robbers – with little or no back-up or response from anyone ashore – further increases this sense of isolation and rejection. If we add in the aggressive, overzealous and arrogant attitudes of various shoreside entities like customs, immigration and port state inspectors in so many ports of the world, where we are treated with suspicion and even contempt, it is easy to see why morale on so many ships must be at rock bottom.

And now criminalisation of masters and seafarers has reared its ugly head, and has added yet another layer of worry, threatening penalties and sanctions for infringement of the cornucopia of legislation that has been unceremoniously dumped on us over the past decade.

You can pass all the legislation you want about the master’s authority under Solas, the ISM Code and ISPS Code – but how many masters are working under the threat of dismissal if they are late on schedule because they slowed down for fog or heavy weather, or recorded hours of rest violations that could put them under the scrutiny of port state inspectors, resulting in detention of the vessel, or penalties against the owner? A lot more than you think. I would say that the majority of the world’s masters and seafarers work with constant nagging worry about where the next contract is coming from, or if their current, one-voyage contract will be renewed. I have had an influx of international officers since I joined my current vessel, and all were surprised that we actually record the true hours of rest, regardless of violations.

Rigid schedules

Owners, operators, charterers, managers and even terminals are all guilty of creating such rigid and inflexible schedules that the officers and crew are under constant pressure, both at sea and in port, to make sure that every single item on the Solas, port state, internal and external audit or planned maintenance checklists are completed and up to date, involving many hours of work over and above routine or watchkeeping duties.

Those ever-decreasing port turnaround times look great for the commercial operators and terminal score cards but as ship staffs know, they are usually a nightmare of trying to perform inspections, audits, vetting inspections, surveys, essential main engine maintenance, stores and bunkers; with the whole complement of officers and crew engaged in a frenzy of activity during the entire period that the vessel is alongside. Nobody has consulted the vessel beforehand and none of the crew has had a decent rest or been able to get ashore for even essential shopping or a break. The nearest phone is a couple of miles away at the main gate and owners have not seen the wisdom of putting a cheap crew-calling satellite phone system on the vessel, or providing free email facilities for all the crew.

This all adds up to an accumulation of
frustration, anger, dejection, isolation and other factors like broken sleep patterns, sleep deficit and disruption of normal routines. Yet there is no ready solution available because the regulations state only that we must comply with the hours of rest regulations, without specifying what to do if the vessel cannot comply. The safety management system procedure and the STCW hours of rest regulations only state what we must do, without offering any solutions or alternatives.

For the majority of masters, it’s a case of comply, or else – and it doesn’t help when masters are told by owners that they must manage their time more efficiently if they dare to suggest, for instance, going to anchor for a few hours to catch up on rest. The owners are off the hook and can blame the master for any delays or detentions, because the master has been instructed in the SMS procedure to comply with the STCW regulations, putting him in yet another no-win situation.

I don’t see any way out of this impasse as things stand. As long as the majority of the world’s seafarers are working under what can best be described as casual labour conditions, living and working under a cloud of fear and uncertainty, with no stability or continuity of employment, and owners insisting, through unspoken but very real threats that the hours of rest records are squeaky clean.

The MCA (the UK Maritime and Coastguard Agency) has taken the very bold step of actually stating what needs to be done to resolve this situation. A paragraph from its Marine Guidance Note no. 315(M) on the subject is worth quoting:

‘In circumstances where the Regulations cannot be met there should be established procedures and contingencies in place to ensure that the vessel is brought to or remains in a place of safety until a safe navigational watch can be established. In some circumstances this may require delay to a vessel’s departure.’

This paragraph alone offers a solution to most of the problems relating to stress and fatigue arising from the various scenarios and reasons I have mentioned in this paper. If these few words were written into Solas and STCW and adhered to by flag states and individual companies through their safety management systems, and enforced by port state control and ISM audits, we could have some confidence that the abuses I have described would be addressed.

- Nicholas Cooper was speaking at a joint meeting of the Solent Branch and the Royal Institute of Navigation in Southampton on 4 October 2006.

Safe manning

Reducing fatigue (and other research)

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In the 1970s, much of the teaching in nautical and marine engineering colleges was based on books written by authors who had not been to sea for many years and taught by lecturers who had not been to sea for years either.

Theoretical principles do not change much but their applications in industry change all the time. As far as certificates of competency were concerned, that situation did not matter too much, because the examiners had not sailed in modern ships for years either – although they were involved in accident investigations and surveying the ships in port. The founding of The Nautical Institute, and the consistent growth of its excellent list of books written by people who were at the top of their profession, were major steps forward.

The first Standards of Training Certification and Watchkeeping Convention (STCW) was brought into force in 1978. A year later, the Chief Examiner of Masters and Mates in the UK, Captain Tony Jestico, told the Association of Navigation Schools annual general meeting, that he thought IMO had ‘got it right’. At the same meeting, I presented a paper saying that more research was needed. In the next few years the UK government came round to the idea. The UK government research, which followed eventually, laid the foundation for the 1995 revisions of the STCW Convention.

The research

A UK team carried out research into future manning and training, sailing on 11 classes of ship and talking to designers of future ships across the world. The three major research findings were:

- Competent seafarers
  1. Making the ships safe and efficient is best done by education and training which ensures that seafarers carry out necessary functions competently, even when trade patterns and technology change. This was the core of the study and became the basis of the STCW 95 revisions.

- Competent managers
  2. You cannot make ships safe if shore management is neither competent, nor fully involved. This was raised during the study but was not part of it. The truth of this concept was later recognised by ISM and by IMO through its introduction of the ISM Code.

- Competent regulatory authorities
  3. Not officially part of the study, but of great interest to the regulatory authorities, was the idea of safe manning. The fact that this is a current subject of interest at IMO does not surprise me. The answer could lie in the five steps I have described below.

Steps to safe manning

- Step 1. Talk to sea staff about the jobs that need to be done, ideally by sailing in the ships. Write the jobs down as functions, mooring (as in STCW format), not as job descriptions such as ‘the bosun’s job’ etc.
- Step 2. Discuss with sea and shore staff (particularly the master and chief engineer) the critical parts of the voyage and predicted emergencies in which maximum manpower numbers will be required.
- Step 3. Evaluate the skills and knowledge of individual seafarers to see whether, collectively, they are experienced and trained for the peak manpower points and that there are enough people to cover extended peak periods (such as several days reaching port after a system failure).
- Step 4. Look at the overall workload outside peak periods, including deck and engineering maintenance, cargo preparations, operations and care, cleaning, catering, surveys etc. Include rest periods, training, drills etc. Is the overall workload excessive? If so, add more people.
- Step 5. Revise your manpower policy to incorporate the required recruitment, training and updating of staff. Much of the training will be modular: either shore-based short courses, or in today’s world, delivered by shipboard distance-learning courses (if manning levels and shipboard training time allows).

Prerequisites

To make this process work, you need the cooperation of seafarers and their
representatives (unions) and of the managers ashore who are responsible for safe manning and efficient ship operations.

**Flexibility**

The key is flexibility. At a peak time, say during an emergency engine repair, deck officers may need additional skills sufficient to support their engineer colleagues. If deck officers are very busy (such as in dynamic positioning operations) the engineers may need deck department skills to assist them.

**Regulation**

The people who may find this approach to safe manning difficult are likely to be the regulators who like to put everything into ‘boxes’: lists of crew members for each class of ship; lists of certificates held and so on. Rather than ticking boxes, the safety certification should be based upon questions about who does what at critical parts of the voyage and: ‘Are they trained for it?’ (Chapter VII of STCW 95). Dual certification allows for a more flexible approach, but has not been widely used.

**Outcomes**

Ships that have this flexible/teamwork approach are more efficient and competitive than those with rigid and segregated job demarcation. Profits are improved. Jobs are more secure.

**Satisfaction**

Both managers and trades unions can be positive about this type of safe manning process. The ship is safely manned for all contingencies. Everyone in the team is trained to make a positive and balanced contribution. Fatigue is minimised.

**Past dangers**

In the 1980s, governments were issuing safe manning certificates for ships based on the minimum number of crew required to take them from port to port. Some shipowners put that minimum crew on board and expected them to do cargo space preparation, ship maintenance etc. The so-called ‘safe manning’ system was clearly unsafe.

**IMO reviews**

Today, the subjects of safe manning and fatigue are again under review at the IMO. The two are, of course, related. At a recent International Shipping Federation (ISF) conference, the head of the UK Marine Accident Investigation Branch (MAIB), Stephen Meyer, presented the results of the research done since they published their reports on groundings that involved fatigue. The discussion that followed brought out the fact that time off duty does not necessarily mean people are properly rested when they go back on duty. There are many factors that affect fatigue such as heat and cold related risks, motion sickness, accumulated sleep deprivation, physiological problems.

Training packages, such as my own company’s video presentation on minimising fatigue, provide useful advice. However, good as they may be, training packages on fatigue are only a minor contribution towards solving a major problem – making ships safe and efficient by a rational approach to safe manning.