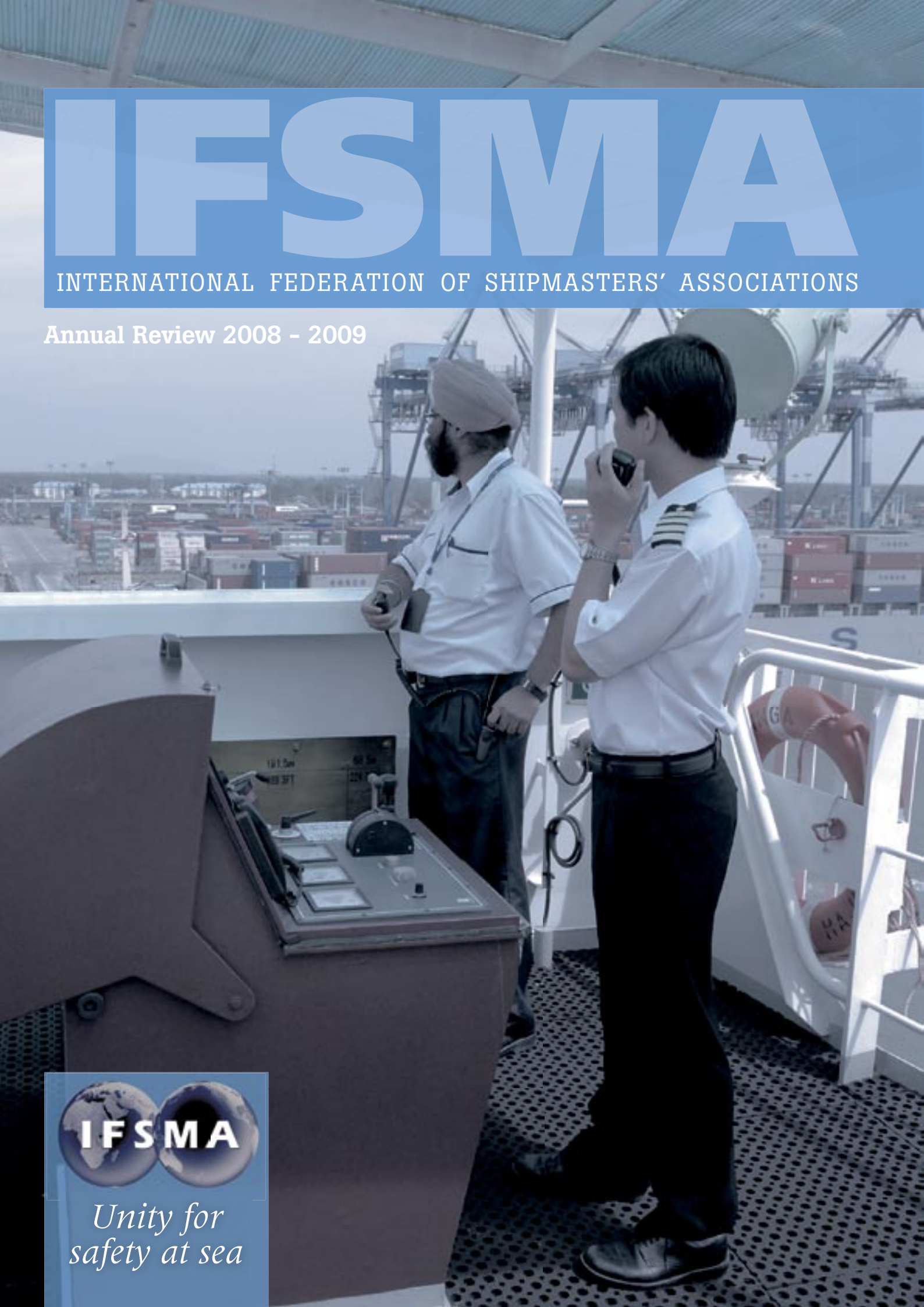
# IFSMA

INTERNATIONAL FEDERATION OF SHIPMASTERS' ASSOCIATIONS

**Annual Review 2008 - 2009**



*Unity for safety at sea*

# Contents

# Colleagues, Ladies and gentlemen… Bom Dia

CHRISTER LINDVALL
IFSMA PRESIDENT

First of all, I would like to welcome all of you to the IFSMA General Assembly here in Rio de Janeiro, especially those who are attending the Assembly for the first time. At the same time I want to thank our Brazilian Affiliate Sindicato Nacional dos Oficiais da Marinha Mercante (SINDMAR) for inviting us to Brazil and your beautiful city of Rio de Janeiro. I also want to thank Bremen University of Applied Sciences and Rogge Marine Consulting for the hospitality shown to us last year in connection with our General Assembly and the 1st International Ship-Port-Interface Conference – Human Element. The Resolution on Quality Shipping we adopted at the Conference has also been very well received among other parties in the industry.

Rio de Janeiro, January River, *Cidade de Maravilhosa* or just Rio, as the cariocas (those who are born in Rio) call their well known home city. The Guanabara Bay with its famous, *Pao de Acucar* or Sugarloaf, Ipanema and Copacabana beaches are well-known to the rest of the world.

But most important of all is the magnificent 39.6m-high *Cristo Redentor* (Christ the Redeemer) which looms large atop of Corcovado. From here, the statue - all 700 tons of him - has stunning views over Rio (which explains the contented expression on his face). *Corcovado*, which means 'hunchback,' rises straight up from the city to a height of 710m.

I learnt and found it very interesting that here in Rio many citizens wear a so called figa amulet to protect them from the 'evil eye'. Figa amulets have been recorded here in Brazil since the early 1900s.

Illness among children that could not be explained through physical causes was "attributed to the effects of an evil eye". As a precaution, mothers suspended over the head of the child to be protected, a little hand, with the thumb placed between the fingers, which is called the figa. I think we can all need such protection.

A word of caution – when you want to express that something is ok. Just raise your thumb Straight up. Don´t make a ring with your thumb and your index finger as this means something totally different which I will not explain.

## The work of IFSMA

We have seen a lot of turbulence during 2008 with the financial crisis caused by irresponsible financial institutes and banks, which have had a lot of impact on transportation and the shipping industry.

This together with the large scale decline in the level of raw material and finished goods that China imports and exports are the major causes to the present financial crisis. This has led to decreased transportations, increased scrapping and laid up ships, lack of funds to pay for ordered ships, but still we have an increasing shortage of officers.

We are facing a possible shortage of around 90,000 officers by 2012, according to a recent assessment of the manpower

crisis. Wages have already increased as owners struggle to recruit and retain seafarers. The poaching of personnel remains an issue, as does ensuring seafarers are fit for the task.

Drewry Shipping Consultants in conjunction with Precious Associates Ltd (PAL) has produced its Manning 2008 annual report, presented in October which shows various warnings including the risk of employees being promoted to jobs for which they are not competent.

The report states that already this year, the officer shortage may be as high as 34,000 – a figure that could almost triple in the coming four years. In the period 2008 to 2012, an extra 26,160 officers will be required for the dry-bulk fleet, 15,793 for containerships, 9,735 for chemical tankers and 8,088 for oil tankers. Even if you take the financial crisis into consideration, there will still be an essential shortage of qualified officers.

## United Nations

It is now nine years since the UN adopted the Millennium Declaration by the General Assembly of the United Nations. That was a defining moment for global co-operation in the 21st century.

The Declaration sets out, within a single framework, the key challenges facing humanity at the threshold of the new millennium; outlines the response the world community should provide to these challenges in the following areas: world peace, gender equality, increased safety, security and improved environmental awareness, stop poverty, starvation and sicknesses, human rights, fair trade and fight terrorism and piracy, and establish concrete measures for judging performance. The measures necessary to realize those challenges are embodied in the Millennium Development Goals – universally known as the MDGs.

Within its sphere of responsibility, IMO – and the maritime community as a whole as well as IFSMA – have to make their contributions to achieve those goals.

It, therefore, falls to the international community as a whole to take action to address them. We should all be aware of the unsustainability and unacceptability of the current situation.

Another thing which has been dealt with, within the UN Security Council, where they have adopted some very important resolutions is the Somalian Piracy activities urging the co-operation of international naval forces and also the possibility to chase pirates into Somalian waters and coast. Those decisions are taken in agreement with the powerless Somalian Government.

I would like, in connection to this issue, to express our gratitude and thanks to IMO Secretary- General Admiral Efthimios Mitropoulos who really has emphasised to the Security Council the importance of both assisting seafarers, passengers and fishermen, and protecting ships and goods, transported under the World Food Program (WFP), passing through the vicinity of Somalia.

## Achieving our goals

We must remember that at IMO it is only the Member Governments which have the voting rights and the right to submit papers on new issues on the agenda. The NGOs must have at least one Member Government supporting their submission. But we can submit papers regarding subjects that are already on the agenda. That means that we always try to get support for our points of view among governments or NGOs which are of the same opinion or have the same goals as us. That means that we also in addition to the member governments submit joint papers or support oral intervention during debates by other NGOs representing shipowners such as Bimco, ICS, ISF, Intertanko, Intercargo as well as seafarers such as ITF and IMPA representing the pilots as long as it serves our common objectives and causes. Lobbying and co-operation between parties which are of the same opinion is the only way you can work at IMO, but also elsewhere.

Especially has such co-operation between NGOs, representing both shipowners and seafarers, been the case in subjects such as criminalisation and fair treatment, piracy, recruitment, lifeboats and the ISPS-Code.

As an example I want to mention criminalisation. Changes have occurred in national and regional legislations, that criminalises and punishes for what previously has not presented any measures by the courts. I think the politicians here have been influenced and pressed by the general public who wants to see scapegoats and have revenge, when something has happened. On the other hand if someone deliberately (or wilfully and seriously, to use the words of UNCLOS) commits an act of pollution or other acts of violence of law, then of course he should be punished.

Fair treatment should be shown to seafarers by the authorities in connection with and after an accident has happened. They are keeping officers in custody or elsewhere pending trials.

## Oraganisations come together

IFSMA has been very active in two cases of criminalisation and unfair treatment and has very closely worked together with, among others Intertanko, Bimco and ITF. This co-operation led to the release of Captain Laptalo of the *Coral Sea* in Greece. Also, Captain Jasprit Chawla and chief officer Syam Chetan of *Hebei Spirit* were transferred from prison to a hotel pending the trial in the Supreme Court in Korea.

The most important issues at IMO today are the revision of the STCW-Convention and the deliberations regarding fatigue and manning. The revised Convention will be adopted by tacit acceptance at a STCW-Conference in Manila in June 2010, as no changes had been made to the Convention as such. That means that the new requirements can enter into force most probably 1 July, 2011.

There are still important issues outstanding such as working and rest hours. Another consideration is the revision of the A Resolution 890 (955) – Principles on Safe Manning – where there are wishes for a mandatory instrument. We have already reached consensus of a new text approved by the Maritime Safety Committee and the square brackets have been removed.

The STW Sub-Committee urged Administrations to consider the circumstances very carefully before allowing a safe manning document to contain provisions for less than three qualified deck officers, while taking into account all the principles for establishing safe manning.

The MSC also expressed concern for the increasing numbers of accidents caused by fatigue and that fatigue is closely related to rest hours and manning.

IFSMA has also proposed that the master should not

> Fair treatment should be shown to seafarers by the authorities in connection with and after an accident has happened. They are keeping officers in custody or elsewhere pending trials.

be considered a watch-keeping officer when deciding the composition of the navigational watch.

Other important issues on the agenda today are life-boat concepts for construction but also how to perform drills. The Activities to stop the piracy activities around the globe is proving extremely difficult in the waters around the Horn of Africa and has not had much effect up to now even though there were decreased seizures in January and February . We must remember that here we are talking about a coastline of 2105 nautical miles (3898km) which takes a ship with a speed of 15 knots about five days to pass.

Today there are about 30 naval units in the area, but it just takes roughly 20 minutes for the pirates to seize a ship. One very important issue is that the crews must be taken care of by skilled psychologists after an attack, or even worse if they have been kidnapped with those traumatic experiences they have been through.

## International Labour Organization (ILO)

The International Labour Convention 2006 MLC (Maritime Labour Convention) will most probably enter into force during 2011 as Bahamas (11.2 2008), Liberia (7.6.2006), Marshall Island (25.9.2007), Norway (10.2.2009) and Panama (6.2.2009) have already ratified it. The EU countries are going to ratify the Convention very shortly either nationally or by an EU Directive.

Twelve months after the MLC has been ratified by 30 countries representing at least 33 % of the world tonnage it will enter into force worldwide. It will be applicable to all ships which will be provided with an additional Maritime Labour Certificate to all the others in domestic and international trade. Ships in international trade can be subject to port state controls.

The MLC is a merger of almost all former Maritime Conventions except for No 185 – *Seafarers´ identity documents Convention (Revised) 2003*. This includes the seafarers' right to go ashore while the ship is in port and covers the seafarers ID. No 185 has so far not entered into force, because only 15 countries have ratified it. We are also involved in different ad hoc groups within ILO in connection with the interpretations of the new requirements.

## IFSMA today

The membership today is over 11,000 Members from 60 countries. It has been a hectic year since we last met in Bremen. We are more and more contacted and asked for our opinion by Governments and industrial organisations such as ISF/ICS, ITF, Bimco, IACS, Intertanko, Intercargo and the International Parceltankers Association. As I have already mentioned, such cooperation is very vital for an organization like IFSMA.

We have participated in a seminar regarding piracy and armed robbery arranged by the EU Commission where we had two presentations and also monitored part of the afternoon discussions.

Another occasion was our second workshop in connection with the large Lloyd's Manning and Training Conference last November in Manila. There we had a workshop together with the Swedish Club introducing and discussing the Maritime Resource Management which will be presented to you during this Assembly.

This was very well received by the participants of the workshop where we received very high scores, but also by the conference when and where the outcome was presented. We are also invited by LSM to arrange a third workshop this year. As your President, I have also been invited to give speeches and presentations in Taiwan and Denmark.

The issue of ASTRONAV was discussed at our latest Assembly in Bremen as you most certainly remember. We shall also discuss this later during this Assembly.

We have now finished the 'Securitas Mare', the EU project on uniformed Crowd and Crisis Management courses. The outcome of the project was awarded Project of the Year at the SASMEX Conference last year. During the year the Executive Council and the Secretariat, or maybe the other way round, worked on a new Policy Booklet, which I hope will be approved at this Meeting.

I would also like to remind you that next year there will be elections for officers in the Federation.

Finally I once again want to thank our host organisation, and I hope we will have a successful and fruitful meeting here in Barra.

Thank you for listening

# Review of the year

CAPTAIN RODGER MACDONALD
IFSMA SECRETARY GENERAL

I am sure nobody will disagree with my view that since our 34th AGA the outlook for our industry has changed dramatically. Is shipping heading for the abyss? Some views coming from the industry express this gloomy outlook, but I believe we should look at the future positively. The world still has to eat and requires energy. No country today is self sufficient in all commodities, so shipping will always remain a key link in the world economy. What is essential is that this downturn does not result in the lowering of quality standards in shipping. Indeed it may be an opportunity to see the disposal of sub-standard shipping. IFSMA must continue to influence the industry to raise its standards and improve safety at sea.

It has been another busy year for IFSMA and I will highlight the key points. But first I would like to reflect on the Resolutions made at the 34th Annual General Assembly held in Bremen between 21 and 22 May 2008.

## Safety at sea

Resolution 1/2008 noted with concern the report provided by the Bulgarian Shipmasters' Association concerning the loss of seafarers' lives onboard the Cambodian registered *MV Hera* and the Bulgarian registered *MV Vanessa* in separate incidents in 2004 and 2008 in which both vessels disappeared in the Black Sea with the loss of 30 lives. IFSMA's concern is about the apparent failure of the Flag States to properly investigate the loss of these two vessels as required by IMO.

Having been urged by the Resolution, IFSMA wrote to the IMO Secretary General to ask for assurance that flag states carry out their obligations to fully investigate ship losses particular those resulting in the loss of life.

## Piracy and security

Resolution 2/2008 noted the trend towards increased use of violence by pirates and other assailants in attacks against merchant ships in piracy hotspots and areas of heightened security worldwide.

It was resolved that IFSMA should add its voice to the ongoing campaign for action to reduce the unacceptable threat to the world's seafarers.

It urges action from the shipping community on the following fronts:

- Shipowners and flag states must recognise the workload demands arising from the ISPS Code and the post of the ships' security officer (SSO). The additional duties created by the Code and by the industry guidelines for combating piracy must be reflected when determining minimum manning certificates, and in the review of the STCW Convention, as well as in assessing compliance with hours of work and rest period requirements;
- Countries must urgently ratify and implement the ILO Convention on Seafarers' Identity Documents (Convention 185), and ensure that there are safeguards in place to verify the identity of increasing 'casual' workforces;
- Shipowners must install much more effective security equipment onboard their vessels, including motion detection equipment, vessel tracking systems, CCTV, alarms and access control systems thereby contributing to lowering the workload of the crew and the SSO;
- Shipmasters should be provided with up-to-date information on piracy and security risks via for example, the internet;
- The shipping industry must take a more proactive approach to the application of 'war risk' agreements for seafarers on ships operating in known 'hot spots'. It is important that seafarers are given the necessary insurance protection and the rights to sign off vessels going to known danger zones;
- The international community must consider the application of effective sanctions against flag states and port states that fail to deal with consistent problems of piracy and armed attacks on ships under their administrative responsibilities;
- The international community should develop multilateral cooperation agreements to reduce the risk of piracy and armed attacks on merchant ships, including coordinated naval patrols in 'high risk' areas, proactive exchange of intelligence, and rights of 'hot pursuit' following attacks;
- Technical and practical assistance should be offered to developing nations to help improve standards of security in their ports and waters;
- Flag states and port states must improve the standards of reporting and investigation of attacks on their ships and in their waters;
- More countries should ratify and implement the international Convention for the Suppression of Unlawful Acts

> Crowd and Crisis Management training should be made a mandatory requirement for all seafarers on all vessels and also to shore based personnel, such as the designated person ashore and others with responsibilities in crisis situations

Against the Safety of Maritime Navigation.

IFSMA has continued to express the views expressed in this Resolution at a number of public forums, at IMO and in January 2009, made presentations to the European Union.

## Crowd and crisis management

Resolution 3/2008 noted that the 'Securitas Mare' project has developed a model training course on Crowd and Crisis Management, enabling the training and development of the trainers to develop such training and the dissemination of the materials produced.

Currently crowd and crisis management training is not standardised and only mandatory for key personnel on passenger vessels and ro-ro passenger vessels and IFSMA believes that Crowd and Crisis Management training should be made a mandatory requirement for all seafarers on all vessels, and also to shore based personnel such as the Designated Person Ashore and other shore based personnel who have responsibilities in crisis situations;

It was resolved that IFSMA should seek to include training for all seafarers within the STCW Chapters 2 and 3 and at the appropriate level for Deck AB and Engine AB.

IFSMA is currently heavily involved in the review of the STCW convention. Progress on the review has been slow, and time may prevent inclusion of this training by 2010.

## Improved mooring arrangements

Resolution 4/2008 noted the specific problems of mooring arrangements for the new generation of very large and ultra-large containerships;

It was resolved to enter into dialogue with the International Association of Ports and Harbours –IAPH – and other relevant parties to highlight the concerns of shipmasters generally and specifically relating to ship design, alternative mooring arrangements and solutions, bollard spacing, quantity and strength and the provision of sufficient and appropriate assistance from tugs.

IFSMA continues to support the Nautical Institute's initiative to publish a book on the guidance in the use of mooring lines. Unfortunately the process has been delayed due to copyright reasons, but it should be published soon.

## First international ship-port interface conference

Resolution 5/2008 noted and adopted the Resolutions of the outcome of the 1st International Ship-Port-Interface Conference organised by Bremen University of Applied Sciences, Centre of Maritime Studies and Rogge Marine Consulting held in Bremen and in conjunction with the IFSMA Annual General Assembly

IFSMA endorsed the contents of the International Ship-Port Interface Conference (ISPIC)Resolution and requested that the Executive Committee ensures that IFSMA Policy appropriately reflects the conclusions and recommendations outlined in the ISPIC Conference Resolution.

## Criminalisation

IFSMA continues to be frustrated by the apparent avoidance by many jurisdictions of guidelines for the fair treatment of seafarers. Two particularly bad cases involved the *Coral Sea* in Greece and *Hebei Spirit* in South Korea. Both these incidents have been well documented, and in both cases IFSMA participated in actions to help the seafarers.

As I write, the case of the *Pacific Adventurer* which was responsible for the oil spill polluting Queensland beaches is hitting the media. With emergency workers still trying to clean up after a 250-tonne oil spill from the Swire vessel, the company now finds its employees facing three investigations and possible criminal charges over one of the worst environmental incidents in recent Australian history.

In this case, I am pleased to see the Hong Kong Managing Director of the China Navigation Company flew to Brisbane to deal with the fallout from the disaster. So often in the past, the seafarers are left abandoned, although in the case of *Coral Sea* the owners were very supportive at the Appeal Court.

## Fatigue and safe manning

This subject has been a major issue during the past year as IFSMA has battled in the Sub-Committee on Standards of Training and Watch-keeping (STW) and the Sub-Committee on Safety of Navigation (NAV) to have reasonable hours of rest.

The 40th Session of the STW Sub-Committee met in February 2009 and approved a draft framework for determining minimum safe manning for inclusion in

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the draft revised Resolution on *Principles of safe manning* (Resolution A.890(21)).

The proposed draft framework, which is problematic as far as IFSMA is concerned, is intended to assist administrations and companies in determining minimum safe manning. The Sub-Committee prepared a preliminary draft revised text of Resolution A.890(21), which will be reviewed by the Sub-Committee on Safety of Navigation (NAV) at its 56th session in 2010, for consideration in relation to operational aspects.

In IFSMA's opinion the safe manning of a ship means that the crew shall include sufficient officers and ratings with the appropriate qualifications, skills and experience to ensure the safety and security of the ship, crew, passengers, cargo and property and for the protection of the marine environment. It must be recognised that the ability of seafarers to maintain observance of these requirements is dependent upon their continued efficiency through conditions relating to training, hours of work and rest, occupational safety, health and hygiene and the proper provision of food.

The IMO leaves the question of safe manning levels "to the satisfaction of the administration". The Safe Manning Document required by SOLAS 1974 has little or nothing to do with the numbers of crew required to run the ship as a commercial enterprise. It merely states the minimum number of crew required to take the ship from one port to another and be able to operate the ship's safety equipment should the occasion arise.

It takes for granted that the crew who sail in the ship will be in a good state of health, rested and free from fatigue. It does not even begin to consider the in-port workload or the intensity of the trade in which the ship finds itself. Yet many owners/operators hold up this piece of paper and claim that their ship is adequately manned.

IFSMA is also concerned that the additional responsibilities and the workload placed on the shipmaster and officers to comply with the requirements of the ISPS Code implemented in 2004 has added an additional workload with no resulting change by any administration in their safe manning requirements to take these factors into account.

In the opinion of IFSMA the entire personnel in all passenger ships and Ro-Ro vessels required for the safety and security and emergency plans shall be included in the Minimum Safe Manning Certificate.

## Lifeboat safety

IFSMA has been particularly concerned that death and serious injury have occurred as a result of performing lifeboat drills. There is no standardisation of lifeboat equipment and in particular on-load release mechanisms. IFSMA is an active member of the International Lifeboat Group and is pursuing ways through the IMO Sub-Committee on Ship Design and Equipment (DE) to have the lifeboat manufacturers ensure that lifeboats can be raised and lowered without endangering life. At the time of writing this review, the Sub-Committee on Ship Design and Equipment (DE) is debating a number of interventions that IFSMA and their ILG partners have presented to prevent lifeboat accidents.

## Training and education

IFSMA continues to be actively involved in a number of education and training groups and the Secretary General undertakes a number of training programmes where IFSMA's name is promoted.

In November 2008 IFSMA held a further successful workshop in Manila debating the need for Maritime Resource Management training. The findings of the workshop were presented to the plenary of the Recruitment and Training conference and will be considered in the Policy Document discussions.

## Policy document

The Executive Council has rewritten the IFSMA Policy document for presentation at the 35th AGA. The Executive Council has clear note of the IFSMA Resolutions passed over the last five years as well as other key concerns that affect shipmasters.

## Conclusion

Once again I wish to thank the Executive Council for their support during the year and, of course, Paul and Roberta in the Secretariat. I would also like to thank Suzie who assisted during Roberta's convalescence.

# The dangers of enclosed spaces

MARCEL VAN DEN BROEK, NAUTILUS NL

Concern about the risks to seafarers working in enclosed spaces is nothing new. But a marked increase in the number of fatal accidents over the past 18 months has sparked fresh fears and questions over the adequacy of the regulations.

In UK waters and on UK ships alone, there have been six deaths in enclosed or confined spaces since September 2007. What the worldwide figures are is a matter for speculation – although data obtained by the international marine accident investigators' forum from 18 flag states shows a total of 120 fatalities and 123 injuries in confined spaces since 1991.

As a further sign of the scale of the problem, the UK P&I Club recently noted four fatalities on ships in ports in Spain, Indonesia and the US between April and June last year – and statistics show that enclosed spaces remain one of the most common causes of work-related seafarer death.

The UK incidents include:

- The death of three crew members inside a chain locker onboard the emergency response and rescue vessel *Viking Islay* in September 2007;
- The asphyxiation of two seamen in a store onboard the general cargoship *Sava Lake* in January 2008;
- The death of a seaman in an empty ballast tank onboard the passengership *Saga Rose* in June 2008.

Worries about the scale of the problem were raised by Nautilus UK members at a meeting of the Union's Council late last year, and Nautilus is now working with the Maritime & Coastguard Agency in an attempt to raise awareness of the dangers. The issues are complex, and cover such factors as training, equipment, procedures, and the effectiveness of legislation. The fact that so many seafarers serving with different companies and under different flags are still dying after all the incidents that have taken place over the years is a sign of fundamental problems, and shows the need for fundamental action to be taken in response.

These problems will not be addressed simply by issuing more information and more guidance. There is a need for a radical change of culture, so that all enclosed spaces are considered dangerous and a strict and unambiguous regulatory regime is supported by better training and education.

This is underlined by the UK Marine Accident Investigation Branch, which noted last year that "tragically, it is clear the measures which have been put into place have failed to prevent the death of many seafarers". It blames the problems on such factors as:

- Complacency leading to lapses in procedures;
- Lack of knowledge;
- Potentially dangerous spaces not being identified;
- Would-be rescuers acting on instinct and emotion rather than knowledge and training.

As a result of an MAIB recommendation last year, the MCA and the Vanuatu maritime administration are co-sponsoring a submission to the International Maritime Organization "highlighting the need for measures to be identified which will reduce this unnecessary loss of life, such as the identification and marking of all potentially dangerous spaces".

Nautilus argues that a radical approach is required – with much greater emphasis placed on mandatory requirements for equipment and training. Some of the problems lie in the potentially confusing definitions used in the regulations. The international recommendations, adopted by the IMO in 1997, refer to 'enclosed spaces' whilst the UK Merchant Shipping legislation refers to 'dangerous spaces'. The land-based laws laid down by the UK Health & Safety Executive refer to 'confined spaces' and the UK Code of Safe Working Practices for merchant seafarers has a chapter covering 'enclosed or confined spaces'.

In essence, they all address spaces in which the atmosphere may be oxygen-deficient or contain life-threatening toxic or flammable gases or vapours. However, arguably the ambiguity in the references may sometimes give rise to a false sense of security in some circumstances – such as the perception that some spaces may not be 'dangerous'.

Whilst the regulations set out defined procedures for entry into such spaces, as well as requirements for emergency rescue drills, they do not require regular practice of the entry procedures themselves. Nautilus believes this is a serious shortcoming. If seafarers had to conduct routine entry drills, this would help to reinforce awareness of the risks and of the correct procedures to be followed.

Another major loophole in the UK Merchant Shipping regulations lies in the requirements for the onboard carriage of oxygen meters or other testing devices.

Nautilus is concerned that the wording of the carriage rules: "The employer shall ensure that each ship where entry into

a dangerous space may be necessary shall carry or otherwise have available an oxygen meter and such other testing devices as is appropriate…" But this wording provides some owners with an excuse for not having them on their ships.

The Dutch rules are, on the other hand, a model of what the rules should specify, with wording stating that "oxygen meters must be available on all ships where low oxygen levels can occur in accessible areas".

The use of the word "may" directs away from the compulsory carriage of this equipment and this is reinforced by insufficient emphasis within ISM audits on the workability of the procedures.

Nautilus believes $O_2$ meters must be available on all ships where low levels can occur in accessible areas. It would like to see a greater emphasis on the dangers of oxygen depletion and the speed with which crew members can lose consciousness. Nautilus also sees the need for improved warning signs and symbols at the entrance to enclosed spaces. And, in a technical bulletin expressing concern at the 'heightened frequency of incidents' the UK Club offers a 'more thorough system' for entry into enclosed spaces than that required by the UK Code of Safe Working Practices.

Nautilus suggests all types of ships should adopt the procedures usually used on tankers, involving the use of written permits to work, local 'enclosed space entry permit' plastic tags, and personal ID tags for all onboard.

"This procedure may seem time consuming, but it is very risk averse and ensures good safety measures are in place for all enclosed space entries onboard ship," the club states. "It ensures that the level of oxygen, toxic and flammable vapours has been tested before entry. It ensures constant monitoring thereafter because permits are only issued for four-hour periods. With constant monitoring maintained, safety is enhanced for all personnel."

Seafarers, and shipmasters in particular, need to be alert to the fact that ships present a wide range of enclosed space dangers. Some are obvious, others less so – but they can all lead to sudden death. Every closed space lacking constant or adequate ventilation poses risks to crew because the atmosphere may be oxygen-deficient or contain poisonous or inflammable gases.

These include:

- Cargo holds
- Fuel, water and ballast tanks
- Pump rooms
- Coffer dams
- Storage spaces
- Containers
- Air ducting.

The causes of the hazards are equally varied, and include:

- Cargoes reacting with oxygen inside the space;
- Formation of rust in tanks and other spaces;
- Use of inert gases/fumigants in cargo areas and other spaces;
- Residues from cargoes;
- Flammable vapours;
- Toxic gases lingering after welding work;
- High concentrations of dust;
- Sudden release of liquids or solids;
- Hot conditions, increasing body temperature.

Although inhaling contaminated or oxygen-deficient air is the most common form of crew incapacitation in enclosed spaces, there are also dangers arising from harmful, irritant or corrosive substances coming into contact with the skin.

The UK's Merchant Shipping Regulations define a dangerous space as "an enclosed or confined space that may be exposed to vapours or is depleted of oxygen and would risk the health and safety of crew".

The regulations require employers to ensure that procedures for entering and working in dangerous spaces are laid down, and that shipmasters ensure those procedures are observed.

They also require dangerous spaces to be identified and entrances kept closed wherever possible. Regular rescue drills are required onboard tankers or gas carriers of 500gt and above and on all other ships of 1,000gt and above.

The penalties for breach of the regulations vary, depending on the severity, but can range to fines of £2,500 and/or imprisonment for up to two years.

Both the UK Code of Safe Working Practices and the IMO Recommendations for Entering Enclosed Spaced Aboard Ships set out procedures intended to reduce the risks to crew, including:

- Preliminary assessment procedures
- Ensuring proper authorisation of those entering enclosed spaces
- Specifying the readings to be obtained prior to entry

The UK code also sets out procedures to be followed before, during and after entry, as well as additional requirements for entry into a space where the atmosphere is suspect or known to be unsafe.

The HSE provides advice on the UK regulations for confined spaces in dock work, which stresses the need for positive ventilation of spaces, measurement of oxygen or gas concentrations, controlled access through permit to work systems, use of respiratory equipment, and arrangements for rescue. Its guidance also warns that merely removing hatch coverings will not provide for adequate ventilation if the gases are heavier than air.

## Conclusion

It's clear that there is a significant volume of existing regulation covering confined and enclosed spaces onboard ships, but the continued loss of life shows equally clearly that there is a need for much more to be done to address a recurring problem. There is no quick fix: the reasons why the death toll keeps on growing are many and complex, but that is no reason why nothing more should be done.

We need to explore why and where the existing regulations fall short, and to see what shipping could learn from the other industries where confined spaces present dangers to workers. To stand a better chance of understanding the reasons why there are still so many confined space accidents at sea, we need to devote much more energy to collecting data and information on the accidents that do take place, and analysing the results of investigations into their causes.

Ultimately, the shipping industry to secure a fundamental change of culture – both among seafarers and among shipowners – creating a new mindset in all aspects of the way in which the inherent risks of confined spaces are managed and responded to.

It is, as they say, 'a big ask', but it is one that the industry must not duck, because it is one that is utterly essential if we are to end this continued tragic and unnecessary loss of life.

# Developing people for safer shipping

MARTIN HERNQVIST, MANAGER MARITIME RESOURCE MANAGEMENT, SWEDISH CLUB

A major expansion of the Maritime Resource Management (MRM) global training network was achieved in 2008. By the end of last year 10 new MRM training providers joined the global MRM network, bringing the total number of maritime academies and training centres involved worldwide to 36. Most of the network members are in Asia, but MRM representation in Europe is growing. The MRM network will continue to expand in 2009, in line with the growing demand for training places.

We regard 2008 as a "breakthrough year" for MRM, which focuses on promoting safe behaviour through positive cultural change – in order to reduce the risks associated with human error. MRM courses are usually of four days duration and are designed for ships' officers, engineers, maritime pilots and shore-based personnel.

Resource management training in the shipping industry is now in its sixteenth year. The resource management concept is a counter to dangerous shipboard situations arising due to shortcomings in human performance, such as a breakdown of communication between individuals, preoccupation with minor technical problems, a failure to delegate tasks and a failure to detect deviations from operating procedures.

The dramatic surge in demand for MRM training over the past 12 months is a response to a quest for new ways of minimising the risk of marine accidents and spills, the potentially huge consequential costs and a move towards introducing international requirements for such training. An increased interest amongst ship operators to make further investments in their officers and crew – not least with the purpose of maintaining retention levels – is another important factor.

## Successful results

A long-standing client of ours, Star Cruises, offers an outstanding example of the benefits of successful proactive measures. This company is now in its twelfth year free of navigational claims. This is a remarkable achievement and there is nothing random about it. This outcome is a product of dedication and commitment – a combination of MRM training for all officers and a determination to avoid incidents.

Star Cruises' success is based on four factors. The company built a dedicated training centre and made a commitment to MRM training. Secondly, Star Cruises is a relatively young company and free of the entrenched attitudes which can make it difficult to grow an enlightened safety culture. Thirdly, because of two major incidents in the past, it recognised that some profound changes were essential.

The final success factor is the extraordinary bond that exists between Star Cruises' ship and shore staff. This is based on real cooperation, rather than a 'them and us' attitude. When you talk to officers on board the ships and the managers ashore, you can sense that their interaction is based on mutual respect. This environment has allowed Star Cruises to implement MRM training to remarkable effect.

## New view on human error

Successful results require a new view on human error. When things go wrong, we do not want people to sweep the problems under the carpet. An important first step is therefore to achieve a no-blame culture. We must change our view on human error to the following:

- People do not err deliberately. They did what they thought was right at that very moment.
- We all make mistakes. Experts make mistakes too, and sometimes the best people make the worst mistakes.
- Human error is not the cause, it is the starting point of an investigation. Human errors are symptoms of deeper trouble.

MRM consists of 14 distinct modules: attitudes and management skills; cultural awareness; communication and briefings; challenge and response (creating an environment in which everyone feels free to question assumptions and actions); short-term strategy (especially in emergency situations); authority and assertiveness; management styles; workload; state of the ship (in relation to the state of mind of those on board); human involvement in error; judgement and decision-making; leadership in emergencies; crisis and crowd management; and automation awareness.

## Cooperation with IFSMA

The Swedish Club is very grateful for the support received from IFSMA in our common striving for Quality Shipping. This partnership was manifested by the IFSMA workshop on International Maritime Resource Management at the Manning and Training conference in Manila last November. We look forward to continuing our close and successful cooperation with IFSMA in this respect.

# Dual competency for ships' crew

CAPTAIN SURESH BHARDWAJ, INDIVIDUAL MEMBER,
VICE-CHANCELLOR, AMET UNIVERSITY, CHENNAI, INDIA.

The shipboard organization structure conventionally comprised of two distinct and separate streams of competency – the engineering and the nautical.

The late seventies and the early eighties, however, threw up quite a few challenges to the shipping industry in the form of spiralling fuel prices, excessive tonnage and the consequent mothballing of ships and the acute shortage of trained and certified manpower to man the ships.

It was during this period when the industry was in turmoil, that the idea of polyvalent training and dual competency certification (PT&DCC) for mariners was born.

The advent of advanced technology and reliable automation, further fuelled the option of combining these two competencies into a single 'crew', emerged as a possible proposition.

The IMO along with several maritime administrations of advanced maritime nations took a conscious and bold decision to introduce, with abundant caution, the polyvalent training and dual-competency certification programmes for seafarers.

A number of advanced seafaring nations and the shipping majors of these countries, adopted the fancy PT&DCC programmes with gusto, probably as a cost cutting measure.

The STCW 95 convention, with its radical functional based approach, also formalized dual competency through its Chapter VII of the Convention for alternative structures and certification, by establishing standards for the same.

In due course, however, for reasons unknown, some shipping companies switched back to the traditional training and manning pattern while some continued with the PT&DCC scheme, leading to a situation of intrigue.

The aim of this paper is to evaluate the pros and cons, and present the long-term economic viability and value-added benefits, if any, of having a dual competent shipboard organization structure.

## The moot issues

There are many very basic issues about dual competency that come to one's mind:-

a) How effective is dual competency?
b) How efficient can it be to have dual certified officers?
c) Is it the sign of changing times of the ship management model where the captain is replaced with a MD or CEO leading a team of generic ship managers?
d) Do seafarers have a problem with 'change'?
e) Is it a tool to cut costs and manning levels?
f) Is there really a need to tinker with a 'perfectly good' traditional system?
g) Will it be a good proposition to be only 'dual trained' and not practice as 'dual competency officers'?
h) Are we mixing up two individual personalities that go with an engineering function and the nautical function?

## The AMET university dual competency course

The dual competency pre-sea training course at AMET University is a four year B.E. (Marine Technology) course.

The course provides students with the knowledge and skills to serve onboard ships as competent Dual Officers. They are not only trained in the running and maintenance of marine machinery and safe navigation of ships but also to demonstrate professional responsibility, good work attitude, leadership quality and team spirit.

The course aims to train very competent and dedicated 'maritime leaders' with technical and management skills over and above what is required of the traditional navigator and engineer officer.

The scheme, while ensuring proficiency in basic navigation and technical skills, also focuses on organizational skills, personal competence, teamwork and functional flexibility.

## Support from shipping companies

A.P. Moller – Mærsk group has given unequivocal support for this course.

In their continued endeavour to keep ahead of their business, and with the level of advancement in technology onboard their vessels, they believe that the dual concept is central to the successful operation of their fleet.

By this support for the Dual Course, A.P. Moller – Mærsk have guaranteed to give sea training for all their Dual Cadets at AMET in their ships.

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## The unique dual course syllabus

**Semester – I**

**Theory Courses:**
1. Engineering maths
2. Applied mechanics
3. Workshop practice –ii
4. Navigation
5. Ship knowledge & safety – Personal safety & social responsibilities (PSSR)

**Sessional/laboratories**
1. Engineering graphics-i
2. Workshop practice –i
3. Marine engineering –ii
4. Physical training (PT) & games

**Semester - II**

**Theory Courses:**
1. Principles of mechanical science
2. Marine engineering – ii
3. Ships' stability
4. Ocean navigation
5. Meteorology

**Sessional/laboratories**
1. Basic ship repairs
2. Seamanship – Proficiency in Survival Craft and Rescue Boat (PSCRB)
3. STCW courses (1.0)
4. PT & games (0.5)

**Semester - III**

Sea training

**Semester - IV**

**Theory Courses**
1. Thermodynamics
2. Electrical engineering-i
3. Instrumentation & control
4. Marine control system
5. Celestial navigation
6. Cargo work

**Sessional/laboratories**
1. Engineering graphics – ii
2. Advanced fire fighting
3. PT &games (0.5)

**Semester – V**

**Theory Courses**
1. Electrical engineering –ii
2. Thermal engineering
3. Ship powering & construction
4. Auxiliary machinery
5. Electronic navigational systems
6. Coastal navigation
7. Shipping business – i

**Sessional/laboratories**
1. Marine workshop practice
2. Electronic navigational lab

**Semester – VI**

**Theory courses**
1. Marine electro technology
2. Internal combustion engines & boilers
3. Plant diagnostic
4. Marine communication
5. Ship operation
6. Shipping business –ii

**Sessional/laboratories**
1. Marine electrotech lab
2. Marine comm lab
3. PT & games

**Semester – VII**

Sea training

**Semester – VIII**

Sea training

## The Indian administration support for dual competency

**M.S. Notice 18 of 2008 issued by the Director General of Shipping, Government of India, in its preamble states as below:**

In the changed scenario in world shipping, availability of quality man power is becoming scarce and costly. A new concept of training to produce a technical officer having combined knowledge of both fields of Nautical & Marine Engineering has taken birth. Such a dual certificated 'polyvalent' course is perceived to be a need for the future in international shipping. The content of such a training will have to be the right mix of Nautical and Engineering branches.

Considering the need of multi-skilled officers as a future need of the international shipping industry and to make Indian seafarers more versatile with unified training, the Director General of Shipping had a meeting on 3 February, 2003 with the members of the Indian National Shipowners' Association (INSA), Foreign Shipowners and Shipmanagers' Association (FOSMA), the Maritime Association of Shipowners and Shipmanagers (MASSA) along with the heads of pre-sea training institutes. The decision was taken that the Marine Engineering Research Institute (MERI), Mumbai shall conduct such training and shall design and develop suitable course material called B.Sc. (Bachelor of Science) (Maritime Science).

The course is suitable for officers at an operational level and meets the requirements of certification of operational level officers under the provision made in the Chapter VII of Volume I & II of the META manual. Every candidate for certification at the operational level under the provisions of Chapter VII of the Merchant Shipping (Standards of Training, Certification and Watchkeeping for Seafarers) Rules 1998, shall be required to complete relevant education and training and meet the standard of competence for all the functions, prescribed in either M-II/1C or M-III/1B.

After completion of the three year B.Sc. (Maritime Science) degree course at MERI, Mumbai, they shall have approved seagoing service of not less than 18 months, and such service shall include a period of at least six months performing engine room duties.

The functions of Navigation are required to be performed for a period of 12 months, of which at least 6 months shall be performed in bridge watch-keeping duties. These cadets are to undergo structured onboard training as per TAR book.

After completion of 18 months structured onboard training, cadets may take their 2nd Mate (Foreign Going) Certificate of Competency written and oral examination of the Nautical stream or Class IV Part 'B' Certificate of Competency written and oral examination of the Engineering stream.

The cadet has the option to take both the examinations and obtain Certificates of Competency for both disciplines. The common subjects need to be passed by the candidate only once in either of the discipline.

As the cadets are awarded B.Sc. (Maritime Science) degree by Mumbai University, they are eligible for the exemption from Part "A" examination of Marine Engineer Officer Class IV Certificate of Competency, as well as exempted from the foundation course for Second Mate (Foreign Going) Certificate of Competency. They are also exempted from the preparatory course requirement for Second Mate (Foreign Going) and Marine Engineer Officer Class IV Part 'B'.

The Dual Officers Scheme is also accompanied by changes in the organizational structure of the ship, as it is dedicated to the requirements of the A.P. Moller – Mærsk fleet.

Most of the vessels in the Maersk Ship Management fleet sail with a fully integrated manning model: Dual Captain, Chief Maritime Officer (CMO), two first Maritime Officers (MO1), three junior Maritime Officers (MOs).

## Unique course structure

It is a four year course sandwiched between periods spent at the AMET University and on board foreign-going merchant ships. During the periods that they serve at sea, they serve on board as Dual Officer Cadets under dedicated ship-board training officers and trained in performing the duties of Officer (in command command of navigation watch and Officer (in command of engine room).

The sequence of training is:

Phase 1 ..... 12 months at AMET
Phase 2 ..... 5 months sea service
Phase 3 ..... 18 months at AMET
Phase 4 ..... 12 months sea service
Phase 5 ..... Examination/orals

After this they go for the Certificate of Competency Examinations.

On the Navigation side they are exempted from the written examination and do just the orals; however on the Engineering side they have to do both the written examination and orals.

They then obtain a Certificate of Competency as junior dual watch-keeping officer in compliance to STCW 95' II/I and III/I.

All modules in this course are in accordance with IMO Model Courses 7.03 and 7.04 and are approved by the Indian administration as well as the administration of flag state countries that the Mærsk fleet flies.

## The analysis

Two batches of cadets from AMET University have already now sailed on board in the embedded sea time structure of the course and their experiences coupled with feedbacks on their performances are in.

For the purposes of this paper, I have also carried out my own exhaustive research on the subject, which collates from the actual authentic voice of long experience of dual certified officers, as well as reference to various documented research on the subject.

## The voice of experience

In the early nineties, companies who were sponsoring dual cadets included; BP, Shell, Trinity House, P&O Containers, Clyde Marine and Cunard.

Shell had the vision of a Ship Manager who would assume responsibility for a single ship unit. He could be either a Master or a Chief Engineer but would have experience and training in both disciplines. Shell had experience in the offshore industry where a similar system is employed on rigs to good effect. Ultimately, it was hoped such a system could lead to a more efficient management model and a further reduction in manning levels and costs.

The experience was, that the companies failed to properly explain their vision for the future, to those at sea. The dual cadetship was often misunderstood by those at sea who qualified via a different more traditional system of training.

Seafarers generally have a problem with change and in the absence of a proper explanation they are left to make up their own reasons why their company should choose to change what in their eyes amounts to a 'perfectly' good traditional system of training that was already in place.

The natural conclusions drawn are that the companies were trying to cut costs and manning levels, meaning their livelihoods were at risk. This was not the best foundation upon which to build a new training programme.

## How did the system work in practice?

The overall length of the dual cadetship was shorter than the traditional cadetship on the basis that there was a large amount of overlap between disciplines.

The pass rate for dual cadets was higher than that of single discipline cadets, certainly on the Deck side. This may be indicative of the more rounded practical training one received as a dual cadet.

The vast majority became deck officers, a few engineer officers, and the remainder, stayed as dual officers for a short time. Generally this was the individual's choice occasionally forced upon them by their results. For some, their company intended for them to be dual trained as a cadet and then become a deck officer once qualified.

In Denmark, they have stopped deck cadets training in favour of dual competency training, while the engineering cadets do their engineering training. The dual cadets become Deck Officers once qualified. On this basis there is an obvious distinction to be drawn between 'dual trained' and 'dual officer'.

After the cadetship, officers were sent to vessels in pairs, the idea being that they would replace the 3rd Officer and 4th Engineer (no reduction in manning levels). Once onboard, they switch roles.

Experience shows, however, that the switching of roles done on a monthly basis, was a real disaster. The senior staff at the time also did nothing to help the situation or plan the change. This meant that the first watch was invariably with little or no handover. Each month felt like one was starting from scratch, and this lack of awareness compounded the arguments of the critics of the scheme.

The system of changing departments mid trip though was better, but still, without any handover it was perceived as hard work.

The final improvement to the system was to do a trip-by-trip basis. This initially, appeared to be the best solution. Effectively one was joining as 3rd Officer or 4th Engineer. The system however, started to fall down as the manning crisis started to bite and one could end up sailing three or more trips as one discipline and not the other.

The only people benefiting from the system at that time were the manning companies who had a pool of dual officers at home, doubling up the options available to them for reliefs.

## Does dual-training help?

Yes it does. It is often said that a Deck Officer with engineering knowledge is more useful than an Engineer with the ability to navigate. The engineering knowledge for the Master is of great assistance to understand engine related problems whilst on stand-by or manoeuvring, an insight which is always

> Companies failed to properly explain their vision for the future to those at sea.

welcomed in high pressure situations.

Similarly, on gas tankers. Gas tankers often carry a dedicated cargo engineer. Dual certification on this occasion is tailor-made for the deck officer of a gas ship who would be well disposed to conduct maintenance tasks at sea and cargo watches in port.

Benefits also accrue for those who later work ashore. A dual certified officer is perfectly suited to many jobs ashore, which include vessel superintendents, inspectors and surveyors.

## Research findings

The World Maritime University (WMU) Journal of Maritime Affairs, 2005, Vol. 4, No.1, 5–33 carried a research paper on *Shipboard Manning – Alternative Structures for the Future*? (Michael L. Barnett 2005)

The 1995 revision of the STCW Convention fundamentally changed the emphasis for standards of training for merchant vessels by requiring competence-based skills for all shipboard tasks. It also takes a functional approach by dividing the shipboard organization into three levels: support, operations and management. Functions relating to these three levels are clearly defined. As a result of STCW '95, it was now possible to consider shipboard organization on a purely functional basis at different operational levels.

This radical new approach inspired this research paper that got published in the WMU journal.

It was clear from the literature review that few organizations have explored the potential of Chapter VII of the Convention for alternative structures and certification.

Two major issues stemmed from the study:

- The type and level of manning is inextricably linked to the level of technology available;
- The type and trade of vessels are highly significant factors in determining the manning strategy on vessels.

The main conclusion was that, although technically feasible, unmanned vessels were unlikely to appear in the foreseeable future for commercial and political reasons. Human presence on board would be there but there were differences of opinion on its main function and how that presence should be organized.

One alternative produced a clear structure for the future ship personnel where the ship would be run by a ship manager, whose background may be in navigation, mechanical or electrical engineering. The other personnel would consist of an assistant manager (watch keeping) and assistant manager (technical), with watch keeper, technician and assistants to the latter two.

Another alternative produced a new structure for personnel which was also very much in line with STCW 95. Retaining the title and position of master with a chief executive officer who takes responsibility for all technical operations, there are two personnel at operational level who take overall charge of the daily operational matters including acting as duty officers from 0600–1200 and 1200–1800. A further three personnel alternate as duty officers for six hour periods between 1800 and 0600 and carry out all other support level duties. All are dual certified.

The most favoured alternative, as per this research finding, continued to be the one that stayed along, broadly speaking, traditional lines, with the traditional deck and engineer hierarchical system.

However, on closer examination, there were some fascinating issues raised, particularly from the non-traditionalist viewpoint. Even those who have a strong traditional leaning will concede that there are some considerable changes that might be made to exploit the revisions evident in STCW.

## The intrigue continues…

In AMET's experience too, the intrigue that dual competency throws up, also seems to turn out to be true. Mærsk, as of this year 2009, while continuing Dual training at its Danish and UK training centres, which cadets predominantly man the Danish fleet, has discontinued the dual training course at AMET University and reverted back to single stream competency, which cadets predominantly man the Singapore fleet. However, the strong ties between AMET and Mærsk continue unabated, dual course discontinuation notwithstanding.

## Conclusions

Nobody would or could argue that the scheme is without flaws. However, we should use the plusses to our advantage and not continually complain and take swipes at those following this route. Any scheme is only as good as the people following it. There are some that are working extremely hard and are a credit to dual certification. I could also say that there are those that are not. But, can we say that these two characteristics are exclusive to dual training alone? I think not. 'To Change – May we always see it as an opportunity and never as a threat'.

## Acknowledgements

Shiptalk interview with Rob Bruce - The Dual Trained Officer - 10 January 2005

## References

Michael L. Barnett, Colin J. Stevenson and Douglas W. Lang, *Shipboard Manning – Alternative Structures for the Future?* WMU Journal of Maritime Affairs, 2005, Vol. 4, No.1, 5–33

# World-wide manning crisis

CAPTAIN ASHOKE K. BANSAL, INDIVIDUAL MEMBER

The International Maritime Community, attributes today's manning crisis to the fact that shipping tonnage increased from 85 million GRT in 1948 to over 685 million GRT by 2007. That is just over eight times of what it was back in 1948.

But tanker fleets of large sizes, account for 7276 ships of total 482,160,000 tons. The cape size fleet alone consists of 791 ships of 135.9 million GRT. In 1948 the average ship was about or below 10,000 DWT. Each one of today's VLCC's is about 20 to 30 times the size of a 1948 ship. Those 7276 tankers of today, can carry cargoes equivalent to 48,216 ships of the 1948 era. This averages to nearly 172,000 tons per ship or equivalent to 17 ships of 1948. There were 42,872 ocean going ships of over 300 GRT, on 1 January 2008. Surely in 1948, the number of ocean going vessels above 300 GRT, was not as little as 12% of what it is today? Furthermore, manning of ships today is less than half of that of a 10,000 ton ship in 1948? Therefore, increase of world tonnage cannot have created such unusual demand for merchant navy personnel and cannot have much to do with the present manning crisis?

On the other hand, with double the world's population, there should be twice the number of young people available for shipping than was the case in 1948. Yet in Poland, out of 350,000-500,000 high school graduates in 2007, not even 1,000 of them opted for the Merchant Navy, even though it is a far more lucrative career than washing dishes in London or Dublin. Therefore ship owners and others who are actively involved in merchant shipping, should try and understand that over an eight fold increase in shipping tonnage is not the cause. They must search within themselves to find real causes and issues that are important to those working on board ships.

A number of shore side shipping managers, were seafarers earlier. But sitting in their plush offices, they don't know the ground realities in seafaring today and the fact that it is not like what it was during their time.

A stark contrast between seafarers and others holding equally responsible positions, is the respective treatment meted out to the Master and crew of a ship as against Captain and Co-pilot of the BA plane that crash landed recently at Heathrow.

Both crews averted considerably greater disasters, due to their training, experience, and consummate professionalism and dedication. Yet adulation was accorded to the aviators, whereas stigma of blame and legal prosecution was the lot of the unfortunate seafarers.

Clipper airline crews basically work an eight-hour day or even less, and have no maintenance, management or operational worries. If something on the plane does not work, they fill in the gripe sheet and leave it to the ground crew. They sail through immigration and customs by the crew-only line on arrival, and go to rest and sleep in comfortable hotels. On their next assignment they go to the aircraft made ready for them to fly. As against that, after standing day and night watches for many days running, seven days a week, the ship's crew are, investigated, inspected, interrogated and treated as suspects on arrival in port. Furthermore, a hardworking ship's officer who, has just hauled thousands of tons of vital materials across the ocean, still performs managerial, security, legal, commercial, operational, repair, maintenance and reporting tasks, seven days a week. Yet they have to make the ship ready to sail again.

On 7 December 2007, the fully loaded VLCC *Hebei Spirit*, safely anchored off Daesan harbour, South Korea, in the anchorage designated by the port authority, was hit by a huge passing mobile crane barge being towed by two tugs with a third tug in attendance. Because weather was rough with a strong wind, the tow line of the crane barge parted just when she was passing the anchored VLCC, not only damaging her superstructure but also hitting and puncturing three holes in her hull. 10,800 tons of crude oil leaked out from her, causing a lot of pollution. The Master ensured safety of life on board and eliminated any possibility of fire by injecting inert gas into the punctured tanks.

Thus, a safely anchored ship at a designated place off the harbour, was hit by a mobile, towed marine craft moving nearby. Well accepted principles of International Maritime Law, fully recognize world wide that an anchored ship cannot be blamed if a mobile marine craft hits her. International Regulations for Preventing of Collision at Sea 1972, ratified by 130 Countries including Korea equally recognize this principle.

But both Master and Chief officer were charged in Korea

for causing pollution to their coast line. So, what is it that the Master did, which he should not have done, except not to have commanded that ship into a Korean harbor, and what did he not do, which he should have done?

Capt Chawla, 39, Master of this ship says, "I don't want to see a ship again." He adds that if he was to return to a Navigation bridge, any future decisions he takes will be coloured by this experience instead of "just doing what I thought was right." He also adds that before the accident he would have advised anybody, including his own son, to look at all job options including a seafaring career. "Now I would discourage anyone and everyone including my son from seafaring." But even under so much pressure for no fault of his, Capt Chawla says, "Everyone is doing their job, even the prosecutors. So I can't blame them." This does great credit to a seafarer who is suffering all this through no fault of his, and remains fair and reasonable.

But where is justice for seafarers and which young man would want to go to sea after reading about cases such as *Prestige* and *Hebei Spirit*, which have received world wide publicity. Furthermore when a young officer sees an exhausted, worn down, unsmiling Master being treated with a cavalier lack of respect, it makes him think, 'Do I want such a job?'

Therefore he does not want to bide his time to get command. The moment he finds an opportunity or an opening ashore, he leaves. That not only creates voids but also makes the industry rush inexperienced officers to senior positions for which they are not ready, and even before they get used to their earlier assignments.

For over a century or more, it was the order of the day and not an exception that most seafarers served their full working life at sea with a single ship owner from cadet to Master and beyond. For example, Capt. Gaetano Mintauro served his entire life, working for Italian Line. He was Master of the *Andrea Doria* when she sank after colliding with the Stockholm. Even after such a disaster, he did not stop sailing and that was also with the same company. This is because until well into the fourth quarter of 20th century, most ship owners trained their own Officers and Engineers from tender ages to Master/Chief Engineer, employed on a permanent basis.

## Then and now

Paid leave was considered the inherent right of serving seafarers, together with the Provident Fund amongst others. This provided a sense of belonging and security to seafarers and their families.

Today, it is the norm, not an exception for Management and Manning agents to gyrate seafarers from ship to ship, owner to owner and contract to contract. They pick up the first seafarer in the market, (like buying a kilo of potatoes) and do not even stop to find out whether he is qualified and experienced enough. The story goes that when the Master of a ship saw courses laid on the chart by the 2/O, before sailing out through a Traffic Separation Scheme (TSS), he asked the second officer why. The answer was: "Sir, that is the way we came in!"

Seafaring is no more a permanent career and requires a mid age changeover after an 8 to 12 year span at sea. This means a need to offer long term career prospects to attract youth to shipping. Unfortunately, general awareness about this profession is sadly lacking in industrialists and law makers world wide. Therefore seafaring experience on board ships is not understood, considered or paid for in post-sea careers by shore-based industries. A concentrated effort is required to create awareness about positive aspects of this profession. It also needs standardized and integrated education and training to create platforms for long term career opportunities with provisions for credit of ship board training, experience and expertise.

## No time for rest

One reason to choose a sea career was to see the world. Today, with significant reduction in manning, most seafarers including watch keeping officers are over-worked, fatigued and loaded with paper work. This is well accepted and acknowledged even by owners when they provide instruments like Bridge Navigation Watch Alarm Systems on the Bridge to keep a duty officer awake and alert about his navigational duties. With all this they get no time to step ashore when in port, even when visa formalities allow them. Also, the prospect of criminalization has become a major consideration, which prevents them from stepping ashore during their short stays in foreign ports.

There was a time when if the Master saw a second officer awake past 7pm while at sea, he would insist that the 2/O goes to sleep so that he is alert when on the 12 to 4 watch.

Again the duty officer who was to keep night duty in port, was not expected to go ashore in the afternoon when he was off duty, as he had to go to sleep after lunch, to keep night duty from 6pm Today, paper work, cargo watches and maintenance work keeps Nauticals and Engineers busy at sea and while in port. Therefore, without proper sleep or rest, what kind of navigation watch or deck duty would they keep? This causes sub-standard or a bad performance which results in more accidents. In turn it obliges seniors to have to work with immature and inexperienced juniors. This contributes to insecurity, making both juniors and seniors think of alternative careers.

Today with advancements in technology and automation on board, ship's officers and engineers need more brain than brawn to perform. This means more education, more intelligence, more training and more learning. As a consequence, they have many opportunities of other lucrative employment and see no reason why they should put up with insecurity, loneliness, criminalization and ceaseless work on board, seven days a week.

The worst aspects for a career at sea today, appear to be loneliness, for being away from family, children and friends and difficulties keeping in touch with them, not to talk of living and working conditions on board ships, which are bad. Lack of shore leave, reduced manning, increased work loads seven days a week, need to be recognized and ameliorated. Too much work, especially paperwork, fear of being treated like a criminal and no durable relationships between owners and seafarers are additional factors.

The top priority seems to be readily available total communications, as young people need to be able to instantly contact their near, dear and loved ones. They know equipment is available now. But owners have to make its use available at will and virtually free. Better and more comfortable accommodation with more space in cabins plus

> Commercial success of the ship depends on her crew ... A disgruntled or a disinterested crew can be a recipe for commercial and financial disaster. Therefore, attracting and retaining high-quality crew should be the top priority.

better recreational facilities need to be provided. They know these can be provided. But owners do not provide them. Also reduced manning may be warranted with automation. But this idea should not be taken too far. Normal practice should, get whatever is needed from the seafarers verbally and do the paperwork ashore.

Furthermore, the ship's crew is not concerned with what foreign governments do and think and what their laws are.

Their only concern is, 'I had this problem while working on so and so ship in so and so port, and no one helped me'. If owners want crew, they have to address this problem. A senior and highly placed seafarer stated thus, on his return from the STW 39 session of IMO, in early March 2008:

" I was witness to hypocrisy at its height. Everyone spoke of fatigue and rest periods being flouted by ship's staff. But when it came to tackling the issue at its root, namely increasing safe manning and making a mandatory prescriptive criteria, the European States did a double-take and started speaking of goal-based standards, a jargon for keeping safe manning criteria as voluntary and flexible."

Thus ship owners themselves engineered to abort a proposal about minimum manning on board ships.

A reasonably well employed well qualified person ashore works about 230 days x 8 hours in his office, with a one month paid leave plus national and other holidays during the year. A seafarer works minimum 12 hrs, seven days a week which means that he does the same amount of work in about five months on board. Therefore he should be entitled to about 7 months fully paid leave for every five months on board. Do ship owners think about it?

## Shipping's important role

Here is what a sailing Chief Engineer has to say about sailing today: "A few years ago, any young man would say, 'I came to sea for adventure-to see the world'. Now they might say, 'I came to sea because I didn't have anywhere else to go. Have we really become the bilges of society?'" he asks.

90% of the freight exchanges world wide, are by sea. Passenger traffic between European ports alone is more than 400 million sea passengers yearly. When coupled with such traffic world-wide, it means that passenger ships and ferry services have a direct impact on the quality of life of citizens in islands and peripheral regions all over the world.

In the European Union alone, transport of freight and passengers at sea generated € 24.7 billion in 2006 as a net contribution to the EU balance of payments.

Maritime transport activities-related employment in Europe alone, adds up to 1.5 million people out of which some 70% of shipping related jobs are in shipbuilding, naval architecture, science, engineering, electronics, cargo-handling and logistics.

## Create a sense of belonging

On 16 April 2006, *M.T Eton*, a 162,000 GRT tanker was sold ex-shipyard, for $90 million. With interest on investment, depreciation, crew wages, maintenance and administration expenses, her daily standing cost to owners worked out to $ 30,023.29. She was time-chartered that very day at $35,000 daily, which the owner would lose if she was delayed and went off hire even for one day. Even though ship owners insure themselves, they do not make such investments to lose the ship and recover the cost from insurers.

They do it to make profit out of their investment. Commercial success of the ship depends on her crew. A manager cannot delegate success or failure. A disgruntled or a disinterested crew can be a recipe for commercial and financial disaster. Therefore, attracting and retaining high-quality crew should be the top priority.

A single poorly written email by a manager, can undo a lot of good work and result in alienation. The effect of a communication of thanks and appreciation cannot be overstated. Also, accepting and incorporating suggestions into systems gives 'ownership' to those who have contributed. That boosts morale on board and leads to a sense of belonging.

It is high time owners realized that ships are not their greatest asset. It is the seafarers who man those ships and can make or break an owner regardless what kind of fine ships he has. For that, competent and devoted seafarers are the key and are their most important asset, even more important than the ship. That is why ship owners need to create reciprocal loyalties. Unfortunately, ship owners, barring a few intelligent and durable ones, seem to have lost this psyche which earlier ship owners used to have.

# Air pollution by emission from ships

CAPTAIN GEORGES HAVELKA, ACOMM

Ships today emit less $CO_2$ than other transport modes. But this is changing. By 2020, ships will emit as much $SO_x$ and $NO_x$ in EU seas as in all land-based formsof transport in this same area put together.

To prevent this, IMO has tightened its regulations, with Marpol, Annex VI, (Resolution MEPC 175(58) annex 13) amended in October 2008. Member states then included this in their legislations. The EU issued its own directives with additional constraints.

Consequently, there are new procedures to be carried out on board ships and new documents to be kept to avoid ships being detained by Port State Contro (PSC).

Ships' emissions contain substances dangerous for the environment. Those substances are originated both by the quality of fuel and the state of the ship's machinery and equipment. They are mainly:

- Sulphur oxides ($SO_x$) due mainly to high sulphur fuel;
- Nintrogen oxides ($NO_x$) due, partly, to an incomplete combustion process;
- Volatile organic compounds (VOC), containing amongst other chlorofluorocarbons used in refrigerating systems.

## Sulphur control emission area (SECA)

This is an area where specific measures are taken to limit $SO_x$ emission. Its definition is contained in the IMO resolution above. In Europe, there are two such areas:

- BALTIC SEA SECA 1 – It comprises the whole Baltic Sea beyond Skagerrak, lat. 57°44;8N
- NORTH SEA SECA 2 – It extends from Baltic Sea northward to 62°N parallel and Skaw's meridian. It comprises the Channel up to 5°W.

Outside of those areas, the sulphur content of fuel oil must not exceed:

- 4.5% before 1 January 2012
- 3.5% after 1 January 2012
- 0.5% after 1 January 2020

Inside those areas, the sulphur content of fuel must not exceed:

- 1.5% before 1 July 2010
- 1.0% after 1 July 2010
- 0.1% after 1 January 2015

For ships staying permanently in ports, the limit of sulphur content will be 0.1% and applicable from 1 January 2010 with exceptions for 16 Greek ships.

The European Union authorises the use of Exhaust Cleaning Systems in order to lower the level of sulphur emitted. But this must not create effluents harmful to the environment.

## IMO resolution MEPC 58/23 annex 13 (excerpts)

### $NO_x$ emission (regulation 13)

This is applicable to marine diesel engines with a power output of more than 130kW and marine diesel engines that underwent a major conversion on or after 1 January 2000, except when such an engine is an identical replacement to the engine which it is replacing.

This is not applicable to marine diesel engines intended to be used solely for emergencies, or to power any device intended to be used for emergencies on the ship on which it is installed, or a marine diesel engine installed in lifeboats.

**TIER I –** ships constructed on or after 1 January 2000 and prior to 1 January 2011. Nitrogen oxides emission must not exceed, (n = rpm):

1. 17.0 g/kWh if n is less than 130 rpm
2. 45 $n^{(-0.23)}$ g.kWh if n is more than 130 rpm and less than 2000 rpm
3. 9.8 g.kWh if n is more than 200 rpm

**TIER II –** ships constructed on or after 1 January 2011. Nitrogen oxides emission must not exceed (n = rpm)

1. 14.4 g/kWh if n is less than 130 rpm
2. 44 $n^{(-0.23)}$ g/kWh if n is more than 139 rpm and less than 2000 rpm
3. 7.7 g/kWh if n is more than 2000 rpm

**TIER III –** ships constructed on or after 1 January 2016. Nitrogen oxides emission must not exceed (n = rpm)

1. g.kWh if n is less than 140 rpm
2. 9 $n^{(-0.2)}$ g/kWh if n is more than 130 rpm and less tan 2000 rpm
3. 2.0g/kWh if n is more than 2000 rpm

There are allowances for some ships built before 1 January 2000.

### FC - chlorofluorocarbons (regulation 12)

Installations which contain ozone depleting substances, other

than hydro-chlorofluorocarbons, shall be prohibited on ships constructed on or after 19 May 2005.

Installations which contain hydro-chlorofluorocarbons shall be prohibited on ships constructed on or after 1 January 2020.

Each ship shall maintain an Ozone Depleting Substances Record Book. This record book may form part of an existing log-book or electronic recording system as approved by the Administration.

Entries in this record book shall be in terms of mass (kg) of substance and shall be completed without delay in respect of the following:

1. Recharge, full or partial
2. Repair or maintenance
3. Discharge to the atmosphere deliberate and non-deliberate
4. Discharge of ozone depleting substances to land-based reception facilities
5. Supply of ozone depleting substances to the ship.

### VOC – volatile organic compounds (regulation 15)

If the emissions of VOCs from a tanker are to be regulated in a port or ports or a terminal or terminals under the jurisdiction of a party, they shall be regulated in accordance with the provisions of this regulation.

A party regulating tankers for VOC emissions shall submit a notification to the Organization at least six months before the effective date.

A tanker to be controlled shall be provided with a vapour emission collection system approved by the Administration taking into account the safety standards for such systems developed by IMO (MSC/Circ 585) and shall use this system during the loading of relevant cargoes. A port or terminal which has installed vapour emission control systems may accept tankers which are not fitted with vapour collection systems for a period of three years after the effective date identified in paragraph 2.

### Shipboard incineration (regulation 16)

Shipboard incineration of the following substances is prohibited:

1. Residues of cargoes subject to Annex I, II or III or related contaminated packing materials;
2. Polychlorinated biphenyls (PCBs);
3. Garbage as defined by Annex V, containing more than traces of heavy metals;
4. Refined petroleum products containing halogen compounds;
5. Sewage sludge and sludge oil either of which is not generated on board the ship;
6. Exhaust gas cleaning system residues.

Each incinerator on a ship constructed on or after 1 January 2000 or incinerator which is installed on board a ship on or after 1 January 2000, shall meet the requirements contained in appendix IV to this Annex and be of a type-approved by IMO – MEPC59(33) amended by MEPC92(45).

The combustion chamber gas outlet temperature should be between 850° and 1200° and oxygen level at least 6%.

## Low sulphur content fuel (1.5%)

### Procedures

All ships entering any SECA must use 1.4% sulphur oil. The change-over procedure needs to be well-planned before the entry. Each vessel must have its own specific procedure, depending mainly on the capacity of service or daily tank.

Experiences resported so far suggest that this whole procedure could take 48 hours, if not longer, whereas with the day tank scenario it would be approximately 12 hours.

The Regulations require that upon entry into a SECA the distribution and quantity of the diverse bunkers onboard are recorded in the engine room logbook together with the date, time and position upon entry into the SECA.

The distribution and quantity of bunkers onboard is thereafter recorded daily in the logbook whilst in the SECA until the vessel leaves the area.

### Bunkering

A problem would arise if a ship is equipped with two large tanks only and if it does not stay long within a SECA. Imperatively, before bunkering, an empty tank should be made ready to receive 1.5% sulphur fuel and avoid any mixing with a 4.5% sulphur fuel.

This procedure is easier if there are several fuel tanks or ballasts. The ship's owner or charter may, alternatively decide to use low sulphur fuel only.

IMO Resolution A96 (22) invites all governments, especially those within a SECA to assure availability of low sulphur fuel for bunkering purposes.

### Oils

In addition, the quality of both the cylinder and lubricating oil should be reviewed with regard to its Base Number (BN). If the respective engines will be operating for lengthy periods within a SECA then the lubricating oils may need to be replaced by low BN oils.

This create the need for two separate oil tanks. However, it is possible to use universal oil available on the market, (BN 57), which is adapted to both types of fuel.

### Port state control

On arrival on board, the PSC Officer should examine:

1. IAPP certificate (Intern. Air Pollution Prevention);
2. EIAPP certificate (Engine Intern. Air Pollution Prevention);
3. Technical file for every diesel engine;
4. Record book of diesel engine parameters for every diesel engine;
5. Documents concerning exhaust gas cleaning system, if installed;
6. BDN (Bunkering Delivery Notes) and associated samples;
7. Type-approved certificate for ship's incinerator (see MEPC76 (40) andMEPC93 (45);
8. Any notification to the ship's flag Administration issued by the master relevant to a non-compliant bunker delivery.

He may also examine construction and equipment installation documents to assess, amongst other things, the presence of CFC on board, types of fuel in use, type of vapour collector if installed.

PSC may verify if the master or crew are familiar with the installed equipment and their operation. In case of deficiencies, PSC may decide a more detailed inspection is necessary and detain the ship.

It is important to note that PSC is empowered to take samples of fuel on board and of ship's emissions in order to have them analysed in a laboratory. Results should arrive 24 or 48 hours later.

Statistics from PSC in Dunkirk revealed that it found deficiencies on only two ships related to air pollution amongst 200 ships it recently inspected.

# Creating coastal relationships

DAVID PATRAIKO, FNI, INDIVIDUAL MEMBER

There has been an increased interest in protection of the marine environment, a desire for improved efficiency in shipping and heightened security concerns. This combination of interests has led to a need for improved maritime domain awareness; something that has been supported by advances in technology. In some respects, this can be thought of as extending the coverage of Vessel Traffic Services (VTS) beyond the port to territorial waters and, in some cases, at least consideration of the possibility of going to the limit of a country's Economic Exclusion Zone (EEZ). This latter point brings with it potential implications for international maritime law, which in turn may have implications for the implementation of such schemes outside territorial waters.

As well as extending coverage, the requirements of coastal states to protect their environment by improved navigation safety, improve security and promote the efficiency of shipping may also call for new working practices.

Not least because of the advent of the Automatic Identification System (AIS), Coastal States are beginning to develop national AIS networks and also promote the use of Coastal VTSs. Although not giving a complete traffic image, this has enabled greater understanding of marine traffic flows whilst, at the same time, opening up possibilities for the management of shipping. This was clearly evident in the final demonstrations of the European Union sponsored research project MarNIS (Maritime Navigation Information Systems), where single reporting (the concept of the single window), monitoring of vessel traffic and some possibilities for interacting with it were presented.

AIS has, for some time, enabled monitoring of coastal traffic but, although mariners may not like the idea, it needs to be recognised that, with the opportunities opening up with space based AIS and the foreseeable introduction of Long Range Identification and Tracking (LRIT), the anonymity of the majority of commercial shipping, once clear of a port, is now a thing of the past. The impact of this on Search and Rescue (SAR) operations is obvious but concerns about security and the marine environment, can be expected to lead to exploitation of the knowledge of where shipping is by Coastal States. This, of course, introduces potential conflict with commercial sensitivity about ships' movements and cargoes.

Key issues of communication, the supremacy of the Master and the relationship between shore and ship teams have emerged but it is self-evident that for any type of traffic management to function effectively there must be co-operation between ship and shore; this implies mutual understanding and respect. Given that, recently, IALA (International Association of Marine Aids to Navigation and Lighthouse Authorities) has found it necessary to promote the capability and benefits of a VTS to the mariner, because of a perceived lack of understanding, moving to something more wide-ranging may well have serious educational and training implications. With this in mind and with a view to seeking the navigational safety benefits of traffic management, as opposed to those of security and efficiency, the Nautical Institute (NI) decided to canvas the views of the NI's seagoing correspondence group. What follows represents the views expressed and forms the start of an 'in depth' debate involving all stakeholders.

## Support

The creation of new traffic management services and measures brought about by increased coastal surveillance have the potential to improve safety of navigation through better ship and shore teamwork.

Members of the NI's SGCG were asked to explore a number of possible areas of navigational support that could be strengthened and developed in the future.

It was very clear from the responses however that the ships themselves have to have the competence and authority to conduct their ships safely and within the regulatory framework and that shore support could assist greatly by adding valuable information, advice and guidance based on an expanded vessel traffic operational picture. Any future developments must build upon and not seek in any way to replace the best practice of good seamanship.

*"It is Prudent Seamanship that is the final measure of safety and success at sea, technology alone falls short of the standard."*

It was also clearly identified that the sharing of information pertaining to a voyage plan or intended route could have critical consequences to the security and commercial operation and therefore must be protected with adequate security and in compliance with current legislations such as the ISPS Code.

It was considered that in the future, when most ships' voyage plans were programmed into their navigation system electronically, that additional value could be provided by

coastal authorities based on the sharing of the voyage plans.

In particular the SGCG examined potential traffic management support by alerting a vessel that they had deviated from their intended voyage plan; the proximity of the vessel to navigational hazards, particularly new ones; advanced notification of meeting situations, congestion or bunching; the possibility of 'slot allocation' in congested waters; and the notification of environmental concerns or hydrographic and meteorological information.

Of general consensus was that many of these services could lead to safer navigation, however the sheer provision of more information without being properly managed would most likely further distract a mariner from his key role of navigation and not add value to the decision making task.

Improved safety of navigation will rely on the navigation team having the right information at the right time and the right skills and experience to make that decision

> Communication is absolutely critical to the success of a ship/shore partnership

## Deviation from posted voyage plans:

There have been a number of cases within VTS areas where the VTS operators have observed a vessel leaving an intended or expected route and have been able to intervene in time to prevent a casualty. For this to be effective in a coastal environment, the coastal state would have to have access to the intended plan for the vessel. However mariners warned that there are many legitimate reasons for deviating from an intended route such as for collision avoidance or on-deck operations and that intervention from shore authorities during these operations could be distracting. Therefore, for any type of traffic management to be effective, the operators must have a good understanding of operational activities and limit intervention according to risk.

*"It is more appropriate to use the term "within the limits of waterway" or "within the limits of safe water". Such kind of information ("within the limits of waterway" or "within the limits of safe water") is very helpful and improves safety of navigation"*

## Proximity of Navigational Hazards:

One mariner writes:

*"This is very useful kind of information as well, particularly in case of new hazards, which are not yet included on charts through chart corrections. In some cases, VTS advise ships which are running to the dangers ahead."*

While another cautions:

*"Mariners are familiar with identifying hazards and should not be unduly reminded of them, particularly if they are charted, unless they are posing a significant risk. Of more importance would be the effective displaying of hazards, such as provided by Navtext in a clear graphical format on the ships ECDIS or Radar."*

What was clear was an agreement that if handled intelligently, shore support could offer a safety benefit by alerting ships to navigational hazards that pose a specific risk to a specific ship's voyage.

## Advanced notification of meeting situations, bunching or congestion:

Responding mariners indicated that a particularly useful role for coastal traffic management would be to provide advanced notice of congestion possibly due to traffic patterns, choke points and bunching tendencies.

*"Advance warning of busy precautionary areas that may require a slow could alert the officer of the watch to call the Master and engine room to be on standby in good time instead of 'too late'. This way the vessel 'monitoring' can become advisory, without taking over responsibility which would always lie with the vessel."*

The ability to predict such congestion would be necessary before any advice could be given as to how best to manage vessel traffic based upon a strategic understanding and tactical decision making for any given area.

## Slot management:

The subject of slot management where a surveillance operator might suggest a specific route and speed through an area to avoid hazard and congestion was discussed. A presumed model would be where the route would be selected in collaboration with the ship's navigation team and the ship's team would retain control of the vessel within the agreed parameters. It should be noted that as a concept, slot management will need a lot of further development both in terms of operational and legal issues.

However the prime value that mariners saw in the concept of slot management were the prevention of dangerous crossing and overtaking situations and the hopeful eradication of 'rogue vessels'.

*"Those (notification of congestion and slot management) are the two most important items of VTS because primary task and "reason of existence" of Vessel Traffic Systems is traffic management. World wide practices are very different. Some VTS work very well and really help ships and improve safety of navigation. On the other side, some services are confusing, even dangerous. (see Seaways, February 2008 Captain's Column for a few bad examples and what has to be improved). Even today traffic services cannot work without technical aids, quality and efficiency of traffic management service does not directly depend on technical resources but on service organization and the skill of personnel.*

*Same as the ship's bridge team are crucial for safety of navigation regardless of technical resources on the bridge; skill and sense of VTS operators are crucial for efficient traffic management. In that respect, all authorities in charge of VTS should care about staff training for traffic management and control, as much as about equipment."*

And another comments:

*"I would place 'Proximity of navigational hazards' and 'Slot*

*allocation' in congested waters (approaches to pilot stations, e.g.)" as my main requirements."*

The provision of routine information pertaining to regulatory, environmental and meteorological issues did not receive a particularly high level of support during this preliminary research. It was felt that the primary role of traffic management should be for the safety of navigation and as such any information pertaining to the environment or weather should only be transmitted only if it pertained to a navigational hazard. Otherwise, if it were routine it should be provided to the ship via traditional routes so as not to distract the navigator.

*"Hydrographic or meteorological information is already broadcasted through safety net systems. Involving VTS will lead to duplication of information. This could create an additional job for the bridge team or OOW, but could be transmitted if they have imminent influence to the safety of navigation."*

## Communication:

Communication is absolutely critical to the success of a ship/shore partnership, and the SGCG were asked to address both the content and type of communication that they would like to see develop in the future.

The first overwhelming issue was that ship/shore communication should only be in support of making good navigational decisions. Routine and repetitive communication that are not safety related such as ship and voyage particulars should only be sent once at the commencement of the voyage and only updated if they change. Ship/shore communication should only be used for promoting safe navigation. This issue was seen as critical to an effective ship/shore relationship. Within this model, a number of respondents further suggested a 'priority' scale for this navigational safety communication.

*"I would suggest that this must be graded (think of Mayday, Pan or Securite messages as an analogy) with the highest level of intervention limited to clearly defined imminent dangers:*
*1. Unacceptable proximity to hazards – be they geographical or maritime. (May have to be a variable depending on the type of vessels involved).*
*2. Immediate external threats.*

*It should be possible to have some kind of indicator with each category showing how important the information could be relative to the ship i.e. Green/Amber/Red to show the user he should investigate when he has time and be able to prioritise this."*

Another writes: *"Regardless of technical means of communication, communication between shore traffic services and ships should be as simple as possible, concentrated on safe conning of the vessel through a certain area in a given time. All basic ship information such as name, call sign, destination, cargo, etc, should be left to the AIS and similar system or reported in advance by standard ship communication means. Communication with shore traffic services should not distract bridge teams from basic watch keeping and conning duties.*

*How far and wide communication should go must be carefully balanced. Technical possibilities should not make over-crowded communication space because that will have a negative impact instead of a positive effect on navigation safety of the ship."*

The question of preference for voice versus text (or graphical representation) communication was probably the most divisive of issues with many strongly urging a move away from voice communication and many others passionately in favour of keeping it. In either case however, most respondents emphasised the need to use common and standard English phrases such as those contained in the IMO's SMCP. The conclusion from this preliminary discussion may be that text and graphic representation of verbal communication may be introduced to supplement spoken communication, and it was further noted that standard translations could be applied to the use of standard phrases.

*"VHF is a net liability in a communications environment where English alone has a million dialects and nuances."*

And: *"For the kind of communication required, I would be happy with voice. I am seated on the integrated bridge of a cruise ship, with ECDIS, AIS always updated, radars and, most of all, with enough officers to man the equipment. But I also know that most of the ships do not have all these benefits and this is a case when, definitely, we should look to reach most of the users. When approaching ports and congested areas, most ships do not have the personnel to be able to deal with navigating the ship and still be paying attention to radars, echosounders, compass, traffic around and, still, be reading messages sent through AIS or other means. Bottom line, keep voice as the primary means, using other alternatives as "bonus" until most of the ships/crews are able to deal with more modern systems."*

And: *"Unfortunately, all IMO projects for standardizing marine communication did not achieve widespread correct use. Standardize communication is necessary for sure. This should be achieved through the training of ship and shore personnel. On board ship, it should be encouraged through ship's safety management system."*

## Relationship:

Short of a dictatorial approach from ashore, effective coastal traffic management will require those involved to be able to appreciate what each other is trying to do and be willing to co-operate in achieving a common goal. This is likely to be taxing for both parties but possibly more so for those onboard, who may find themselves being advised or directed to take courses of action that they had not planned for.

From years of developing master/pilot relationships and through Bridge Team Management training mariners have learned that the key to a good professional relationship lies with good interpersonal communication skills and mutual respect for each other's professional competency.

These issues are difficult enough when operating together on the bridge of a ship, however they pose some real challenges for building an effective ship/shore team relationship when the participants are split between ship and shore and, in all likelihood, have no knowledge of each other and may have little appreciation of the challenges the other faces or each other's working practices and imperatives. Developing co-operation, based on mutual respect, between ship and shore will call for a considerable investment in training for all concerned.

For there to be effective teamwork between ship and shore-based operational staff for coastal waters, it is absolutely essential to address the issues of communication and establishing mutual respect.

At this early stage of development, mariners and shore staff have an opportunity to address these issues in order to ensure that any implementation of new services provides an effective tool for improving safety and adding value to the shipping industry. The Nautical Institute and IFSMA will continue to develop these ideas further and to work with industry stakeholders to develop effective practices in this field.


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