

Jack-up Drilling Rig Sinks near Congo River

Saipem confirms that last night, July 1, the jack up drilling rig Perro Negro 6, due to the collapsing of the seabed under one of the three legs, suddenly tilted and suffered hull damages, causing water intake. The event occurred during the rig positioning on location prior to starting drilling operations, between the coasts of Angola and the Democratic Republic of Congo, near the mouth of the Congo River, in approximately 40 metres of water.



At 10.30 AM CEST, the rig, with no personnel on-board, capsized and sank.

The emergency procedures were promptly activated last night to ensure the evacuation of the personnel on-board. After the sudden and significant tilting, among the 103 crew members, one was recorded missing and another six incurred minor injuries.

At this moment, no environmental impacts have been reported, and all the prevention measures are being implemented.

The Saipem emergency response team is mobilised and is working closely with the Angolan Authorities and the Client's operational team.

Saipem is covered by insurance for loss of equipment, wreck removal, as well as for any possible environmental damages.

Further information will be provided as soon as available.

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Cargo Ship Sinks off Oman, Captain Found Dead: An Iranian ship captain has died after his cargo ship sank last week near an Omani port.



Nine other Indian crewmen were rescued on Wednesday by the Omani Coast Guard and naval ships. The captain's body was discovered the next day.

According to local news reports, the vessel sank about 1.4 nautical miles from the Sultan Qaboos Port [pictured above]. The NISAR R3 was reportedly carrying a cargo of 816 tonnes of bitumen - a sticky, black and highly viscous liquid or semi-solid form of petroleum.

A control tower received a distress report from the ship; water was flowing onboard, and the ship lacked the equipment to drain water. Two tugboats arrived on scene, only after the ship was completely submerged.

Rescue vessels were able to recover some of the bitumen, which had spread to the nearby shores.

The surviving crewmen were transported to a police hospital for medical treatment.

A massive fire broke out Saturday on board the derelict cargo vessel MV Mol Comfort:

MUMBAI: A massive fire broke out Saturday on board the derelict cargo vessel MV Mol Comfort, which had snapped into two pieces June 17 off the coast of Yemen, officials said.

The fire was noticed around 11am during a routine surveillance sortie by an Indian Coast Guard (ICG) aircraft, around 310 nautical miles from Mumbai, when the vessel was being towed to Port Sohar in Oman.

The ICG diverted its ship Samudra Prahari to monitor and render assistance to the MV Mol Comfort.

The ship had snapped into two June 17 and all the 26 crew aboard were rescued in a humanitarian mission by the ICG.

The 316-metre long cargo container ship had broken into two and the crew was forced to abandon it as it started sinking off Yemen, around 840 nautical miles west of Mumbai in the Arabian Sea.

Battling severe weather conditions and six metre tall waves, the ICG Mumbai managed to rescue all the crew comprising 14 Filipinos and 12 Russians who had abandoned MV Mol

Comfort when it was carrying a cargo of 4500 containers from Singapore to Jeddah.

What is Water Hammer and How to Prevent it?

High temperature steam is used in the engine room for several purposes such as heating fuel line and fuel tanks. Water hammer is a common phenomenon that occurs in steam lines because of water getting stuck in the pipes. Let's find out how water hammer takes place and what can be done to avoid it.



How Water Hammer takes place?

When the steam lines are shut after use, water gets accumulated in the steam pipes mainly because of condensation of the trapped steam. When high temperature steam is again passed through the lines having water, the steam comes in contact with the water and pushes the water down the line.

As the steam comes in contact with water, it eventually condenses and creates a vacuum, which forces the water towards the opened valve at high velocity. The water then hits the valve with high speed, damaging or breaking the valve or piping completely. Valve fracturing because of water hammer has resulted in to disastrous accidents in the past including loss of lives. It is therefore necessary to take every possible step to reduce the effects of water hammer.

How to Prevent Water Hammer?

The most important way to prevent water hammer is to remove the water from the steam lines before passing the steam again through them. Water is removed from the steam lines using drain connections.

All the water should be drained out to make the lines clear. Once this is done, the steam valve should be opened very slightly (cracked open) to heat the line and to bring it to working temperature. This also ensures that the condensate formed due to inlet of steam is removed through the already opened valve. The drain outlet should be continuously checked to ensure that all water is drained out.

Avoid Sharp bends in the steam pipes as sharp bends will help the steam to condense more.

When all the water is removed and the noise from the drain

(contd. on page 4)

From the Editor's Desk



ON SHIP'S SAFETY AND REGULATIONS:

Thanks to the wisdom and experience of all those who shared, inter-acting over the e-mail, facebook, linked-in etc. which we would compose after an after-thought considering future safety system for further consideration in the coming years. The scope and breadth of the discussions we are engaged with need be extremely impressive and I feel sure that the Maritime Safety Committee, would consider to appreciate making aware of the deliberations, conclusions and recommendations, within the pro-active group. I note with great satisfaction that we have considered wide ranging issues relating to a more goal-based, risk-based approach, with regard to data collection: as there is no doubt that more and better data, and the use of the latest methods to analyze them, are central to the development of future regulations based on risk. Second, there is no doubt in our minds that a safety culture that goes beyond mere compliance is essential in the future. Ships are becoming more complex and, as they do, we must move away from safety being simply a series of box-ticking exercises. That approach is not good enough now, and the administrative burden must be reduced. Third - and this is perhaps the most far reaching - you have considered whether the current safety regulatory framework is appropriate or not for responding to the future challenges and innovation and new technology associated with the ever-increasing sizes of ships and the need for compliance with environmental regulations; and, if we should change the safety system, how should we do that?

We note and talked about the most important human element, the need for its self-regulation, and value based education and training. The serious challenge maritime training institutes are now facing is to keep up with new technology and this must be addressed at large in a wider spectrum. Currently, the shipping industry is facing serious financial difficulties though they need to comply with regulations for marine environment protection. We are confident that IMO's Committees will take into account the cost of immediate compliance requirement and ensure the smooth implementation of pending IMO conventions. The subject of "Safety of ships" in the future; and discussions to follow for the future must cover all issues relating to ensuring competent seafarers, to give their best by being free of stress and fatigue in the work place; the required support for seafarers must be continuously addressed at IMO. We have touched upon various important issues and I believe that those issues raised will remain with us in the years to come when we discuss further exploring future safety regulations. On our trial for remote participation, it looks like we were successful and it was encouraging to have comments from participants from India, Indonesia, Panama and others, by way of the internet actively involved, to discuss productive issues. The expertise and eloquence of all the speakers and participants were beneficial to march ahead in progress, through their significant contributions. When we think back, we find it stimulating and thought-provoking and will leave it with fresh and renewed motivation to play your part in ushering in an exciting new era for ship safety.

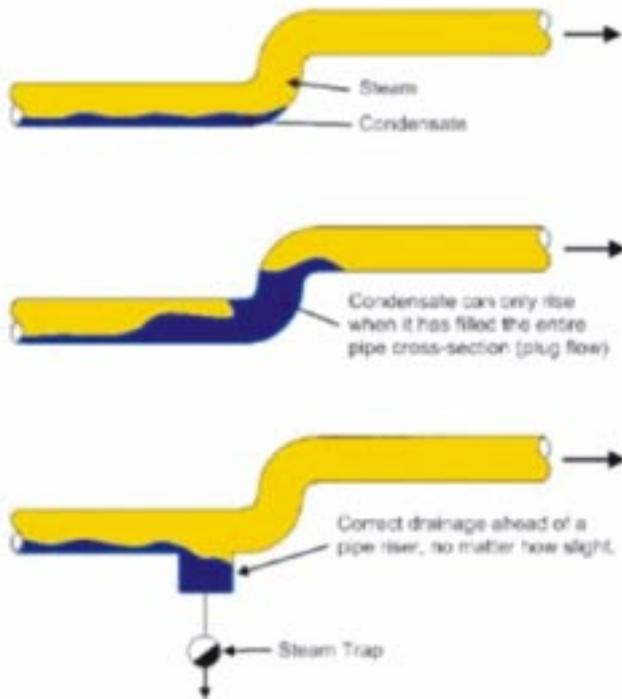
RULE OF LAW? Critical questions governing the use of armed guards in the fight against maritime piracy.

If laws proscribe and prohibit, there are cases of crimes that all systems of law proscribe and prohibit. These are crimes against humanity. Piracy is the oldest of these crimes and no matter whether there is Rule of Law or rule by law, piracy is prohibited as a crime. In international law there is the concept of 'jus cogens'. It means a crime within certain fundamental, overriding principles of international law, from which no derogation is ever permitted. Ultimately armed guards are present to protect property from theft and to protect persons against injury. However, under the Rule of Law such actions must be lawful as to property and marauder and defender. The Rule of Mammon or the Rule of Law Pg 1. White Paper AF-EN-204-330 (0513) White Paper. The Rule of Mammon or the Rule of Law? Critical questions governing the use of armed guards in the fight against maritime piracy By John A. C. Cartner, Member, AdvanFort Company Board of Advisors 11 John A. C. Cartner, M.Sc., M.B.A., LL.M., PhD, practices maritime law in the United States and in the United Kingdom and is an unrestricted master mariner (USA). To get more info please contact us at info@advanfort.com The Rule of Mammon or the Rule of Law Page 2, White Paper AF-EN-204-330 (0513). Under the Rule of Law such actions must be lawful as to property and marauder and defender. The question arises about piracy's rise in the latter day and civilization's reaction to it. Is the concern here the Rule of Law that is being violated or is it the Rule of Mammon that is being violated? Of the forces of the universe, only two-physics and money-follow immutable laws. Law is not immutable. Let us now inquire into Law and Money.

THE RULE OF LAW: What exactly is the Rule of Law? The definition is much more slippery than would expect. The generalized concept is often thought of as the authority, and therefore the influence, of law in society. In that sense, law describes behavior, proscribes that which ought not to be done, prescribes that which ought to be done, prohibits that which cannot be done and encourages that which should be done. Law in these senses includes the behaviors of both natural and corporate persons, and private as well as public persons and bodies. The modern phrase has been used since at least the 16th century. Most are wholly in favor of the Rule of Law as an intuitive concept; however it is elusive to define and has many formalized dimensions beyond it's merely intuitive and essentially phrase logical appeal.

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(contd. from page 2)



changes to steam blow, the steam valve should be opened further. This process has to be slow and extremely gradual.

After sometime the drain valve should be completely closed and the steam valve to be completely opened. This method prevents water from accumulating in the pipes and eventually stops water hammer.

How to do Intentional Grounding or Beaching of a Ship?

The master of the ship is the overall in charge of the operations while trading in international waters. When it comes to safety of the crew and ship, he has to quickly decide the course of action keeping in mind the after effects of the same.

One kind of emergency situation which can really test skills and ability of a ship's captain is -Beaching of the ship.

What is Beaching of the ship?

Beaching is a process wherein during an emergency situation a ship is intentionally taken towards shallow waters and at last grounded.

The word Beaching is used for such process because the type of emergency grounding is done only in those areas where the ground is of soft mud or sand (as in a Beach) in order to avoid



damage to ship's hull, propeller, rudder etc.

Why Beaching is done?

The three main reasons for which Beaching of ship is done are:

- To prevent loss of ship due to flooding when there is major damage below the water line of the ship
- To refloat the ship when satisfactory repair has been done and water tight integrity is restored
- In order to hand it over to the scrap yard

Procedure to Perform Beaching of Ship:

- Ballast the ship to its maximum capacity
- Check where the damage is more-bow side or stern side. Head with the damage side for beaching with 90° to the tides
- Take all measure to avoid ship going parallel to the beach (throw weather anchor first)
- If approaching from astern due to stern damage, drop both the anchor at good distance so that they can assist the vessel in heaving when going water
- Sounding of all tanks must be done before and after beaching

An Irish aids to navigation vessel with multi-purpose capabilities:

The Irish Lights aids to navigation vessel ILV Granuaile is the third ship to bear this name. When delivered in January 2000, it was possibly the most advanced vessel of its type in the world. Designed to operate in difficult conditions offshore Ireland year round, it is fitted with dynamic positioning, azimuthing propellers, a bow thruster, and differential GPS. It carries a 20 tonne crane with an outreach of 20 meters for working buoys and other heavy objects over the side. As a towing vessel, it has a 40 tonne



bollard pull. It has a full suite for oil spill response and can also do hydrographic work. A landing deck for helicopters is located on the bow. In August 2008, the ship performed dive survey work at the protected wreck site of the RMS Lusitania off the south coast of Ireland. When not busy working for the Commissioners of Irish Lights or other government agencies, ILV Granuaile can be chartered for commercial operations. In the past, it has performed emergency towage, diving support, pipeline surveys, vibrocore samplings, and seismic surveys for private companies. The vessel is named for Granuaile O'Malley, a warrior queen from Clare Island on the west coast of central Ireland. Living from 1530 to 1603, the Sea Queen of Connaught led a band of warriors and sailors who raided passing ships and kept potential invaders at bay. Queen Elizabeth I finally invited her to London. Offered to be made a countess, Granuaile declined, but did accept an earldom for her young son, finally making peace with the English. Her son was later knighted as Sir Theobald Bourke and was created the first Viscount Mayo. ILV Granuaile continues that tradition, at times working in cooperation with Trinity House and the Northern Lighthouse Board of Scotland.

6 Definitions Every Seafarer Must Know Under the ISM Code:

The International Safety Management (ISM) Code was entered into force to ensure safety of people, safety of ship and cargo, and safety of environment.

The ISM code was brought into action to inculcate safety culture at the sea and at all levels of seafarers working on ships.

In order to understand ISM, it is important to know definitions of a few important terms which determine the whole structure of IMO's ISM code.

If you are a seafarers working at the sea, then you must know these six definitions which forms the main structure of the ISM code.

1. **Safety Management System (SMS):** The safety management system is a structured and documented system under the International Safety Management (ISM) code which enables shipping companies and its ship's crew to effectively implement all safety policies regarding ship, crew, and environment while at sea.

2. **Document of Compliance:** Document of compliance is a certificate issued to a shipping company which complies with all the requirements of the ISM code.

Document of compliance is one of the most important documents of the ship which are often checked during port state control survey.

3. **Safety Management Certificate (SMC):** Safety management certificate (SMC) is a document provided to a ship signifying that the company and its ship personnel operate in accordance with the safety management system (SMS).

SMC should be produced by the ship whenever asked by a PSC.

4. **Objective Evidence:** Objective evidence is any form of information, records, or statements of facts which indicates implementation of safe management system by the shipping company and its ships. The objective evidence is based on observations, measurements, or tests that are made during an audit and which can be verified.

5. **Non Conformity and Major Non-Conformity:** When objective evidence indicates non fulfilment of a specific requirement stated by the safety management system, a situation of non conformity is considered to have occurred.

A major non-conformity is an extremely serious situation which poses serious threat to the safety of personnel, ship, or the environment. It indicates a major lapse in effective and systematic implementation of the ISM code. Major non conformity would require immediate corrective action to be taken by the ship's management.

6. **Anniversary Date:** Anniversary date can be defined as the day and month of each year which marks the expiry of a relevant certificate or document of the ship under the ISM code.

5 Terms Every Mariner Should Know Under UNCLOS:

UNCLOS or the United Nation's Convention on Laws of the Sea was formed to ensure freedom of shipping navigation at the sea. This allowed ships of one

country to move safely and freely in international waters.

However, as per this law, a specific boundary or limit has been provided to each country to define the aspect of marine business and commercial activities, including all kinds of jurisdictions.

There are 5 important terms which each mariner should know under UNCLOS. They are:

1. Territorial sea
2. Contagious zone
3. Exclusive economic zone
4. Continental shelf
5. High Sea

Territorial sea:

According to UNCLOS, the territorial sea can be defined as the area which extends up to 12 nautical miles from the baseline of a country's coastal state. The territorial sea is under the jurisdiction of that particular country; however, foreign ships (both merchant and military) ships are allowed passage through it.

This type of passage of territorial passage of foreign ships is known as innocent passage. However, the right to innocent passage can be suspended if there is a threat to the security of the coastal state.

The coastal state can also exercise jurisdiction if

- Any kind of activities in the territorial vessel has consequences extending to the coastal state
- There is a threat to the peace of the coastal country
- There is illicit traffic or smuggling of drug

Contiguous Zone:

Contiguous zone can be defined as the belt which extends 12 nautical miles beyond the territorial sea limit.

A coastal state's control on this area is limited to prevention of actions which can infringe its customs, fiscal, and immigration laws. It can also act if any activity in the contiguous zone threatens regulations in the territorial sea.

It is possible that vessels carrying noxious dangerous substances or waste may be turned away on public health or environmental grounds.

Exclusive economic zone:

Exclusive economic zone can be defined as a belt of water which extends up to 200 nautical miles from the baseline of the coastal state. Thus it includes both territorial sea and contiguous zone.

The exclusive economic zone provides the coastal state control over all economic resources such as fishing, mining, oil exploration, and marine research.

The coastal state also has jurisdiction regarding protection and preservation of natural resources and marine environment.

Continental Shelf

The continental shelf can be defined as the area whose outer limit shall not exceed 350 nautical miles from the baseline or shall not exceed 100 nautical miles from the 2500 meters isobath.

The coastal state has exclusive rights for exploring and exploiting its natural resources in this area. The state also has the exclusive rights to authorize and regulation drilling on the shelf for all purposes.

High Seas

High seas can be defined as the part of the sea that is not included in the exclusive economic zone, in the territorial sea, or in the internal waters of a coastal state or archipelagic waters of an archipelagic state.

High seas are open to all states for freedom of navigation, freedom of over flight, freedom to construct artificial islands installation, freedom of fishing, and freedom of scientific research.

High seas are reserved for peaceful navigation through international waters. However, regulations have been made to avoid prevention of slave trade, piracy, seizure of ships, illicit narcotics trafficking and unauthorized broadcasting.

Big Ships: A Big Worry For Ports: China Shipping Container Lines' recent order for 5 x 18,400 teu vessels signals another round of vessel upsizing. For ports, the impact will be felt way beyond the Asia-Europe trade lane.

Although it seemed just a matter of time before others again followed Maersk's lead on big ship innovation, CSCL's recent order for 5 x 18,400 teu vessels, with delivery in 2H14, confirms the well-established trend. The more so as UASC will be ordering the other five required for a weekly service between



Asia and Europe.

So what does this mean for the ports that are expected to handle them? Is it time to ring the alarm bells, or will it just be business as usual? The answer is not black and white.

The most expensive factors for ports are vessel draft and vessel length. Dredging of berths and channels and pouring concrete for quay walls comes at a high cost, not to mention the planning and environmental hurdles that have to be crossed. What is, relatively speaking, easier to deal with is increasing vessel beams. Gantry cranes with longer outreaches do not come cheap, but they are usually a lot easier to put in place than new berths or deeper water.

It is no coincidence, therefore, that the 18,000 teu ships on the stocks are no longer than the 400 metres of their 15,000 and 16,000 teu counterparts already in service. Nor is their

design draft any greater - indeed it is likely that for most port calls, cargo mix will mean that the 18,000 teu vessels will have operating drafts of no more than 14-15m despite their quoted 16m design maximum. Much depends on the average weight of cargo and where in the port rotation particular ports are placed.

Although a draft of 14-15m is deep, even ports like Hamburg and Antwerp, which have significant draft and tidal restrictions due to their long river passages, are still very much in the big ship game. Hamburg has already hosted calls by the 16,000 teu CMA CGM Marco Polo class for example, and Antwerp has accommodated Maersk's 15,500 teu E class vessels, as well as a host of MSC's 14,000 teu ships. Certainly not as straightforward and flexible as calling at Rotterdam's virtually unrestricted Maasvlakte for example, but not "sized out" of the game either.

However, the 18,000 teu ships are getting wider, so crane outreach is more critical. The Triple E 18,000 teu vessels are 23 boxes wide for example, whereas the Maersk E class is 22 wide and the CMA CGM Marco Polo class is 21 boxes wide. Most of the major ports on the Asia-Europe route, including wayports in the Mediterranean, Middle East and Indian Subcontinent, have already deployed bigger gantry cranes, or are taking steps to do so, but only to varying degrees. Even in the worst case, if a terminal still only has an outreach of 20 boxes outreach, ships can be stowed accordingly, or turned around on the quay.

In purely physical terms, the implications of 18,000 teu ships operating between Asia and Europe will not be that different from today's big ships therefore. Ports can either accommodate them with no problem, or carriers can work around limitations. It is unlikely that any of the main Asia-Europe ports will find themselves out of the game simply for reasons of physical capability.

The 18,000 teu ships do have other implications, however, and not just for the Asia-Europe ports.

The ever larger ships will strain the operational capability of ports, with a requirement to deliver faster handling speeds in order to maintain turnaround times. The fact that ships are not getting any longer is making this more challenging because simply deploying proportionately more cranes is not an option. In addition, handling such ships is not just about the quayside performance. The yard and landside also has to be able to keep up, including intermodal capacity. At the same time, ever larger ships also continue the pressure for more alliances and cooperation between carriers in order to fill them, and so ports face the challenge of greater concentration of volume.

Last but not least there will be greater cascading. The deployment of 18,000 teu vessels on the Asia-Europe route means that a greater number of larger vessels will be cascaded onto other east-west routes, north-south trades and intra-regional trades. This is where the pain of growing ship sizes is likely to be more keenly felt by ports.

Nigerian Cook Survives 2 Days Under Sea in Shipwreck Air Bubble: * Tugboat capsized on May 26 while working at oil terminal * Ship's cook survives 60 hours in small pocket of air * Shocked rescue divers find him two days after accident

After two days trapped in freezing cold water and breathing from an air bubble in an upturned tugboat under the ocean, Harrison Okene was sure he was going to die. Then a torch light pierced the darkness.

Ship's cook Okene, 29, was on board the Jascon-4 tugboat when it capsized on May 26 due to heavy Atlantic ocean swells around 30 km (20 miles) off the coast of Nigeria, while stabilising an oil tanker filling up at a Chevron platform. Of the 12 people on board, divers recovered 10 dead bodies while a remaining crew member has not been found.

Somehow Okene survived, breathing inside a four foot high bubble of air as it shrunk in the waters slowly rising from the ceiling of the tiny toilet and adjoining bedroom where he sought refuge, until two South African divers eventually rescued him. "I was there in the water in total darkness just thinking it's the end. I kept thinking the water was going to fill up the room but it did not," Okene said, parts of his skin peeling away after days soaking in the salt water. "I was so hungry but mostly so, so thirsty. The salt water took the skin off my tongue," he



said. Seawater got into his mouth but he had nothing to eat or drink throughout his ordeal. At 4:50 a.m. on May 26, Okene says he was in the toilet when he realised the tugboat was beginning to turn over. As water rushed in and the Jascon-4 flipped, he forced open the metal door. "As I was coming out of the toilet it was pitch black so we were trying to link our way out to the water tidal (exit hatch)," Okene told Reuters in his home town of Warri, a city in Nigeria's oil-producing Niger Delta.

"Three guys were in front of me and suddenly water rushed in full force. I saw the first one, the second one, the third one just washed away. I knew these guys were dead."

What he didn't know was that he would spend the next two and a half days trapped under the sea praying he would be found. Turning away from his only exit, Okene was swept along a narrow passageway by surging water into another toilet, this time adjoining a ship's officers cabin, as the overturned boat crashed onto the ocean floor. To his amazement he was still breathing.

FISH FEASTED ON THE DEAD

Okene, wearing only his underpants, survived around a day in the four foot square toilet, holding onto the overturned washbasin to keep his head out of the water. He built up the courage to open the door and swim into the officer's bedroom and began pulling off the wall panelling to use as a tiny raft to lift himself out of the freezing water. He sensed he was not alone in the darkness.

"I was very, very cold and it was black. I couldn't see anything," says Okene, staring into the middle distance. "But I could perceive the dead bodies of my crew were nearby. I could smell them. The fish came in and began eating the bodies. I could hear the sound. It was horror." What Okene didn't know was a team of divers sent by Chevron and the ship's owners, West African Ventures, were searching for crew members, assumed by now to be dead. Then in the afternoon of May 28, Okene heard them. "I heard a sound of a hammer hitting the vessel. Boom, boom, boom. I swam down and found a water dispenser.

I pulled the water filter and I hammered the side of the vessel hoping someone would hear me. Then the diver must have heard a sound."

Divers broke into the ship and Okene saw light from a head torch of someone swimming along the passageway past the room. "I went into the water and tapped him. I was waving my hands and he was shocked," Okene said, his relief still visible. He thought he was at the bottom of the sea, although the company says it was 30 metres below. The diving team fitted Okene with an oxygen mask, diver's suit and helmet and he reached the surface at 19:32, more than 60 hours after the ship sank, he says.

Okene says he spent another 60 hours in a decompression chamber where his body pressure was returned to normal. Had he just been exposed immediately to the outside air he would have died. The cook describes his extraordinary survival story as a "miracle" but the memories of his time in the watery darkness still haunt him and he is not sure he will return to the sea.

"When I am at home sometimes it feels like the bed I am sleeping in is sinking. I think I'm still in the sea again. I jump up and I scream," Okene said, shaking his head.

"I don't know what stopped the water from filling that room. I was calling on God. He did it. It was a miracle."

Maritime safety: Commission refers Belgium to Court over rules on the investigation of maritime accidents:

The European Commission decided to take Belgium to the Court of Justice for failing to fully implement the Directive on the investigation of maritime accidents. The Commission proposes a daily fine of • 55,265.28 to be paid from the date of the Court's affirmative ruling until Belgium notifies the Commission that it has fully implemented the rules into national law. These financial penalties are proposed by the Commission under the Lisbon Treaty and take into account the duration and the gravity of the infringement and the size of the Member State. The final decision on the penalties rests with the Court. The directive requires that Member States establish an impartial permanent investigative body, endowed with the necessary powers, and staffed by suitably qualified investigators, competent in matters relating to marine casualties and incidents.

Background

The Commission sent a letter of formal notice in July 2011 asking Belgium to communicate whether measures had been taken by the Flemish Region and the Brussels Capital Region to allow for the establishment of an accident investigation body, in particular to make adequate provision:

- for the body to be informed of all accidents
- to define the responsibilities of public authorities to cooperate with the investigators

A reasoned opinion followed in March 2012. To date the Belgian authorities have failed to notify the Commission of measures taken.

Full implementation by all Member States of maritime safety measures is essential to allow for the proper functioning of this important safety legislation. Given the importance of Belgian seaports in the European Union, maritime safety legislation is even more relevant and essential.

Serious Games for Maritime Training - Some Interesting Examples

This article is the second (and last) in a series that looks at gamification in the maritime industry. It discusses gamification and identifies serious game resources, and examples of their use both within and outside the maritime industry.

Maritime Training: The full library of maritime training articles can be found here.

Introduction

We are all, by now, aware of the use of eLearning in maritime training. But far fewer of us are aware of the use of electronic games (called "serious games" or "gamification") as a training tool. Even fewer believe them to be a valuable tool in the trainer's arsenal. But serious games for training are not a new phenomenon - they have been around for decades and have some very serious followers - including, notably, the military. They are also in use in a variety of other industries including the maritime industry.

This article is the second (and last) in a series that looks at gamification in the maritime industry. It does so by providing some resources for, and examples of their use both within the industry and outside. These are useful because while the first article was able to give some arguments for the effectiveness of serious gaming, it fell short of giving absolute proof. The breadth and depth of examples presented here attests to the belief, by users of serious games, that they do indeed work.

Before concluding our look at serious games, a reminder that if you would like to see an archive of all past maritime training articles, please click here. And if you would like me to send you a notification each time a new article comes out (roughly every two weeks), please fill out the short form here. Now - on to our conclusion of gamification.

Gamification

In case you missed the first article, a quick recap on serious games. In general, a serious game is any game-like program with a primary intent other than simple entertainment. For our purposes, we will restrict ourselves to programs (or games) which have some inherent "reward system", and for which the primary "other intent" is training or education. A reward systems is a means by which the player gains some explicit or implicit reward by succeeding at the game. Examples of reward systems include the awarding of points, competition against other players, opening up new levels of the "game", increasing challenge, etc.

If you don't mind the oversimplification, you can think of serious games as the result of combining simulation with a reward system; the intent being an increase in motivation.

There is a good (albeit low production-value) video which provides a nice overview and introduction to gamification in the maritime industry. Click the video below to view it.

Studies have shown that serious games improve participation rates, improve teamwork, increase time on task, deepen engagement, cause trainees to return to training more often, and improve training completion rates. Given these benefits, it is not surprising that serious games have some serious followers. Let's look at some examples of serious games and other useful serious games resources.

Serious Games Resources and Examples

ClarkChart - a Serious Games Resource

After writing the first article, I received a response from Clark Aldrich, the developer of a site called "ClarkChart" which can be found here. ClarkChart is self described as the "IMDB of the Educational Simulation and Serious Game Industry" (IMDB, for those who do not know, is the "Internet Movie Database" - a place where you can find details of pretty much any movie ever made - including user ratings).



ClarkChart is certainly, by far, the best compilation of serious games and related information that I have come across. Although it is hard to say, I estimate that there are over 100 serious games listed there. Although there is no "maritime" category listed on the site, Clark pointed me to a number of maritime training games. Some of the ones he pointed out in particular are as follows (descriptions are from the website - thanks Clark!):

- **Cruise Ship Evacuation Simulation:** "This exercise exists in a real-time 3D environment where players assume the role of a ship staffer during a ship-wide evacuation caused by a fire. The player is responsible for completing each and all of his or her own tasks from the start of the evacuation until the passengers they are responsible for, are safely aboard a life boat and out of harm's way".
- **Boarders Ahoy!:** "This tactical first-person-perspective game is intended to teach boarding parties how to search cargo ships and question crews. The game is sponsored by NATO's Allied Commander Transformation (ACT)."
- **Emergency Management Staff Trainer:** "The Emergency Management Staff Trainer is a single or multi-player simulation-based exercise system geared toward professionals who are responsible for mitigating consequences during an emergency."
- **Firefighter Training Simulation (REVAS Process):** "This scenario-based training method allows the user to role-play as an actual firefighter in many different situations, which include: rescuing injured occupants of a collapsed apartment building, properly ventilating a warehouse structure, appropriate methods of handling hazardous materials, and many others."

Examples of the Use of Games in Maritime Education

Another note I received after the first article is one from Mark Woolley. Mark is the Chief of Staff in the Office of the President at SUNY Maritime College. Mark has been thinking about gamification for some time now and wrote an excellent article about its applicability to Navy training. Mark also pointed me

to a number of good examples of serious games that he has used in his teaching (it is important to note that none of this should be taken as an endorsement of the games by Mark or SUNY - these were simply comments made in response to the posting on gamification).

One example is ShipSim - made by VSTEP in the Netherlands. In commenting on ShipSim, Mark said: "I actually used the game ShipSimulator for our seamanship and navigation class and as a club activity just to teach Midshipmen the basics on ship handling and proper orders to the helm". According to the ShipSim website, ShipSim is a "... game that pushes the boundaries of simulation gaming ... Featuring stunning visuals, accurate vessel behaviour, famous locations and ports all over the world and missions based on actual events".



Another example from Mark is Dangerous Waters from Sonalysts (screenshot from the website is below). According to mark his students "... had a full blown anti-submarine wargame going with future aviators flying ASW helos and planes, ship drivers driving and working the consoles found on older warships, and submariners doing the same on sub platforms. These midshipmen were doing things I did not do until I was a Lieutenant".

According to the Dangerous Waters website, the game allows "... total control over multiple air, surface, and submarine platforms in a modern-day naval environment! The game allows you to focus your attention and to take direct control of individual crew stations and also plan and execute combined



arms naval strategies from a top-down 'Commander's Eye' perspective".

Mark also mentioned that he has used a game from the Naval Academy for ethics training which "provided an ethical dilemma and choices for the midshipmen to make. Based on each choice the scenario unfolded a different way and limited their future choices". He's also experimenting with another VSTEP game called RescueSim which, according to their website "allows emergency crews to experience the incident as they would in real-life. They assess the situation and determine the best response strategy, implement it and then observe the consequences of their decisions".

Thanks again to Mark for all that great information.

Maritime Serious Games Providers

There are now a number of companies that are developing serious games for the maritime industry. Two examples of companies that are doing very interesting work are MYMIC and VSTEP. It would be easy to write a whole article on each company and their products, but I'll just mention them briefly below so that you can explore on your own.

The first company, MYMIC, produces training simulation and gaming products for the maritime and other industries. I've spoken with some of the people at MYMIC and they are indeed a passionate and knowledgeable group of people who understand the power of serious games (and how to harness that power). Their simulation/serious game products include:

- Port Safety Awareness Training
- Shipyard Safety Awareness Training
- Marina Safety Awareness Training
- Complex Incident Response Training

The second company, VSTEP, develops simulators and virtual training software. According to their website, using "interactive 3D technology from the computer gaming industry, VSTEP creates training applications, simulations and serious games that allow people to build their skills in a practical and cost effective way". Their current line of products includes, among others, the following:

- NAUTIS - a range of simulations for the maritime industry including ship handling, communications, Radar, GMDSS, and others.
- RescueSim - (already mentioned above)
- Crane Simulator - a simulator for terminal (and other) cranes including scorekeeping for post-analysis
- Crowd Control Trainer - a simulator to train crowd management and response strategy.

One Final Word on the Power of Gaming

Before leaving this topic, I want to mention one interesting story that speaks to the power of serious games and their effect of increased motivation. The story is about a serious game called "Foldit". Foldit is not a training game, and is not even aimed at the maritime industry. Instead, it is a serious game which was developed to use the power of "the crowd" and the motivation of the gaming environment to solve a difficult scientific problem. It is a great example of how gamification can yield results not easily obtained otherwise.

The game itself is about protein folding. For our purposes it

is not important to know what protein folding is other than to know that proteins can be physically folded from their unfolded state into their "native state". It turns out that prediction of these native states is a difficult problem, not easily solved by computers. So instead, some researchers made a game to engage people in the process of folding proteins using the brain's "natural pattern matching and reasoning abilities".

Now here comes the interesting part. There is a particular monkey virus that has defied attempts by scientists to decipher for 15 years. The virus was made available in the Foldit game and only 10 days later the 15 year-old problem had been solved by players.

Why was this elusive problem solved so quickly once gamification was applied? No doubt the motivation to solve the problem offered by the game environment played a big part. There is little doubt that the same effects of serious games can yield excellent results when applied to maritime training.

The Use of Games in Maritime Training - Serious Training or Just An Excuse to Play?

There are those who believe that computer-based games (yes - games!) can be used for training purposes. This article looks at the emerging field of "serious games" or "gamification" and its use as an educational tool for the maritime industry.

Introduction

There are those who believe that computer-based games (yes - games!) can be used for training purposes. This article looks at the emerging use of games as an educational tool (known by various terms such as "serious gaming" or "gamification") for the maritime industry.

When I began this series of articles on eLearning media choices six weeks ago, my intent was to write one article on the subject. As I started to construct that first article, it became immediately evident that there is a lot to say about media in maritime training. And, of course, even at four articles, I have only barely begun to touch the subject.

As a quick recap, the first article in the series examined (and defended) the use of text in maritime training content. The second article focused on the fact that each media choice has its strengths and limitations and that there is no such thing as one "best" choice for all training. It then continued to examine the importance of, and best way to combine media in training content. The third article looked at how to choose media. It provided examples of, and examined the strengths of text, imagery, audio, video and simulations in a maritime training environment.

This article is the first of two which introduce gamification as a maritime training technique. The second article will look at a number of examples of serious games - both in the maritime industry and elsewhere. If you would like me to send you a notification when the second part comes out, please fill out the short form here if you have not already done so. If you would like to see an archive of all past maritime training articles, please click here. Now - on to gamification.

Gamification

So - what is gamification or a "serious game" (I'll use the two terms interchangeably in this article)? The breadth of software to which these terms are applied can vary pretty widely. In general, however, a serious game is any game-like program with a primary intent other than simple entertainment. For our purposes, we will restrict ourselves to programs/games which have some inherent "reward system" (described below), and for which the primary "other intent" is training or education.

We will cover some good examples of serious games in the conclusion of this series of articles. But in order to give you a concrete idea of what a serious game might look like, consider a conventional bridge simulator which requires a trainee to perform a set of difficult navigational tasks (sounds familiar thus far). Then add to this the requirement that in order to be allowed to progress to the second task (the next "game level"), the trainee (the "player") needs to achieve a certain level of competency (a certain "score") on the previous task (level). Then consider that the number of attempts at each level, and the score achieved at each level is recorded, and posted on a global game site for all trainees (players) to view. And finally consider that the navigational tasks are team based (as most navigational tasks are) and that team members have positions and individual on-line "player" profiles - allowing each team member to compete against members of other teams holding the same position.

You get the idea - we have taken a traditional simulation exercise and introduced a "reward system"; points, the opening of new levels, and the desire to compete. And while reward systems are not the only feature of serious games, they are generally a central component. So central, in fact, that this is a good time to discuss them. Let's do that.

Reward Systems

What, exactly is a reward system? A reward system is a means by which the player gains some explicit or implicit reward by succeeding at the game. If you have played video games before you know what this means. An example of an explicit reward is a score or points - allowing the player to demonstrate improvement by beating his or her previously highest score. Another explicit reward system is community scoring where people essentially compete to beat one another's scores. Still another common explicit reward is gaining access to new game areas or game functions by virtue of good performance. We saw examples of all of these in our mock navigation game above. Some games even have tangible rewards such as prizes for top performance.

Games can also have implicit reward systems. This is where the boundary between "game" and "not game" gets harder to define. For example, an implicit reward may be the satisfaction of accomplishing a difficult game task or even the satisfaction of learning something new. As I say, this makes the boundary between gaming and simulation a little less clear. Having said that, I have come across a very good article which discusses simulations and serious games, and helps define the difference between the two. It was written by some experts in maritime serious game training - Tyler Brand, Given Davies and Scott

READERS' KIND ATTENTION

Back issues of "MARINE WAVES" from 2005 to 2008 in 2 volumes are available for sale until stocks last. Please rush your bookings to avoid disappointment. **E-mail : seafarersman@indiatimes.com
chandranpeechulli@gmail.com**

Dewis. Their article provides a brief discussion on serious games, discusses the difference between simulations and serious games, and provides a couple interesting examples. It is a good read and can be found here.

The Argument for Serious Games

So - what is the point of serious games? After all, we already have on-line learning and simulation. What does gamification bring to the table that does not already exist? If you believe proponents of serious games, there are numerous benefits including increased motivation, increased engagement, and the teaching of complex or dynamic content that is difficult to teach otherwise. Let's look at these.

Motivation and Engagement

Without gaming, trainees are already motivated by the desire to earn a credential, pass an exam, or get a job. Most are also motivated by the desire to perform their work safely and efficiently. But what if we could add another layer of motivation which caused trainees to "study" much more than they otherwise would? What if we could create a learning experience which engaged them so deeply that learning was not "hard drudgery" but instead "hard fun" (hard fun is not a term I made up - it is a concept meant to illustrate that "fun" does not always have to mean "easy", and that sometimes the best and most rewarding kind of fun is, in fact, difficult - look here for a short discussion of hard fun). If we are able to increase motivation and engagement in this way, then the end result is that trainees enjoy training, spend much more time mastering it, and often go well beyond the levels of learning required to achieve the goals of passing the test or achieving the credential.

Complex, Dynamic Content and Higher Order Thinking

But motivation, while critically important, is not the only benefit touted by proponents of serious games. Serious games also have other interesting educational attributes that arguably are important for training. For example, serious games can be used to teach complex, dynamic concepts by engaging groups of people in the learning experience. Teamwork and team dynamics can be learned and experienced by engaging a group of students in a game which requires members of a team to achieve a goal together - similar to what they would be required to achieve in a work environment. This allows members to experience personalities and real team dynamics rather than simply reading about them. In addition, the game's goal encourages actual effort.

Serious games also require higher order thinking skills such as risk/reward weighting and thinking through problems both globally (considering the problem as a whole) and in detail (considering each sub-goal in some level of detail). Compared with a conventional learning experience, it is easy to believe that a lot more "thinking" goes on when learning through serious games.

But Do They Actually Work?

The adoption of serious games is less wide-spread than general eLearning. As such, while there is some research analysing their effectiveness, the evidence is not as conclusive as it is for eLearning in general.

The best evidence for training effectiveness usually comes from meta analysis of research. A meta analysis looks at a large number of individual research studies on one subject and determines whether there is some consensus (i.e. whether most of the individual studies agree). For example - there is a

tremendous amount of research on eLearning effectiveness, and a well known meta-analysis which can be found here concluded that eLearning was at least as effective as classroom learning, and produced even better results when combined with other forms of learning. Unfortunately, I have not been able to find a similarly conclusive meta analysis of serious games.

The most recent meta analysis I have found is one by Girard, Ecalle and Magnan titled "Serious games as new educational tools: how effective are they? A meta-analysis of recent studies". It was published in June, 2012. I cannot provide you with a link because it was published in a fee-based journal. However, the abstract, which is available to all, reads in part:

"After pointing out the varied nature of the obtained results and the impossibility of reaching any reliable conclusion concerning the effectiveness of [Serious Games] in learning, we stress the limitations of the existing literature and make a number of suggestions for future studies."

What they are saying is that the existing research is too varied to arrive at a firm conclusion. It is important to note that they are *not* saying that serious games are ineffective. In fact, there are many individual research studies which say serious games improve participation rates, improve teamwork, increase time on task, cause trainees to return to training more often, and improve training completion rates. And if we take the view that serious games are simply simulations with reward systems and other motivational elements, then we cannot help but conclude that they can be very effective (since we already understand the effectiveness of simulation in maritime training). As such, while it is reasonable to conclude that well designed serious games are, in fact, very effective learning tools, it is true that the research is still emerging.

Serious Games Do Work - Ask the Users

Despite the need for continued research, users of serious games are very convinced of their effectiveness, and that group of users is large, is growing rapidly, and contains some very impressive members. It includes the military, the aviation industry, research projects, and yes - the maritime industry.

Some of the examples are very interesting and, I think, worthy of covering. Therefore, I will conclude this series on ramifications in the next article by providing some examples of the serious game projects in use now, both in the maritime industry and elsewhere. I find them to be fascinating. I am sure you will as well.

Rights of Seafarers According to Maritime Labor Convention:

Considering the international nature of marine industry, in 2001, need for standard set of rights and regulations for mariners, all over the globe, was felt. It was then that international seafarers' and ship owner organizations decided to come with something similar.

The International Labor Organization came up with a convention dealing specifically with rights and responsibilities of marine workforce. The Maritime Labor Convention was thus introduced in 2006. The aim of this convention is to provide a set of basic rights that all seafarers must be provided, no conditions applied. The convention has yet not been brought into action as it awaits ratification from at least 30 of the member countries.

What does MLC Aims to Achieve?

Maritime Labor Convention was proposed with a view to make marine trade, globally fair and standardized for all the seafaring

workmen without discrepancies due to regions. It was set with specific aims such as:

1. To set minimum standards for seafarers
2. Ensure fair working conditions all over the world
3. To modernize global standards for marine requirements
4. Address minimum requirements for conditions relating to employment, accommodation, recreational facilities, food and catering, health protection, medical care, welfare and social security

The rights of seafarers as mentioned in this convention are given below:

- According to maritime labor convention, every seafarer has the right to a safe and secure workplace that complies with international safety standards
- Seafarers must be provided with decent working and living conditions aboard
- Seafarers hold the right to claim health protection, medical care, welfare measures and other forms of social protection
- Every seafarer has a right to fair terms of employment
- A seafarer, at all times, holds the right to form or join trade unions of his/her choice
- A seafarer has the right to seek help of the union for negotiations of a collective bargaining agreement on his/her behalf

International Labor Organization mentions these broad rights as basic rights for all seafarers. Several other finer aspects of lives of seafaring workmen are covered under this convention. These aspects include:

1. Types of vessels - According to MLC, all seafarers working on any kind of vessels are eligible to claim these rights. However, vessels exempted from this conventions are
 - fishing vessels
 - warship vessels
 - traditional vessels
 - vessels that are restricted in their navigation to inland waters or coastal areas



These rights can further be exempted for vessels not carrying international seafarers and being restricted to the coastal regions alone, provided the rights under the port regulations cover basic seafarers' rights as given by MLC.

2. Recruitment- as mentioned by ILO, no marine agency can charge a mariner for purpose of seeking recruitment. Only the services in terms of obtaining international documents, national seafarer's book, medical certificates etc can be charged for.
3. Employment- MLC states that no marine employee below age of 18 years can be employed for hazardous works. General

age for marine employment has been set at 16 years. Besides this, the MLC clearly states importance of official employment agreement. According to the rights of seafarers as mentioned by MLC, an employment agreement must mention a seafaring individual's

- Name, date and place of birth
 - Ship owner's name and address
 - Exact designation
 - Conditions of working
 - Wages
 - Added benefits
 - Period of validity of agreement
 - Number and conditions for paid leaves
 - Clauses for terminating the agreement prematurely
4. Remuneration- MLC mentions a minimum wage level for all seafarers as USD \$435 per month, with a minimum of 2.5 paid leaves per calendar month or combined annual leave in accordance with the same. Besides this, wage rights of seafarers include
 - Payments should not be made at an interval exceeding a month
 - Right to be paid for overtime as per the international standards
 - Right to be paid all outstanding dues in cash in case of termination of project
 - Right to freedom to send all or part of earnings back home
 - Right to not be charged additionally in lieu of taxes or overhead expenses from the salary
 5. Working conditions- Working conditions as mentioned by MLC include both the working hours and the physical conditions of work. The physical environment for work for seafarers should be safe and physically comfortable to work in.

These conditions should not only be provided with safety features depending on nature of the job but the dimensions

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and its general structure should allow the seafarers to work comfortably in the work area. The work hours, as mentioned by MLC state:

- A work schedule of maximum 14 hours in 24 hour period
 - A minimum of one day of rest in a week cycle
 - A minimum of 10 hours' rest in a 24 hour period
 - A maximum of 48 hours of overtime work in a weekly cycle
6. Accommodation and Recreational facilities- The international Labor Organization and MLC together maintain that accommodation facilities offered to seafaring individuals on any vessel must be:
- Decent
 - With proper heating and ventilation systems
 - Protective of noise and vibrations
 - Sanitary
 - Adequately insulated
 - Not cause any general or specific discomfort to mariners

MLC requires competent authorities to conduct frequent inspections to ensure proper accommodation facilities including food and catering services and recreational facilities.

The Maritime Labor Convention defines seafarers as any person who is employed or engaged or works in any capacity on board a ship.

As such, all the above mentioned rights apply to all such individuals in the 18 countries that have ratified the convention. They include- Liberia, Marshall Islands, Bahamas, Panama, Norway, Bosnia and Herzegovina, Spain, Croatia, Bulgaria, Canada, Saint Vincent and the Grenadines, Switzerland, Gabon, Benin, Singapore, Denmark, Latvia, Antigua, and Barbuda. Inability to meet any of these guidelines in above mentioned countries would qualify the seafarers to seek official help.

Understanding the Importance of Maritime Labour Convention (MLC):

The Maritime Labour Convention (MLC) was established in the year 2006 in Geneva, Switzerland as a part of the International Labour Organisation (ILO). The convention was established with a view to ensure that the rights and needs of the seamen are safeguarded and they are enabled to get what is rightfully due to them without being exploited.

At present the maritime convention requires ratification by 30 countries engaged in marine trade of which only 13 countries have confirmed or ratified it. Additionally, it is required that these 30 countries, who have to be members of the ILO, have to have a minimum stake of 33% in the international shipping sector (calculated on the basis of share percentage of gross tonnage of ships).

Based on the ratification by all countries, the convention is expected to be brought into active force within a year of ratification - in this case, in the year 2011 or latest by early-2012. Some of the 13 countries that have ratified the convention are the Bahamas, Bosnia and Herzegovina, Croatia, Switzerland, Spain, Canada and Denmark.

The Marine Labour Convention forms the fourth mainstay of the International Maritime Organisation in terms of providing qualitative transportation in the marine areas. The other three mainstays include the MARPOL, STCW and SOLAS conventions.

The main reason that the convention was decided to be implemented was because of the nature and extent of trade and business activities through the marine channels. According to statistics, nearly 90% of the international trading is carried out through the oceanic routes, involving nearly 1.2 million people as professional seamen.

In order to unify the rights of the seamen, many concepts from both the maritime and the international labour organisations - 68 in totality over the past eight decades - have been amalgamated so as to create a complete and thorough law body on maritime labour.

Some of the concepts and laws that have been taken into account for the MLC preparation can be enumerated as follows:

- 1) Equal Remuneration Convention, 1951
- 2) Minimum Wage Convention, 1973
- 3) The Worst Forms of Child Labour Convention, 1999
- 4) The Abolition of the Forced Labour Convention, 1957
- 5) The labour convention also seeks to revise some of the current conventions and laws which are part of the maritime

labour organisation. A few of these prospective revisable laws can be listed down as follows:

- Minimum Age (Sea) Convention, 1920
- Placing of Seamen Convention, 1920
- Certification of Ships' Cook Convention, 1946
- Hours of Work and Manning (Sea) Convention, 1936
- Seamen's Articles of Agreement Convention, 1926
- Paid Vacations (Seafarers) Convention, 1946
- Merchant Shipping (Minimum Standards) Convention, 1976
- Recruitment and Placement of Seafarers Convention, 1996

Divided into three parts, the Articles, Regulations and the Code, the MLC is highly detailed and lists down the rights, requirements in the form of duties and the rationales of the countries which confirm the marine labour convention by ratifying it, in its first two parts. In addition, the MLC also lists down the manner of implementation of the prescribed regulations in its third and final part - the Code.

The implementation of the set and prescribed convention rules is the obligation of the marine offices of the countries which have ratified the convention.

For this purpose, there has been established a set-up to supervise and govern the implementation of the MLC stipulations. This set-up will also act as the mediator in case of any troubles and conflicts posed to arise while the convention is being practically carried out.

With the help of the Maritime Law Convention, it has been envisioned that a universally applicable body of law will come into force which would be a unique achievement for the marine sector on the whole.

Mastering Ship's Navigation- Part 1: A navigational or deck officer has to be extremely careful while steering a vessel from its course no matter where the ship is - at mid sea, crossing channel, or entering/ leaving a port.

The team at the bridge should be efficient enough to sail the ship in all kinds of waters and weather.

One of the natural factors about which every navigator should be very careful while steering a ship is - the wind.



Vessels such as Container and Ro-Ro ships have large freeboard and are thus more affected by winds. This exposed area of the ship is also known as windage area as the effect of wind is more prominent over it.

The wind effect on the same ship will be different at different places, depending upon the draught condition of the ship.

A wind with force of 3-4 on the Beaufort scale will have similar effect in light condition as with wind force of 7-8 when the ship is down to her marks.

When ship is at slow speeds during maneuvering or near to the coast, wind direction is easy to find; but this is not the case when out at high sea. The direction of the wind perceived when standing on deck is its relative direction. This is the resultant of the true direction of the wind and the course steered by the ship.



It is very important for the ship's navigator to steer the ship considering the wind effects so that ship can be steered efficiently without any difficulty. Following are the techniques a navigator must master related to wind effects.

Ship underway with wind from right astern

When the wind is blowing from the right astern, steering the ship becomes easy; however, in the case of head wind, the stern

part of the ship has the tendency to pay off on either side. This is a difficult situation to tackle and getting the ship back on course is no piece of cake.

Such effect is more often seen on ships where the accommodation area is at the aft region. Moreover, the wind in such case has no braking effect.

Note: Given a choice between head wind & wind from right astern, the head wind is preferred for berthing.

Ship underway with wind from abeam

When the ship is underway with the wind flowing from abeam, the steering of the ship is not affected. However, depending on the strength of the wind, the ship drifts sideways due to leeway and this has to be accounted for while handling the ship.

Ship underway with wind on the bow

Here again in lighter conditions, the effect on the ship's stern is larger and this tends the ship's head to swing away from the wind (leeward). This requires the weather helm (helm on the side of the wind) to be steered continuously.

Ship underway with wind on quarter

When the wind is pushing the ship's stern away to leeward, the stern tends to swing towards the leeward. The ship is therefore steered towards the wind and the ship is required to be given a lee helm.

Vessel under sternway

When the ship is going astern, it rarely goes at a great speed. When going astern most ships also tend to swing to the starboard. The effect of the wind is therefore a little more complex.

In ballast condition where the wind catches the bow, which it often does, the stern is pulled into the wind. This effect is quite definite & rapid.

Note - This effect must be remembered while maneuvering for anchoring, berthing etc.

All ships turn around a pivoting point. This point is an imaginary reference and is fixed from observations of the ship turning around. It is known that when going astern the pivoting point moves aft.

Conclusion

Navigators can use the wind:

1. As a good brake
2. As a device for making a tight turn.
3. To maneuver comparatively easily as long as the wind remains about two to three points on the bow.

Mastering Ship's Navigation - Part 2

In the previous article - Mastering Ship's Navigation -Part 1, we explained as to how a deck officer can use the forces of wind for maneuvering the ship safely and efficiently.

In this article, we take into consideration a totally different aspect which also plays an equally important role while maneuvering a ship at the sea. Let's find out how a ship can be controlled under various effects of ocean currents.

The effects of ocean current

Ocean currents play a very important role in ensuring the stability of the ship.

The effect of currents therefore must also be considered when handling ships in waters.



Effects of current are important especially when the ship is under the effect of on shore winds, near off shore platforms, while maneuvering in narrow channels and open seas, or in inland waters or harbors. When the ship is in harbors or inland waters and the current is at constant strength and direction, the ship's handling becomes considerably easier.

Such conditions exist only in comparatively narrow channels of the rivers.

However, navigational officers should take into account different current streams that can exist over a small area, within which the vessel has to maneuver.

The main difference between currents and winds is that currents affect the ship in definite and predictable ways, unlike the wind does.

Even in open waters, when the ship is approaching a rig or a mooring buoy, due allowance should be made for the effect of the current for a safer maneuver.

Current from ship's ahead will reduce the ship's speed over ground, improve ship's response to the rudder, and also give more time to assess and correct developing situations.

Shallow Water Effects on Ships - Ship Squat

When a ship proceeds through water, it pushes the water ahead. This volume of water returns down the sides and under the bottom of the ship. The streamlines of return flow are speeded up under the ship, causing a drop in the pressure and resulting in the ship dropping vertically in the water.

When the ship drops vertically in the water, it trims both forward and aft. This overall decrease in the static under keel clearance, both forward and aft, is called Ship's Squat.

If the ship moves forward at a greater speed in shallow water, where the keel clearance is 1.0 to 1.5 metres, then there are high chances of grounding at the bow or stern due to excessive squat.

What are the factors that govern Ship's Squat?

The main factor on which the ship's squat depends is the ship's speed. Squat varies approximately with the speed squared.

The blockage factor "S" is another factor to be considered while understanding ship squat. The blockage factor is defined as the immersed cross-section of the ship's mid-ship section divided by the cross-section of water within the canal or river.

The blockage factor ranges from about 8.25 for super tankers, to about 9.50 for general cargo ships, to about 11.25 ship-breadths for container ships.

The presence of another ship in a narrow river will also affect squat, so much so that squats can double in value as the ship pass or cross the other vessel.

How to find out if a ship has entered shallow water?

1. Wave generation from the bottom of the ship increases, especially at the forward end of the ship.
2. Ship becomes more sluggish to manoeuvre.
3. Draught indicators or echo-sounders will indicate changes in the end draughts
4. Propeller rpm indicator will show a decrease. If the ship is in "open water" conditions i.e. without breadth restrictions, this decrease may be up to 15% of the service rpm in deep water. If the ship is in confined channel, this decrease in rpm can be up to 20% of the service rpm.
5. There will be a drop in ship's speed. If the ship is in open water conditions this decrease may be up to 35%. If the ship is in a confined channel such as a river or a canal then this decrease can be up to 75%.
6. The ship may start to vibrate suddenly. This is because of the water effects causing the natural hull frequency to become resonant with another frequency associated with the vessel.
7. Any rolling, pitching and heaving motions will be reduced as ship moves from deep water to shallow water conditions. This is because of the cushioning effects produced by the narrow layer of water under the bottom shell of the vessel.
8. The appearance of mud cloud will be visible in the water around the ship's hull when the ship is passing over a raised shelf or a submerged wreck.
9. Turning Circle Diameter (TCD) increases. TCD in shallow water could increase 100%.
10. Stopping distances and stopping times increase, as compared to when a vessel is in deep waters.
11. Effectiveness of the rudder helm decreases.

Mastering Ship's Navigation-Part 3:

Continuing the series to enhance the navigational ability of the deck officers on board merchant ships, this article explains the importance of understanding one of the main characteristics of ship navigation- The stopping distance.

Every vessel shows different characteristics when it comes to the distance covered when stop signal is given due to difference in dimensions, loading and ballast condition.

It is very important for a navigating officer to learn the principles of passage planning and understand his ship's characteristics

even as a small mistake in understanding may lead to collision, grounding or other kind of mishaps.



Stopping distance of ships

As we all know, ship like any other transport utility does not have brakes to make them stop immediately. When the engine is given stop order, the ship will continue moving in the same direction due to inertia and will come to stop after moving for some distance.

Every ship has two different stopping distances depending on:

1. Inertia Stop
2. Crash stop

Inertia Stop

As described above, when the engine of the ship is stopped, the ship will continue moving in the same direction for some more distance due to inertia. Here no astern command is given (used to produce "braking effect" for ships), and hence ship will travel more distance in the inertia stop method.

Crash Stop

Crash stop is usually the term used when the ship has to sudden stop in emergency situation. Here the engine, which is moving in an ahead direction is given an order for full astern, leaving the rudder in the mid ship position to stop the ship within minimum distance and shortest possible time. To know the complete procedure read for crash stopping read - crash manoeuvring.

In general operation i.e. berthing or departure of the ship from port or manoeuvring through channel or narrow passage, the above two methods are combined for a swift navigation of the ship i.e. in between giving an astern kick to stop and slowing down the ship's speed for better manoeuvring.

The stopping distance data and chart is given in sea trials of the ship and made handy on bridge for reference. Every deck officer must refer this data to master the navigation of the ship.

The data may differ when used due to variation in weather condition, ships loading, stability and other factors; however, deck officers can compare the trail data and make use of it in practical situations.

Few Practical Examples

Depending upon the loading condition and the speed of the ship, the stopping time will be different when these two conditions are changed.

Also Ships fitted with Diesel machinery will have stopping distances approximately 70% of those fitted with Steam Turbine machinery.

When the ship's hull has been due cleaning (dry dock) for longer time, the stopping distance and time will be less as compared to when the ship is just out of dry dock. This is because the hull resistance is more in ships with dry-dock done long ago.

The wind direction and sea condition also plays an important role as wind and waves acting from behind the ship will increase the stopping distance and vice versa.

It is important for a navigation officer to know the surrounding of its ship and how the ship will react to change in speed and loading condition. Only then he/she will be able to sail safe through all kinds of seas.

How effective are regulations in prevention of human element accidents in shipping?

Regulations provide the framework from which companies and operators establish a common set of rules and expectations. They provide legal coverage for companies that comply with them, and provide expectations of punishment for those who fail to follow them. The "carrot" to the equation is no death, no injury, no casualty whose fault can be ascribed to human error; the stick is punishment by fine or imprisonment, or both.

I agree with the Ten Commandments approach:

1. Cause no harm to people or equipment
2. Follow good marine practices
3. Obey the rules of the road
4. Don't lie about your overtime, expenditures, or reimbursements
5. Treat all members of the crew and shore with respect
6. Don't lie about what happened
7. Think twice, do once
8. When in doubt, ask or look it up
9. Prepare for the unexpected
10. Share the credit, take the blame

– Kevin Sorbello

A Simple But Smart Solution to Containing Tanker Oil Spills:

Prompt intervention when shipwrecks and tankers are in distress can be crucial in confining pollution and limiting possible damage to the environment. Until recently however, a lack of appropriate tools and systems have hampered rescue efforts.

A European project sought to address this deficiency by designing and validating an EU reference method to enable prompt, cost-effective intervention when an oil tanker is in danger of spilling its cargo. The DIFIS ('Double Inverted Funnel for Intervention on Shipwrecks') project examined what to do with leaking fuel; and what should be done with fuel still trapped in tanks. It also addressed the issue of dealing with oil tankers that have sunk to significant depths.

The end result is a method applicable to all tanker wrecks, so long as the trapped pollutant has not dissolved and is of lower density than sea water.

The proposed solution relies on gravity forces to deal with spilled fuel. Instead of channelling it directly to the surface – where any recovery operations would be greatly affected by adverse



weather conditions – the fuel-water mix is channelled to a buffer reservoir/separator some 30 to 50m below the sea surface.

The reservoir comprises a light, quickly deployable, flexible structure that can stay in place until all tanks of the wreck are emptied and the pollution threat eliminated. This buffer reservoir contains equipment that enables shuttle vessels, weather permitting, to rapidly collect the fuel using standard off-shore loading equipment.

The dome of the reservoir is constructed using a textile-based material, while the riser tube is made of flexible piping and high-strength synthetic wire. The buffer bell is placed some 50m below the water surface, where it is not affected by waves, and has sufficient buoyancy to tension the riser tube and to keep the entire system in its correct shape.

In practice, after pinpointing the shipwreck site, a remotely operated vehicle (ROV) is sent in to investigate. The local water depth, bottom geometry, soil properties and current conditions are determined. Concrete anchor blocks are then placed on the bottom using a work vessel with either a crane or a winch of sufficient capacity.

The folded dome is then transported to the site on a barge. It is lowered into the water and brought alongside an installation vessel. Here it is connected to the first section of the riser tube which is built section by section. As the length of the riser tube increases, the folded dome is gradually lowered until it is close to the shipwreck. After the dome is unfolded, the buffer bell is connected to the riser tube and the whole system is disconnected from the installation vessel.

Once installed the DIFIS system is completely passive and requires no human operator. Offloading operations can be scheduled and periodic inspections take place to ensure the integrity of the system. Since the DIFIS system is intended to remain in place for a prolonged period of time, it has been designed to be capable of withstanding harsh environments.

In rigorous testing of the DIFIS system, no unexpected behaviour was observed during operational conditions, while the dome shape remained intact. Furthermore, the buffer bell was judged to be sufficiently below the water surface. The overall behaviour of the DIFIS system during offloading also met with expectations.

Containership MOL Comfort : Floating Containers Sink, Investigation Begins:

Mitsui O.S.K. Lines, Ltd. (MOL; President: Koichi Muto) reports the fore part of the containership MOL Comfort sank in the high

seas near 19°56'N 65°25'E (water depth about 3,000m) at 19:00 UTC on July 10 (04:00 on July 11 JST) as already reported in our updates no. 24 and no. 25.



While we had kept the salvage team in the area to monitor the situation of oil leakage and floating containers, no more oil film was observed. Most of the floating containers sank and could no longer be spotted.

We reported the fact to Indian authorities, completed the monitoring, and the salvage team left the scene.

We have been proceeding with the thorough investigation to determine the cause of the incident.

Ecospeed Offers Lasting Underwater Hull Protection to Vessels Trading in Ice:

When it comes to protecting the hulls of ice-going vessels, the glassflake reinforced surface treated composite (STC) Ecospeed® has proven to be remarkably durable, typically outperforming many specialized ice class paints. The fact that the coating is non-toxic is also particularly important for ice trading vessels where toxic AF coatings are rapidly scraped off and deposit their toxic ingredients in what are often particularly sensitive environments.

Icebreakers and ships that trade in icy waters have their own very specific problems when it comes to protecting their underwater hull. Icebreakers have to use their weight to ram into thick ice and force a passage. Ice going ships, such as those trading in the North Baltic, the northern coasts of North America, the Great Lakes, and so on, are constantly being hit



by chunks of ice which may be 50 centimeters or more in thickness. Not only is the ice highly abrasive, there is the additional factor that the steel of the hull flexes under the impact.

When the metal sheets that form the hull flex and bend under collision with the ice, the paint that is supposed to protect them does one of two things. It either is flexible and adheres so well to the metal that it is virtually part of the steel itself and thus survives, or it is less flexible than the hull and cannot flex with the steel, in which case the paint gradually, or not so gradually, is disbonded from the hull and rubbed away under the impact. It is a problem which is unique to ships faced with ice impact.

Ecospeed demonstrates excellent attachment to the hull and successful resistance to extremely icy conditions. Ecospeed has proven its ability to withstand the harshest winter conditions on numerous occasions. For over seven years a number of vessels coated with Ecospeed have been sailing the most northern parts of the Baltic Sea during the winter season and as far as both the North and the South Pole. These vessels' underwater hulls frequently have to endure the impact of large pieces of floating dry ice. Despite this, there has been neither damage from the ice nor any deterioration of the coating and none of these vessels have required more than just a few touch-ups during their drydock visits.

Certified abrasive resistant coating

Ecospeed has received the Lloyd's Register certificate that recognizes the coating as an abrasion resistant ice coating. This allows owners of vessels intending to navigate in ice conditions to reduce the thickness of the plating of the ice belt, the area on the bow just above the waterline that is most prone to mechanical damage from sailing through ice, if this area is coated with Ecospeed.

Some cases in point – No repaint needed during drydockings

Interscan cargo fleet benefits from Ecospeed

Interscan Schiffahrt controls a fleet of 23 container and multipurpose cargo ships ranging in size from 1,723 to 11,800 dwt. Many of these vessels trade in northern Europe, generally in the Baltic.

Until 2005, all those ships trading in ice in the Baltic region went through a cycle of having all their bottom paint scraped off by the ice each winter and having to drydock and repaint every spring. The paint used was a standard epoxy coating.

In 2005 the then superintendent engineer came across Ecospeed. He decided to test the environmental and fuel saving benefits of Ecospeed, a novel, environmentally-benign, hard coating system. MV Patriot was their first ship coated. The Patriot is an 82.3-meter ice class E2/Finnish 1B general cargo vessel. According to Michael Tensing, in charge of chartering at Interscan, the ship was in need of a full reblast at the time due to the built up of multiple layers of epoxy, so the time was right to prepare the hull fully and try Ecospeed.

It is now seven years since Ecospeed was applied on the first Interscan vessel. Michael Tensing says, "She was here recently and the paint still looks good. That's the best advertisement you can have. You don't have to do much to the paint. It's only a can of paint for touch-ups, just cosmetics at the anchor pocket or if you have mechanical damage or something. The rest to my mind is really very good." As he points out, there really is no other coating that could stand up to seven years of trading in ice and still remain intact and not in any need of repainting or anything beyond very minor touch-ups.

Michael Tensing estimates that at current rates the payback for full hull preparation and coating with Ecospeed for a newbuild

would be five years. Since Ecospeed properly applied is guaranteed for ten years and expected to last the full life of the ship, the economic factors are very positive. And these figures only take into account the cost of preparation, paint and application, compared to the conventional coatings they were using, without regard to potential fuel savings from correct use of Ecospeed. All the Interscan Ecospeed coated vessels will soon have exceeded the payback period. So far all the ships have kept their coating in excellent condition.

W&R Shipping finds Ecospeed to be the best coating

W&R Shipping converted its existing fleet to Ecospeed and specified Ecospeed as the coating for newbuilds ordered. Co-founder Captain Wim van Ecke explains why.

Wim van Eck has spent most of his seafaring career as a captain, trading mainly in the North of Europe and the Baltic Sea. "Of course we always were confronted with the fact that in the winter time when you were sailing through the ice your paint was gone and so you had to do something about it in the summer time," he explains. "You had to drydock in order to repaint."

In 2007, Wim came across Ecospeed. Having read of the success Interscan was having with Ecospeed on similar vessels, also trading in Baltic and Northern European ice every winter, W&R decided to try Ecospeed themselves.

The first vessel to be converted to Ecospeed was the Crownbreeze. Like the other W&R vessels, the Crownbreeze previously had a high abrasive specialty ice coating. "I can't say that the earlier coating worked very well," says Wim. "When it was new it was not too bad, but of course you get a lot more chipping than with Ecospeed, so every docking you have to touch it up and it gets rougher."

The Thea Marieke followed in the wake of the Crownbreeze with an Ecospeed application in 2008. Those were the two where the original coating was replaced. Subsequently, the Crown Mary, the Tina and the Anna Dorte also had Ecospeed applied at newbuild stage which is the ideal time to apply the coating.

The Crown Mary went to drydock in June 2012 after two and a half years' sailing in ice with Ecospeed. "There was some small mechanical damage but nothing really major," says Wim. "We didn't need to do anything with the hull paint in drydock." The Crownbreeze was docked in 2009 and again in 2012, five years after the Ecospeed was applied. Nothing had been done with the paint in the 2009 drydocking.

Wim also points out, "Having Ecospeed on the hull can save us some days in drydock which would be needed to repaint if we were using a less durable coating."

Icebreaker Oden – Conquering the Poles with Ecospeed

This icebreaker Oden came in to drydock in Landskrona, Sweden, in April 2009 after sailing with Ecospeed on parts of its underwater hull for two years. During this period it was used for several expeditions to both the Arctic and Antarctic.

After Ecospeed came out on top in a comparison between test patches coated with Ecospeed and another ice-strength paint, the management of the vessel was more than happy to have the rest of the underwater hull coated as well and also ordered the same treatment for fellow icebreaker, Ymer.

The Oden's Captain, Erik Andersson, recalls the problem with hull protection prior to 2007. "When the Oden went down to

Antarctica the first year, we found that icebreaking was quite different down there, especially when you get close to the coastline where there is a lot of lava sand in the ice which makes it more or less like sandpaper. Also the ice is extremely hard in those areas. Due to that fact, the first year the icebreaker paint we were using was almost all more or less destroyed on the bow area so we were left with virtually unprotected steel."

"We've had Ecospeed on the bow for a couple of years now," continues Erik Andersson, "And it's still there. It gets thinner and you can see that it's actually shaving and getting thinner, but it's still providing protection for the steel, whereas the conventional ice strength paint we were using would probably be gone by now."

RRS Ernest Shackleton – a breakthrough in icebreaker hull protection

When British Antarctic Survey's RRS (Royal Research Ship) Ernest Shackleton was drydocked in Denmark, the superintendent, engineers and paint specialists there to check the condition of the hull paint were amazed. After two seasons of battering its way through ice up to 2.5 meters thick with a high content of gravel and volcanic lava adding to its abrasiveness, the hull coating was virtually intact and undamaged. This was in strong contrast to the Shackleton's previous drydocking, when almost the entire hull, bearing a conventional ice-going underwater hull coating, was practically stripped to bare, unprotected steel.

The difference lay in the fact that when the Shackleton left drydock in 2009, the hull was newly coated with Ecospeed. Even though Ecospeed is not intended specifically for ice-going ships and icebreakers, it consistently outperforms the specialized ice-going ship bottom paints.

Stephen Lee was the Senior Marine Engineer for British Antarctic Survey, the BAS's equivalent of a Technical Superintendent. He recalls the reaction of those present when the Ernest Shackleton was first pulled out of the water at Frederikshaven drydock in early 2011 "The biggest thing was the surprise at seeing the areas where you'd expect it to have taken a lot of damage... when she first came out of the water and onto the blocks it was a complete shock to all those present. All of us there commented on the condition of the hull and in particular that there was negligible damage at the bows, merely some scratch marks. None of us there would have predicted this. I then jokingly asked the question, 'Are you sure you've taken this ship to the ice?'" According to Stephen Lee, the crew of the Shackleton reported that they had been pushing into 2 – 2.5 meter thick ice, "...and it's just not touched it – just not touched it at all."

Paint inspector's perspective

Howard Jess was the paint inspector for the initial Ecospeed application to the Ernest Shackleton in 2009. "I was very impressed with the condition of the coating on the Shackleton after two seasons in the ice," says Howard. "Apparently she had been trapped in the ice on several occasions and the procedure is to reverse and then crash forward at full speed. Yet the coating remained intact – pretty impressive. I would have expected to see damage down through the coating exposing the hull. However the bow looked as if it had just been painted. Crew members who had seen the ship out of the water on numerous occasions said that they had never seen the hull looking so good after two seasons in the ice."

Howard also has some advice for shipowners applying Ecospeed to their ice-going vessels: "For some reason the current mind-set is to stop at the waterline. Given that ice tends to ride over itself and up the hull it would seem sensible to extend the coating to 2–3 meters above the waterline." A piece of wisdom obviously shared by Stephen Lee, evidenced by the fact that while the Shackleton was in drydock recently, the level of Ecospeed coating was raised from the water line to well into the boot top area for protection.

Manning The World's Largest Ship – The Maiden Voyage of The Maersk Triple-E:

The first Triple-E has commenced its maiden voyage in Busan, South Korea. At the helm, the crew of the Mærsk Mc-Kinney Møller whose members have been selected among Maersk Line's finest.

A selection of highly qualified crew members, specifically chosen because of their background and experience, will man the largest ship in the world. The ship can accommodate 34, and in principle run with as few as 13, but in regular service approximately 22 persons will make out the crew.

Understanding of roles and responsibilities on the vessel is of utmost importance to ensure smooth sailing and safety.

On the Mærsk Mc-Kinney Møller, the Captains are Jes Meinertz and Niels Vestergaard Pedersen, and the Chief Engineers are Per Schilling Nielsen and Niels Peter Svarer.



All of them were present at the naming ceremony in Korea on 14 June. "You are among the finest in your fields, and you should be honoured by being selected to take this vessel into service," said Maersk Line CEO in his speech on that occasion. "May you always have fair winds and following seas."

Away from home

Working on a ship is different from a regular nine to five job, the most obvious being the long periods spent away from home. All four testify that the hardest is that you cannot be there for special occasions, good and bad. On the other hand, modern communication has reduced the feeling of solitude significantly. Although bandwidth is limited, crew members these days can use email, Skype or FaceTime to be in regular contact with friends and family back home.

On another level, however, it is a job like any other job, and sometimes you hardly notice that you're at sea," says Per. "We had a trip two years ago where we sailed south of Africa and were at sea for 45 days. I was never bored. There was always something to do." It's like any other job," adds Jes. "There are periods with interesting tasks and periods where it's more routine."

Breaking in a new ship

Taking a new ship to sea, however, is not routine. There are many surprises and things to get used to. The crew is involved in the sea trials, but will also use the first voyages to really get the hang of how the ship performs.

The Triple-E is designed for slow speeds and energy performance. But this doesn't make it less interesting, insists Niels Peter. "It is a huge satisfaction," he says "when you know the enormous costs involved which are pumped through the system, if you can cut a few percent off that" Niels adds that the Triple-E is quite different from previous vessels with its added weight and more box-like hull shape. "It will take some getting used to, and the captain will need to be aware of the capabilities of the vessel," continues Niels.

They are fully confident, however, that sailing the Mærsk Mc-Kinney Møller will indeed be a special experience. The maiden voyage begins today. The crew is ready for the attention the vessel will receive in ports along the way, creating history with the latest record-breaking member of Maersk Line's fleet.

IMB Piracy Report Highlights Violence in West Africa: Somali piracy has fallen to its lowest levels since 2006, focusing attention on violent piracy and armed robbery off the coast of West Africa, Q2 2013 picture the International Chamber Commerce (ICC) International Maritime Bureau (IMB)'s global piracy report revealed recently.

Worldwide, the IMB Piracy Reporting Centre (PRC) recorded 138 piracy incidents in the first six months of 2013, compared with 177 incidents for the corresponding period in 2012. Seven hijackings have been recorded this year compared with 20 in the first half of 2012. The number of sailors taken hostage also fell dramatically; down to 127 this year from 334 in the first six months of 2012.

In the Gulf of Guinea, in addition to a rise in piracy and armed robbery – 31 incidents so far this year, including four hijackings – IMB reports a surge in kidnappings at sea and a wider range of ship types being targeted. This is a new cause for concern in a region already known for attacks against vessels in the oil industry and theft of gas oil from tankers.



"There has been a worrying trend in the kidnapping of crew from vessels well outside the territorial limits of coastal states in the Gulf of Guinea," said Pottengal Mukundan, Director of IMB, which has monitored world piracy since 1991. "In April 2013, nine crew members were kidnapped from two container vessels, one of which was 170 nautical miles from the coast. Pirates have used motherships, some of which were smaller off-shore supply vessels hijacked by pirates to conduct the attacks.

There continues to be significant under-reporting of attacks – a phenomenon highlighted by the IMB year on year. This prevents meaningful response by the authorities and endangers other vessels sailing into the area unaware of the precise nature of the threat."

Armed pirates in the Gulf of Guinea took 56 sailors hostage and were responsible for all 30 crew kidnappings reported so far in 2013. One person was reported killed and at least another five injured. Attacks off Nigeria accounted for 22 of the region's 31 incidents and 28 of the crew kidnappings.

Mr Mukundan applauded the signing of the Code of Conduct Concerning the Repression of Piracy, Armed Robbery Against Ships, and Illicit Maritime Activity in West and Central Africa in June 2013 by the heads of the West and Central African countries.

"This should be translated soon into action on the water," he said. "If these attacks are left unchecked, they will become more frequent, bolder and more violent. Cooperation and capacity building among the coastal states in this region is the way forward and urgently needed to make these waters safe for seafarers and vessels."

Somali clampdown

Meanwhile, in East Africa's Gulf of Aden and Somalia, eight piracy incidents including two hijackings were recorded in the first six months of 2013, with 34 seafarers taken hostage.

IMB attributes this significant drop in the frequency and range of attacks by Somali pirates to actions by international navies, as well as preventive measures by merchant vessels, including the deployment of privately contracted armed security personnel. Mr Mukundan said: "The navies continue to play a vital role in ensuring this threat is kept under control. The two vessels hijacked were recovered by naval action before the pirates could take them to Somalia. Only the navies can take such remedial action after a hijack. Denying the pirates any success is essential to a sustained solution to this crime. Pirates are known to be operating in these waters. Despite the temporary protection provided by the southwest monsoon in some parts of the Arabian Sea, the threat remains and vessels are advised to be vigilant and comply with the industry's Best Management Practices as they transit this area."

As of 30 June 2013, Somali pirates were holding 57 crew members for ransom on four vessels. They were also holding 11 kidnapped crew members on land in unknown conditions and locations. Four of these crew have been held since April 2010 and seven since September 2010.

Elsewhere in the world, low level thefts against vessels in ports and anchorages in Indonesia accounted for 48 attacks of which 43 vessels were boarded and some crew injured. IMB's report includes details of the ports and anchorages where attacks appear to be concentrated.

Port State Enforcement of ILO MLC – ICS Issues Free Advice to Shipowners: The International Chamber of Shipping (ICS), whose member national shipowners' associations negotiated the text of the ILO Maritime Labour Convention (MLC), has issued advice to shipowners to help them pre-empt port state control problems when the Convention enters in force, next month, on 20 August.

The advice contained in a brochure – which can be downloaded free of charge via the ICS website – explains the measures

which port state control officers are entitled to take, which initially will vary from country to country depending upon the date when the port state ratified the Convention.

ICS Secretary General, Peter Hinchliffe explained: "The enforcement mechanism is new, and is complicated by the fact that the MLC does not actually require flag states that have ratified the Convention to issue certification immediately. The ILO Diplomatic Conference which adopted the MLC in 2006 also adopted a Resolution agreeing that port states should take a pragmatic approach to enforcement for the first 12 months following entry into force worldwide. But it is still rather unclear how this will be applied in practice. Shipowners should therefore take sensible precautions."



Mr Hinchliffe added "Regardless of the progress which may or may not have been made by a vessel's flag state, ships are required to meet the standards in the Convention. Our brochure therefore seeks to explain the current situation and the measures that operators might take to demonstrate compliance, even if they have not yet been issued with MLC certification."

An important part of PSC enforcement will be the Declaration of Maritime Labour Compliance (DMLC), part of which companies are required to prepare themselves for each of their ships, and which should serve as prima facie evidence that the ship meets MLC standards.

ICS therefore recommends that companies prepare, for all their ships, a DMLC Part II before 20 August, in order to minimise potential difficulties should their ships be subjected to PSC enforcement under the MLC.

In the event that the flag state has not yet ratified the Convention, or has not yet issued ships with a DMLC Part I containing details of the national requirements with which ships should demonstrate compliance, ICS suggests that companies should nevertheless prepare a DMLC Part II for all their ships – even if this has to be adjusted once the flag state is ready to issue guidance. ICS suggests that companies can refer to the model contained in the 'International Shipping Federation (ISF) Guidelines on the Application of the MLC' which were produced by ICS last year.

ICS also recommends that ships carry evidence to show they have contacted their flag state requesting inspection for compliance with the MLC and the format required for the completion of the DMLC.

Mr Hinchliffe remarked "It is incumbent on flag states, even

if they have not yet ratified the ILO Convention, to provide ships with a DMLC Part I as soon as possible as well as detailed advice to shipowners about preparing the DMLC Part II and the particular national format and content that may be required. Our hope is that port states will indeed take a pragmatic approach, as requested by the ILO Conference. But ship operators should not take this for granted and should ensure that they are prepared for global entry into force as far as possible."

How to Avoid Oil Pollution From Ships?

In spite of several legislations, ship/shore checklists, MARPOL regulations, we keep hearing about various incidents of oil, sewage and garbage pollution at the sea. Such incidents keep confronting us from time to time. Whether it's the ship's fault or not, a single drop of oil in the seawater can send shivers down the spine of even the most seasoned seafarers.

We are often left vulnerable to the mistakes of others even though our intentions are noble and actions strictly professional. In my case having encountered a variety of management systems and types of seamen, I always made my intentions clear to the authority before joining a vessel about my total commitment to environment protection and also that any contradictory orders from the management shall be strictly defied and ignored.

Similarly, on board ships I gave full assurance to my crew after joining that they were free to walk in with full confidence into my office if he or she ever found any incident of pollution either accidental or intentional and he /she shall be fully protected. Such words of advice always boosted the morale of the crew on board and the accidents were greatly minimized.

However, in spite of my best efforts and intentions of my crew while carrying out deck procedures, oil pollution incidents did happen on ships and I will explain in the following paragraphs why they happened and how they could have been avoided. Several major oil spills in the past have resulted to monstrous disasters to marine environment and human lives.



Before I begin I would like to emphasize that your ship is as good as it's crew. You do not have the liberty to choose your own crew but are required to develop the skills to make the best use of the crew and officers competency provided to you by the management.

Having said that, you can still not be sure if the person joining your ship has ever been trained to handle oil or chemicals, despite having the requisite certificates in his or her possession. Today we all are well aware of the quality of training for fighting oil pollution given to raw seamen joining ships for the first time.

More than training, sometimes a little common sense is enough to avoid an incident on ships but as the saying goes; common sense is not too common.

How Can Ship Master Deal With Unprescribed Drugs On Ships?

At home we feel so secure; a little cough, couple of sneezes, minor scratches and we run to the nearest doctor available. We have this luxury of medical help at home. But, what if you are a seaman joining a cargo vessel?

The very thought of our proceeding to sea sets our loved ones hallucinating with all types of thoughts. Our assurances are not enough because they know we do not have a doctor at sea. Like it or not, part of their baggages is already loaded with medical supplies and drugs.

Indeed it's a ship master's nightmare when such crew joins his ship with undeclared medical supplies and the ship is proceeding to ports and countries where medicines and unprescribed drugs even in the minutest quantities can put him through great trouble.



What could be the reason for the crew to carry personal medicines on board?

Before we discuss the real problem let us first understand how the medical administration works on board.

Every seafarer who joins a ship knows that each ship has a well-stocked medical locker for eventualities on board, along with a designated officer, mainly 2nd officer, who looks after these supplies and administers them under the supervision of the master.

Some medicines which come under the category of drugs, in medical terms, are stored in a poison locker either in medical chest or in ship master's safe. The medical chest needs to be kept stocked up at all times and the medical officer maintains a medical register and narcotics register and account for each medicine administered on board. There is a ship captain's medical guide which guides the Ship Master and his subordinates through several common ailments. The medicines on board should be as per WHO Scales.

So if we have everything on board to take care of all illnesses, is there really a need for a seaman to carry his own stock of medicines? Actually speaking, No!

Medical pharmacy has grown leaps and bounds and a range of medicines have hit the market. Some of these medicines like antibiotics are broad spectrum and can take care of a large

number of infections. Compared to these we are still stocking on ships the WHO scales of age old medicines such as Tetracycline, Erythromycin, Penicillin etc. all based on certain chemicals used for the past several decades without any up-gradations. The ship officer will always subscribe to medicines as per WHO scales and in contrast the seaman on board carries the latest drugs and supplies advised to them by his or her family physician.

Apart from the fact that each seafarer carries a medical report of fitness, there is always a chance that he/she may be suffering from some undisclosed illness which was not covered by the limited medical examination tests ashore. Today multiple diagnostic labs have mushroomed all over the country carrying out comprehensive medical test of the entire body systems for as little as Rs.3000 in India (Approx. \$55). The amount is not high considering that a shipping company is sending seamen on ships for 8-10 months of on board service. This is where quantity compromises the quality and services of ordinary MBBS doctors, with marine clinics and shady underhand dealings with shipping agencies, conduct these medical tests for even a 1/3 rd of these costs.

The results are thus disastrous for a shipping owner when unprescribed drugs or undisclosed illnesses affecting sick seamen cause huge financial losses, loss of reputation etc. if a ship is deviated for accidental hospitalization to a port of refuge.

The solution to the problem to unprescribed drugs on ships is not too far. The Ship manager, the Master and the Ship Owner have to liaise with each other to root out this problem altogether. A healthy crew means a healthy ship and a fat balance sheet for the ship owner and at times good bonus for the entire ship team in return of a good performance on board.

Following steps if taken can help take care of the problems of unprescribed drugs on ships to a large extent.

Conduct executive health checks on seamen and spend more money on physical examination than spend same (or more) at a later date when he is already on board

Discard all MBBS clinics and engage reputed diagnostic clinics that have a chain pan respective country

Upgrade WHO scales to include latest pharmaceutical drugs

Conduct pre joining briefing for Master and Ship's medical officer, training them on the repercussions of carrying undisclosed medicines/unprescribed drugs and updating them on the up gradation of fresh medical supplies

Check personal baggage of each crew when he joins the vessel before he proceeds to his cabin. All undeclared and unprescribed drugs on ships should be confiscated by the master and reported to the ship manager

Destroy all expired medicines and drugs on board with proper photographs and make log entries of the same

Maintain medical and narcotics register truthfully to avoid trouble with port authorities

Before arriving each port, properly check the full inventory of all medicines on board including those received in last port and if any personal medicines of crew were kept in the bonded locker, they should be declared.

Continuous Satellite Monitoring of Ice Sheets Needed to Better Predict Sea-level Rise:

The findings, published in Nature Geoscience, underscore the need for continuous satellite monitoring of the ice sheets to better identify and predict melting and the corresponding sea-level rise. The ice sheets covering Antarctica and Greenland contain about 99.5 per cent of the Earth's glacier ice which would raise global sea level by some 63m if it were to melt completely.

The ice sheets are the largest potential source of future sea level rise – and they also possess the largest uncertainty over their future behaviour.

They present some unique challenges for predicting their future response using numerical modelling and, as a consequence, alternative approaches have been explored. One common approach is to extrapolate observed changes to estimate their contribution to sea level in the future.

Since 2002, the satellites of the Gravity Recovery and Climate Experiment (GRACE) detect tiny variations in Earth's gravity field resulting from changes in mass distribution, including movement of ice into the oceans. Using these changes in gravity, the state of the ice sheets can be monitored at monthly intervals.



Dr Bert Wouters, currently a visiting researcher at the University of Colorado, said: "In the course of the mission, it has become apparent that ice sheets are losing substantial amounts of ice – about 300 billion tonnes each year – and that the rate at which these losses occurs is increasing. Compared to the first few years of the GRACE mission, the ice sheets' contribution to sea level rise has almost doubled in recent years."

Yet, there is no consensus among scientists about the cause of this recent increase in ice sheet mass loss observed by satellites. Beside anthropogenic warming, ice sheets are affected by many natural processes, such as multi-year fluctuations in the atmosphere (for example, shifting pressure systems in the North Atlantic, or El Nino and La Nina events) and slow changes in ocean currents.

"So, if observations span only a few years, such 'ice sheet weather' may show up as an apparent speed-up of ice loss which would cancel out once more observations become available," Dr Wouters said.

The team of researchers compared nine years of satellite data from the GRACE mission with reconstructions of about 50 years of mass changes to the ice sheets. They found that the ability to accurately detect an accelerating trend in mass loss depends on the length of the record.

At the moment, the ice loss detected by the GRACE satellites is larger than what we would expect to see just from natural fluctuations, but the speed-up of ice loss over the last years is not.

The study suggests that although there may be almost enough satellite data to detect a speed-up in mass loss of the Antarctic ice sheet with a reasonable level of confidence, another ten years of satellite observations is needed to do so for Greenland.

As a result, extrapolation of the current contribution to sea-level rise of the ice sheets to 2100 may be too high or low by as much as 35 cm. The study, therefore, urges caution in extrapolating current measurements to predict future sea-level rise.

Tanker with 20 Crew Members Hijacked by Somali pirates:

Pirates from Somalia struck again on Sunday by hijacking a Turkish-owned oil tanker ship off the western Africa coast.

The Malta-flagged tanker vessel, MV Cotton, with its crew of 20 Indian seafarers, was attacked near Port Gentil in Gabon. An official of the Turkish Foreign Ministry confirmed the accident. According to the information 6 of the kidnapped seafarers are natives of Kolkata.

Captain Shishir Wahi, 54-year-old, took over the tanker ship's command on 12th of July. "My father flew from Kolkata on 5th of July. We got confirmation about the hijacking from the shipping agencies around 12:30 p.m. on Tuesday," told the



daughter of Wahi, Richa. "My father called us on Sunday. But late in the evening, I received an e-mail from my father stating that there had been a communication failure that would be rectified soon," she said in addition.

Wahi's daughter, Richa added that there has been no news on the seafarers' whereabouts. "The Somali pirates haven't made any ransom demand from the shipping company," she told.

Owners of the hijacked tanker ship MV Cotton lost contact with the seafarers onboard late on Sunday. At the time of going to press, neither defence authorities nor the director-general of shipping could share information about the pirate attack.

EU Millions for LNG Terminal at The Port of Gothenburg:

Liquefied natural gas for shipping by 2015 at the latest. This is the aim behind collaboration between private infrastructure companies and the Port of Gothenburg and the Port of Rotterdam. The project will receive SEK 305 million in funding from the EU.

"EU support is a clear indication of how important shipping is for sustainable transport throughout Europe," says Magnus Kårestedt, Port of Gothenburg Chief Executive.

A formal decision will be reached in a few months. There are already strong indications that the investment in LNG terminals in Rotterdam and Gothenburg will be one of the EU Commission's most prioritised Motorways of the Seas projects ever.

The Dutch company Vopak and the Swedish gas infrastructure company Swedegas are investing in an LNG terminal in Gothenburg. The terminal will supply LNG to both shipping and industry.

Collaboration with the Port of Rotterdam will involve constructing the necessary infrastructure at the ports and producing regulations for handling LNG. Another key area will be to increase knowledge of LNG as a marine fuel.



"A major benefit of this collaboration is that we can work together and send a very clear signal to the market that LNG will be available at the largest port in Europe and the largest port in the Nordic region. The shipping companies need to be assured of this before investing in new LNG-powered vessels," says Lars Gustafsson, President of Swedegas.

There are considerable environmental benefits to be gained from using LNG in shipping and industry. Sulphur and particle emissions are reduced to almost zero, nitric oxide emissions by 85-90 per cent and carbon dioxide emissions by 25 per cent.



Attention Seafarers! TOLL FREE NUMBER

In case of Emergency seek Help, while in Indian waters / Indian EEZ, Contact: INDIAN COAST GUARD Dial City Code, followed by 1554.

For example from Chennai, 044-1554

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