



The International Maritime Human Element Bulletin

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Alert!



Photo: Worldwide Shipping

Bringing it all together...

In the previous issues of **Alert!** we have examined the various human factor and ergonomic issues that can influence the interaction between a human and any system aboard ship. We have addressed some of the many physiological and psychological factors that can affect the ability of the mariner to do his job. We have looked at the regulatory, business and ethical influences on the Human Element in the shipping industry. We have established the importance of education and training in ensuring that seafarers are competent and that those who are involved in the management and regulation of ships are trained in 'the ways of the sea'. And, we have stressed the importance of user input, of the principles of human centred design and of human factors engineering in the design and build of a ship.

In this Bulletin, we bring together much of what we have previously discussed by focusing on ship operations. To some, it may come as a surprise to find that we do not address issues such as Bridge or Crew Resource Management, but rather we have concentrated on the day-to-day problems, both ashore and afloat, that might have an effect on the ability of the master and his crew to ensure the safe conduct of the ship and the safe and timely arrival of its cargo.

Through the **Alert!** project, we seek to represent the views of all sectors of the maritime industry – contributions for the Bulletin, letters to the editor and articles and papers for the website database are always welcome.

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Its time to stop pretending...

Maybe you do not need to think about people when designing a ship, or you get 'rewarded' for not involving them during build, but you cannot pretend that ships can run without a crew – at least not for the foreseeable future.

If a piece of machinery is faulty, worn out or over worked, it will ultimately come to a grinding halt, or may disintegrate or even explode. If any electrical or electronic equipment is faulty, worn out or overloaded, it will overheat and will blow a fuse or shut down. Ship systems are protected by strict design standards and tolerances, by redundancy – particularly for critical systems – and by feedback processes that will ultimately activate an alarm of some sort, or take corrective action. Their efficiency and reliability will be undermined if they are not correctly set up, regularly monitored or properly maintained; these are tasks that, for the most part, have to be undertaken by the *human* element of any such system – that is, *the seafarer*.

Yet, the seafarer, who in many cases is also responsible for the safe operation of a system, is just as susceptible to failure and breakdown if he/she is not protected by standards and codes, such as STCW, ISM and the ILO Conventions; or if the tolerances are

set too fine because of poor working and living conditions. If redundancy is not built into the system, through realistic manning policies, workable watchkeeping patterns and satisfactory work/leave ratios, then the seafarer might well become fatigued and eventually worn out to the point of no repair. If there is no feedback process in place through education programmes, effective communication and the adoption of a safety/company culture, then the seafarer will not be able to recognise when he/she becomes worn out or overloaded, nor be able to take corrective action.

The efficiency and reliability of the seafarer will be undermined if the ship itself has not been designed and built to purpose; or if he/she has not been provided with the appropriate training and with easy to understand procedures and operating instructions in order to cope with the ship systems; or if there is no monitoring programme in terms of appraisals, mentoring and regular health checks; or if he/she is not properly maintained through a healthy lifestyle.

Ultimately all these issues will affect the ability of the master and his crew to ensure the safe conduct of the ship and the safe and timely arrival of its cargo.



Paddling against the tide of continuous improvement

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Colin Snell,
Syndicate Claims Director
Charles Taylor P&I Management

Crew Claims - A Club's perspective

Within any year the biggest item of total Club expenditure is personal injury to crew, passengers, stevedores and other third parties, with the largest single item being in respect of crew injuries, illness and death. It is important to note, however, that many accidents involving crew are well within the scope of both shore management and seafarers to avoid.

The greatest causes of fatalities are: *lifeboat drills, entering confined spaces, falling overboard and fires and explosions.* Whilst errors in lifeboat drills are largely due to mechanical problems, those on the part of the seafarers are generally brought about by the failure to follow procedures, and complacency about the operation at hand, such as not wearing a lifejacket or forgetting to release securing wires prior to lowering the boat. In respect of enclosed spaces, the error often follows the assumption that an area is safe either because it has previously been entered or there is reliance on that area being

gas free. It is a simple matter to always check the atmosphere and use breathing apparatus where there is any doubt as to the safety of the area to be entered. Fires and explosions are usually caused by hot work being undertaken on the vessel, which again requires preparing the area where the work is to be performed. Suffice to say, any possible risk must be tested, it should be done at all times, and the assumption that an area is safe should never be made.

A ship is a dangerous place and it is incumbent upon shipowners and shipmanagers to develop proper procedures and maintenance programmes, and to ensure that their seafarers are properly trained. Injuries and fatalities can be avoided if the seafarers follow the correct procedures to assess risk and ensure that those risks are minimised by checking that the area in which they are about to work is hazard free, and that they are using the correct equipment for the task in hand.

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Forget the image....

Katie Higginbottom
International Transport Workers' Federation

Ask almost anyone in the industry and they'll tell you that seafaring isn't what it used to be. Of course this isn't unique to shipping, but the changes to the lives of seafarers are striking. Reduced manning and the pressures of faster turnarounds, the burden of additional paperwork and regulations - especially those relating to security and pollution - have had a real impact on the quality of life of those working at sea.

The feeling among seafarers is that the pressures of work have increased hugely while support mechanisms have evaporated. Excessive hours are often the norm, people feel isolated in their work and shore leave is now being denied altogether for some nationalities deemed a potential threat to security. Seafarers are being asked to be environmentally and security conscious while taking on greater responsibilities and increased work loads

- yet at the same time it is considered reasonable to keep them locked up at sea, without access to vital services and without respect for them as individuals carrying out an important job.

There is much talk of the need to improve the image of the industry, to stop dwelling on negative aspects and instead to promote the industry as the motor of global commerce. But, we need to look at more than just the public image. Good ship operators - those that understand the benefits of a well trained, reasonably remunerated and well-respected crew - must make life more difficult for those who do not.

The problems are practical and psychological. If there is seen to be an utter disregard on the part of some for the value of those doing the work, then rather more than a facelift is going to be needed.



Communication skills are vital to safe ship operations



Captain Jan Horck, World Maritime University

Communication is our most important human tool for understanding, co-operation and action. It also can make us confused and frustrated. To communicate is to interpret a message for its meaning.

Recent accidents have shown that communication constraints have become a concern for ships' crew and owners. The Oil Companies International Marine Forum (OCIMF) publication *Tanker Management and Self Assessment* appeals for tighter control of crews' communication capability and cultural awareness.

Good communication becomes particularly important when responsibilities are delegated from the owner/manager to the master and his crew. Teamwork requires communication skills, mutual understanding and a level playing field in terms of cultural equality. Teamwork *does not* mean that the Captain is thinking out loud!

With a mixed crew, communication skills become more important; too often messages sent are not the same as messages received. Strangely, humans are pleased with a brief understanding of a communication, but communication

brevity should not be accepted onboard. Although one would expect that a natural language would enhance understanding, it does not necessarily happen at sea. 'Procedural language' may be used onboard for operations and in ship/shore communication, but not always with success because of inadequate training, bad communication discipline, poor teamwork and lack of cultural awareness.

For many of us, culture-communication becomes a challenge because there are many unknown variables. In some cultures people speak what they mean; others do just the opposite. If practising the latter, there are fewer possibilities to interpret a message, look for meaning, understand pauses, seek relationships and look for empathy. People with erroneous stereotyping cause misunderstandings.

The ISM Code focuses on *safety-communication*, which is randomly targeted for inspection by Flag State Surveyors, Port State Inspectors and Vetting Inspectors. The limited language knowledge required by Conventions is not adequate to give an individual a social life onboard. Hence, he/she becomes alienated and a safety

risk, no matter how short the length of time spent onboard. In ship safety debates, the crew's limited language knowledge is not discussed.

To listen is also to communicate. In the Western world listening is not a school subject. Hence, very few people know how to actively listen.

Communication-symbols manifest communication. Symbols differ in meaning dependent on time, culture, individual and place. Interaction is characterized by a continuous update of the meaning of symbols. Stereotyping creates a barrier to find authentic meaning of spoken sentences. When we communicate we project our own image (needs, expectations, ideals, perceptions etc.) mainly through body language, tone of voice and the selection of words.

Maritime education and training institutions need to deepen the education in the English language and in cultural awareness. **Misunderstandings and stereotyping do affect safety at sea.**

Getting the best from multi-cultural manning can be downloaded from: www.he.alert.org (Ref: HE00465)

Stress at sea

Maria Pittordis, Partner, Hill Taylor Dickinson

Over the last 18 years, I have dealt with thousands of claims involving injured crew on ships of all types. Recently, I have seen a particular increase in claims of psychiatric origin. For example: The chief officer who injures his leg with a rope during a mooring operation now has a phobia of ropes and suffers with anxiety attacks when standing on the deck of a ship. Physically he is fine, but he failed his medical on psychiatric grounds. He is medically discharged and he brings a claim for compensation.

Another wave of claims has been where physical symptoms can only be explained by a psychological element. It is the AB's depression that makes him think he still has a bad back 2 years after the accident – known as the adjustment disorder.

Claims for Post Traumatic Stress for witnessing an accident or a near miss are also on the increase, albeit many of them have not been taken seriously by owners, employers or insurers who appear to be of the opinion that seafarers "should be made of sterner stuff." Yet, these cases have cost the industry a considerable amount.

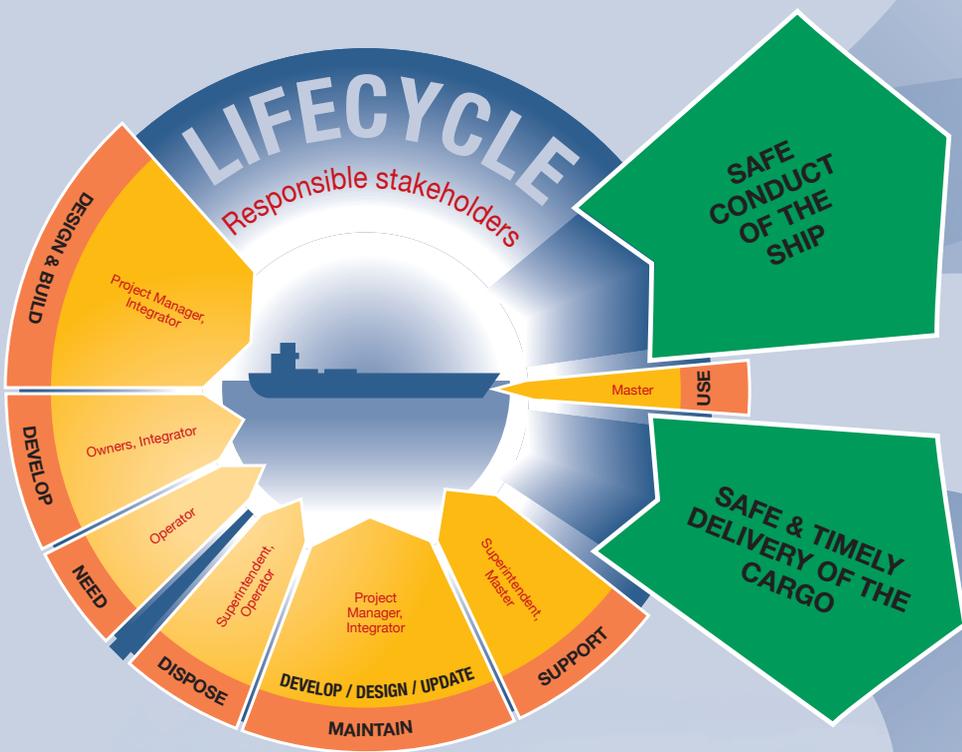
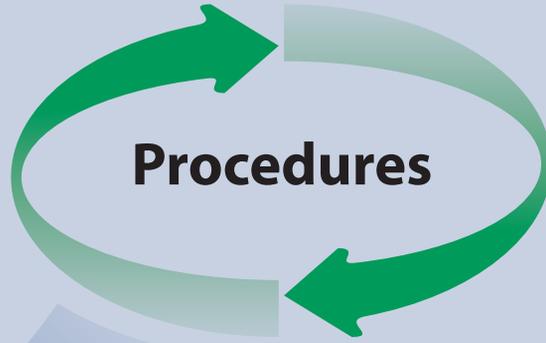
Stress at work is probably the most neglected area of injury, both on land and at sea. These are not generally cases resulting from an accident (although they may cause one) but cases where work related stress causes illness, both physical and/or psychological. How many Doctors during a medical examination ask a seafarer about his working conditions/environment, hours and workload? How many seafarers complain of

harassment by officers or of discrimination on the grounds of race, sex, religion etc? How many complain about bullying or intimidation? If the answer is none then we need to ask whether it is because policies and procedures are not in place to educate, prevent or complain.

The marine industry needs to address the issues of stress at work; apart from lost man-hours and potential tribunal actions, these are the personal injury claims of the future! Employers can be liable in negligence and/or breach of contract for the stress caused to their employees not just by the working conditions or the work itself, but also by the actions of their officers and crew. They therefore need to have education and preventive policies in place, as part of their grievance and disciplinary procedures.

Operations Keeping ahead of the game

- Accident reporting
- Maintenance of the ship & equipment
- Safe operation of the ship & protection of the environment
- Ship / crew familiarisation



- Quality Management,
- Voluntary codes, Charterer's standards,
- Corporate Social Responsibility



ISM, ISPS
Industry guides

STCW, ILO conventions,
Industry standards,
Occupational Health &
Safety

People

- Education & training
- Effective communication
- Leadership
- Lines of communication
- Management of fatigue
- Manning levels

- Company culture
- Effective communication
- Personal commitment

Meeting multiple demands

The demands placed on a ship by the environment, industry, regulation and management are likely to change frequently. In order to meet the twin demands of the safe conduct of the ship and the safe and timely delivery of its cargo the procedures by which the ship is run, the competence of the people who crew it and the service it delivers (its product) need to be continuously reviewed and revised. Fortunately, guides and references of good practice exist in all of these areas. Our recommendations for what to look at are indicated.

In the next issue:
The effects of regulation



Captain Sivaraman Krishnamurthi
Shipmaster

Building Bridges

We are part of a fragmented industry that hasn't quite learnt how to harness the power of networking. Insular mindsets result in avoidable wastage of resources. Many bridges need to be built: between technology and training, commerce and risk, deck and engine functions. But, the most crucial is the ship/shore bridge, considering the criticality of this relationship. Inputs for ship management should predominantly come from the sea, if corporate initiatives and programs are to succeed. Sharing of knowledge, expertise and personnel between these two entities makes a wonderful prescription for most of the ills that plague us.

One of the myths I'd like to see destroyed is that it takes nothing less than a master mariner to head Fleet Human Resource (HR) functions. With due respect to his seamanship abilities, he is about as proficient at this job as a fish is at carpentry. We badly need the specialised

skills of qualified HR professionals to bring this function on a par with contemporary industry practices. We're talking reverse appraisals, psychometric profiling, counselling, SWOT (Strengths, Weaknesses, Opportunities, Threats) analysis, leadership development and similar concepts.

Good mariners are like forged steel, where much depends on the blacksmith.

Retention is about encouraging your employees to create opportunities for success and growth. Promotion is the employer's way of saying "We believe you will add more value to the organisation at this level". Seeking mariners from the marketplace with rank experience at the expense of promoting your own officers is a bland admission of HR failure.

We always looked to statutory bodies to set standards in safety, design and training. The contemporary mariner and his managers live in a world driven by

customer delight and demands for razor sharp quality of ship operations. Without demeaning the immense contribution of maritime laws and protocols, such quality goals cannot be achieved by just meeting 'minimum' standards and criteria.

The maritime industry seems to have given up the concept of training as a value-addition to business. The learning culture is a self-generative process and cannot be stipulated by law. *Mentoring and grooming* are ways of expressing individual professional skill sets through one's team. It cannot be a sub-clause of STCW 95. Learning is synonymous with the spirit of inquiry that challenges fundamental precepts and not unquestioning acceptance of hand-me down wisdom.

Building bridges, breaking barriers – a paper by Captain Krishnamurthi can be downloaded from: www.he.alert.org (Ref: HE00460)



Third Officer Kathy Baylis

A roller-coaster ride

Passing the OOW oral examination in June 2004 was the culmination of three years intensive classroom study and 12 months practical experience at sea. The last year serving as third officer with a quality container ship operator has been a roller-coaster ride of nervousness, excitement, fear, monotony, panic, professionalism and pride.

The role of a third officer today is in some respects completely different to that of years gone by. The introduction of integrated onboard vessel monitoring and navigation systems has revolutionised the manner in which ships are operated, necessitating a different set of skills to be required by the OOW. Continuous computerised monitoring of all vessel systems is fantastic; however a constant stream of alarms can prove a great distraction and have the potential to generate extremely hazardous situations.

Ship-to-shore communications are now incredible. Current technologies enable shore-based management to receive near instantaneous information regarding all manner of vessel systems. However, whilst the organisation promotes safe and professional working practices, onboard communication and motivation generally stem from the attitude and behaviour of the master and chief engineer.

Bridge team interaction and communication is very heavily dependent on the master. Almost every time you join a new vessel, the dynamics of individual management style and expectations have to be determined. The behaviour and demands of the master can have massive implications for the rest of the vessel's officers and crew.

Throughout my time, I have served with British officers and Filipino crew. This generally works well when the parameters of one culture are known, understood and respected by the other.

I was serving on a fleet of vessels that had similar operating systems, working routines, policies and equipment. Every ship is however different, even if only subtly. Although I am sure that as your experience increases, you become more adept at managing the transition of joining and learning about a new vessel, as a junior and relatively inexperienced third officer it required careful consideration to ensure that the equipment was being utilised in the correct manner. Also, on today's technology-based bridge it is possible for an OOW to allow key navigational skills to become dormant due to the relative ease with which navigational requirements can be fulfilled.

It is near impossible not to find areas for improvement within any organisation. However my experiences over the last five years have encompassed a comprehensive and professional training programme with excellent encouragement, motivation and ongoing support from a quality container ship operator.

Good working practices have always given good results



Capt. Ivelin Ivanov
Personnel Manager
Reederei "NORD" Klaus E. Oldendorff Ltd

For some time now our industry has recognised the existence of human element issues and their direct impact on the day-to-day operation of the world fleet. However, I doubt that anyone would disagree with the fact that the maritime industry has until now failed to deliver the practical advice and the so much needed global legislative resources that would allow ship owners to achieve safe and accident free operations.

Different people give different reasons for this failure. Some say that it is the industry that has failed to match the enormous technical progress that we have seen over the last two decades with the education of the industry professionals that nowadays come from and work all around the world. Others say that it is the nature of shipping and its traditions that are keeping it conservative and not capable of responding to the rapid change of global trade and of transport systems.

Perhaps the truth is somewhere there. Perhaps the problems we all face today are all new for our times: having to work excessive hours; being more tired and stressed than ever; working on ships that lack basic ergonomic standards; having nowhere to sit after work; being unable chat to our colleagues outside of work because of language difficulties.

There is however something that is sure. Since shipping existed it has been driven by humans. People who worked onboard ships, and those ashore, were always carefully selected and trained. They were always checked in practice and helped when improvement was necessary. As is the case today, shipowners of the old times were concerned about the safe and timely sailing of their ships from A to B, and about how their ships were maintained.

Why then do we now we talk that much about problems? Did something change? Have not these problems been with us since ships first took to the sea? Or, are we failing to understand or do something that our predecessors did understand and indeed took care of?

I think it is the latter. What is lacking in some parts of the industry is *good working practices*.

What working hours and in general, fatigue related problems would a

company have if it decides to employ an Administration Officer in its container ships – which are chartered on an intensive trade - to reduce the burden of paperwork on the master and his officers?

What problems associated with poor ergonomics would a company have if, before starting a new buildings project, it assigns carefully selected and competent personnel to assess the overall design, and the fitting of equipment and furniture that is put into the ship's working spaces and accommodation?

How could work practices and procedures on a newly delivered ship be inappropriate if they are worked out in practice prior to the delivery of the ship, directly at the work places of the seamen and with the professional assistance of experienced company training officers?

Would the routine and the emergency communications be a problem for officers and crew who started their careers in a multi-national manned ship and have only sailed on such ships since?

My answer to all these questions is **No!**

Good working practices have always given good results. Owners who accept that as their operational standard have nothing to worry about - neither about the rapidly changing technology, nor about the lack of availability of a sufficiently qualified work force.

What's new... IMO Marine Environment Protection Committee (MEPC) – 53rd session:

The joint MSC (Maritime Safety Committee)/MEPC Human Element Working Group was reconvened in July 2005 and made several positive steps. Representatives of 25 member states and 6 non-governmental organisations drafted four MSC/MEPC Circulars to raise human element awareness and encourage further action by IMO and its members, as follows:

- The Organization's strategy to address the human element, including an 'action plan' for several key issues;
- A checklist to encourage IMO bodies to consider human element issues when developing and amending mandatory and non-mandatory instruments;
- Encouragement for those with human

element expertise/knowledge/ interest to participate in relevant Sub-Committees, to strengthen human element input; and

- A framework for consideration of ergonomics and the work environment.

These were approved by MEPC but also need approval at the May 2006 Maritime Safety Committee (MSC81) for full ratification.

The Working Group noted a paper from the Swedish delegation on collisions and groundings, in which sleep/fatigue had been identified as a major contributing factor. The overwhelming majority of the Group, having noted the MEPC decision to refer this document to the STW Sub-

Committee, agreed to recommend that the document also be referred to the Flag State Implementation (FSI) Sub-Committee under its agenda item on Casualty Analysis.

The Group also endorsed, with some minor comments, a draft Circular from the Sub-Committee on Bulk Liquids and Gases (BLG); "Guidelines on basic elements of a shipboard occupational health and safety programme". It was felt that this would assist ISM Code implementation.

Along with the imminent ILO Consolidated Maritime Labour Convention, a wide range of documents guiding consideration of the human element will therefore soon be available.

Grounding of a general cargo vessel

This report of the grounding of a 1616 gt general cargo vessel highlights a number of shortcomings in the safety management of the vessel, which resulted from 'a lack of commitment and inadequate allocation of resources by the ship management company'. It raises questions about the effectiveness and spirit of application of shore and on board ISM procedures.

The chief officer had fallen asleep in the bridge chair and the ship ran aground. He was suffering from the effects of fatigue and the consumption of a large quantity of alcohol. When he relieved the master on the bridge, some 3 hours before the incident, the master considered him fit to take the watch. He was alone on the bridge - it had become normal practice not to employ a lookout during the hours of darkness. The bridge watch alarm was not in use as neither the chief officer nor the master knew how to use it.

The coastguard had commented on the poor quality of the spoken English when the Ukrainian master reported the grounding. Vetting of masters and chief

officers was undertaken by the crewing agents in the Ukraine, who were given a software copy of the company's safety manuals and procedures with which prospective crew were able to familiarise themselves before joining. The company's technical manager had conceded that the master's standard of English 'could have been better'.

The company's drug and alcohol policy was clearly promulgated. However, even had the master suspected the chief officer of alcohol abuse when handing over the watch, he had no means of proving that this was the case because he had not been not provided with any testing equipment.

The ship was manned in accordance with her Minimum Safe Manning Certificate. The master was aware that the hours worked by him and the chief officer (who were the only watchkeepers) were more than the hours logged, but considered that the company would not expect this to be formally recorded. However, the company did not consider its ships' programmes to be disruptive, as its

vessels operated on set routes, and it had not received complaints from its masters regarding the hours required to be worked.

The shortcomings identified in the procedures on board indicated that the need for continual improvement had not been embraced within the company. The Designated Person Ashore (DPA) undertook the duties of the technical and crewing manager for all eleven of the company's vessels, and the report questions whether he could commit sufficient time to effectively monitor the company's Safety Management System (SMS), or make use of its feedback process.

The investigation also revealed that certain conditions of the chief officer's contract of employment did not comply with current ILO Conventions, and that some were potential impediments to safety management.

The full report can be found at: http://www.maib.gov.uk/cms_resources/Jackie%20Moon.pdf



Photo: Worldwide Shipping

BEHAVIOURAL SAFETY IN THE MARINE SECTOR

Gary Hartland, QSE Maritime Consultancy Services

'Behavioural safety', or 'behaviour-based safety', is the use of behavioural psychology to promote safety at work. This paper summarises the standard techniques for such a project in a marine sense and highlights some pitfalls.

Downloadable from: www.he-alert.org (Ref: HE00445)

Reports Studies &

OPTIMISING MANNING & MACHINERY

Capt Arvind Kumar, FOSMA Maritime Institute & Research Organisation, New Delhi

The term 'Optimising' can have a different meaning to various sections of the industry. This paper dispels the myths that optimising means crew reductions or increased mechanisation, by highlighting the critical mass of crew size, inadequate statistics, task analysis and accelerated losses due to technology and misuse. Several adverse affects of crew reductions and increased automation are outlined; while parallels with airlines, past reductions and unmanned ships are rejected.

Downloadable from: www.he-alert.org (Ref: HE00455)

DRIVING SAFETY CULTURE:

IDENTIFICATION OF LEADERSHIP QUALITIES FOR EFFECTIVE SAFETY MANAGEMENT

UK Maritime and Coastguard Agency

Effective leadership plays a crucial role in developing and maintaining a successful safety culture. But what constitutes effective leadership for safety? The UK Maritime and Coastguard Agency commissioned research to help answer this question. It identified ten core leadership qualities, which are considered best at promoting a safety culture, as well as a range of constraints and enablers to bringing about improvements. These findings were summarised in a concise guidance booklet. The full research report provides additional information on the improvement of safety leadership, including describing best practice. The findings can be applied to training, recruitment and promotion, as well as the daily working practices of leaders.

The leadership booklet can be downloaded from: www.he-alert.org (Ref: HE00440)

The research report can be downloaded from: http://www.mcga.gov.uk/c4mca/mcga-research_report_521.pdf

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