Guide to Master's Oral Examination

Compiled by
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Dear students,

The purpose of the oral examinations is to check your competency, confidence and practical knowledge. Therefore, theoretical questions may not be asked unless it is considered necessary by the examiner. At the same time, it is a normal practice that no questions related to local regulations which are applicable to foreign countries will be asked unless it is so important, but, in this book, apart from the Sri Lankan and international regulations, laws, guide lines, I have addressed local regulations of certain foreign countries for you to gain a more practical knowledge on those subject areas. At the same time:

- Make sure to have a thorough knowledge of ROR;
- Please refer the IMO web site and update yourself with the latest amendments to Conventions and Codes;
- Please refer the DGMS web site and update yourself with the latest amendments to the Sri Lankan Legislation and latest MSNs; and
- Refer the latest case studies.

You are also advised to refer ship master's business companion and Code of Safe Working Practice (MCA) as well to gain a better knowledge.

I would like to thank all the master candidates who encouraged me to compile this booklet.

Wish you all the best!

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Contents

INSTRUCTIONS AND GUIDELINES TO A MASTER FROM THE COMPANY

Even though a master is generally responsible for the safety, security and protection of marine environment, other responsibilities may vary depending upon the company. When taking actions for the safety, security and for the protection of the marine environment, the master has to take actions in accordance with the instructions given by the company. Therefore, a master is required to have a good idea about his/her roles and responsibilities which are expected by the company. The company issues these instructions through the SMS. To gain a generic idea about what a company expect from a master, refer below notes which may be similar to the instructions found in a ship's SMS:

Master's authority and responsibilities

a) Master's authority

The vessel is under the authority of the Master as owner's representative onboard. The Master is accountable for the;

- safety and security of the vessel, people working onboard and the cargo; and
- protection of marine environment.

The Master shall protect the company interests without jeopardizing the safety of crew and the vessel.

The Master has access to the top management of the company at any time. The Company will provide the necessary support so that the Master's duties and responsibilities can be safely executed.

Master has overriding authority in safety, pollution prevention and security when ship is at sea, in dry dock or at berth. This overriding authority will continue even if there is a pilot or an engineer or an owner's representative onboard, unless the vessel is subjected to special local regulations.

The Master may delegate some of his duties to officers and engineers at his discretion but retains overall responsibility. In case of incapacity he will give the command to chief officer.

The Master shall coordinate with all third parties involved in vessel operations such as port/flag state representatives, agents, shippers, charterers, surveyors, stevedores etc.

b) Master's responsibilities

- Master is the company's representative onboard. Responsible for protecting company interests and charterer's interests which are vested in the company.
- Responsible for safe navigation and safe operation of the vessel all the time.

- Responsible for safety and protection of cargo.
- Responsible for protecting the marine environment and shall;
    - implement the environmental protection policy of the company
    - initiate the SOPEP in case of pollution.

- Master shall take decisions which are deemed necessary in case of emergencies.
- Responsible for implementing the "Safety Management System" and for ensuring that the requirements are complied with. He/she shall;
    - maintain all logbooks as required by the ship's SMS which includes Official Logbook, Oil Record Book Part-I, if applicable Part II, GMDSS log etc.
    - report any accident, injury, deficiencies or non-conformities to the Company as SMS requirements, and ensures that corrective actions are taken. He shall prepare and send all reports as may be required by the Company or the charterer.
    - review the SMS every 6 months by following the instructions provided in the SMS and the same to be reported to the company.
    - request the Company's assistance as may be necessary

- Responsible for motivating the crew in the observation and strict compliance of the "Safety Management System".
- The Master shall ensure that safe working practices are followed onboard in accordance with the flag state regulations, company SMS, customary practices of the trade and good seamanship.
- Responsible for overseeing onboard training of all crew members, as required by the company and international regulations.
- Responsible to make decisions with respect to the security of the ship.
- The Master is the chairman of safety committee and is responsible to hold safety committee meetings and report matters relevant to unsafe practices and proposals to enhance safety, security, pollution prevention measures to the company.
- The master is responsible to ensure that all international, flag state, port state and coastal state regulations with regards to documentation and reporting are complied with and ensures that all the necessary certificates and documents are valid and on board.
- Master is responsible to maintain crew agreement and any other documents/records related to employees.
- Master shall;
    - make wages accounts for all employees onboard and issue them with a wages slip.
    - keep all cash / provision / slop-chest / radio accounts and prepare any returns as may be required by the company, monthly and on change of command

- Master is responsible to;
    - qualify officers according to company's promotion scheme; and
    - provide adequate training to chief officer with regards to master's duties as he is the second in command

- If the master is the SSO (which depends upon the company), he;
    - is responsible for reviewing the effective operation of the "Ship Security Plan"
    - shall report any breach of security to the Company Security Officer (CSO).

The master may delegate some of these duties at his discretion but retains overall responsibility.

Master's overriding authority

In accordance with the ISM Code, the master has the overriding authority to make decisions with respect to safety and pollution prevention and to request the Company's assistance as may be necessary.

In accordance with the ISPS Code, the Master has overriding authority to make decisions with respect to the security of the ship and to request assistance of the company or of any Contracting Government as may be necessary.

The owner, ship management company, charterer or any other person shall not restrict the master from taking or executing any decision which is necessary for the safety, protection of the marine environment and security

IMO Resolution A.443 (XI) states that the ship master is protected from unjustifiable dismissal or other unjustifiable action by the ship owner, charterer or any other person as a consequence of the proper exercise of his professional judgment.

Contents of master's handing over documents

Master's handing over note shall contain at least:

a) Vessel's certificates/official documentation/class

- Updated list of ship's certificates with expiry dates;
- Updated list of all Statutory Documents and Publications;
- Official Logbook and all Flag Documents updated;
- Outstanding defects or Conditions of Class;
- Charter Party details;
- Survey Status and ongoing surveys; and
- SMS documentation (SMS index with last update, ISM/ ISPS: status of non-conformities, drills, audits, meetings and review, etc.) updated and in order and DPA/CSO Letters.

b) Vessel particulars

- Ship handling characteristics/deficiencies;
- Technical information and Technical issues;
- Vessel's accounts (cash, bond, wages, radio, provisions); and
- Crew competence and qualification.

c) Voyage characteristics

- Charterer's requirements;
- Voyage reports;
- Nautical, commercial and technical aspects of the voyage;
- Operations in the current port of call (Cargo ops, departure drafts and stability, etc.);
- Next ports of call requirements; and
- Voyage schedule.

Master's standing orders

Master's standing orders means permanent orders that will be applicable all the time as addressed in such orders and it overrides company SMS.

Standing orders shall be issued in "Master's Standing Order Book" and shall be available on the bridge all the time.

Master shall make standing orders upon joining a vessel and shall be signed by him. All deck officers including the chief officer is required to read the master's standing orders, understand them, sign it upon joining a vessel and comply with them.

Following areas could be addressed when making standing orders:

- Actions in the case of;
  - taking & handing over the watch;
  - change from auto pilot to manual steering;
  - fixing the position of the vessel;
  - preventing collisions;
  - updating nautical charts nautical publications;
  - use of bridge equipment such as radar, ARPA, ECDIS, echo sounder, autopilot, AIS, VHF etc.;
  - testing bridge equipment;
  - deciding the maximum/minimum engine speed;

- deciding the watch level;
- deciding the requirement of a lookout;
- navigation in ice areas, bad weather or in restricted visibility; and
- under pilotage.

- Precautions to be taken against flooding.
- Handling of GMDSS equipment.
- Precautions when embarking or disembarking a pilot.
- Monitoring the condition of weather.
- Safety, protection of environment and security.
- When to call master.
- Any other points which the master considers necessary.

Temporary and night orders

Temporary and night orders of the master shall be laid down in the "Temporary and Night Order Book" when deem necessary and shall be available on the bridge all the time.

Master shall make sure that the OOW has understood and signed the orders that he has laid down before he leaves the bridge.

These shall be read, understood and signed by deck watchkeeping officers at the time of taking over the watch. If they have any doubts, they shall seek clarification from the person who is handing over the watch or the master.

MASTER'S OBLIGATIONS IN ACCORDANCE WITH THE STCW CODE

Refer the STCW Code by yourself and be familiar with the points mentioned below to enhance your knowledge:

- Ensure the seafarers are having necessary certificates to carryout onboard duties as appropriate to their rank and, they are valid for the period of engagement onboard.
- Ensure the seafarers are having valid medical certificates.
- With regards to regulation VIII/2 of the Convention;
  - ensure the requirements, principles and guidance set out in the STCW Code are complied with while performing watchkeeping duties (refer Section A-VIII/2 of the Code for further details);
  - ensure the watch keeping arrangements are sufficient to ensure a safe watch;
  - ensure that the radio operators are responsible for maintaining a continuous radio watch on appropriate frequencies during their periods of duty;
  - officers in charge of an engineering watch, shall be immediately available and on call to attend the machinery spaces and, when required, shall be physically present in the machinery space during their periods of responsibility;
  - an appropriate and effective watch or watches are maintained for safety at all times, while the ship is at anchor or moored and, if the ship is carrying hazardous cargo; and
  - as applicable, an appropriate and effective watch or watches are maintained for the purposes of security.

- With regards to the Section A-l/14 of the STCW Code;
  - ensure the appropriate job-related training is provided;
  - ensure ship-specific watchkeeping, safety, environmental protection, security and emergency procedures and arrangements the seafarer needs to know to perform the assigned duties are provided; and
  - ensure to designate an officer who will be responsible for ensuring that an opportunity is provided to each newly employed seafarer to receive essential information in a language the seafarer understands.

- With regards to the Section A-VIII/1of the STCW Code;
  - ensure the work and rest hours are being complied with;
  - maintain the records of duly completed work and rest hours;
  - a copy of the work and rest hours to be given to seafarers with the endorsement of the master or any other person authorized by the master; and
  - ensure establish an alcohol limit of not greater than 0.05% blood alcohol level (BAC) or 0.25 mg/ltr alcohol in the breath or a quantity of alcohol leading to such alcohol concentration for masters, officers and other seafarers while performing designated safety, security and marine environmental duties.

- Signing and issuing of documents confirming that the seafarers have completed the relevant onboard training as required by their Administrations.

- Signing or attesting of training record books of the seafarers who are following approved training programmes onboard which require an approved training record book to be completed.
- Issuance of watchkeeping certificates for upgrading and updating the seafarer's existing certificates.

SIGNING ON / OFF PROCEDURE OF SEAFARERS

1) Signing on procedure

The procedures of signing on/off may be different from flag state to flag state. Procedures issued by Maritime Coast Guard Agency (MCA), for UK flag ships are explained below as most flags follow a similar practice. First, there are two documents that a master must be aware of. The first one is the Seafarer's Employment Agreement (SEA) and the other one is the list of crew.

a) Seafarer's Employment Agreements (SEA) – required in accordance with MLC 2006

All UK flag ships are required to have individual SEA for each seafarer (employees including trainees) on board which includes, but not limited to (refer the MLC 2006 for further details):

- Names & addresses of seafarer, ships owner
- Date & place of agreement
- Period of agreement
- Health and social security protection provided
- Wages and the manner in which it is to be paid
- Hours of work
- Paid leave etc.

One of the signed (signed by seafarer and ship owner or his representative, both) original SEA to be given to the seafarer and another original shall be kept with the ship owner. A copy of the SEA is to be kept onboard.

Where a seafarer is not directly employed by the ship owner but is employed by a third party (e.g. a manning agency), the employer must be a party to the SEA. In such cases, the ship owner (or an authorised signatory of the ship owner) must also sign the agreement to guarantee that the ship owner will meet any obligations of the employer to the seafarer under the SEA.

Non-seafarers (repair team, riding gangs etc.) shall have evidence of contractual or similar arrangements providing them with decent working and living conditions onboard ship. Such a document shall contain at least (refer the MLC 2006 for further details):

- The remuneration
- The manner in which the remuneration must be paid

b) List of crew

There is a difference between a 'list of crew' and a 'crew list'. Crew list is a document which contains names, ranks, dates of birth, nationalities etc. of each crew member onboard used for

arrival and departure situations to complete formalities with the port authorities. List of crew is an official document required by the flag state. Refer the sample format of a list of crew[1] below:

List of crew and signatures of seafarers serving on …… (name of vessel)				**MSF 4157 (Rev. 9/2013)**
(a) Reference No. in Logbook	b) Name of Seafarer (block letters)	e) Address of Seafarer	h) Date of commencement of employment on board	k) Signature of Seafarer on engagement
	c) Discharge book No (if any) or date and place of berth	f) Name and relationship of next of kin	i) Date and place of leaving the Ship	l) Signature of Seafarer on discharge or if not discharged, the reason for left being behind, if known
	d) Name of Ship in which last employed	g) Address of next of kin if different to seafarer	j) If discharged the reason for discharge	m) Signature of person before whom the Seafarer is discharged
(a)	b)	e)	h)	k)
	c)	f)	i)	l)
	d)	g)	j)	m)
(a)	b)	e)	h)	k)
	c)	f)	i)	l)
	d)	g)	j)	m)
(a)	b)	e)	h)	k)
	c)	f)	i)	l)
	d)	g)	j)	m)
(a)	b)	e)	h)	k)
	c)	f)	i)	l)
	d)	g)	j)	m)
CERTIFICATES OF COMPETENCY HELD BY SEAFARERS LISTED ABOVE *(State if none held)*				
Reference No. (as above)	Capacity in which employed	No. of Certificate of Competency, Equivalent Competency etc.	Describe in full the Certificate of Competency, Equivalent Competency held including all Endorsements (e.g. Restrictions, Dangerous Cargo Endorsements etc.) and the Country of issue	

At the time of signing on:

- Ensure the seafarer is in possession of an original of SEA and the master shall retain a copy of the same.
- Enter the details of the seafarer on the list of crew and get his signature on it.
- Enter the name of the crew member in the 'record of seamen employed in the ship' section of the official logbook. Refer a sample of that section below:

Reference number in list of crew	**Name of seaman (Capital letters)**	**Capacity in which employed**	**If entry made in narrative section give relevant page**

[1] MGN 477(M), MCA, UK

- The reference number in the above list to be taken from the list of crew. All these entries to be made by the master.
- In accordance with the MCA regulations no need to enter **signing-on** of crew in the narrative section of the official logbook. But, change of master is required to be entered in the narrative section. Some other flag states may require entering **signing-on** of crew in the narrative section (Hong Kong requires to make an entry in the narrative section of the official record book in case of **signing-on and signing-off both**). Use the reference numbers in the list of crew when making any entries to the narrative section with regard to any crew members, instead of writing the names.
- Example of a statement to be made in the narrative section in the case of change of master:

This is to record that at the date, time and place as mentioned, the command of this vessel handed over to Capt. XXXX by Capt. YYYY, while she is safely afloat in seaworthy condition with valid necessary certificates & documentation.

At the time of handing over ROB are:

Cash	: AAAA	Provisions	: BBBB
Bond stores	: CCCC	Club money	: DDDD
HFO	: EEEE	DO	: FFFF
Lub oil	: GGGG	FW	: HHHH

Name and Signature of out-going master Name and signature of in-coming master

- Write the date of engagement on the CDC and stamp it.
- If the age of the seafarer is below 18 years of age, entries to be made in the **list of crew**, **official log book** and also in the '**list of young persons**'. In accordance with the Sri Lankan regulations no seafarer can be employed onboard below 18 years of age as the CDCs are not issued to persons below 18 years of age. Refer a sample format of a 'list of young persons' below:

LIST OF YOUNG PERSONS **MSF4158 (Rev 11/13)**

Reference No. in List of Crew	Family name and other names (in full)	Date of Birth	Place of Birth	Capacity in which employed

Signing on procedure on board Sri Lankan flagged vessels

The table in the paragraph 9 of the Sri Lankan crew agreement (refer Annex I) is required to be completed. The relevant information can be obtained from the passport, CDC and the other documents.

The same document is also available in the DGMS office (in the ledger) and it will be completed by the officials at the DGMS office when going to endorse the same on the CDC. That is why the "Signature of the Shipping Officer" is also available onboard the ship's crew agreement as well (refer the column number 13 of paragraph 9). Ship's copy of the agreement can be identified as it is handwritten as 'ship's copy' on the front of the agreement.

Enter the details on the 3rd page of the official logbook (refer the Annex II). In accordance with the UK regulations, the serial number on the list of crew and the serial number on the official log book have to be the same. But, on Sri Lankan flag vessels, the serial numbers on the official logbook and the crew agreement is not required to be the same.

The Sri Lankan Crew Agreement will be terminated one year after opening the agreement. The terminated crew agreement to be sent to the shipping officer along with the appropriate official logbook.

2) Documents to be submitted to the master while joining a vessel

Master or the officer designated must collect the following documents of the joining crew. Make sure the documents with dates of expiries are valid for a period of contract + 6 months (the required period of validity depends upon the company):

- Seaman's book.
- Passport to be valid for period of contract.
- U.S. visa to be held if vessel trading to U.S (some companies require to have US visa, whether the vessel touches US ports or not).
- Original of seafarer's National certificates / licenses (must ensure that they are appropriate to the function) such as:
    - COC
    - GMDSS certificate
    - ECDIS certificate
    - High voltage certificate
    - Certificates of ancillary courses
    - SSO certificate for ship's SSO
    - Medical care certificate for the person administering medicines onboard etc.
- Medical fitness certificate (it shall be valid for the work to be carried out onboard)

- CEC (Certificate of Equivalent Competency) or COR (Certificate of Recognition) issued by the Flag state (Flag endorsement). If Flag Endorsement has not been issued, seafarer must be in possession of a valid C.R.A. (Confirmation of Receipt of Application). Example;
    - CEC for COC
    - CEC for GMDSS etc.
- If required, CDC issued by the flag state
- Vaccination and Inoculation Certificate (Yellow Card).
- Letter of employment contract given by the recruiting agency (ensure the contents of the letter are correct)

All the documents to be in English. All documents and Certificates must be original ones. No photocopies are to be accepted. All documents and Certificates must be valid for period of Contract.

3) Signing off procedure

- Before signoff, check all the documentation of the newcomer. Once everything for the new joiner is in order, may begin the process of signing off. The reason for this is, if the new joiner does not posses the required documents, master may consider of keeping the existing seafarer onboard without signing on the new joiner.
- Balance wages of the signing off seafarer to be settled.
- Ensure to issue legitimate documents which relate to his future carrier, such as bridge watch keeping certificates, service letters, steering certificates etc.
- Enter the date of disengage on the CDC and sign it.
- Return all his personal certificates and documents which were at the master's custody.
- Sign off from the ship's articles.
- In case of a British Flagged vessel;
    - make a statement in the narrative section of the official record book (Example - "No. 12 and 20 as listed on the list of crew signed off");
    - complete the last column in the 'record of seamen employed in the ship' section of the official logbook (example – if any disciplinary actions were taken, promotions / demotions etc.); and
    - sign off him from the list of crew and the master to counter sign.

- Update the ship's crew list.

Signing off procedure on board Sri Lankan flag ships

Complete the last 6 columns on the paragraph 9 of the Sri Lankan Crew Agreement (refer the Annex II). The rest of the formalities are the same as above.

ARRIVAL / DEPARTURE DOCUMENTS

Ships are supposed to have valid certificates, documents and records in accordance with the flag state regulations and in accordance with the port state's regulations when arriving a port. At the same time, there are various information that a master is required to provide to a port prior arrival, on arrival, before departure and at the time of departure.

The following list is a list of general documents that are required when arriving and when departing a port. Need to refer the Guide to Port Entry or websites of port authorities and seek the advice from the agent for specific details of reports to be made, when to report, whom to be reported and what documents are to be presented.

Arrival documents

Port health	Immigration	Customs	Others
Crew list (FAL form 5)	Crew lists (FAL form 5)	Crew lists (FAL form 5)	IOPP Certificate
Vaccination list (yellow fever)	Passenger list (FAL form 6)	Port of call	Oil record book
Narcotics list	Port of call	Nil list	Garbage record book
Medical chest certificate	Nil list	Last port clearance	Ballast water report form
Maritime declaration of health	Passport	Narcotics list	Certificate of registry
Ship Sanitation Control Certificates or Ship Sanitation Control Exemption Certificates	CDCs	Crew effect declaration (FAL form 4)	International tonnage certificate
Free Pratique will be granted	**Shore passes will be issued**	Ship particulars	Load line certificate
		Bond store list	SMC
		Cargo declaration (FAL form 2)	ISPS Security declaration
		Ship's stores declaration (FAL form 3)	IMO general declaration (FAL Form 1)
			CLC for bunker oil pollution
			Amounts of waste onboard and to be discharged (waste form)
			Trim and stability calculations (for grain cargoes)

- If any firearms are onboard, it should be declared in the crew's effects declaration or ship's stores declaration depending upon it belongs to the vessel or a personal item. Need to have a valid licence or permit from the appropriate country of origin. This is required for customs.
- **Nil list** – this is used when there are no Passengers, Stowaways, Animals, Arms, Ammunitions onboard.
- **Declaration of Security** – this is only required to be completed, if the Port of Call is a non-ISPS compliant port or if the Vessel or Port are at different Security Levels or if requested by the PFSO / CSO / Flag State only.

Ship masters and/or their agents are required to make various reports to number of authorities in a port. Which includes repetition of work again and again and increases the workload of ship masters. IMO has taken steps to reduce this workload by introducing amendments to the FAL Convention through Resolution FAL.12(40).

Through this Resolution IMO encourage public authorities to introduce arrangements to enable the submission of all the information required by public authorities in connection with the arrival, stay and departure of ships, persons and cargo, avoiding duplication, to a "Single Window" ('Single Window' means a facility that allows submission of standardized information covered by the Convention to a single-entry point).

Departure documents

- IMO General declaration (FAL Form 1)
- IMO crew list (FAL Form 5)
- IMO passenger list (FAL Form 6)
- Nil list
- Cargo declaration
- Trim and stability calculations (mainly required for grain cargoes but may require for other cargoes)
- Dangerous goods manifest (FAL form 7)
- Ship's stores declaration (FAL form 3) if stores were taken from the port

Departure clearance will be issued by immigration once above documents are cleared. (this may not be required if the destination port is also in the same country).

Port documents for oil tankers

- Certificate of Insurance with respect to Civil Liability for Oil Pollution Damage (CLC) – for vessels carrying more than 2000 t of persistence oil cargo in bulk.
- Ship / shore safety check list – completed by the chief officer and terminal.
- OBQ certificate – verification of Onboard Board Quantity by a surveyor. Usually done when carrying same cargo as the previous voyage.
- Empty Tank certificate – certificate issued by a surveyor confirming the tanks are empty, clean and fit to receive the nominated cargo.
- Types of last 3 cargoes (during last three voyages) and tank preparation report – this is required by the terminal/surveyor to make sure the tank cleaning is done in accordance with the company guide lines.
- Vessel's Experience Factor (VEF) – the ratio between loaded amount in accordance with the ship calculation and terminal calculation. This is important to avoid cargo disputes. Depending upon the trade requirements, VEF may be required for last 5 voyages to a

maximum of 20 voyages. Mostly, it is for last 10 years. Following voyages are excluded from the calculation of VEF:

  - Maiden voyage
  - STS operations
  - Voyage after dry dock/major alteration

- Slop certificate – issued by a surveyor stating the volumes, ullages and interface of the onboard slop amounts.
- Sample witness certificate – completed by chief officer and surveyor to ensure the cargo is sampled to avoid off specific cargo disputes.
- Seal certificate – issued by a surveyor stating that the cargo sea chest and overboard are closed. This is a precaution against pollution and required by some ports only.
- Pumping log – need to keep a record of any slowdown and stoppages of discharging during the discharging operations, to avoid demurrage disputes as the cargoes are discharged by using ship's pumps.
- ROB / Dry tank certificate – issued by a surveyor at the discharged port stating the ROB is un-pumpable even the ships pumps are in good working order.
- Cargo receipt – issued by the receiver/loading master at the port of discharged acknowledging the cargo is received.

CERTIFICATES AND DOCUMENTS

Please be kind enough to refer the "Guide to Chief Mate's Oral Examinations" as well, because most of the certification requirements are addressed in detail in that book. Only those areas which are not covered in that book are addressed under this topic.

1) Statutory certificates to be carried on board Sri Lankan ships

Remember, the term 'statutory certificate' is not defined internationally. Therefore, individual flag states may have different meanings for the terms 'statutory certificate' and 'trading certificate'. According to the customary practices of Sri Lanka, 'statutory certificates' means the certificates that are required to be carried by a vessel in accordance with the Sri Lankan regulations and all other certificates are known as 'trading certificates'. Some flag states call all the certificates to be carried onboard as trading certificates. The 'statutory certificates' to be carried by a Sri Lankan ship are (as of 10/11/2020):

- Certificate of registry
- Provisional certificate of registry (valid till the certificate of registry is issued or six months)
- Passenger ship safety certificate
- Qualified passenger ship safety certificate and an exemption certificate
- Cargo ship safety construction certificate
- Cargo ship safety equipment certificate
- Cargo ship safety radiotelegraphy certificate or a cargo ship safety radiotelephony certificate
- International load line certificate (for ships of 24 m or more in length)
- Sri Lankan load line certificate (for any ship other than above)
- International load line exemption certificate (for ships which are not going out of Sri Lankan waters to carry out one international voyage)
- Sri Lanka load line exemption certificate (for ships which are not going out of Sri Lankan waters to carry out one international voyage)
- SMC (Safety Management Certificate) or interim SMC as appropriate
- Copy of DOC or interim DOC as appropriate
- ISSC (International Ship Security Certificate) or interim ISSC
- Sri Lanka has ratified Annex I, II, III, IV, and V of MARPOL, but I could not find any legislation which states that the certificates and the documents are to be carried on board as stated in the said annexes.
- Maritime Labour Certificate or interim MLC as appropriate

2) Official log books

Masters are required to familiar with the flag state regulations concerning the official logbooks as different flag states have different regulations and requirements.

Make sure the required entries by the flag are entered and all these entries has to be statements of facts. No ideas or opinions shall be entered.

If any correction to be made on an entry made in the official logbook, the corrected entry shall be made stating the former statement to be amended or cancelled and initial the statement without crossing through the initial entry.

Once the last entry is made to an official logbook, it shall be retained onboard for a time period required and/or returned to the flag state.

3) Continuous Synopsis Record (CSR)

The master shall ensure to update the CSR when and where necessary and shall ensure the contents of the CSR are accurate. Therefore, refer the below CSR for better understanding.

FORM 1
CONTINUOUS SYNOPSIS RECORD (CSR) DOCUMENT
NUMBER .....1..... FOR THE SHIP
WITH IMO NUMBER: IMO .....9539389.....

	Information		
1	This document applies from (date):	2012/03/13	(yyyy/mm/dd)
2	Flag State:	Hong Kong, China	
3	Date of registration with the State indicated in 2:	2012/03/13	(yyyy/mm/dd)
4	Name of ship:		
5	Port of registration:	Hong Kong	
6	Name of current registered owner: Registered Address:		
7	Registered owner identification number:		
8	If applicable, name of current registered bareboat/demise charterer(s): Registered Address(es):	N/A	
9	Name of Company (International Safety Management): Registered Address(es): Address(es) of its safety management activities:		
10	Company identification number:		
11	Name(s) of all classification societies with which the ship is classed:		
12	Administration/Government/Recognized Organization which issued Document of Compliance: Body which carried out audit (if different):		
13	Administration/Government/Recognized Organization which issued Safety Mangement Certificate: Body which carried out audit (if different):		
14	Administration/Government/Recognized Security Organization which issued International Ship Secuity Certificate: Body which carried out verification (if different):		

F O R M 1

CONTINUOUS SYNOPSIS RECORD (CSR) DOCUMENT

NUMBER .....1..... FOR THE SHIP

WITH IMO NUMBER: IMO .....9539389.....

15	Date on which the ship ceased to be registered with the State indicated in 2:	N/A	(yyyy/mm/dd)
16	Remarks (insert relevant information as appropriate):	N/A	

THIS IS TO CERTIFY THAT this record is correct in all respects.
Issued by the Administration of: Hong Kong, China

Place of issue:	Hong Kong	Date of issue 2012/03/13	(yyyy/mm/dd)
Name of authorized person:		Signature of authorized person:	

This document was received by the ship and attached to the

ship's CSR file on the following date ..... [fill in (yyyy/mm/dd)] Signature: .....

Each CSR issued has a consecutive number, above CSR is the first CSR issued to this particular vessel since she was a brand-new ship. The next CSR that will be issued (if any changes are made) will be numbered as '**number 2**'. A new CSR will be issued if any changes are made to:

- Ownership of the vessel
- Address of the owner
- Flag
- Ship's name
- Classification society

If any changes are required to be made, as soon as possible, the master shall complete the Form 2 (refer below) along with the changes that need to be made and forward it to the flag administration. The administration will issue a new CSR with the next consecutive number and the master shall update the index of amendments Form 3 (refer below) and attach the new CSR into the record onboard.

FORM 2

AMENDMENTS TO THE CONTINUOUS SYNOPSIS RECORD (CSR) DOCUMENT NUMBER ..... FOR THE SHIP WITH IMO NUMBER: IMO .....

The amendments are shown in the table. Indicate N/C for all items not being changed. Dates should be in the format yyyy/mm/dd.

Information	
1 This document applies from (date):	
2 Flag State:	
3 Date of registration with the State indicated in 2:	
4 Name of ship:	
5 Port of registration:	
6 Name of current registered owner(s): Registered address(es):	
7 Registered Owner Identification Number	
8 If applicable, name of current registered bareboat charterer(s): Registered address(es):	
9 Name of Company (International Safety Management): Registered address(es): Address(es) of its safety management activities:	
10 Company (International Safety Management) Identification Number	
11 Name of all classification societies with which the ship is classed:	
12 Administration/Government/ Recognized Security Organization which issued Document of Compliance: Body which carried out audit (if different):	
13 Administration/Government/ Recognized Organization which issued Safety Management Certificate: Body which carried out audit (if different):	
14 Administration/Government/ Recognized Organization which issued International Ship Security Certificate: Body which carried out verification (if different):	
15 Date on which the ship ceased to be registered with the State indicated in 2:	
16 Remarks *(insert relevant information as appropriate)*:	

THIS IS TO CERTIFY THAT this record is correct in all respects.

Issued by the **Company** or **Master**: _____

Date of issue: _____

Signature of authorized person: _____

Name of authorized person: _____

FORM 3
INDEX OF AMENDMENTS TO CSR DOCUMENT NUMBER ….. FOR THE SHIP WITH IMO NUMBER: IMO ……

After this CSR document was issued, the following amendments to entries on the document have been made by the Company or the master, have been attached to the ship's CSR file and have been notified to the Administration:

Date of application of Amendments:	Amendment to CSR Information (2-13)	Date amendment form attached to the ship's CSR file:

NOTE: If more amendments are issued than allowed for in the above table, add copies of this table as Appendices to this page. Such Appendices should be numbered from 1 and upwards.
When relevant, indicate as follows: Appendix no. …… has been added to this page.

4) GMDSS radio log

The master is required to inspect and sign each day's entries in the GMDSS radio logbook. Therefore, the master should know what to check before signing the radio logbook. The radio logbook entries to be made in accordance with the STCW Code are provided below. Need to refer the flag state regulations for further guidance. The following shall be recorded in the GMDSS radio log, together with the times at which they occur:

- a summary of distress, urgency and safety radiocommunications;
- important incidents relating to the radio service. These important incidents could be (following examples are not from the STCW Code);
    - breakdown or serious malfunction of the equipment;
    - a breakdown of communications with coast stations, land earth stations or satellites;
    - adverse propagation conditions, such as ionospheric, static, atmospheric noise or general interference;
    - serious breaches of radio procedures by other stations; and
    - any incident connected with the radio service, which appears to be of importance to the safety of life at sea.

- where appropriate, the position of the ship at least once per day; and
- a summary of the condition of the radio equipment, including its sources of energy.
- the master should bear in mind that all personnel assigned responsibility for sending a distress alert must be instructed with regards to, be knowledgeable of, and be able to operate properly all radio equipment on the ship, as required by regulation 1/14, paragraph 1.5. This should be recorded in the deck logbook or radio logbook.
- necessary instruction and information on use of radio equipment and procedures for distress and safety purposes should be given periodically to all relevant crew members by the person designated in the muster list to have primary responsibility for radiocommunications during distress incidents.
- prior to sailing, the radio operator designated as having primary responsibility for radiocommunications during distress incidents should ensure that all distress and safety radio equipment and the reserve source of energy are in an efficient working condition.
- the following tests are required to be carried out while the vessel is at sea by the radio operator and the results should be recorded in the radio log.
    - ➢ the digital selective calling (DSC) distress and safety radio equipment by means of a test call at least once each week; and
    - ➢ the distress and safety radio equipment by means of a test at least once each day but without radiating any signal.

- unauthorized transmissions and incidents of harmful interference should, if possible, be identified, recorded in the radio log and brought to the attention of the Administration in

compliance with the Radio Regulations, together with an appropriate extract from the radio log.

- following tests are required to be carried out with regards to batteries and should be recorded in the radio logbook:
  - tested on-load and off-load daily and, where necessary, brought up to the fully charged condition;
  - tested once per week by means of a hydrometer where practicable, or, where a hydrometer cannot be used, by a suitable load test; and
  - checked once per month for the security of each battery and its connections and the condition of the batteries and their compartment or compartments.

5) Oil record book Part – I

Each completed page of the oil record book Part – I is required to be counter signed by the master. Therefore, a master needs to have a good idea about the content and how it is to be completed. Following is a set of guidelines issued by IMO through MEPC.1/Circ.736/Rev.1 with regards to Oil Record Book (ORB) Part – I:

- This guidance only includes sections C to I.
- Operations should be recorded in chronological order as they have been executed on board.
- Dates should be entered in dd/mm/yyyy format, e.g. 16-MAR-2009.
- Incineration or landing ashore of oily garbage and used filters should be recorded in the Garbage Record Book only.
- All Entries are to be made and signed by the officer or officers in charge of the operations concerned and each completed page shall be signed by the master of the ship.
- Do not leave any full lines empty between successive entries.
- If a wrong entry has been recorded in the ORB, it should immediately be struck through with a single line in such a way that the wrong entry is still legible. The wrong entry should be signed and dated, with the new corrected entry following.
- Tank nomenclature should be recorded as per the format noted within the International Oil Pollution Prevention Certificate (IOPPC).
- Recording of quantities retained in bilge water holding tanks listed under section 3.3 of the IOPPC is voluntary and not required by the Convention.
- The recording of general maintenance of items pertaining to the Oily Water Seperator remains voluntary and is not required to be recorded in the ORB.

The above guidelines refer to IOPP certificates as well, especially when naming the tanks. Therefore, please refer the Form – A of IOPP certificate provided below to gain a good knowledge about it.

Record of Construction and Equipment for Ships other than Oil Tankers FORM A

Supplement to the International Oil Pollution Prevention Certificate

in respect of the provisions of Annex I of the International Convention for the Prevention of Pollution from Ships, 1973, as modified by the Protocol of 1978 relating thereto (hereinafter referred to as "the Convention").

Notes:

1. This form is to be used for the third type of ships as categorized in the IOPP Certificate, i.e. "ships other than any of the above". For oil tankers and ships other than oil tankers with cargo tanks coming under regulation 2.2 of Annex I of the Convention, Form B shall be used.
2. This Record shall be permanently attached to the IOPP Certificate. The IOPP Certificate shall be available on board the ship at all times.
3. Entries in boxes shall be made by inserting either a cross (X) for the answer "yes" and "applicable" or a dash (-) for answers "no" and "not applicable" as appropriate.
4. Regulations mentioned in this Record refer to regulations of Annex I of the Convention and resolutions refer to those adopted by the International Maritime Organisation.

1.	Particulars of Ship		
	1.1	Name of ship	
	1.1.1	IMO number	
	1.2	Distinctive number or letters	
	1.3	Port of registry	**HONG KONG**
	1.4	Gross tonnage	**14,859**
	1.5	Date of Build	
	1.5.1	Date of building contract	**19 August 2008**
	1.5.2	Date on which keel was laid or ship was at a similar stage of construction	**22 November 2010**
	1.5.3	Date of delivery	**12 March 2012**
	1.6.	Major conversion (if applicable)	
	1.6.1	Date of conversion contract	**Not applicable**
	1.6.2	Date on which conversion was commenced	**Not applicable**
	1.6.3	Date of completion of conversion	**Not applicable**
-	1.7	The ship has been accepted by the Administration as a "ship delivered on or before 31 December 1979" under regulation 1.28.1 due to unforeseen delay in delivery	
2.	Equipment for the control of oil discharge from machinery space bilges and oil fuel tanks (regulations 16 and 14)		
	2.1	Carriage of ballast water in oil fuel tanks:	
-	2.1.1	The ship may under normal conditions carry ballast water in oil fuel tanks	
x	2.1.2	The ship does not under normal conditions carry ballast water in oil fuel tanks	
	2.2	Type of oil filtering equipment fitted:	
-	2.2.1	Oil filtering (15ppm) equipment (regulation 14.6):	
	2.2.1.1	Manufacturer	
	2.2.1.2	Type and model number as per Certificate of Type Test	

x	2.2.2	Oil filtering (15ppm) equipment with alarm and automatic stopping device (regulation 14.7):		
	2.2.2.1	Manufacturer	**Filter:**	**Coffin World Water Systems**
			Alarm:	**Rivertrace Engineering Ltd.**
			Automatic Stopping Device:	**3 way valve**
	2.2.2.2	Type and model number as per Certificate of Type Test	**Filter:**	**Ultra-Sep Bilge Water Separator US 3000**
			Alarm:	**Smart Cell - Bilge**
	2.3	Approval Standards*:		
	2.3.1	The separating/filtering equipment:		
-	2.3.1.1	has been approved in accordance with resolution A.393(X)		
-	2.3.1.2	has been approved in accordance with resolution MEPC.60 (33)		
x	2.3.1.3	has been approved in accordance with resolution MEPC.107(49)		
-	2.3.1.4	has been approved in accordance with resolution A.233(VII)		
-	2.3.1.5	has been approved in accordance with national standards not based upon resolution A.393(X) or A.233(VII)		
-	2.3.1.6	has not been approved		
-	2.3.2	The process unit has been approved in accordance with resolution A.444(XI)		
	2.3.3	The oil content meter:		
-	2.3.3.1	has been approved in accordance with resolution A.393(X)		
-	2.3.3.2	has been approved in accordance with resolution MEPC.60(33)		
x	2.3.3.3	has been approved in accordance with resolution MEPC.107(49)		
	2.4	Maximum throughput of the system is **3** m^3/h		
	2.5	Waiver of regulation 14:		
-	2.5.1	The requirements of regulation 14.1 or 14.2 are waived in respect of the ship in accordance with regulation 14.5.		
-	2.5.1.1	The ship is engaged exclusively on voyages within special area(s)		
-	2.5.1.2	The ship is certified under the International Code of Safety for High-Speed Craft and engaged on a scheduled service with a turn-around time not exceeding 24 hours		
-	2.5.2	The ship is fitted with holding tank(s) for the total retention on board of all oily bilge water as follows:		

Tank Identification	Tank Location		Volume (m^3)
	Frames (from)-(to)	Lateral Position	

x 2A.1 The ship is required to be constructed according to regulation 12A and complies with the requirements of:

x paragraphs 6 and either 7 or 8 (double hull construction)

- paragraph 11 (accidental oil fuel outflow performance).

- 2A.2 The ship is not required to comply with the requirements of regulation 12A.

3. Means for retention and disposal of oil residues (sludge) (regulation 12) and oily bilge water holding tank(s)*

X 3.1 The ship is provided with oil residue (sludge) tanks for retention of oil residues (sludge) on board as follows:

Tank Identification	Tank Location		Volume (m^3)
	Frames (from)-(to)	Lateral Position	
No. 1 Sludge Tank	**30-37**	**Starboard**	**33.7**
No. 2 Sludge Tank	**33-38**	**Centre**	**5.0**
Waste Oil Tank	**20-24**	**Starboard**	**22.7**
		Total Volume (m^3)	61.4

3.2 Means for the disposal of oil residues (sludge) retained in oil residue (sludge) tanks:

- 3.2.1 Incinerator for oil residues (sludge); maximum capacity litre/hour

- 3.2.2 Auxiliary boiler suitable for burning oil residues (sludge)

- 3.2.3 Other acceptable means, state which

x 3.3 The ship is provided with holding tank(s) for the retention onboard of oily bilge water as follows:

Tank Identification	Tank Location		Volume (m^3)
	Frames (from)-(to)	Lateral Position	
Bilge Water Tank	**13-20**	**Centre**	**20.4**
		Total Volume (m^3)	20.8

* *Oily bilge water holding tank(s) are not required by the Convention; if such tank(s) are provided they shall be listed in Table 3.3.*

4. Standard Discharge Connection (regulation 13)

x	4.1	The ship is provided with a pipeline for the discharge of residues from machinery bilges and sludges to reception facilities, fitted with a standard discharge connection in accordance with regulation 13.

5. Shipboard Oil/Marine Pollution Emergency Plan (regulation 37)

x	5.1	The ship is provided with a shipboard oil pollution emergency plan in compliance with regulation 37
-	5.2	The ship is provided with a shipboard marine pollution emergency plan in compliance with regulation 37.3 approved by [ ] dated **11 November 2011**

6. Exemption

-	6.1	Exemptions have been granted by the Administration from the requirements of chapter 3 of Annex I of the Convention in accordance with regulation 3.1 on those items listed under paragraph(s) of this Record

7. Equivalents (regulation 5)

-	7.1	Equivalents have been approved by the Administration for certain requirements of Annex I on those items listed under paragraph(s) of this Record

Since the master is required to sign the ORB, he must ensure that the data is entered in the ORB correctly. When entering data to the ORB, certain codes and numbers are required to be referred which are also given in the ORB. Refer the MEPC.1/Circ.736/Rev.1 of IMO with regards on how to enter the data in the ORB and refer the below abstracts of an ORB with examples issued by US coast guard[2] to gain further knowledge of completing it.

[2] https://www.reginfo.gov/public/do/DownloadDocument?objectID=71542600

LIST OF ITEMS TO BE RECORDED

PART I - Machinery Space Operations

(A) BALLASTING OR CLEANING OF OIL FUEL TANKS

1 Identity of tank(s) ballasted.
2 Whether cleaned since they last contained oil and, if not, type of oil previously carried.
3 Cleaning process:
.1 position of ship and time at the start and completion of cleaning;
.2 identify tank(s) in which one or another method has been employed (rinsing through, steaming, cleaning with chemicals; type and quantity of chemicals used, in m^3, gals., or bbls);
.3 identity of tank(s) into which cleaning water was transferred and the quantity in m^3, gals., or bbls.
4 Ballasting:
.1 position of ship and time at start and end of ballasting;
.2 quantity of ballast if tanks are not cleaned, in m^3, gals., or bbls.

(B) DISCHARGE OF DIRTY BALLAST OR CLEANING WATER FROM OIL FUEL TANKS REFERRED TO UNDER SECTION (A)

5 Identity of tank(s).
6 position of ship at start of discharge.
7 Position of ship on completion of discharge.
8 Ship's speed(s) during discharge.
9 Method of discharge:
.1 through 15 ppm equipment;
.2 to reception facilities.
10 Quantity discharged, in m^3, gals., or bbls.

(C) COLLECTION, TRANSFER AND DISPOSAL OF OIL RESIDUES (SLUDGE AND OTHER OIL RESIDUES)

11 Collection of oil residues (sludge).
Quantities of oil residues (sludge) retained on board. The quantity should be recorded weekly[1]: (this means that the quantity must be recorded once a week even if the voyage lasts more than one week):
.1 identity of tank(s)
.2 capacity of tank(s) in m^3, gals., or bbls.
.3 total quantity of retention in m^3, gals., or bbls.
.4 quantity of residue collected by manual operation in m^3, gals., or bbls.
(Operator initiated manual collections where oil residue (sludge) is transferred into the oil residue (sludge) holding tank(s).)

12 Methods of transfer or disposal of oil residues (sludge).
State quantity of oil residues transferred or disposed of, the tank(s) emptied and the quantity of contents retained in m^3, gals., or bbls:
.1 to reception facilities (identify port);[2]
.2 to another (other) tank(s) (indicate tank(s) and the total content of tank(s));
.3 incinerated (indicate total time of operation with time of start and stop);
.4 other method (state which).

NOTES:
[1] Only those tanks listed in item 3.1 of Forms A and B of the Supplement to the IOPP Certificate used for oil residues (sludge).
[2] The ship's master should obtain from the operator of the reception facilities, which includes barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, dirty ballast, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part I, may aid the master of the ship in proving that the ship was not involved in an alleged pollution incident. The receipt or certificate should be kept together with the Oil Record Book Part I.

(D) NON-AUTOMATIC STARTING OF DISCHARGE OVERBOARD, TRANSFER OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

13 Quantity discharged, transferred or disposed of, in m^3, gals., or bbls.[1]
14 Time of discharge, transfer or disposal (start and stop).
15 Method of discharge, transfer, or disposal:
.1 through 15 ppm equipment (state position at start and end);
.2 to reception facilities (identify port);[2]
.3 to slop tank or holding tank or other tank(s) (indicate tank(s); state quantity retained in tank(s), in m^3, gals., or bbl).

(E) AUTOMATIC STARTING OF DISCHARGE OVERBOARD, TRANSFER OR DISPOSAL OTHERWISE OF BILGE WATER WHICH HAS ACCUMULATED IN MACHINERY SPACES

16 Time and position of ship at which the system has been put into automatic mode of operation for discharge overboard, through 15 ppm equipment.
17 Time when the system has been put into automatic mode of operation for transfer of bilge water to holding tank (identify tank).
18 Time when the system has been put into manual operation.

(F) CONDITION OF THE OIL FILTERING EQUIPMENT

19 Time of system failure.[3]
20 Time when system has been made operational.
21 Reasons for failure.

*(If a failure does occur then a code 'I' entry should also be made indicating that the overboard valve was sealed shut due to non working Oil Filtering Equipment or Oil Content Meter.)
*(When operation is restored, a code 'I' entry should also be made indicating that the overboard valve was unsealed since the operation of the Oil Filtering Equipment or Oil Content Meter has been restored.)

(G) ACCIDENTAL OR OTHER EXCEPTIONAL DISCHARGES OF OIL

22 Time of occurrence.
23 Place or position of ship at time of occurrence.
24 Approximate quantity and type of oil.
25 Circumstances of discharge or escape, the reasons there for and general remarks.

(H) BUNKERING OF FUEL OR BULK LUBRICATING OIL

26 Bunkering:
.1 Place of bunkering.
.2 Start and stop date and time of bunkering.
.3 Type and quantity of fuel oil and identity of tank(s) (state quantity added, in tons, m^3, gals., or bbls., and total content of tank(s)).
.4 Type and quantity of lubricating oil and identity of tank(s) (state quantity added, in tons, m^3, gals., or bbls., and total content of tank(s)).

(I) ADDITIONAL OPERATIONAL PROCEDURES AND GENERAL REMARKS

NOTES:
[1] In case of discharge or disposal of bilge water from holding tank(s), state identity and capacity of holding tank(s) and quantity retained in holding tank.
[2] The ship's master should obtain from the operator of the reception facilities, which includes barges and tank trucks, a receipt or certificate detailing the quantity of tank washings, dirty ballast, residues or oily mixtures transferred, together with the time and date of the transfer. This receipt or certificate, if attached to the Oil Record Book Part I, may aid the master of the ship in proving that the ship was not involved in an alleged pollution incident. The receipt or certificate should be kept together with the Oil Record Book Part I.
[3] The condition of the oil filtering equipment covers also the alarm and automatic stopping devices, if applicable.

EXAMPLES

Name of Ship *M/V ALL SHIPS*
Official Number *413567*

CARGO/BALLAST OPERATIONS (Oil Tanker) / MACHINERY SPACE OPERATIONS

Date	Code	Item	Record of Operations/signature of officers in charge		
			BALLASTING/CLEANING FUEL TANKS		
07-OCT-2010	A	1	No. 5 DB Port and Stbd		
		2	No, Fuel oil IFO 380		
		3.1	49°56' N x 30°00'W - Start 1605		
			50°00' N x 29°58'W - Stop 1730		
		3.2	No. 5 DB Port and Stbd, Rinsing through		
		3.3	No. 1 Collecting tank		
		4.1	Start ballast 50°00' N x 29°58'W at 1730		
			End ballast 50°04' N x 29°56'W at 2357		
			J. Brennan		
			DISCHARGE FROM CLEANED OIL TANKS		
10-OCT-2010	B	5	No. 1 Collecting tank		
		6	Jets Oil Contractors, New York, NY		
		7	Jets Oil Contractors, New York, NY		
		8	0 kts		
		9.2	Reception Facility		
		10	52.5 m^3		
			J. Brennan		
			EXAMPLE: VOYAGE/WEEKLY SLUDGE REPORT		
11-OCT-2010	C			Capacity	Retention (Ret.)
		11.1 / 11.2	Sludge Tank #6	67.4m^3	21.7m^3
		11.1 / 11.2	Sludge Tank #12	5.0 m^3	4.4m^3
		11.3	Total Retained on Board		26.1m^3
			M.A. Carroll		

John Cate
Signature of Master

EXAMPLES

Name of Ship *M/V ALL SHIPS*
Official Number *413567*

CARGO/BALLAST OPERATIONS (Oil Tanker) / MACHINERY SPACE OPERATIONS

Date	Code	Item	Record of Operations/signature of officers in charge
			EXAMPLE: RECORDING OF OIL RESIDUE (SLUDGE) COLLECTED BY MANUAL OPERATION & TRANSFERRED INTO AN OIL RESIDUE (SLUDGE) TANK
11-OCT-2010	C	11.4	1.5 gal collected from galley deep fat fryer to Sludge Tank #6
			M.A. Carroll
11-OCT-2010	C	11.4	0.5 m³ collected from air compressor sump tank to Sludge Tank #6
			M.A. Carroll
11-OCT-2010	C	11.4	0.5 m³ collected from turbo charger sump to Sludge Tank #6
			M.A. Carroll
			EXAMPLE: SLUDGE TRANSFER
11-OCT-2010	C	12	0.5 m³ (3 drums) sludge from cleaning
			#4 Collection Tank, Ret.: 0.00 m³
		12.1	Landed, Providence, RI
			M. Walter
			EXAMPLE: SLUDGE TRANSFER
11-OCT-2010	C	12	2.6 m³ from HFO Sludge Tk, Ret.: 0.1m3
		12.2	To no 1 Waste Oil Tk, Ret.: 9.1m³
			M. Walter
			EXAMPLE: INCINERATION OF SLUDGE
11-OCT-2010	C	12	0.8 m³, Incinerator Sludge TK, Ret.: 0.2 m³
		12.3	**Incinerated, 4 hrs: 1200hrs - 1600hrs**
			M. Walter
			EXAMPLE: EVAPORATION OF WATER
11-OCT-2010	C	12	0.2 m³ Water from Incinerator Sludge TK, Ret.: 0.8 m³
		12.4	Evaporated to Atmosphere
			J. Brennan

John Cate
Signature of Master

6) Bills of lading

Precautions to observe when bills of ladings are presented for master's signature:

A master must ensure that the correct information is included on a bill of lading before signing it. Otherwise the ship owner could be liable for the cargo owners. When signing a bill of lading ensure to enter the signature at the place allocated for the master's signature. Under any circumstances never sign next to the shipper's description of the cargo as it may be interpreted that the master has accepted the shipper's declaration of cargo.

At the same time, ensure the bill of lading is in English and if it is not in English, request a translated bill of lading. Check the following before signing a bill of lading:

- Some trades and charter parties require having a letter of authorization to sign a bill of lading by the master. In that case, ensure you have a letter of authorization from the relevant party.
- Ensure the bill of lading is in the required format as required by charterer or shipowner etc. (example – "CONGENBILL 2016" bill of lading)
- Vessel's name is correct.
- Bill of lading to be dated same as the date of completion of loading.
- Port of loading is correct.
- Numbers of original bills issued are correctly entered. Ensure to sign that number of originals and such originals shall be stamped or marked as "Original".
- Ensure the copies are marked or stamped as "Non-negotiable copy".
- Charterparty is correctly stated on the bill if applicable.
- Port of discharging is correct, and the discharging port is;
  - safe for the vessel;
  - within the insurance coverage limits; and
  - within the charterparty coverage limits.

- Cargo is correctly described, which includes:
  - Weight/quantity
  - Apparent order and condition
  - Packing condition
  - Shipping/identification marks

- Protective clauses are inserted as required by the ship owner. Example:
  - Both to blame clause
  - For steel and timber shipments : Retla clause
  - Always afloat clause etc.

- If the dead freight is outstanding, the bill of lading shall state the amount outstanding in case of voyage a charter.

- P & I clubs may not provide insurance cover if the value of the cargo is stated on the bill of lading. Therefore, if the value of the cargo is stated on the bill of lading, the master must inform the company so that they can arrange extra insurance. P & I cover generally excludes bills of lading with a stated cargo value[3].

If the bill of lading to be signed by charterer or agent on behalf of the master, makes sure the mates receipt is containing correct information which represent the cargo received and the master has to make a written guidance to charterers or owners stating that the bill of lading to be signed only in accordance with the mate's receipt. The master shall protest if charterer or the agent refuse to do so.

Need to contact P & I club and owners if (but not limited to);

- you suspect that the shipper has signed the bills on behalf of the master without your consent;
- the charterer or agent has signed the bills on behalf of the master with your consent, but if it is not in accordance with the mate's receipt;
- you suspect that you have signed the bill of lading under duress;
- the shipper objects clausing a bill (when there are discrepancies with the cargo actually loaded and the bills of lading presented for signature); and
- the bill is not presented at the port of discharging by the person who is claiming the delivery of the cargo.

In various occasions as mentioned below (under the heading of 'Letters of indemnity') you may have to sign bills of lading against a letter of indemnity. But, remember the letter of indemnity shall be received by the carrier not by you and the carrier shall provide clear written guidance to you about signing the bills of lading.

Actions to be taken when there are discrepancies between terminal and onboard cargo figures at the loaded port

When a bill of lading is presented to a master for his signature, he must ensure that the bill of lading represents the actual cargo onboard. It is a common problem that the ships calculated amount may differ from the figure stated on the bill of lading in the case of dry and wet bulk trades. If the master signs the bill of lading for an amount of cargo which has not received, the carrier may be liable for the less amount of cargo.

Therefore, a master needs to check the less amount of cargo is within an accepted range. There are no internationally accepted ranges. Refer the guidelines issued by P & I club as they may have defined accepted ranges or check the charterparty (MOL, MOLCHOPT, MOLOO). If the less amount of cargo is within the accepted range:

[3] Gard Guidance on Bills of Lading, Gard

- Convince the shipper to include ship's figure on the bill of lading
- Try to include the term "weight/quantity unknown"
- If the shipper cannot be convinced, a master may sign the bill of lading as it is. In that case:
  - The carrier can recover the losses incurred due to the less amount of cargo at the port of discharged, if he is indemnified by the shipper or
  - If he is not indemnified, the carrier will be held covered by P & I club for the less cargo.

- Issue a letter of protest stating the ship's figures and keep all other records regarding the cargo weight calculation safely

If the less amount of cargo is beyond the accepted range:

- Refuse to sign and convince the shipper to include ship's figure on the bill of lading and if he is not accepting, inform the carrier, P & I Club and call for a recalculation of cargo, most probably a joint draught survey (the master may take the vessel to an anchorage to avoid extra expenses at the berth). Still if it is beyond accepted range:
  - Refuse to sign and convince the shipper to include both ship and shore figures on the bill of lading. If it is refused, do not sign.
  - With permission of the carrier, master may sail the vessel leaving all the information to recalculate the actual amount of cargo to the carrier.
  - Make a letter of protest if not allowed to sail or if somebody else has signed the bill of lading for the shore figures on behalf of the master.
  - Master shall not sign the bill for shore figures.
  - Keep a record of all the events throughout.

  There is no point of issuing a letter of protest after signing the bill of lading with shore figures which are obviously wrong (outside the acceptable range). At the same time there is no point of inserting the term 'weight/quantity unknown' if the cargo discrepancy is beyond the acceptable range.

  The carrier may instruct a master to sign the bill as it is, provided the carrier is indemnified by the shipper. But, such a letter of indemnity is not enforceable. Master must ensure that such instructions are received in written form.

Acceptable margin

As stated above, there is no any universally accepted margin and need to refer the P & I Club guide lines and the charterparty. The North of England P & I, states that if the discrepancy is more than 0.3%, it shall be investigated (with regards to the **liquid cargoes)**.

Cargo shortages at the port of delivery

Cargo shortages at the port of discharge may occur due to inaccurate bill of lading or incorrect cargo calculations at the port of discharge (which is commonly known as 'paper loss') or due to 'actual loss'. Actual losses of cargo may occur due to:

- Evaporation during sea passage (liquid cargoes)
- Clingage or sedimentation (liquid cargoes)
- Miss-handling of cargoes during discharging (dry cargo spillages)
- Cargo pilferage (with regards to dry cargoes)
- Improper discharging calculations at the port of discharge
- Pumping out bilges when carrying wet dry bulk cargoes (such as 'pond coal')
- Evaporation of water with wet logs (when carrying logs)
- Loss of moisture with wheat cargoes

In the case of crude oil trade, a loss of 0.5% of the quantity mentioned on the bill of lading is allowed at the port of discharge where the carrier will not be liable, and it is in known as 'trade allowance' or 'customary trade allowance'. Carrier will be liable only when the shortage is more than the trade allowance and that is only for the quantity by which the loss exceeded 0.5 % of the volume stated on the bill of lading[4]. But this is not a legally accepted figure. Ship's masters shall not rely on such figures and need to discharge the amount stated on the bill of lading. Some courts may hold the carrier liable even for 0.2% cargo shortages.

This allowance is used to protect carriers against inevitable cargo losses due to evaporation, clingage etc., which are not the faults of a carrier.

Some legal systems may accept losses up to 0.5 % as tolerable even in the case of dry bulk trade as well. But a ship's master shall not relay on such allowances and he is supposed to discharge the amount of cargo mentioned on the bill of lading.

But courts may accept if the accurate loaded amount was unable to calculate (due to weather conditions) or if the loss of cargo has taken place as provided in Article IV, Rule (2) (m) and (q) of the Hague Visby Rules. Therefore, if there is a discrepancy of cargo figure between the bill of lading and shore figures at the port of discharge, master shall:

- report to the owners & charterers about the discrepancy.
- inform P & I Club
- carryout out an investigation to determine the reasons for the cargo shortage.
- take photographic evidences and issue letter of protests in case of dry cargo spillages due to miss-handling by stevedores.
- keep records of bilge well pump outs.

[4] https://www.shipownersclub.com/media/2016/03/Customary-Trade-Allowance-and-the-importance-of-accuracy-in-Bills-of-Lading.pdf

- collect all possible records to prove that the carrier is not liable in accordance with Hague Visby Rules
- make a letter of protest.

A master shall not sign if requested to sign any documents related to cargo figures which shows shore figures. If unavoidable, it may be signed with a remark which states '**without prejudice, for receipt only**'.

Types of bills of ladings used

a) Freight Prepaid bills of lading

In accordance with the English law, the carrier is entitled to receive the freight at the time of the delivery of the cargo to the holder of the bill of lading. But, to avoid the carrier exercising lien on the cargo or claiming freight from the holder of the bill of lading, freight may be paid beforehand. In that case, the carrier may issue freight prepaid bill of lading. Such a bill of lading implies that the carrier has already received the freight.

The master has to contact the owners/charterer and ensure that the freight is already received before signing a freight prepaid bill of lading.

b) Bearer bill of lading

Bearer bill of lading is a bill of lading where the name of a consignee is not entered, or the word 'bearer' is entered instead of the name of the consignee. The shipper may endorse the name of the consignee or transfer it to the buyer without endorsing. An order bill also can be converted to a bearer bill by an endorsement in blank. A bearer bill can be transferred by hand to the person who has the rights to hold it. The master has to deliver the goods to the person who is presenting an original bearer bill of lading.

These bills of ladings are very rarely used and there is a high risk of miss-delivering the cargo.

c) Negotiable bills of lading

These bills of ladings can be sold any number of times and has all the elements of a bill of lading, i.e.,

- Receipt for the cargo received
- Evidence of contract of carriage
- Document of title

These bills of ladings can be identified by;

- The bill may be printed as "Negotiable"
- In the consignee's column, words "order" or "to order" will be printed

These bills of ladings are also known as 'Order bills of lading' and one of the original bills is required to be presented to the master to take the delivery of the goods.

d) Straight bills of lading

These types of bills of ladings can be sold once only, i.e. by the shipper to the first buyer only and they have a high security over the cargo than the negotiable bills of ladings. These bills of ladings also have all the functions of a bill of lading, i.e.;

- Receipt for the cargo received
- Evidence of contract of carriage
- Document of title

These bills of ladings can be identified by;

- The bill may be printed as "Non-negotiable" or as "Straight bills of lading"
- In the consignee's column, words "To" will be stated

One of the original bills is required to be presented to the master to take the delivery of the goods.

e) Waybills of lading

These bills of ladings are not document of titles, i.e., they are not required to be presented to the master to take the delivery of the goods. Such a bill of lading is;

- A receipt for the cargo received
- An evidence of contract of carriage

These bills of ladings are very commonly used in the container trade since delays can be avoided.

f) Long form bills of ladings

These bills of ladings contain all the terms and conditions of the contract of carriage and mostly used when cargo shipments take place without chartering vessels.

g) Short form bills of ladings

These bills of ladings do not contain all the terms and conditions of the contract of carriage. They are used along with charter parties since the charterparty contains the terms & conditions of contract of carriage. Before signing a short form bill of lading, the master must ensure the charterparty is correctly endorsed on the bill of lading.

h) Claused bills of ladings

A bill of lading can be considered as claused when;

- Contains anything other than "Good apparent order and condition" with regards to the condition of the cargo or
- When the stated data is amended by the master before it is issued (date of the bill, apparent order and condition, weight/quantity of the cargo etc.)

i) Clean bills of ladings

A bill of lading which is not claused, is called as a clean bill of lading.

j) "Received for shipment bills of ladings" and "shipped bills of ladings"[5]

These types of bills of ladings are issued by the carrier when the cargo is received by the carrier or his agent to their custody for carriage at the port of loading. Such a bill of lading may contain:

- Name of the expected carrying vessel
- Expected date of shipment
- Some of them may also contain;
  - Printed words "onboard" and
  - A place to sign by the master

Once the cargo is received onboard, the holder of this bill of lading shall surrender it to the carrier and replaced with a 'shipped bill of lading' by the carrier. This may be done by stamping (stamping as 'shipped onboard' or similar wording) the 'received for shipment bill f lading' or by issuing a separate 'shipped bill of lading.

If no separate 'shipped bill of lading' is issued, to convert the 'received for shipment bill of lading' to a 'shipped bill of lading', following to be entered on the 'received for shipment bill of lading';

[5] Gard guidance on bills of lading

- Name of the carrying vessel
- Date of the shipment

A shipped bill of lading may have all the elements of a bill of lading, but, not the 'received for shipment bill of lading' as it may not be considered as a 'document of title'. If the carrier is requested to deliver the goods against an original 'received for shipment bill of lading', the master shall ensure;

- no 'shipped bill of lading' is issued after loading the cargo onboard
- the original 'received for shipment bill of lading' which is presented by the cargo receiver was actually issued by the carrier

Delivery of goods against 'received for shipment bill of lading' is usually very rare.

k) Charterer's bill of lading

If any cargo disputes are there at the time of the delivery of the cargo, the cargo owner may take legal action against the carrier to claim financial loss. The 'carrier' depends upon by whom the bill of lading is issued. If the bill of lading is signed by the master or someone else on behalf of the master, usually, shipowner will be the carrier. If the bill of lading is signed by the charterer or someone else on behalf of the charterer, charterer may be the carrier.

Bills of lading signed by the charterer or someone else on behalf of the charterer, is usually called as charterer's bills of lading. In that case, the cargo owner will have to take legal action for cargo damage or cargo loss (occurred during the carriage) against the charterer.

When the master or someone else has signed the bill of lading, it is sometimes called as 'ship owner's bill of lading'.

l) Electronic bills of ladings

The concept of electronic bills of lading was developed to avoid mis-deliveries of cargoes at the port of discharge, to reduce costs and to avoid delays involved with paper bills of lading. The Rotterdam rules apply to both, paper and electronic bills of ladings, where the Hague, Hague/Visby and Hamburg rules apply only to paper bills of ladings. The functionality of the electronic bills of ladings is explained below, but not the Rotterdam rules to ensure a more practical approach is given.

There are various electronic systems of bills of ladings in use and all the parties involved in the cargo carriage, i.e. shipper, carrier, bank and receiver, are required to use the same system.

There are three electronic systems of bills of lading accepted by International Group (IG) of P & I Clubs;

- Bolero (managed by Bolero International Ltd)
- essDOCS (managed by essDOCS Exchange Ltd) and
- e-title™ (managed by E-Title Authority Pte Ltd)

There could be various versions of these software systems. Therefore, the users are required to check that the version is also approved by the International Group of P & I Clubs.

There are systems that are not approved by IG of P & I Clubs as well. It is recommended to use approved systems, so that the liabilities will be covered as in a paper bills of ladings. But, remember, following liabilities are not covered whether the bill of lading is a paper or electronic version.

- If a clean bill of lading is issued when the cargo is not in apparent good order and condition.
- If a clean bill of adding is issued when loaded amount of the cargo is lesser than the amount of the cargo stated on the bill of lading.
- If the cargo is discharged in a port other than as agreed on the bill of lading.
- If the bill of lading is ante dated or post-dated.
- If the cargo is delivered without producing an original bill of lading (when negotiable or straight bills of ladings are used)

In case of using a non-approved system, if liability has arisen because of the use of electronic system, it may not be covered by the normal P & I cover. Therefore, it is always better to use an approved system and a version approved by IG of P & I Clubs.

Different systems of electronic bills of lading may have varied methods of operating procedures. When using above listed systems, users are required to be signatory to the regulations of the particular system. With regard to Bolero, these regulations are provided in "Rulebook", with regard to essDOCS, these regulations are provided in "ess-Databridge™ Services & Users Agreement" (DSUA) and in the case of e-title™, the regulations are provided in the "Electronic Title User Agreement". All of them are multilateral agreements between all users.

The electronic bills of ladings issued by above systems can be converted to paper bills of ladings at any time during the carriage and also charter parties could be incorporated to the bills of ladings if required. BIMCO has published a clause to be used in charter parties when eBLs are used, and it states:

a) *At the Charterers' option, bills of lading, waybills and delivery orders referred to in this Charter Party shall be issued, signed and transmitted in electronic form with the same effect as their paper equivalent.*
b) *For the purpose of Sub-clause (a) the Owners shall subscribe to and use Electronic (Paperless) Trading Systems as directed by the Charterers, provided such systems are*

approved by the International Group of P&I Clubs. Any fees incurred in subscribing to or for using such systems shall be for the Charterers' account.

c) *The Charterers agree to hold the Owners harmless in respect of any additional liability arising from the use of the systems referred to in Sub-clause (b), to the extent that such liability does not arise from Owners' negligence.*

Under sub-clause (a) of the BIMCO clause, owners and charterers agree that the eBL issued will have the same effect as a paper BL.

Creating an eBL on Bolero & essDOCS[6]

The eBL is created on the system, uploaded and sent in draft form for approval between shipper and carrier. The eBL can incorporate a charter party or other external terms. Once agreed, the carrier issues the eBL with the click of a button. The eBL is then sent by the system to the next party in the chain (e.g. shipper) with another click of a button. The eBL can also be passed back and forth between holders in this way if, for example, amendments to the document need to be made. Like a paper BL however, there can only be one holder of an eBL at any time.

Both systems rely on the principle of attornment to enable the new holder of the eBL to obtain title in the goods. Each time the eBL is transferred, the system generates an automatic notice from the carrier to the new holder of the eBL confirming that the goods are now held to the new holder's order.

Bolero and essDOCS can be accessed through internet.

Creating an eBL with e-title™[7]

Currently, the carrier can choose to deploy the solution via the Singapore Trade Xchange portal or it can invest in a secure device commonly known as the "black box" (with obvious reference to the black box used by airlines). This black box will sit behind the carrier's own in-house system for generating bills of lading. Using e-title™'s patented software, the Singapore Trade Xchange portal or the black box will give the bills issued by the carrier's own in-house system, e-title and negotiable functionality, "locking" these two qualities into the eBL.

The carrier's customers will access the solution via the carrier's portal on the internet. Each time the eBL is transferred from holder to holder, the endorsing party signs the endorsement record, ensuring authentication, non-repudiation and data integrity, similar to the physical endorsements

[6] Legal briefing, Electronic Bills of Lading, UK P & I Club
[7] Legal briefing, Electronic Bills of Lading, UK P & I Club

on the back of a paper BL. As with paper BLs, the eBL can, at any one time, be possessed by only one party.

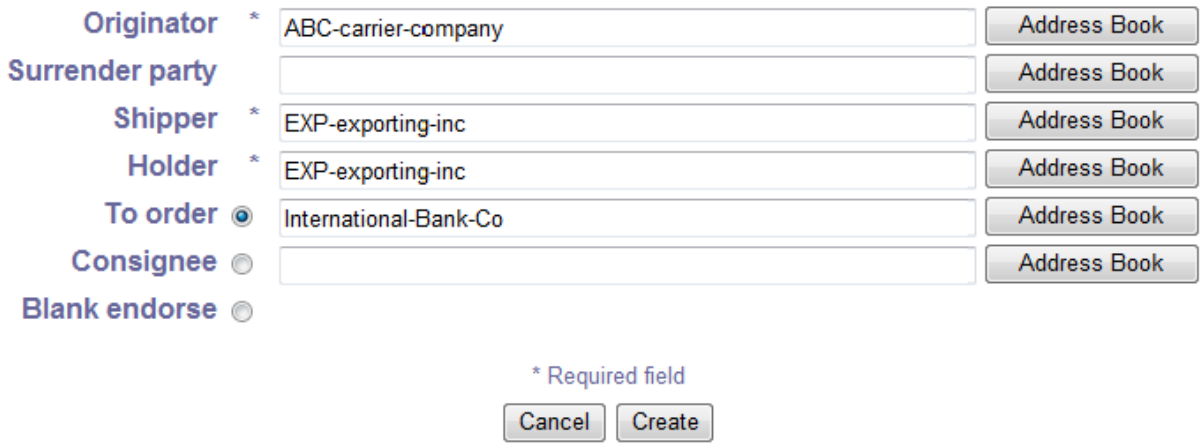
Following are also possible with eBLs (but, may differ from system to system)

- Master or any other authorized person can use electronic signatures.
- Master or any other authorized person can issue the eBLs.
- Uploading of Letter of Protests or cargo related certificates by owners or surveyors.
- Possibility of making amendments by the holder of the bill with the acceptance of the relevant parties such as the carrier. Example – change of destination, switching bills of lading, issuing of ship's delivery orders etc.
- Possibility of transferring the bill of lading (selling the cargo while it is in transit)
- Possibility of taking copies of paper bills of ladings for various purposes.
- Possibility of the accomplishing the eBL by the master or carrier.
- Ability to incorporate Hague or Hague Visby rules to eBL

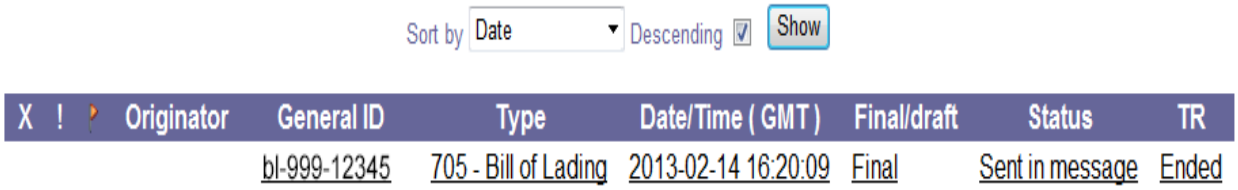
To have a further idea about how to create an eBL and how to deliver the goods at the port of delivery refer the following information[8] (this also could differ from system to system)

- The carrier has to prepare the bill of lading with the same information as in a paper bill of lading. This can be done by scanning a paper bill of lading or by preparing a soft form of a bill of lading.
- The eBL can be created by carrier himself at his head office or by carrier's agent at the port of loading. If it is to be created by a carrier's agent, the carrier has to provide a login ID and a Bolero user certificate to such agents, the carrier stays in control of these logins and manages them directly.
- If some once else other than the carrier wants to create an eBL, carrier's explicit authority is required and in the context of Bolero, explicit authority means using the Carriers electronic signature.
- This is to be uploaded into Bolero attaching the Title Registry Instructions (TRI). The Title Registry is a database which records the lifecycle of the eBL and ensures that once you have created the eBL it cannot be changed by anybody but you and that it cannot be duplicated as an eBL. Refer the below TRI:

[8] Electronic bills of ladings for carriers (FAQs), http://www.nepia.com/media/66269/eBL-FAQs-BOLERO-Oct-2013.PDF



- The Title Registry will record the TRI and will send the eBL to the first Holder (typically the Shipper).
- At the port of discharge, when an eBL has been surrendered the Carrier will receive an automated email from Bolero, notifying them of this action. This prompts the Carrier to log-in to the system and view the transaction folder (shown below) in the Bolero application.



- The final column shows that the TR as ‘Ended’ – meaning that this eBL has been surrendered. By opening the document, the sequence of electronic endorsements is displayed:

- This endorsement chain shows that the ‘To order’ party as International-Bank-Co (last sentence of above ‘current status’) has surrendered the eBL to the carrier. The carrier can now proceed to release the cargo in accordance with the usual practices for the cargo at the discharge port (delivery instruction/release notice etc.).

Other problems and information with regards to bills of lading

a) If the charter party requires only to issue clean bills of lading

Some charter parties require master to sign clean bills of ladings only. Usually, if the master signs a bill of lading, shipowner will be the carrier and the shipowner will be liable if the data on the bill of lading is different from the actual cargo. If the charterer is the carrier (the master may not require signing a bill of lading unless ‘on behalf of charter’), then the charterer himself will be liable for the damage or less amount discharged.

Therefore, depending upon the circumstances, claims may be brought against the ship owner and also a master may be charged for fraud. But, due to complex legality, a ship master may not be in a position to identify the carrier by referring to a bill of lading. Therefore, a master is required to be very careful in signing a clean bill of lading which does not represent the actual condition of the cargo.

If the ship owner is indemnified by the charterer or shipper for issuing clean bills of ladings, to a certain extent the ship owner will be protected, but, still if a claim is brought by any person other than the charterer or shipper and if the ship owner is the carrier, the shipowner will have to pay the claim before claiming it from the charterer or shipper.

At the same time, later, the charterer may say that the cargo was damaged or lost while it was on board, if a clean bill of lading is issued which does not represent the actual condition of the cargo. Therefore, if a clean bill is to be issued in accordance with the charterer for damaged or loss cargo, take advices from the shipowner and also from P & I club and make sure to have all communication records, photographic evidences saved to protect the ship owner against any claims from third parties.

Finally, whatever said and done, a master is obliged to issue a bill of lading which represents the actual condition of the cargo, i.e. he has right to clause the bill depending upon the condition of the cargo.

If the charter requires only clean bill of ladings, the most suitable option is always to refuse to load the damage cargo.

b) Clausing a bill of lading

When a bill of lading is to be claused, the master shall ensure to:

- Inform owners & charterers and if required, take assistances from P & I club.
- If the clausing is regarding the 'apparent order and condition' of the cargo, quantify the damage (example, when carrying bags of flour, it is better to write '50 bags wet' than writing 'some bags wet'). The logic is that the holder of the bill of lading shall be able to understand the actual condition of the cargo.
- Clause the bill of lading in accordance with the mate's receipt.
- Use master's own handwriting or typed text.
- The clausing to be made in the face (front or first page) of the bill of lading. If the clausing can be done only on the opposite side of the bill of lading it shall be indicated on the face of the bill of lading by appropriate wording (example 'refer over leaf for master's clausing' or 'see reverse of this bill of lading for master's clausing').
- Delete the conflicting printed statements on the bill of lading to avoid confusions to the holder of the bill of lading. Remember, statements can be made in three methods on a bill of lading;
  - Printed
  - Typed
  - Handwritten

  It is widely accepted that handwritten statements override typed statements and typed statements override printed statements on a bill of lading.

- Attachments to a bill of lading can be made if there is no sufficient space on the bill of lading. The attachments should be in the same form as the original bill of lading. The bill of lading should include proper reference to the attachments and the attachments should have proper reference to bills of lading to avoid possible frauds. All the attachments shall be signed, dated and stamped 'original'. The date to be the same date as on the bill of lading.
- Attachments may be made on carrier's letter headings if same original forms of bill of ladings cannot be found. Finally, ensure all the attachments are securely attached to the bill of lading.
- If the marks on the bill of lading are not clear, a master may clause the bill by stating "marks not clear".

c) If the cargo is damaged after loading but before the bill of lading is issued

- Take suitable measures to restrict/contain the damage.

- Carryout an investigation to identify the cause of the damage. Make necessary logbook entries and take necessary evidences.
- Inform the company, P & I and charterers.
- Note protest if the cargo is damaged by stevedores.
- Depending upon the severity of the damage, may have to arrange a cargo surveyor.
- The bill of lading cannot be claused as the cargo was received in apparent good order and condition.

d) Signing a bill of lading on behalf of the master

Sometimes, the owner's agent may have to sign bill of lading on behalf of the master. In that case, the master must issue a letter of authorization (LOA) to the agent giving him rights to sign bills of lading on behalf of the master. Remember, when more than one bill of lading to be issued, each bill of lading to be signed by agent would require a different LOA. Sometimes, the master may have to draft the latter of authorization or the ship owners may have their own formats or agents may have their own formats. Whatever the case, master must ensure the following instructions are available in the letter of authorization:

- The bill of lading shall be;
  - in accordance with the mate's receipt
  - in accordance with the terms of charter party (if applicable)

- a draft copy to be sent to owners for their approval before signing it

e) The purpose of issuing three original bills of lading

Shipping was started hundreds of years back when there were no instant communication systems and fast transport systems. During that time, one of the original bills of lading issued by the master was retained by the shipper and the other two was sent to the consignee by two separate methods, mostly by two different ships, so that if one is lost, the consignee will receive the other to take the delivery of the goods.

These days, the number of original bills issued depends upon the trade requirements. In some trades, still the customary three originals may be used.

At the time of requesting to issue a letter of credit, the buyer of the goods need to inform his bank how many original bills of lading to be received before the release of money to the seller's bank. If the buyer requests his bank to have 3/3 original bills of lading, the shipper will have to hand over all three original bills of lading to the seller's bank.

If the buyer requests his bank to release the payments based on 2/3 original bills of lading, the bank will release money when they receive 2/3 original bills of lading. This is common now as the other original can be mailed to the buyer to arrange custom clearances prior to vessel's arrival.

In accordance with the international bank regulations (UCP 600) one original clean bill of lading is sufficient to release the amount of money stated on the letter of credit. But, if more than one original is issued, the full set of clean originals as stated on the bill of lading to be delivered to the bank, to release the payment.

Therefore, these days the number of originals bills of lading required depend upon the individual trade requirements.

Some trades may require to have three sets of original bills of lading stamped or printed as "1st original", "2nd Original" and "3rd Original", the purpose of this is not that clear as this is not an international requirement.

Now a days, in some trades the bill of lading does not presented to the master for his signature. Finally, in some trades, the master is required to have a letter of authorization from the ship owner or charterer before signing a bill of lading.

Therefore, the ship's master is required to comply with the requirements of the trade, in accordance with the instructions that he receives from the ship owner, charterer and shipper, keeping in mind the legal requirements and consequences.

7) Letters of indemnity (LOI)

Generally, Letters of Indemnities are used in various occasions in the shipping industry, such as, but not limited to:

- To sign anti dated or post-dated bills of lading
- To sign clean bills for damaged cargo
- To sign clean bills for less amount of cargo loaded
- Switching bills of lading
- Comingling of cargo
- Delivery of cargo other than a port mentioned in the bill of lading
- In the case of early departure procedure (EDP)
- For the purpose of delivering cargo without presenting bill of lading to the master

The master shall not accept a LOI for any reason. It shall be communicated with the carrier by the person who issues the LOI. The receiver of the LOI must provide written guidance to the master.

If clean bills are signed knowingly that it contains wrong information against LOI, it will not be a legally binding document. Which means a shipper who indemnifies a carrier against incorrect information on a bill of lading do not have any legal obligation to pay the expenses incurred by the carrier. The carrier will be liable for the full loss incurred by the cargo owner and no P & I coverage will be provided.

8) Letter of protest

This is also called as 'protest' as well. LOP is made to inform the dissatisfaction of any matter over which the receiver (addressee) has the control. The main intention of issuing a LOP is to hold the receiver responsible and liable if any loss or damage is incurred by the sender. When issuing a LOP;

- The LOP must be addressed to the person in-charge of the operation concerned.
- The original and one copy should be sent to the addressee. He should be asked to sign the copy and send it back to the issuer.
- The one signed copy (by the addressee) shall be kept in the ship's file and one copy of that shall be sent to the ship's owner.
- Make a logbook entry
- Inform the appropriate parties (owners, charterers etc.)

Examples of letters of protests[9]

Letters of protests for difference of cargo figures between shore and the ship

LETTER OF PROTEST

M.v. Voyage No.:
Cargo:
Port: Berth/terminal:
Date: Time:
To: (recipient's name and/or position)

Please be advised that there is a discrepancy between ship and shore figure covering (description of cargo) loaded at your terminal this (date).

Shore figures: .....
Ship figures: .....
Difference: .....

The undersigned hereby declares that the Bill of Lading was signed under protest because of the unreasonable difference between ship and shore figures.

Protest lodged by..... Master (Signature and vessel's stamp)
Signed for receipt .....
.....Company

[9] Malcolm Maclachlan, The ship master's business companion, 4th Edition 2004

- Where the ship's cargo quantity measurements show less cargo loaded than the quantity stated by the shipper, the master should generally enter the **ship's figures** on the face of the bill of lading.
- Some shipowners require their masters to endorse a bill of lading which does not provide space for the ship's figures in the following terms: "Vessel's measurements are stated below, and this Bill of Lading only acknowledges the shipment of the weight or quantity given in the vessel's measurements on completion of loading".
- Where the shipper refuses to accept such an endorsement the master should write a Letter of Protest to the shipper, pointing out the discrepancy in the figures and stating that the bill of lading will be signed under protest. A copy of the Letter of Protest should be stapled to each negotiable bill of lading (i.e. each bill of lading in the set of "originals").
- If the ship's measurements show **more** cargo loaded than advised by the shipper, the **shipper's figures** should be entered on the bill of lading. No Letter of Protest will be necessary.

Letters of protests for slow discharging

LETTER OF PROTEST

M.v. Voyage No.
Cargo:
Port: Berth/terminal:
Date: Time:
To: (recipient's name and/or position)

Please be advised that the average discharge rate has been …… mtph.

The vessel can discharge ……mtph against psi……kg/cm^2.

We have consequently not been allowed to use the vessel's full pumping capacity.

I hereby lodge protest accordingly, and we, including my disponent owners, hold you and/or Charterers responsible for all delays and consequences.

Protest lodged by…… Master Signed for receipt……
(Signature and vessel's stamp) ……Company

Letter of protests for general purposes

LETTER OF PROTEST

M.v. Voyage No.
Cargo:
Port: Berth/terminal:
Date: Time:
To: (recipient's name and/or position)

Please be advised that .....
.....

I hereby lodge protest accordingly, and we, including my disponent owners, hold you and/or Charterers responsible for all delays and consequences.

Protest lodged by..... Master Signed for receipt .....
(Signature and vessel's stamp) .....Company

9) Note of protest

"A 'note of protest' is simply a declaration by the master of circumstances beyond his control which may give, or may have given, rise to loss or damage. Such declaration must be made before a notary public, magistrate, a consular officer, or other authority. Usually, statements under oath will be taken from the master and other members of the crew and these statements will have to be supported by appropriate log book entries. At the time of noting protest the master should reserve the right to extend it.

In any of the circumstances enumerated below it is advisable for the master to note protest.

- Whenever during the voyage, the ship has encountered conditions of wind and sea which may result in damage to cargo.
- When from any cause the ship is damaged, or there is reason to fear that damage may be sustained.
- When through stress of weather it has not been practicable to adopt normal precautions in the matter of ventilation of perishable cargo.
- When cargo is shipped in such condition that it is likely to suffer deterioration during the voyage. In this case, however, the protest will not be effective unless the bills of lading were endorsed to show the condition of the cargo at the time of shipment.
- When any serious breach of C/P terms is committed by the charterer or his agent, such as refusal to load, unduly delaying loading, loading improper cargo, refusal to pay demurrage, refusal to accept B/L in the form signed by the master, etc.
- When consignees fail to discharge cargo or take delivery thereof and pay freight in accordance with C/P or B/L terms.
- In all cases of general average.

Protest should be noted as soon as possible, certainly within 24 hours of arrival in port and in the case of cargo protests before breaking bulk.

If the master delivers the cargo and accepts the freight, he will be barred from claiming the cargo's contribution in general average unless he notes protest within 24 hours and notifies the consignee that he has done so. It is not essential that a protest should be made on a special form but it is advisable and usual in practice"[10].

In some situations, it is not clear whether damage has occurred or not at the time of original protesting. Sometimes, it may not be clear the extent of the damage as well. It will be necessary to extend the protest in such situations. Some situations may require noting protest at one port and extend it at another port. Therefore, make sure to enter the following wording in the NOP;

"…… notes a protest **reserving the right to extend same** ….."

Procedure of making a note protest

Take the official logbook, deck or engine logbooks as appropriate and all other relevant information surrounding the event being protested. Go to any authority that is registered to take sworn oaths (Notary Public, solicitor or Consular of the flag state). Take one or more witnesses from the crew who has knowledge of the facts. Make a sworn statement in the presence of the previously mentioned officials who will enter the protest in the Register of Protests. Obtain at least 3 certified copies of the protest and send two to ship owner and keep one as ship's records. Pay fee and get the receipt. All these are to be done by the master.

[10] F.N. Hopkins, Business & law for the ship master, 7th edition (1998), P. 288

Sample of a note protest

LETTER OF PROTEST

Port : .....

Country : .....

Be it known on this ..... day of ....., at ..... before me .....a Notary Public ....., duly commissioned and sworn, personally appeared ....., Master of the ..... called the ..... of ..... of the burden of ..... tons or thereabouts, official number ..... Port of registry ..... and declared that on or about the ..... day of ..... last past he sailed in and with said vessel as Master thereof from ..... bound for ..... having on board said vessel a cargo of ..... and arrived at ..... on ..... and having during the said voyage

and thus he hereby notes a protest reserving the right to extend same in event of any damage or claim to the vessel, and further he declares that due to circumstances beyond his control he was unable to lodge protest earlier.

IN WITNESS WHEREOF:

....

Notary Public Master

Original : Master

Copy : Company

10) Procedure of maintaining multiple load line certificates

Below mentioned procedures may change upon the regulations of the flag state. Therefore, strongly advised to refer the ship's flag state regulations and ship's SMS.

- Both the load lines to be marked on the hull permanently. But, only one load line to be painted and used at any time with the relevant load line certificate.

- All the statutory certificates excluding the additional international load line certificate shall indicate the maximum deadweight or displacement corresponding to the vessel's assigned freeboard.
- Stability information for both the statutory load lines to be approved and available on board.
- The change of load line marks to be witnessed by a class surveyor.
- If the load lines to be changed in the loading port, it has to be completed before the commencement of loading.
- The load line certificate which is not in use to be placed in a sealed envelope by the surveyor and to be handed over to the master.
- If the class surveyor is not available, master may carry out the above procedure provided an arrangement for verification is available at the next port of call.
- An administration may allow carrying out the change of load line marks by the master alone (without the presence of a class surveyor) if the vessel is trading in remote ports where class surveyors are not available.
- Each time when the load lines are changed, the master must make an entry in the official logbook to the effect.
- Ships SMS need to have procedures with regards to changing load line.
- Reduction of safety standards are not allowed when sailing with lesser deadweight load line marks.
- The annual, renewal surveys will be carried out in compliance with the highest deadweight load line certificate irrespective of the load line certificate in use.
- The main international load line certificate and additional international load line certificates issued also need to be verified during the load line surveys and endorsed.
- May require to inform administration each time the load line marks are changed.

11) Ship's stability booklet

Master should be aware of the instructions provided in the ship's stability book with regards to the safe operation of the vessel. As the instructions provided in the stability book are ship specific, you are advised to be familiar with the instructions provided in stability book onboard each ship that you are going to serve. Some selected and important guidelines from a stability book are given below for your general knowledge.

Instructions to the master

- The master of the vessel should read the whole of this booklet and be well familiar with the characteristics of the vessel before placing it into service. Any ignorance of the instructions in this booklet may jeopardize the safety of crew and vessel.
- It should be noted that, however, this booklet cannot cover unusual condition or contingencies.

General precautions against Capsizing

- Compliance with the stability criteria indicated below does not ensure immunity against capsizing regardless of the circumstances or absolve the master from his responsibilities. Master should therefore exercise prudence and good seamanship having regard to the season of the year, weather forecasts and the navigational zone and should take the appropriate action as to speed and course warranted by the prevailing circumstances as well as IMO regulation for subdivision and damage stability.
- The vessel, when engaged in towing operations, should possess an adequate reserve of stability to withstand the anticipated heeling moment arising from the tow line without endangering the towing ship. Deck cargo on board the towing ship should be so positioned as not to endanger the safe working of the crew on deck or impede the proper functioning of the towing equipment and be properly secured. Tow line arrangements should include towing springs and a method of quick release of the tow.
- In all loading conditions, the initial metacentric height should be corrected for the free surface effect of each kind of tank which has larger free surface and selecting the greatest free surface moment of these tanks. The correction of stability curves should adopt the method by increasing the height of centre of gravity of vessel, and the increased value is the corrective value for sum of free surface of tanks. The number of partially filled or slack tanks should be kept to a minimum because of their adverse effect on stability.

Operational Procedures before and in Heavy Weather

- All doorways and other openings through which water can enter into the hull or deckhouses, forecastle, etc., should be suitably closed in adverse weather conditions and accordingly all appliances for this purpose should be maintained on board and in good condition.
- Weathertight and watertight hatches, doors, etc., should be kept closed during navigation, except when necessarily opened for the working of the ship and should always be ready for immediate closure and be clearly marked to indicate that these fittings are to be kept closed except for access. No modification or removal can be allowed for doorsills, hatch coamings, air piping, ventilators and other piping systems without authorization by the classification society. All portable deadlights should be maintained in good condition and securely closed in bad weather.
- Any closing devices provided for vent pipes to fuel tanks should be secured in bad weather.
- Reliance on automatic steering may be dangerous as this prevents ready changes to course which may be needed in bad weather.
- In severe weather, speed of the ship should be reduced if excessive rolling, propeller emergence, shipping of water on deck or heavy slamming occurs. Six heavy slamming or 25 propeller emergences during 100 pitching motions should be considered dangerous.

- Special attention should be paid when a ship is sailing in following or quartering seas because dangerous phenomena such as parametric resonance, broaching to, reduction of stability on the wave crest, and excessive rolling may occur singularly, in sequence or simultaneously in a multiple combination, creating a threat of capsize. Particularly dangerous is the situation when the wave length is of the order of 1.0 - 1.5 ship's length. A ship's speed and/or course should be altered appropriately to avoid the above-mentioned phenomena.
- Water trapping in deck wells should be avoided. If freeing ports are not sufficient for the drainage of the well, the speed of the ship should be reduced, or the course changed, or both. Freeing ports provided with closing appliances should always be capable of functioning and are not to be locked.
- Masters should be aware that steep or breaking waves may occur in certain areas, or in certain wind and current combinations (river estuaries, shallow water areas, funnel shaped bays, etc.). Use of operational guidelines for avoiding dangerous situations in severe weather conditions or an on-board computer-based system is recommended. The method should be simple to use.

Minimum draft forward

The scantling is approved for operation at draft forward not less than 4.2m. If, in the opinion of the master, sea conditions are likely to cause regular slamming, then other appropriate measures such as a change in speed, heading or an increase in the draught forward may also need to be taken.

Bridge visibility

The view of the sea surface from the conning position in wheel house should not be obscured more than two ship lengths, forward of the bow to 10^0 on either side irrespective of the ship's draft, trim and deck cargo (e.g. container, timber etc.).

Propeller immersion

To keep efficiency of propeller, draft aft should be deep enough to take sufficient propeller immersion of more than 100%.

Propeller immersion ratio = (Ta - H) / Dp

Where: Ta : Draft at A.P.(m)

Dp : Propeller diameter (5.00m)

H : Height of the shaft line from the bottom line (2.70m)

12) Documents required according to the IHR[11]

International Health Regulations 2005 (IHR 2005) require having below mentioned documents onboard ships:

- International Certificate of Vaccination or Prophylaxis (vaccination certificate),
- Maritime Declaration of Health (this is required to be completed and sent/given to port authority on arrival after a foreign travel) and
- Ship Sanitation Control Certificates (SSCC) or Ship Sanitation Control Exemption Certificates (SSCEC)

SSCC and SSCEC replaced the deratting certificate and the deratting exemption certificate which were issued under IHR 1969. Detailed information with regards to SSCC and SSCEC can be found in the table below:

Name of the certificate	Occasions issued	Remarks
SSCC	Issued when there is evidence of a public health risk on board and health measures have been satisfactorily completed. The evidences found, and control measures taken are recorded in the SSCC.	Valid for a maximum of six months and the control measures required by the certifying health authority must be completed before a further SSCC is issued.
SSCEC	Issued when there is no evidence of public health risk and the competent authority is satisfied that the vessel is free from infection or contamination, including vectors (mosquitoes and rodents)	Valid for six months, extendable by one month if the inspection for renewal (or application of control measures, as may be required) cannot be accomplished at the port of arrival.

Masters are required to ensure that the SSCC or SSCEC is issued by an IHR authorized port and the certificate is not expired.

A list of ports authorised to renew and/or extend SSCs are usually called as IHR authorised ports and this is regularly updated and available for free consultation and can download from the WHO public website or this may be clarified with the local agents as well.

If a valid SSCEC or SSCC is not produced or evidence of a public health risk is found on board a ship, the State Party may;

- disinfect, decontaminate, disinfect or derat the vessel, as appropriate, or cause these measures to be carried out under its supervision; and

[11] International Health Regulations (2005), WHO

- decide the techniques employed in each case to ensure the public health is secured in accordance with the IHR or other safe means

Preparing a vessel for Ship Sanitation Certificate[12]

Instruct the galley department to ensure that the;

- galley area is well cleaned.
- galley cleaning schedule is available.
- waste containers in the galley, mess rooms & garbage storage areas are kept closed.
- dry provision rooms and the cold rooms are cleaned and well maintained.
- food is stowed in the provision rooms properly to avoid contamination.
- if there are any toilets that can be directly entered from galley or mess rooms, doors to the toilets shall have auto closing devises to avoid contamination and the doors to be kept close.
- lighting systems in the galley and mess rooms are in good condition.
- food preparation surfaces are smooth without cracks to avoid growth of vectors.
- utensils and cutting boards for preparation of raw and ready-to-eat foods are separated.

Instruct the person who is in-charge of the ship's hospital to;

- ensure the hospital is well cleaned.
- make sure the lighting systems are in order in the hospital.
- make sure sufficient medical facilities are available and the expired items are replaced.
- store and maintained medicines and equipment in correct order.
- update and maintain the medical log.
- ensure a medical guide is available in accordance with the flag state requirements.
- ensure the expired medicines are stowed separately.
- food handlers with gastrointestinal illness must not perform any food-related work until symptom free for a minimum of 48 hours. Medical log to be maintained as evidence.

Instruct the chief officer to make sure;

- garbage is properly segregated, and the storage areas are cleaned.
- proper heating systems are available and working in order if the vessel is in cold climates.
- garbage management plan is available and complied with.
- the garbage record book is updated.
- the posted garbage placards are in good condition.

[12] Handbook for Inspection of Ships and Issuance of Ship Sanitation Certificates – WHO

- the evidences of freshwater analysis are available. In accordance with the MLC 2006, water samples to be taken at regular intervals and analysed for biological, mineral and corrosion indicators and Physicochemical Analysis. Refer the flag states regulations for the applicable interval.
- the freshwater tanks and receiving horses are well maintained and evidences available.
- cargo holds, deck areas and accommodation to be free of rats, insects and well cleaned.
- vessel's ballast water is managed in accordance with the vessel's ballast water management plan and the updated ballast water record book is available.

Instruct the chief engineer to make sure;

- the sewage treatment and discharge requirements are complied with.
- ventilation system is in good working order to have proper air circulation.
- the engine room areas are in clean condition.

Finally, the master must make sure that the records of accommodation, galley, provision room and cold room inspections are readily available.

Model Ship Sanitation Control Exemption Certificate/Ship Sanitation Control Certificate

Port of ……. Date: ……..

This Certificate records the inspection and 1) exemption from control or 2) control measures applied

Name of ship or inland navigation vessel ….....Flag …..... Registration/IMO No. ……....

At the time of inspection the holds were unladen/laden with ..... tonnes of ..... cargo

Name and address of inspecting officer ……..

Ship Sanitation Control Exemption Certificate

Areas, [systems, and services] inspected	Evidence found[1]	Sample results[2]	Documents reviewed
Galley			Medical log
Pantry			Ship's log
Stores			Other
Hold(s)/cargo			
Quarters:			
- crew			
- officers			
- passengers			
- deck			
Potable water			
Sewage			
Ballast tanks			
Solid and medical waste			
Standing water			
Engine room			
Medical facilities			
Other areas specified - see attached			
Note areas not applicable, by marking N/A.			

Ship Sanitation Control Certificate

Control measures applied	Re-inspection date	Comments regarding conditions found

No evidence found. Ship/vessel is exempted from control measures.

Control measures indicated were applied on the date below.

Name and designation of issuing officer ……..... Signature and seal …… Date ……..

[1] (a) Evidence of infection or contamination, including: vectors in all stages of growth; animal reservoirs for vectors; rodents or other species that could carry human disease, microbiological, chemical and other risks to human health; signs of inadequate sanitary measures. (b) Information concerning any human cases (to be included in the Maritime Declaration of Health).

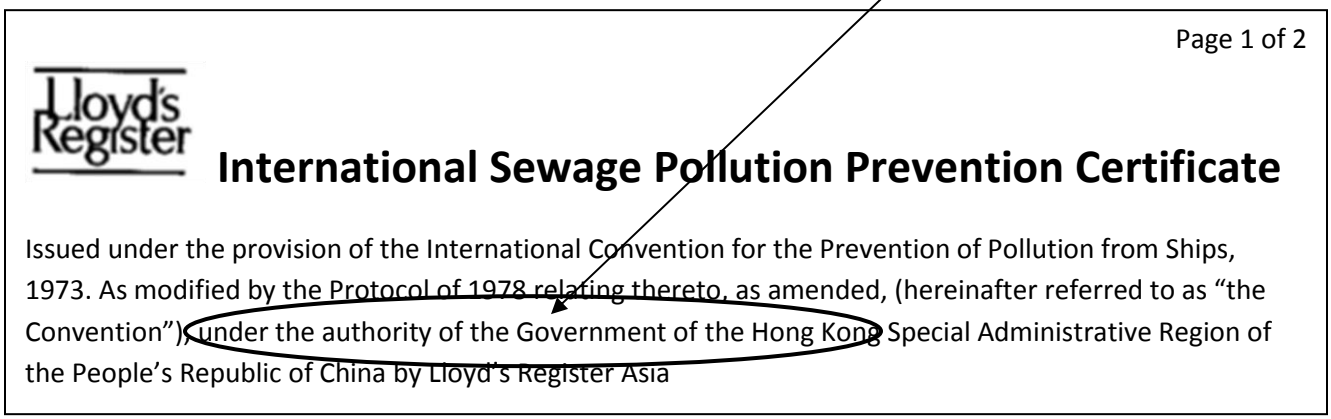
[2] Results from samples taken on board. Analysis to be provided to ship's master by most expedient means and, if re-inspection is required, to the next appropriate port of call coinciding with the re-inspection date specified in this certificate.

Sanitation Control Exemption Certificates and Sanitation Control Certificates are valid for a maximum of six months, but the validity period may be extended by one month if inspection cannot be carried out at the port and there is no evidence of infection or contamination.

13) Certificate of Compliance

Ship's certificates can be issued by flag states or recognized organizations (RO) of the flag state. Most of the flag states have delegated this duty to ROs.

When issuing a certificate by a RO, if the relevant Convention or the Code has been ratified by the flag state, that particular certificate will be issued by the RO but under the authority of the flag. Refer the below abstract from a certificate;



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Lloyd's Register

International Sewage Pollution Prevention Certificate

Issued under the provision of the International Convention for the Prevention of Pollution from Ships, 1973. As modified by the Protocol of 1978 relating thereto, as amended, (hereinafter referred to as "the Convention") under the authority of the Government of the Hong Kong Special Administrative Region of the People's Republic of China by Lloyd's Register Asia

If the flag state is not a party to the relevant Convention or the Code, then the certificate cannot be issued under the authority of the flag state as they do not have any authority since they have not ratified it.

Therefore, the RO can issue a certificate of compliance which states the certificate is issued in compliance of the relevant convention or the code.

14) Electronic certificates for ships

IMO accepts that the electronic certificates issued to a vessel are equivalent to paper certificates. Therefore, all the paper certificates that are required to be carried onboard in accordance with IMO Conventions and Codes can be replaced by electronic certificates, provided, the flag state accepts it.

Administrations should ensure that the electronic certificates have the following features[13]:

- validity and consistency with the format and content required by the relevant international convention or instrument, as applicable;
- protected from edits, modifications or revisions other than those authorized by the issuer or the Administration;
- a unique tracking number for verification (**Unique tracking number** means a string of numbers, letters or symbols used as an identifier to distinguish an electronic certificate issued

[13] FAL.5/Circ.39/Rev.2, IMO

by an Administration or its representative from any other electronic certificate issued by the same Administration or its representative);
- a printable and visible symbol that confirms the source issuance.

With regards to the Sri Lankan flagged vessels, owners who wish to be issued with electronic certificates should approach the RO to enquire if they are ready to issue the electronic certificates. Upon confirmation by the RO, a letter on the use of electronic certificates will be issued by the Merchant Shipping Secretariat to the ship, stating approval for the ship to be issued with electronic certificates in-lieu of traditional paper certificates. This approval letter is to be placed on board the ship as an additional measure to facilitate acceptance by other port authorities[14] (Compiler's Note – Such a letter is not required by IMO and applies only to Sri Lankan flag ships).

Refer the below abstracts from USER GUIDE FOR IMO-COMPLIANT ELECTRONIC CERTIFICATES FROM DNV GL to gain a better idea about how it functions[15].

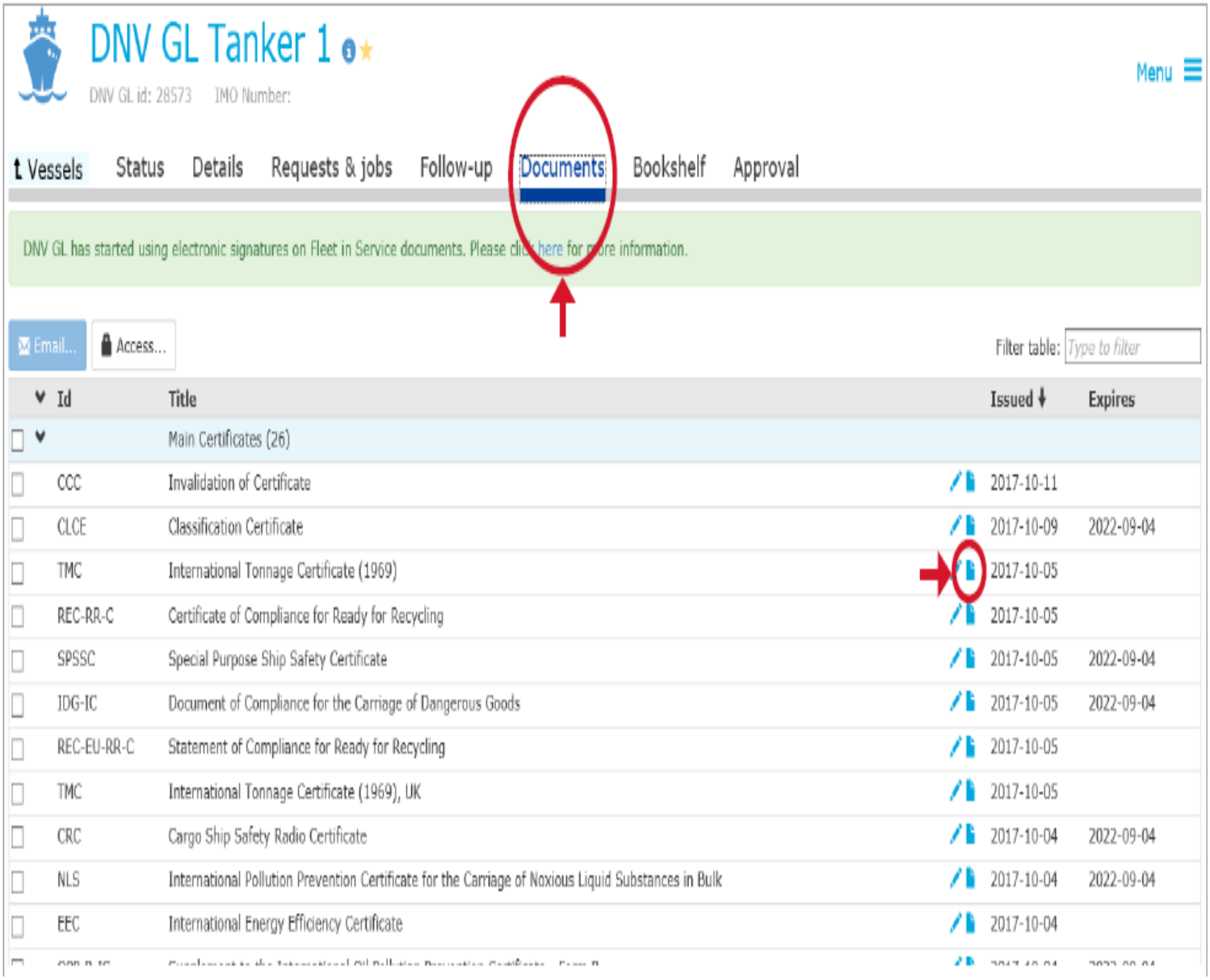
- It is recommended that electronic copies of the latest certificates are stored on board the vessel (Compiler's Note - remember, this is not required by IMO, this will be important, if you cannot log on to the customer portal of the classification society or the Flag State).
- Flag acceptance is a pre-requisite for issuance of electronic certificates by DNV GL on their behalf. If DNV GL has not been granted respective Flag acceptance, the electronic certificate shall be printed and manually signed in addition.
- In case of loss of connectivity, the authenticity and validity of the document can be confirmed by contacting DNV GL at +47 67 57 78 78.
- Certificates can be viewed through a deck stop or lap top or tab or mobile phone.
- If required, certificates can be shared as well.

All certificates, issued and endorsed, are published in the My DNV GL service Fleet Status. To find certificates published in the My DNV GL service Fleet Status;

- Log in with your username and password.
- Choose the vessel and click on the Documents tab.
- Select the certificate to be viewed. Refer the screen shot below:

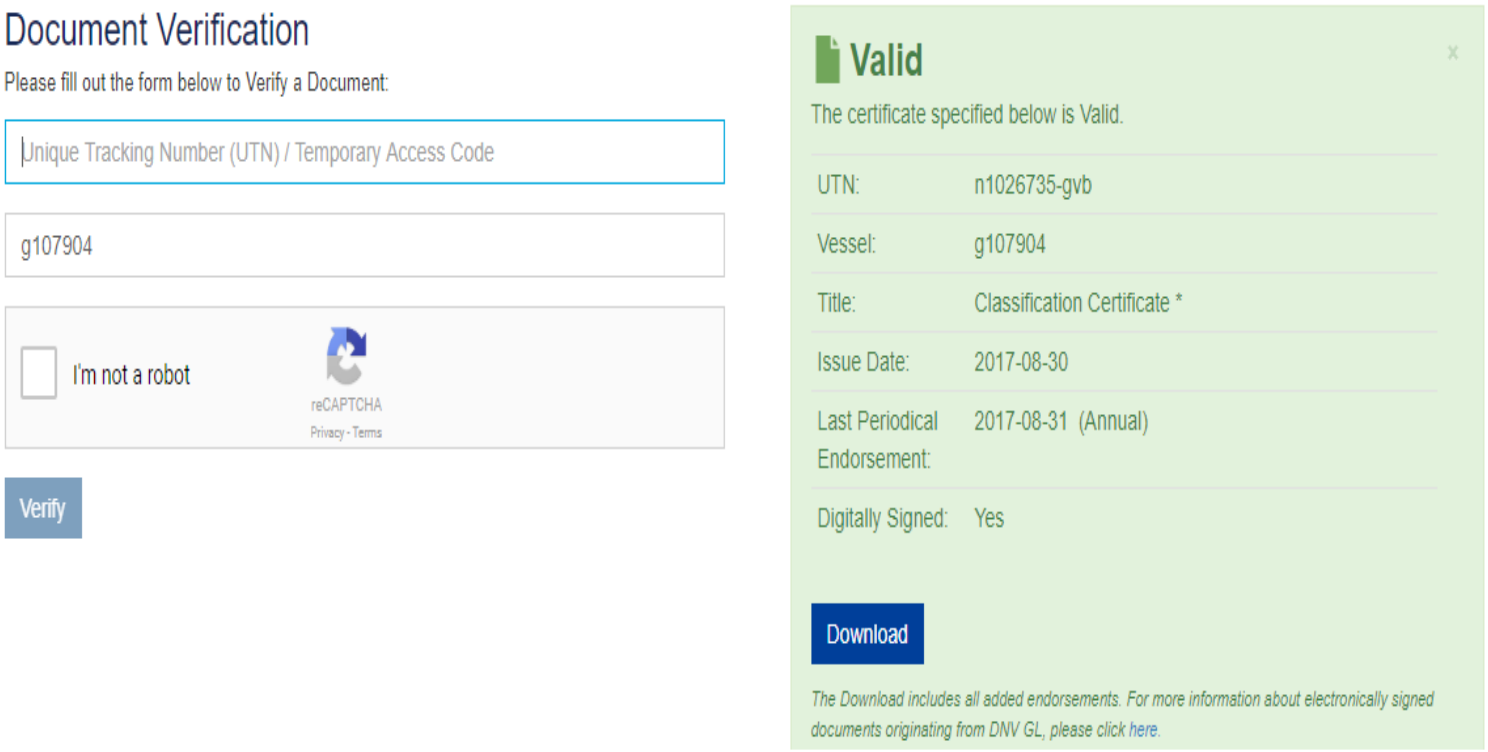
[14] MSN 01/2018

[15] https://www.dnvgl.com/maritime/electronic-certificates/index.html

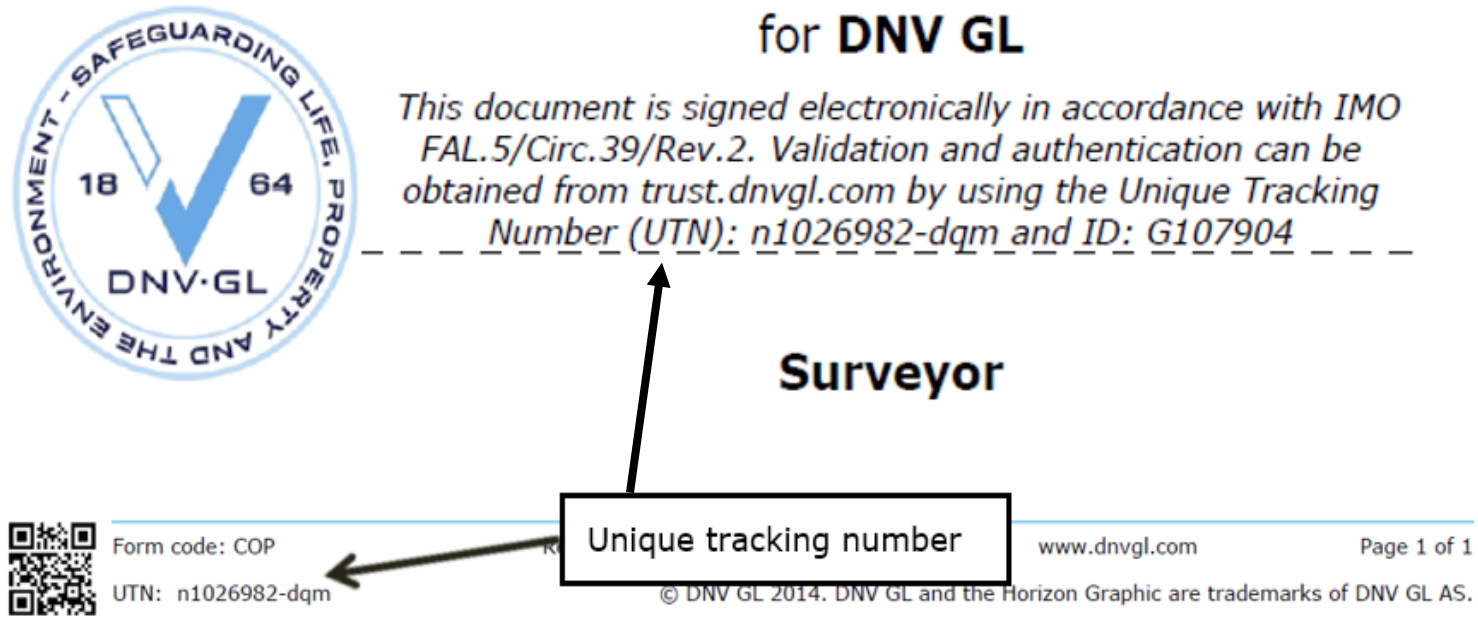


The validity of the documents can be checked through an authentication service by accessing https://trust.dnvgl.com and entering the Unique Tracking Number (UTN) and the ship's DNV GL ID. To verify authenticity and validity of electronic certificates by using UTN;

- For certificates the validation will show whether it is currently valid, while for other documents it will show the validity at the date of issuance.
- The below screenshot shows a confirmation of the validity of a certificate. Note that only certificates can be downloaded.



The Unique Tracking Number (UTN) can be found in the signature text and at the bottom of the first page. Refer the below abstract;



15) Documents for STS operations

Vessels engage in STS operations are required to have an approved STS operations plan. This plan usually lists down the other documents that are required to be carried onboard and may include Ship to ship transfer guide (ICS/OCIMF), IMO Manual on oil pollution, oil record book part II etc.

At the same time, there are various types of check lists used in STS operations. These may differ from company to company. Blank check lists can be found in the STS Manual of the vessel or company SMS. Generally, check lists used in STS operations may include;

- **Pre-arrival information** – this includes LOA, parallel body length loaded/ballast draughts, whether the transfer to be done underway, heights of cargo manifolds, types of mooring wires, compliance of manifolds & lifting equipment with OCIMF guide line etc.
- **Before operations commence** (common preparations between both the vessels) – this may include whether the personnel are rested, radio communications established, language agreed, rendezvous position agreed, navigational warning broadcasted, weather forecast obtained, local authorities informed etc.
- **Before manoeuvring and mooring** (onboard preparations onboard both ships) – this may include readiness of fenders, readiness of mooring arrangements, readiness of cargo manifolds, course and speed agreed, navigational signals displayed, availability if lighting etc.
- **ISGOTT Ship/Shore Safety Check-List** – contains safety precautions to be taken before the commencement of oil cargo operations. Refer ISGOTT.
- **Before cargo transfer** – this may include methods of transferring people agreed, readiness of gangway, emergency signals/procedures agreed, communication methods agreed, minimum & maximum cargo transferring rates are agreed etc.
- **Before unmooring** – this contains the normal safety precautions such as cargo operations completed, cargo manifolds disconnected, assessment of weather condition, availability of crew members for stations etc.

MASTER – PILOT RELATIONSHIP

British regulations define "pilot" as a person who does not belong to a ship but who has the conduct of it and in terms of maritime law, pilot is a ship owner's employee. A pilot's presence on the bridge does not relieve the master or officer in charge of the navigational watch from their duties and obligations. They are supposed to support the pilot, monitor the pilot's actions and monitor the vessel's progress throughout.

Before the pilotage commences the master, pilot and watchkeeping officers shall be well aware of their respective roles during bridge watchkeeping and shall have a good communication with regard to the vessel's safe navigation.

Preparations for pilotage

Master shall ensure:

- the bridge team is well rested, having good physical and mental fitness and are not under influence of alcohol.
- the bridge team is well aware of the provisional passage plan developed, based on the preliminary information before the pilot's arrival.
- the pilot boarding arrangements are ready, and communication established with a responsible person at the pilot ladder.
- to establish communications with the pilot and agree with the boarding times, positions, approach speed/course.
- to monitor the boarding operation closely from the bridge wing.
- following are reported to the bridge:
    - Pilot boat approaching
    - Pilot board alongside
    - Pilot onboard
    - Pilot boat away
    - Pilot boat clear

- Once the pilot is onboard, hoist flag Hotel.

Information exchange

The master shall:

- Report the course and the speed of the vessel.
- Present the pilot card.

- Report any unusual ship-handling characteristics, machinery difficulties, navigational equipment problems or crew limitations that could affect the operation, handling or safe manoeuvring of the ship.
- Pass any other information required by the pilot. The pilot has to provide:
  - Local conditions including navigational or traffic constraints;
  - Tidal and current information;
  - Berthing plan and mooring boat use;
  - Proposed use of tugs;
  - Expected weather conditions;
  - Pilot passage and manoeuvring plan.

Passage and contingency plans

After taking above information into account and comparing the pilot's suggested plan with that initially developed on board, the master shall carryout a risk assessment. Finally, the master and the pilot should agree an overall final plan early in the passage before the ship is committed. **The Master must not commit his ship to the passage he has not approved.**

Contingency plans should also be made which should be followed in the event of a malfunction or a shipboard emergency, identifying the possible abort points and safe grounding areas. These should be discussed and agreed between Pilot and Master.

Briefing of crew

On completion of the Pilot briefing, the Master takes the first opportunity to let all involved personnel know the final plan and major decisions made with the Pilot, which includes:

- Conning procedure,
- The changes made to the provisional passage and manoeuvring plan.

This may take place on the bridge or on VHF if manoeuvring stations are already manned.

The voyage plan is to be amended accordingly; any inconsistency is to be reported to the Master immediately.

During pilotage

- The Master/OOW/ Bridge team shall interact with the pilot, providing confirmation of his directions and feedback when they have been complied with. It is the responsibility of the OOW to ensure efficient communication is maintained with the Pilot.

- In addition to the actions of the Master and the Pilot, the OOW shall monitor at all times the ship's speed and position as well as dynamic factors affecting the ship (e.g. weather conditions, manoeuvring responses and density of traffic) and report to the Master/Pilot.
- The Master and the Pilot being most of the time focused on the ship handling, it is the OOW and the whole bridge team's responsibility to check all other aspects of the ship safety and security. (e.g. Opposite ship side when the Master in on a wing, long range traffic, communications etc.)
- OOW shall plot the ship's position on the chart at appropriate intervals, alerting the Pilot and the Master to any perceived inconsistencies.

Pilotage in Panama Canal

Article 92 of the Panama Canal regulations state that *the pilot assigned to a vessel shall have control of the navigation and movement of such a vessel.*

This situation limits the Master in his course of actions. In case of an incident/accident, the following actions should be carried out:

- *Pilot must be immediately informed and if safe to do, operations shall be ceased, so as to make a full appraisal of the situation.*
- *All evidences and facts to be recorded.*
- *A note of protest to be made in the event of damages found, or if damages are suspected but not clear upon first inspection.*

Pilotage in Suez Canal

Article II, D of Suez regulations state that:

- *Pilot only gives advice on manoeuvring the vessel, course to steer, etc.*
- *Pilot puts at the disposal of the master his experience and practical knowledge of the Canal, but as he cannot know the defects or difficulties of manoeuvrability for every vessel, the responsibility falls completely upon the master.*
- *The manoeuvre and orders are carried out under the direction of the master who is solely responsible for the ship.*
- *The master, after considering the directions given by the pilot, has to give necessary orders to the helm, engines and tugs.*

Therefore, same as in most of the other areas of world, in Suez Canal also, if any damages occur due to the fault of the pilot, the vessel owner will be liable and responsible.

Responsibilities of a port authority with regards to pilots

Port authorities must ensure the pilots are:

- properly qualified;
- have appropriate competencies;
- medically fit;
- not under the influence of drugs or alcohol or medication which affect pilot's ability for safe navigation; and
- fit for the duties to be carried out by them

Ship owners are relying on the port authorities when taking the services of pilots. Therefore, even though the port authorities usually do not take the liability or responsibility of the faulty acts of the pilots according to the regulations, the shipowners MAY able to claim the losses incurred due to the navigational errors of the pilots provided that the shipowner can prove the losses incurred due to one of the causes mentioned above. Therefore, masters are required to have correct records and evidences of all the events after any incident involving pilots. Remember, this MAY be possible in the areas where the pilotage is compulsory. If the ship owner has taken the services of voluntary pilotage, then the ship owner is always responsible and liable for the losses incurred by faults of pilots.

At the same time, if the ship owner can prove that the incident took place due to the wilful misconduct or gross negligence of the pilot, according to the local laws, the ship owner MAY be able to claim the losses incurred from the port authority.

Refusal for pilotage

IMO resolution A.960 states that the pilot should have the right to refuse pilotage when the ship to be piloted poses a danger to the safety of navigation or to the environment.

ACTIONS TO TAKE WHEN NON-COMPLIANCE WITH VARIOUS REGULATIONS

1) The Sulphur content in the fuel is higher than the required amount when entering ECA

In accordance with the MARPOL Annex VI, ships are required to change over to low sulphur fuel oil when entering ECA. This may not be possible when the sulphur content is higher, in the bunkers received even though you have ordered low sulphur fuel oil or when low sulphur fuel oil is not available or if the vessel was not having such fuel when at the time of receiving orders to proceed to ECA.

Remember, you are not required to deviate for obtaining low sulphur fuel or it shall not make any undue delays to the operation of the vessel and you may take following actions:

- Inform the owners and charterers (time and bare boat charterers).
- Inform the Flag state.
- Inform the port of destination.
- Keep ready all the available documents to prove that you have taken all possible actions to take low sulphur fuel oil.
- Keep ready the expected port rotation sequence plan at the intended time of entry into the ECA.
- The date and time of the port rotation sequence plan received which includes the ECA and the position of the vessel at that time.
- The date and time the vessel expects to enter and exit the ECA.
- Plans available at the first port within ECA to take bunkers with low sulphur fuel.
- If available, evidence of using low sulphur fuel when in ECA in former voyages.

2) Exemption and dispensation certificate

Exemption certificate (excluding the Ship Sanitation Control Exemption Certificate issued under International Health Regulations)

An Exemption is a permanent release from compliance with a Statutory Convention requirement due to the existence of specific circumstances as sanctioned by the provisions of that Convention. The 'Exemption Certificate' is linked to, and retained with its associated statutory certificate, and is issued by the Recognized Organization (OR) issuing that certificate under authorization from the DGMS. Authorization for issuance of an Exemption Certificate is considered on a case by case basis formed on the existence of some measure of equivalency to meet the intent of the requirement being exempted and a recommendation from the (RO)[16].

Exemption may be granted in accordance with SOLAS and load line conventions.

[16] MSN 27/2016

In most occasions, the validity period of an exemption certificate would be similar to the validity period of the corresponding normal certificate.

Example –

- International Load Line Exemption Certificate will be issued if a coasting vessel needs to undertake a single international voyage in an exceptional circumstance. Remember, in this case, the duration of the certificate will be only to complete the single voyage only.

No exemption certificates are issued under MARPOL, MLC 2006, Ballast water management Convention, ISPS Code and ISM Code. Remember, there could be exemptions granted under MLC 2006 and the Ballast water management Convention, but, no separate 'exemption certificates' required.

Dispensation Letter (dispensation certificate)

A temporary allowance granted in writing (Dispensation Letter) by the DGMS to permit a ship to proceed without being in full compliance with a specific Convention requirement due to mitigating circumstance preventing the immediate rectification of the subject deficiency. Dispensations are issued with time specific corrective action requirements, compliance with which are reportable to the Administration by the expiration date[17].

Dispensation Letters are issued with a specific term limit of validity-either for a single voyage, or for a set period of time, and are generally limited to the minimum period of time necessary for the ship to reach a port where rectification of the deficiency can be accomplished[18].

Examples –

- Dispensations for 2nd mate when chief officer is not available as required by the minimum safe manning certificate.
- When one ECDIS is out of order and if it cannot be repaired at the present port, a dispensation will be issued, until the next port where the ECDIS can be repaired provided the back-up ECDIS is working in order.

[17] MSN 27/2016
[18] MSN 27/2016

3) Dispensations issued to people

Occasion issued	Applicable Convention	Duration of validity	Application in Sri Lanka
Lack of DSD certified people to carryout security related duties in accordance with SSP	STCW	30 days	Yes
No certified persons to carryout duties of SSO	STCW	30 days	No
Lack of an officer or an engineer in accordance with the minimum safe manning	STCW	06 months	Yes
No master or chief engineer, but **only in circumstances of force majeure**	STCW	Shortest period	Yes
No certified cook	MLC 2006	30 days	Yes

4) Actions to be taken when a critical navigational equipment failure occurred at a port

In case of a critical bridge equipment failure at a berth, the master must take best possible actions to get it rectified before departure from the port. If there are no facilities available to rectify the matter and depending upon the circumstances an Administration may allow the vessel to sail. Therefore, you are required to refer the flag state regulations. Refer the below stated Hong Kong regulations to gain a better knowledge of this.

In case of the ship's structure is damaged or an essential equipment is inoperative, the ship manager or the ship master should identify the cause and arrange alternative measures to make up the failure. If such deficiency cannot be made good in a short period and exemption/dispensation is required, the ship manager should seek the Classification Society's advice, and inform the Administration, together with relevant document, Classification Society's recommendations/advice, evidence and action plan. If necessary, a survey by the Class is to be carried out and the recommendations are to be complied with. "Application for Exemption or Dispensation" is required to be submitted. The Administration will consider the application on a case by case basis, depending on the seriousness, ship's condition, temporary measures taken, time span of repair, remedy actions etc. The ship manager shall closely monitor the remedial action until the permanent repair is completed.

ACTIONS TO TAKE DURING VARIOUS EMERGENCIES & OTHER VARIOUS OCCASIONS

1) Injury onboard while on passage (not a minor injury)

- The Master needs to decide whether a deviation is required or not. If decided to deviate, need to decide where to deviate.
- Carryout a risk assessment.
- Inform ship owners, cargo owners and charterers.
- Continue first aid and keep a record of treatments provided onboard.
- Take radio medical advice if required (Telemedical Assistance Services - TMAS).
- In consultation with the local authorities, request for a paramedic rescue helicopter or boat.
- Send the ETA to the port that the vessel is deviated.
- Comply with flag state reporting requirements. In accordance with the Sri Lankan regulations, the master or the owner or the local agents need to inform the DGMS in case of a loss of life within 24 hrs of the incident.
- Report to P & I club.
- Prepare documents to sign off the person.
- Inform the next of kin of the injured person.
- Send the amended ETA to the port of destination, if any amendments are required.
- Inform the owners and the manning agents about the necessity of a reliever.
- If the minimum safe manning document is affected, inform the flag state (apply for a dispensation certificate), also take actions to arrange watch schedules and fill the vacancy onboard as soon as possible.
- Need to carry out an investigation into the incident and depending upon the SMS and the flag state regulations, inform the company and the flag state.
- Keep records of the following with regards to injury:
  - Time, date, place onboard and position of the vessel
  - Weather condition if required
  - Photo graphic evidences
  - Statements from witnesses
  - Condition of the injured person
  - Investigation report
- Take preventive measures not to occur similar incidents again.

2) Missing persons while on the passage

- Carry out an onboard search.
- Check the time and the position onboard where he was last seen.
- Check the missing person’s cabin to identify any causes for disappearance.

- Inform owners, cargo owners, charterers and P & I club.
- Transmit distress message with relevant details.
- Turn the vessel back and proceed to the position where the missing person was last seen and carryout out a search. Need to consider the below points when planning to turn back:
  - Temperature of the sea water (probable hypothermia).
  - Course at the time of the incident.
  - Changes in courses since the last time the man who disappeared was seen.
  - Force and direction of wind and currents.
  - Speed at the time of the incident.
  - Expected ships in vicinity: ships on same course, passing ships etc.
  - Navigation within a Traffic Separation Scheme

- The owners, cargo owners, charterers, P & I club and other involved parties to be informed after the completion of the operation with the results.
- After resuming the passage amended ETA to the port of destination.
- Carry out an investigation, collect statements of facts with regards to the behaviour of the missing person at the time of last seen.
- Make a sea protest.
- If the person could not be found or found dead (floating on water);
  - If found floating, recover him from water and confirm the death. Take actions to preserve the body.
  - Comply with the flag state reporting.
  - Take necessary actions to repatriate the body (if found) with the belongings and the final wages.
  - Inform the next of kin.
  - If the minimum safe manning document is affected, inform the flag state, also take actions to arrange watch schedules and fill the vacancy onboard as soon as possible.

3) <u>If the vessel is deserted by a crew member</u>

To avoid deserting the vessel, master shall ensure to keep CDCs, COCs, Passports and other documents of the seafarers which are at the master's custody in a safe place with him. If a seafarer has deserted the vessel:

- Check whether the passport, CDC, COC & other documents which were at the master's custody are missing.
- Check the cabin and look for signs of valuable missing items.
- If above mentioned docs, certificates and belongings are missing, a master may conclude that the seafarer has deserted the vessel. This may be confirmed with the statements from the fellow crew members.

- Inform the owners, P & I club, local agent and the relevant local authorities.
- Comply with the local regulations. The local immigration may fine the vessel or may require a letter of guarantee.
- Inform the next of kin.
- Prepare the final wages with the instructions from the owners and take necessary actions to air freight the personal belongings.
- If the minimum safe manning document is affected, inform the flag state (obtain dispensation certificate), also take actions to arrange watch schedules and fill the vacancy onboard as soon as possible.

If the documents, certificates and personal belongings of the seafarer concerned are not missing, probably the seafarer has not deserted the vessel, but could not come back before shore leave expires. In that case, inform the local agent, ship owner and take necessary actions to re-join him at the next port at the seafarer's cost. If the minimum safe manning document is affected, inform the flag state, also take actions to arrange watch schedules.

4) <u>If stowaways are found while at sea</u>

- Carryout a full search onboard to check the total number of the stowaways onboard.
- Collect all the identification documents if available. If the identification documents are available, the repatriation would be easy.
- Take photographs and fingerprints of both hands.
- Collect all the information with regards to them such as port of embarking, names, photographs, addresses at the port of embarking, name/address of next of kin, medical condition etc.
- Check the personal belongings of them and check the places that they have been staying and visiting onboard the vessel to identify whether they have, or they have kept any illegal items. If smuggling of drugs or other illegal material is suspected, inform the all the parties concerned immediately including the authorities at the port of arrival.
- Report to owners, charterers and P & I club.
- If the boarding country is still close to the vessel (if the stowaways is found within 24 hrs after departure), with the owners / charter's consultation proceed back to the port of boarding to disembark the person. This would be the easiest method to disembark stowaways.
- If the vessel is engaged in a liner trade, stowaway may be discharged at next call to the port of embarkation.
- Arrange a cabin for him to stay until he is repatriated. Ensure no materials available inside the cabin which he may harm himself. It is advisable to keep the cabin locked. Remember not to violate his human rights. Keep a life jacket standing by outside the cabin and provide instructions about wearing life jacket. Provide instructions with regards to fire fighting and abandoning ship duties.
- Do not include his name in the crew list but, need to include in the muster list.

- Provide him with sufficient water, meals etc.
- Make sure he cannot run away, or he can not harm himself while onboard.
- Need to inform all the ports of arrivals about the presence of a stowaway onboard.
- Depending upon the charter party (if the vessel is chartered) expenses incurred with regards to the stowaway may have to be borne by the charterer or the ship owner. Therefore, keep a record of all the expenses incurred.
- Check the purpose of the running away from their own country (refugees, asylum seeker – refer below) and take appropriate actions.
- A master may use a stowaway for onboard duties such as chipping, painting, cleaning etc, as the food and water is provided by the vessel. But this is not advisable, since, if the stowaway is injured during work, he may declare that he was harassed by the ship staff. On the other hand, he may jump overboard or run away from a port, which may create additional problems.

5) <u>If refugees are rescued or found onboard</u>

- Inform the owners, P & I club and charterers.
- Inform the agent at the port of arrival and ask him to inform port authority, UNHCR (United Nations High Commissioner for Refugees), Embassy of the flag state and Immigration.
- Take full details of the persons such as number of children, number of males, number of females, their medical condition, names, nationality, collect the identity documents that they have, reasons for refuge etc.
- If they were recovered from a vessel in distress, record the name of the vessel, call sign, IMO number, port of registry, name of the master, name of the owners, address of the owners, last port & next port etc.
- Keep a full record of expenses incurred because the ship owner can recover following expenses from UNHCR;
  - Expenses incurred during rescue operations
    - Fuel expenses
    - Communication expenses
    - Loss of hire due to deviation
  - Daily expenses such as for food and water
  - Additional port/agency charges if incurred

- Ensure the vessel has sufficient food, water and medical facilities for crew as well as refugees. Some countries may not accept refugees. Therefore, you are required keep an idea about the daily consumptions and have sufficient reserves onboard.

6) If asylum seekers are rescued or found onboard

- Take full details of the persons such as medical condition, names, nationality, collect the identity documents that they have, reasons for seeking asylum etc.
- Inform owners, charterers and P & I club.
- Inform the agent at the port of arrival and ask him to inform port authority, UNHCR (United Nations High Commissioner for Refugees), Embassy of the flag state and Immigration.
- Do not ask for disembarkation in the country of origin or from which the individual has fled.
- Do not share personal information regarding the asylum-seekers with the authorities of that country, or with others who might convey this information to those authorities.
- Same as in the case of refugees, the expenses incurred due to above mentioned reasons can be recovered, therefore, keep records of expenses incurred.

7) In case of a collision

- Stop the engines depending upon the weather condition and present situation.
- Save data in the VDR.
- Refer the vessel's emergency manual.
- Immediately check the condition of the people onboard, vessel and cargo.
- Refer the damage control plan and see whether further flooding can be controlled or stopped.
- Refer the damage stability book and check the condition of the vessel.
- If external oil pollution exists, take REASONABLE preventive measures and control measures. But the priority shall be given to the points noted above. Because MARPOL regulations does not apply in case of pollutions occurred due to accidents provided reasonable precautions were taken.
- Check whether assistance is required from the other vessel & inform accordingly.
- In accordance with the Regulation 202, paragraph (1) of the Act 52 of 1971, after a collision between two vessels, without endangering his own ship or crew or passengers, each master is required to:
  - give assistance to the other vessel, her crew and passengers;
  - stand by, by the other vessel till such assistance is not required;
  - exchange the following information:
    - names of the vessels;
    - ports of registries;
    - names of the last departed ports; and
    - names of the next ports.

- Ask whether they need assistance.
- Inform the owners and P & I club with the following details:
  - Name of the vessel.

- Date, time and the position of the incident.
- Extent of the damage to cargo, vessel, people onboard & marine environment.

- Consider necessity of calling for salvage.
- Consider of sending a distress message. If the own vessel is sinking, the other vessel may rescue the people on the own vessel provided she is not sinking.
- Inform the coastal state and flag state.
- If there is a possibility of sinking, do not hesitate to abandon the vessel as the utmost priority is to be given to lives onboard.
- A vessel may be beached to avoid sinking provided the weather condition is good and the sea bottom is not rocky (This is especially important for laden tankers. If the tanker is laden, the pollution will be extensive if beached in bad weather. Same thing may happen if a laden tanker is beached on rocks as well).
- Accordingly, keep the charterers and the agents at the port of arrival updated.
- Carryout a breadth alcohol test of the OOW and the lookout at the time of the collision.
- Carryout an investigation into the collision and record the statements of facts.
- Do not erase the records on charts which lead into the collision.
- Ensure the below records are preserved for further investigations:
  - Deck logbook
  - Engine logbook
  - Bell book
  - Printouts of the engine movement recorder
  - Course recorder

- If the course recorder does not indicate the date and time, mark the position, date and the time of the collision on it.
- Once the vessel is brought to a place of safety, many parties may come onboard for various purposes. With the consultation of the local agent, local P & I club agent and owners, decide whether to let them come onboard and whether to answer their questions. All the officers and the crew shall be advised not to provide any information to any third party without the master's permission.
- Never accept liability.
- Master's full cooperation is required for the investigations carried out by:
  - Vessel's flag state;
  - Vessel's class surveyors;
  - Lawyers on behalf of the owners; and
  - P & I agent.

- Interviews or investigations by parties other than mentioned above shall be avoided; access to ship or ship's record shall be restricted unless authorized by the ship's owners.
- Read carefully before signing any documents produced by other parties.

8) In case of grounding

- Stop engine immediately.
- Save the data in the VDR.
- Refer the ship's emergency procedures manual.
- Carryout a damage assessment of the people onboard, vessel and cargo.
- Refer the damage control plan and see whether further flooding can be controlled or stopped.
- Refer the damage stability book and check the condition of the vessel.
- If external oil pollution exists, take REASONABLE preventive measures and control measures. But the priority shall be given to the points noted above. Because MARPOL regulations does not apply in case of pollutions occurred due to accidents provided reasonable precautions are taken.
- Check the viability of re-floating by using engines or by trimming or by listing or by ballasting provided no hull damage.
- Consider of abandoning the ship if the weather condition is deteriorating or if the vessel is a loaded tanker and the sea bottom consists of rocks.
- Consider of calling for salvage.
- Consider the necessity of sending a distress message.
- Inform the owners and P & I club.
- Inform the flag state and coastal state.
- Accordingly keep the charterers and the agents at the port of arrival updated.
- Carryout a breadth alcohol test of the OOW and the lookout at the time of the grounding.
- Carryout an investigation into the grounding and record the statements of facts.
- Do not erase the records on charts which lead into the grounding.
- Ensure the below records are preserved for further investigations:
  - Deck logbook;
  - Engine logbook;
  - Bell book;
  - Printouts of the engine movement recorder;
  - Course recorder; and
  - Records of echo sounder.

- If the course recorder does not indicate the date and time, mark the position of the grounding on it.
- If the echo sounder does not indicate the date and time, mark the position of the grounding on it.
- Once the vessel is brought to a place of safety, many parties may come onboard for various purposes. With the consultation of the local agent, local P & I club agent and owners, decide whether to let them come onboard and whether to answer their questions. All the officers and the crew shall be advised not to provide any information to any third party without the master's permission.

- Never accept liability especially for pollution if occurred.
- Master's full cooperation is required for the investigations carried out by:
  - Vessel's flag state;
  - Vessel's class surveyors;
  - Lawyers on behalf of the owners; and
  - P & I agent

- Interviews or investigations by parties other than mentioned above shall be avoided; access to ship or ship's record shall be restricted unless authorized by the ship's owners.
- Read carefully before signing any documents produced by other parties.

9) <u>In case of a pollution</u>

- Try to contain the pollution onboard. If it is already overboard, try to contain it in a limited area.
- Immediately deploy SOPEP or SMPEP.
- If pollution is extended to overboard;
  - Report to local authorities:
    - In US waters – take actions in accordance with the Vessel Response Plan (VRP) and inform "qualified individual"
    - In Chinese waters – inform Ship Pollution Response Organization (SPRO)
  - Inform owners, P& I club and flag state.
  - If possible, try to quantify the amount of the pollution
- Take fire precautions.
- Put the air condition on recirculation mode to avoid ingress of flammable gasses into the accommodation.
- Keep a record of all the actions and events.
- Carryout an investigation and record statements of facts.
- Many parties may come onboard for various purposes. With the consultation of the local agent, local P & I club agent and owners, decide whether to let them come onboard and whether to answer their questions. All the officers and the crew shall be advised not to provide any information to any third party without the master's permission.
- Never accept liability.
- Master's full cooperation is required for the investigations carried out by:
  - Vessel's flag state;
  - Lawyers on behalf of the owners; and
  - P & I agent.

- Interviews or investigations by parties other than mentioned above shall be avoided; access to ship or ship's record shall be restricted unless authorized by the ship's owners.
- Read carefully before signing any documents produced by other parties.

NOTE with regards to oil pollution

MARPOL Annex I may not be applicable if the oil pollution is caused:

- for the purpose of securing the safety of a ship or saving life at sea
- due to damage to a ship or its equipment provided that:
  - all reasonable precautions were taken after the occurrence for the purpose of preventing or minimizing the discharge; or
  - the owner or master did not act either with the intent to cause damage, or recklessly; or
  - approved oily material is discharged to combat specific pollution incidents to minimize the damage from pollution.

A master may exempt from his criminal liability in accordance with the above regulations under MARPOL, but, in accordance with the International Convention on Civil Liability for **Oil Pollution** Damage (CLC) and the International Convention on Civil Liability for **Bunker Oil Pollution** Damage, ship owner will be liable for the damage caused by the pollution.

The ship owner may also escape from his liability for the damage caused by the oil pollution under both the International Convention on Civil Liability for **Oil Pollution** Damage and the International Convention on Civil Liability for **Bunker Oil Pollution** Damage, if the ship owner manages to prove that:

- the damage resulted from an act of war, hostilities, civil war, insurrection or a natural phenomenon of an exceptional, inevitable and irresistible character, or
- damage was wholly caused intentionally by a third party, or
- damage was wholly caused by negligence of public authorities in maintaining navigational aids.

Therefore, if the master can collect evidences which could be similar to the above exemptions, the master himself and the ship owner both will be able escape from their criminal and financial liabilities. But this depend upon the local regulations.

10) <u>Actions to be taken in case of a propulsion failure</u>

Most of the initial actions are required to be taken by the duty officer until the master arrives at the bridge if it happens with his absence on the bridge. The initial actions must be taken immediately without any delay.

- Use vessel's initial momentum to bring the vessel to a safer area.
- Put the bridge telegraph to stop.
- Engage hand steering.
- Transmit a SECURITE message.
- Display NUC signals.
- Update AIS status.

- Start recording events.
- When the vessel has completely lost steerage, bow thrusters may be used to keep the vessel facing the wind, current or waves to avoid severe rolling.

If in coastal areas:

- Call for anchor party and prepare for emergency anchoring.
- Consider of anchoring until the repairs are completed.
- When the vessel has completely lost steerage, bow thrusters may be used to keep the vessel facing the wind, current or waves to reduce drift.
- Consider of calling for salvage depending upon the circumstances (example - if there is danger of running aground in bad weather) or arranging a towage with the aid of the ship owner (if the danger is not imminent).

11) Actions to take when the anchor is dragging

- Call for anchor party, make ready the engines (in fact, if weather deterioration was expected, a prudent master shall consider of keeping the engines standby), inform close by ships/port authority and hoist the 'Y' flag.
- Switch on the bow thrusters. This may not be required while the vessel is at anchor but will be useful when the vessel is underway.
- If it is possible, dragging may be able to control by lowering few more shackles. But this should be done with the aid of head movements on the engines.
- If the collision threat is imminent, can try using the rudder to change the direction of the drag. But, this may not be useful in extreme weather conditions.
- If the collision or grounding is imminent, can try the second anchor under foot.
- May have to consider of re-anchoring. In such cases, some port regulations may require having a pilot onboard. Sometimes, it may take some time for the pilots to arrive. In that case, the safety of the vessel is very important and therefore, the master can use his overriding authority with regards to the safety of the vessel, cargo, ship and the marine environment.
- If the weather condition is further deteriorating, need to think of heaving up the cable and proceeding into high seas.
- If the danger is imminent and no actions taken onboard are sufficient enough, send distress message and call for salvage. If the time does not permit for salvage, consider of abandoning the vessel.

12) Actions to be taken in case of a steering gear failure

Most of the initial actions are required to be taken by the duty officer until the master arrives at the bridge if it happens with his absence on the bridge. The initial actions must be taken immediately

without any delay. First, call for emergency steering, inform engine room and until the emergency steering party is ready:

- Use steering failure check list.
- Change over to manual steering if the vessel is in auto pilot.
- Try with the second steering pump.
- If that is also not working, try non-follow up mode.
- If that is also not working, the only option available is to steer the vessel from the steering gear room.
- Display NUC signals.
- Send a SECURITE message and update the vessel's around.
- All the events to be recorded.
- Up-date AIS status.
- If there is imminent danger (as an example if the vessel is experiencing bad weather) consider of sending a distress message or call for salvage.
- Consider of diverting the vessel for a port of refuge if it is not possible to repair by own staff.

If in coastal waters:

- Prepare engine for stopping.
- Call for anchor party and prepare anchors for emergency anchoring. Remember, there is no point of letting go an anchor with high speeds to avoid grounding as the cable will be parted.
- Reduce the speed to minimum steerage speed.
- May use bow thrusters to steer the vessel at reduced speeds until the emergency steering party is ready.
- Consider of anchoring until the matter is rectified.
- Consider of calling for towage or salvage depending upon the danger (if the vessel is drifting towards shallow areas with bad weather, better to send a DISTRESS message and call for salvage)

13) Once a distress message is received

SOLAS Chapter V, Regulation 33 states:

a) *The master of a ship at sea which is in a position to be able to provide assistance on receiving information from any source that persons are in distress at sea, is bound to proceed with all speed to their assistance, if possible informing them or the search and rescue service that the ship is doing so. If the ship receiving the distress alert is unable or, in the special circumstances of the case, considers it unreasonable or unnecessary to proceed to their assistance, the master must enter in the log-book the reason for failing to proceed to the assistance of the persons in distress, taking into account the recommendation of the Organization, to inform the appropriate search and rescue service accordingly.*

b) Masters of ships shall be released from the obligation imposed by paragraph (a) above on learning that their ships have not been requisitioned and that one or more other ships have been requisitioned and are complying with the requisition. This decision shall, if possible be communicated to the other requisitioned ships and to the search and rescue service.

c) The master of a ship shall be released from the obligation imposed by paragraph (a) and, if his ship has been requisitioned, from the obligation imposed by paragraph (b) on being informed by the persons in distress or by the search and rescue service or by the master of another ship which has reached such persons that assistance is no longer necessary.

d) Masters of ships who have embarked persons in distress at sea shall treat them with humanity, within the capabilities and limitations of the ship.

14) When another vessel is in distress[19]

Ship masters are obliged to render services without putting the own vessel in danger to distress vessels and distress people while at sea. Initially, this was a customary practice at sea and now it is made mandatory by;

- International Convention on Maritime Search and Rescue.
- Regulation V/33 of SOLAS 1974.

Actions to be taken when a distress message is received

- Acknowledge the receipt.
- Collect information from the distress vessel. Such information may include;
  - Her position.
  - Identity, call sign and name.
  - Number of persons onboard.
  - Nature of distress or casualty.
  - Type of assistance required.
  - Her Course & speed.
  - Type of the vessel and cargo onboard.
  - Other information which are required for search and rescue operations.

- Carryout a risk assessment and decide whether it is safe for you to proceed for the assistance. Following points may be important in deciding whether to proceed or not:
  - Availability of bunkers.
  - Distance to the distress vessel from the own vessel.
  - Prevailing weather condition.
  - Distance to the distress vessel from land.

[19] Refer IAMSAR Manual, Volume III for detailed information

- Whether the distress scene is an area where the shipping traffic is too low.
- Whether you have any seriously injured people already onboard and proceeding for MEDEVAC.
- Whether your own vessel is proceeding for a port of refuge.

- Following information to be transmitted to the distressed vessel if you decide to proceed for assistance:
  - Own vessel's identity, call sign and name;
  - Own vessel's position;
  - ETA to the distress vessel; and
  - Distressed craft's true bearing and distance from ship.

- Inform your own ship owners, charterers and Rescue coordinating centre (RCC) or Coast Radio Station (CRS).
- Maintain continuous listening watch on;
  - 2182 KHz (radiotelephony);
  - 156.8 MHz FM (channel 16, radiotelephony); and
  - 121.5 MHz AM (radiotelephony) – air craft distress signal.

- Always keep updating yourself about the latest condition of the distressed vessel.
- Update RCC or CRS.
- By using all available means (radar, manual plots, AIS etc.) try to identify the position of the distressed vessel.
- When coming closer to the scene;
  - Post extra lookouts when the vessel is close by.
  - Establish communications with the other vessels heading to the scene and estimate their ETAs
  - Monitor the other vessels around
  - Carryout a risk assessment again before stating the operation

Appointing of an on-scene coordinator (OSC)

When there are two or more search & rescue (SAR) facilities are engage in a SAR operation, one facility will be appointed as OSC by the search & rescue mission coordinator (SMC). The first facility who come to the scene will normally take the responsibility of the OSC, until SMC delegates the duties to another facility.

If it is practicable, appointing of an OSC should be done before arrival at the scene. If it is not practicable to appoint an OSC by SMC, OSC to be appointed by mutual agreements between the SAR facilities engaged in the operation.

Duties of OSC

- On-scene coordination of all the SAR facilities.
- Usually, search and rescue action plan is developed by SMC. The OSC has to carry out the plan. If such plan is not received, OSC must plan the search and rescue action plan.
- Depending upon the circumstances the search and rescue action plan may be modified by the OSC if it is necessary, but keep the SMC informed.
- On-scene commination to be coordinated.
- Monitor and provide necessary information to other SAR units.
- Ensure the operation is conducted safely.
- Periodic situation reports (SITREPS) to be made to SMC. Refer the IAMSAR Manual for SITREP format.
- Make sure to keep a record of operations. The records may include;
  - Arrival/departure times of the SAR facilities to the scene.
  - Search patterns used with the times.
  - Areas searched.
  - Track spacing used
  - Reports made by other SAR units engaged.
  - Actions taken, and results obtained.

- Advice SMC to release SAR units, if not require any more.
- Number and names of survivors onboard each SAR facility to be recorded by OSC and report to SMC.
- Request addition assistance from SMC if required. Example – if further SAR units are required or medical evacuation of seriously injured survivors are required, or any other medical facilities are required etc.

Handling of deceased persons

Normally, searching or recovering of dead bodies are not a part of SAR operations. If possible, without putting the rescuers in danger, an attempt may be made to identify the bodies. Any articles removed or found near by a body to be collected separately and deliver to a proper authority. Remember, collecting of articles is not compulsory.

May have to handle human remains at the request of SMC. At the same time, human remains at an aircraft crash site should not be disturbed or removed without authorization except for compelling reasons.

Onboard preparations while proceeding to the scene

- Keep IAMSAR Manual Volume III and International Code of Signals standby.

- Comply with the company check lists with regards to proceeding to assist distress vessels/people.
- Rig a GUEST WARP secured with the LIZARD LINES from bow to quarter on both sides of the vessel at the water line. (to made fast the boats and rafts alongside)
- First aid party to be prepared with all equipment such as medical supplies, medicines, extra clothing, stretcher, blankets, food etc.
- Rescue boat and rafts to be prepared for immediate use.
- Rig portable ladders, scramble nets from the lowest point of the deck up to the water level.
- Line throwing apparatus, life buoys, life jackets, pilot ladder, heaving lines, messenger lines etc. to be kept ready for immediate use.
- Signalling and communication equipment such as Aldi's lamp, loud hailers, megaphones, torches, VHF sets etc. to be kept ready.
- Post extra lookout when approaching to the area.
- Pass all available information to the RCC and update the information as necessary.
- During dark hours, arrange searchlights and extra illumination.
- Prepare cranes derrick for taking survivors onboard.
- A davit launch life raft or lifeboat can be used as a boarding station.
- Follow the guidelines provided in the own ship's 'Plans and procedures for recovery of persons from the water'.

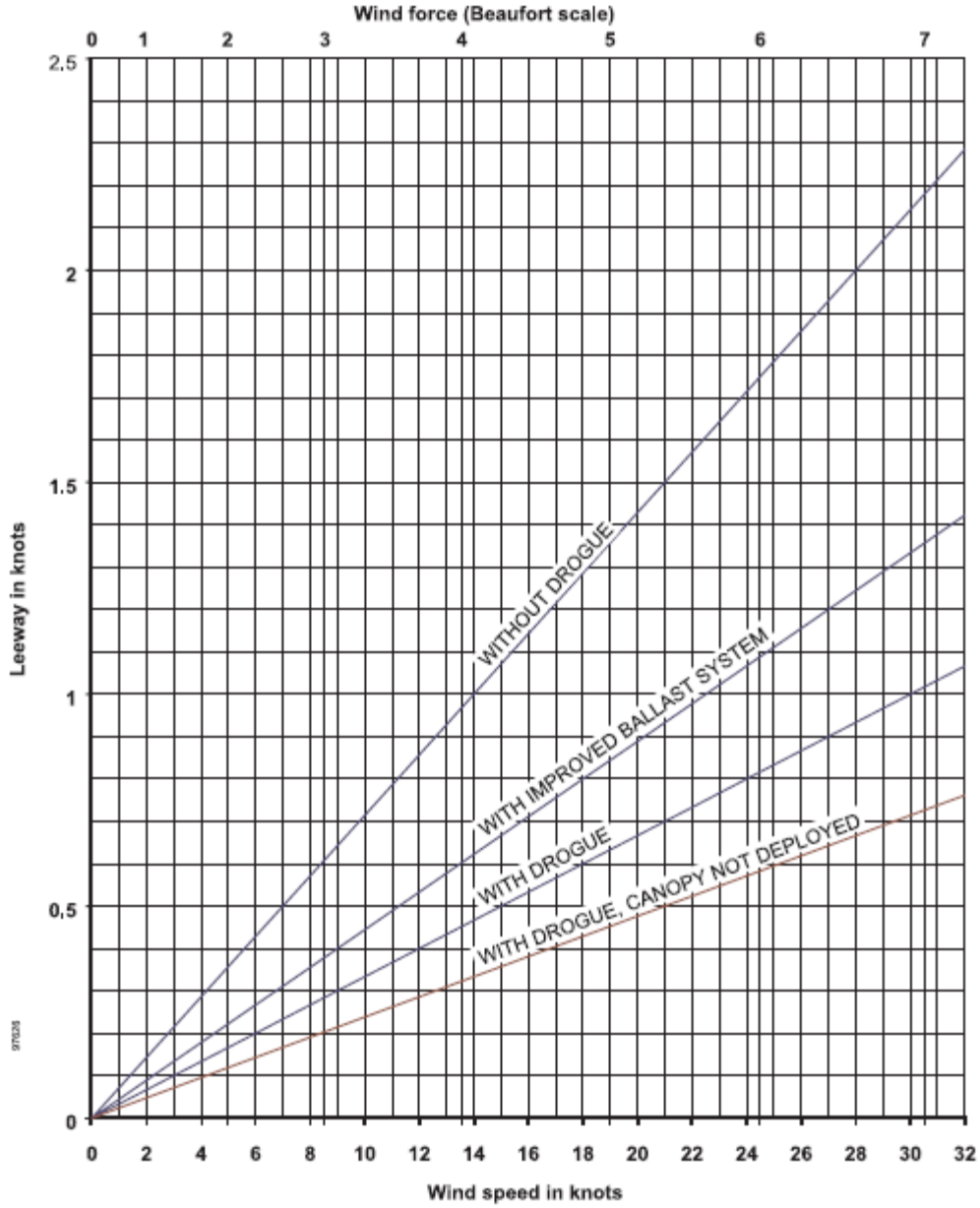
Datum[20]

If the distress vessel is in touch through the VHF or any other means of communication, identifying her position may not be that difficult. But, if the distress vessel is not in touch, identifying of a position may be difficult. In that case, a search pattern is required to be decided and to start the search, a datum is required. A geographic point, line, or area used as a reference in search planning is known as 'Datum'. Following factors to be considered when establishing a datum.

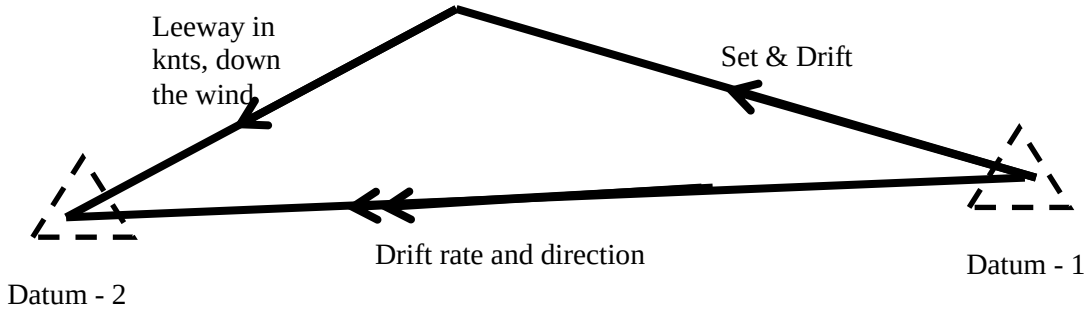
- The reported position and time of the SAR incident.
- Other information such as SART bearings or sightings.
- Time interval between the incident and the arrival of SAR facilities. The datum position for the search is found as follows:
  - drift has two components: leeway and total water current
  - leeway direction is downwind
  - leeway speed depends on wind speed
  - the observed wind speed when approaching the scene may be used for estimating leeway speed
  - Persons in the water have no leeway but have the effects of current.
  - Calculate the set & drift at the scene.

[20] IAMSAR Manual, Volume III

- Drift distance is the drift speed multiplied by the time interval between the incident time, or time of the last computed datum, and the commence search time
- Apply the wind speed from the bottom or the wind force from the top & take the leeway (knts) for various conditions of the life raft.



- In the below diagram, Datum – 1 is the last known position. The below triangle shall be made on the applicable chart for the time interval between the incident time, or time of the last computed datum, and the commence search time. First, from the datum – 1 apply the set and drift and then apply the leeway to calculate the Datum – 2 (the estimated position of the life raft). Then use the Datum – 2 as the datum to start the search.



Search patterns[21]

First of all, need to decide the search radius (R). The search radius to be calculated by one of the following methods:

- If the search must commence immediately, assume R = 10 NM
- If time is available for computation:
  - compute the search area (A) a craft can cover in a certain amount of time (T) by the formula:
    A = S x V x T

    Where:
    S = track spacing
    V = search speed

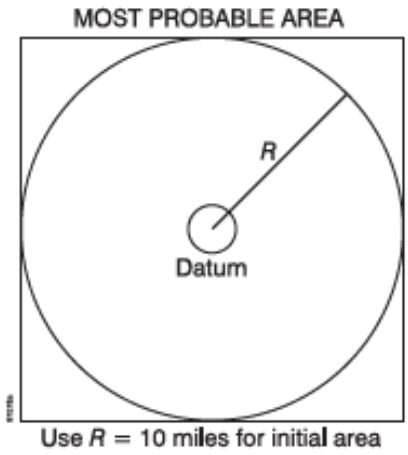
    $$R = \frac{\sqrt{A_t}}{2}$$

(Note : Above formula is to be used when the search is to be carried out with one vessel. Refer the IAMSAR Volume III to study how to calculate the R in the case of more than one vessel is engage in the search.)

Now need to plot the search area on the chart appropriate:

- draw a circle centred on datum with radius R.
- using tangents to the circle, form a square as shown below
- if several facilities will be searching at the same time, divide the square into sub-areas of the appropriate size and assign search facilities accordingly.

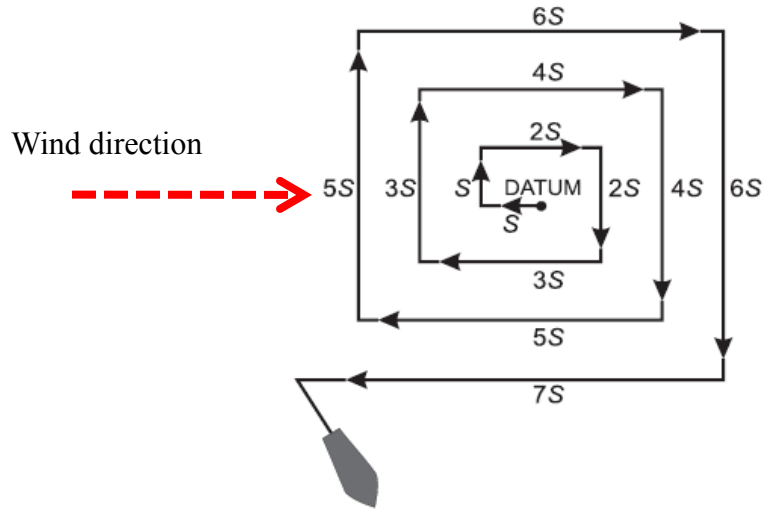
[21] IAMSAR Manual Volume III



Now need to consider of the search pattern that is to be used. Following are the factors to be considered in deciding what type of search pattern to use:

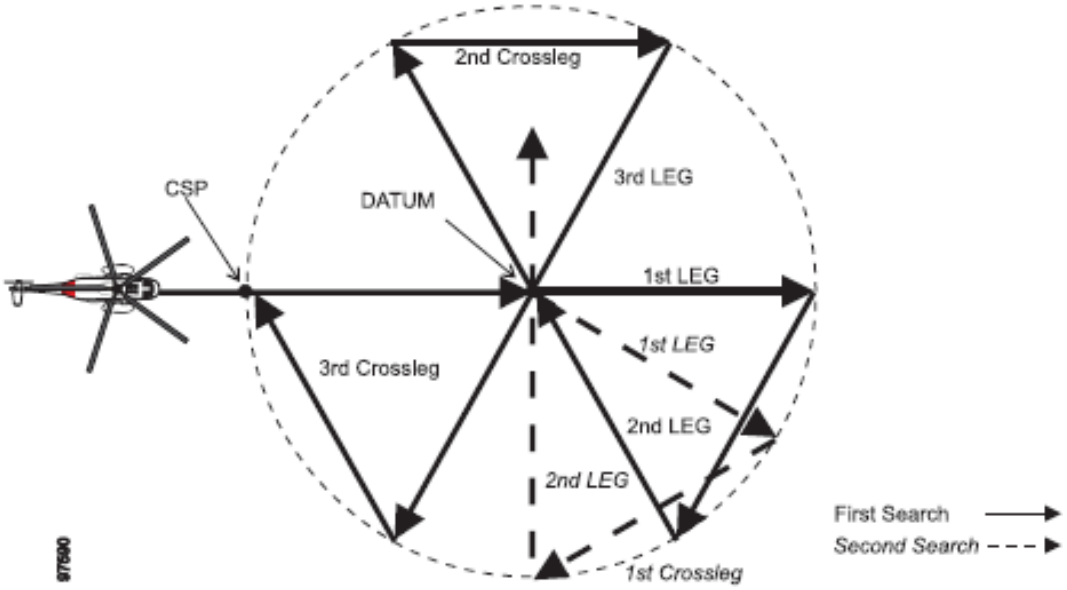
- available number and types of assisting craft
- size of area to be searched
- type of distressed craft
- size of distressed craft
- meteorological visibility
- cloud ceiling
- type of sea conditions
- time of day
- arrival time at datum.

Expanding Square Search



- Advisable for vessels, especially when searching for a person in the water with expanding square search, to use dead reckoning (DR) navigation.
- Effective when the location is known or relatively close.
- Suitable when searching for persons without or little leeway.
- Can be done by a single vessel.
- Start the search from datum.
- 1st leg should be directly into the wind to minimize navigational errors.

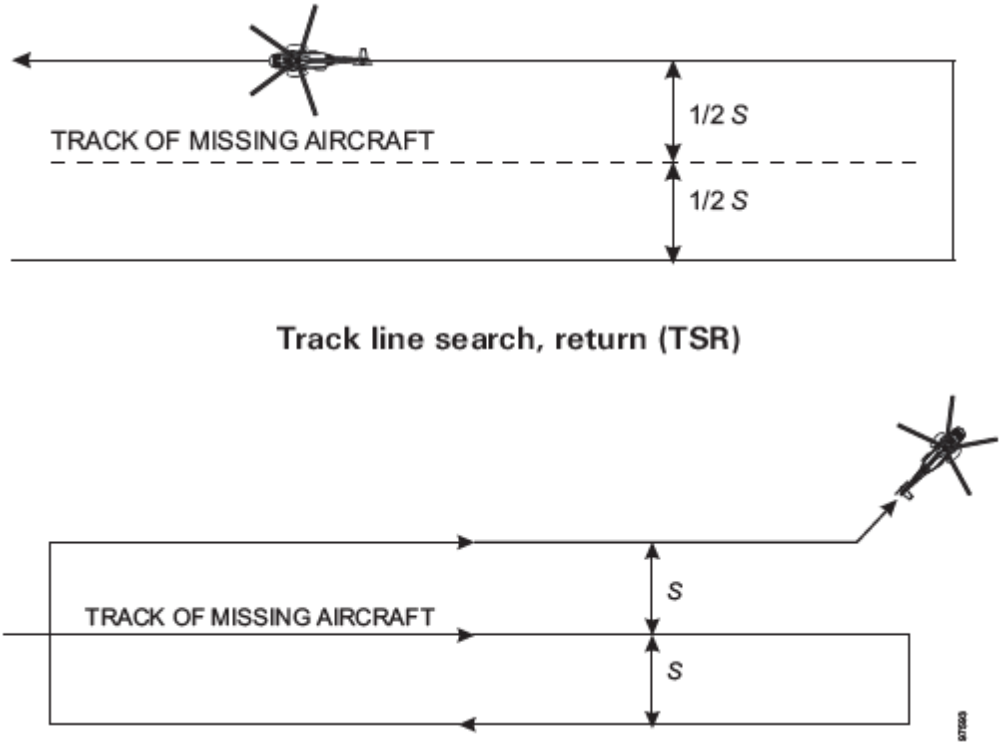
Sector search



- Advisable for vessels, especially when searching for a person in the water with sector search, to use dead reckoning (DR) navigation.
- Most effective when the position of the search object is accurately known, and the search area is small.
- Used to search a circular area centred on a datum point.
- A suitable marker (for example, a smoke float or a radio beacon) may be dropped at the datum position
- For vessels, the search pattern radius is usually between 2 NM and 5 NM, and each turn is 120^0, normally turned to starboard.
- After completion of 1st search turn by 30° at the datum to stbd and start the second search

Track line search

There are two types of track line searches as illustrated below:

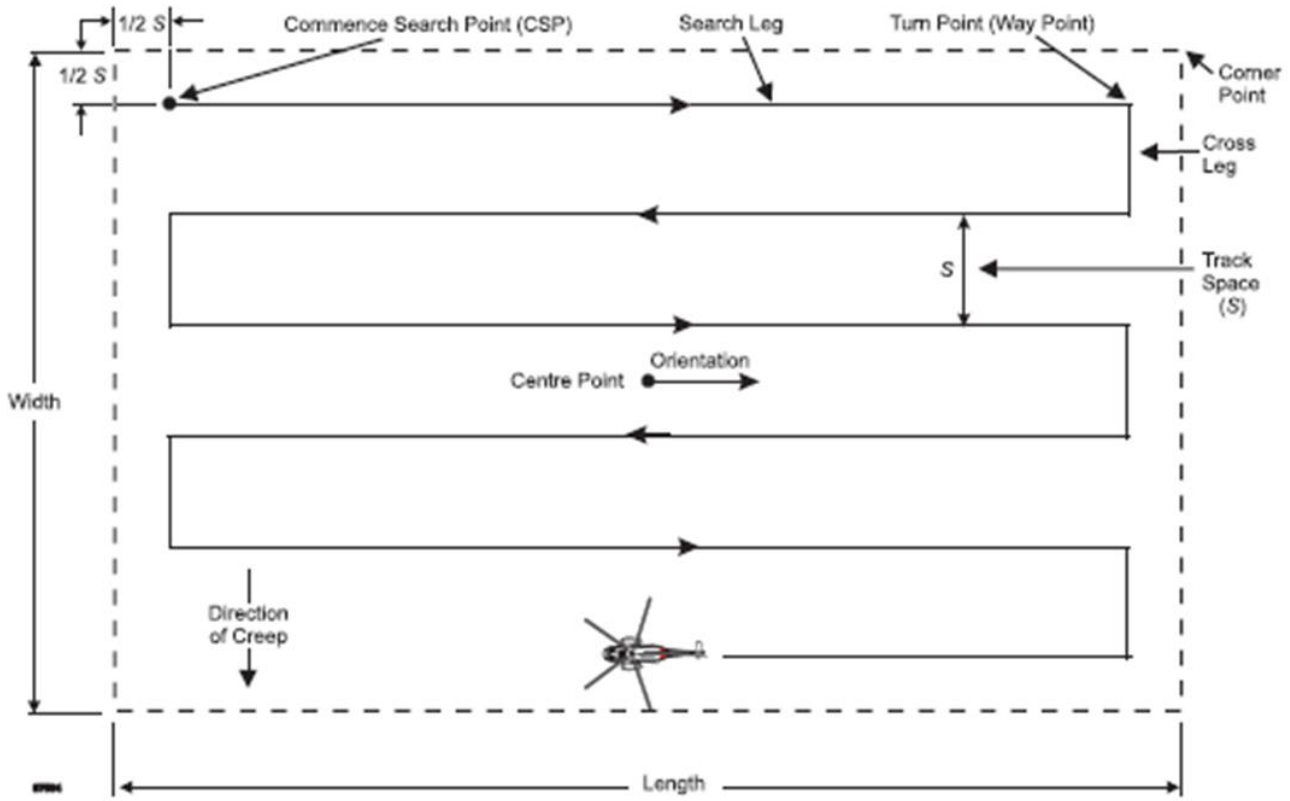


Track line search, return (TSR)

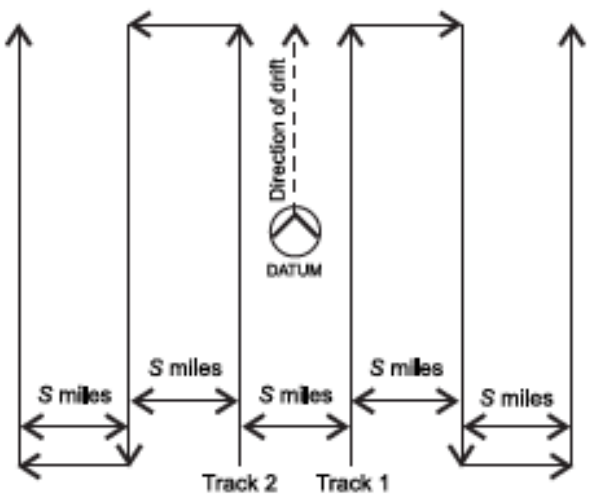
- Normally used when an aircraft or vessel has disappeared without a trace along a known route.
- Often used as initial search effort due to ease of planning and implementation.
- Consists of a rapid and reasonably thorough search along intended route of the distressed craft.
- Aircraft are frequently used for TS due to their high speed.

Parallel Track Search

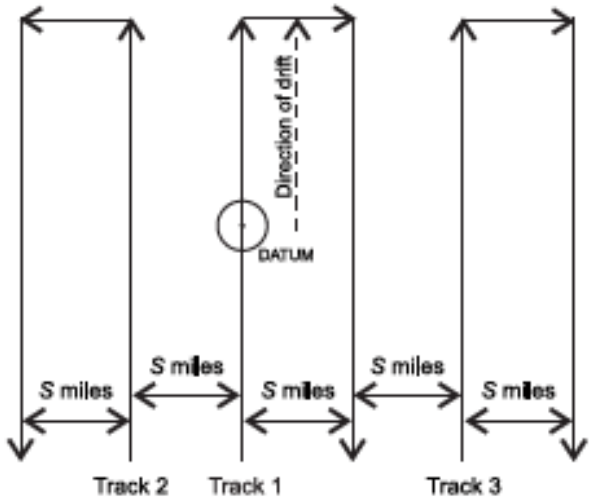
- This can be carried out by one vessel or multiple vessels as shown below.
- Used to search a large area when survivor location is uncertain.
- Usually used when a large area to be searched with the aid of multiple vessels.
- The commence search point is in one corner of the sub-area, one-half track space inside the rectangle from each of the two sides forming the corner.
- Search legs are parallel to each other and to the long sides of the subarea.



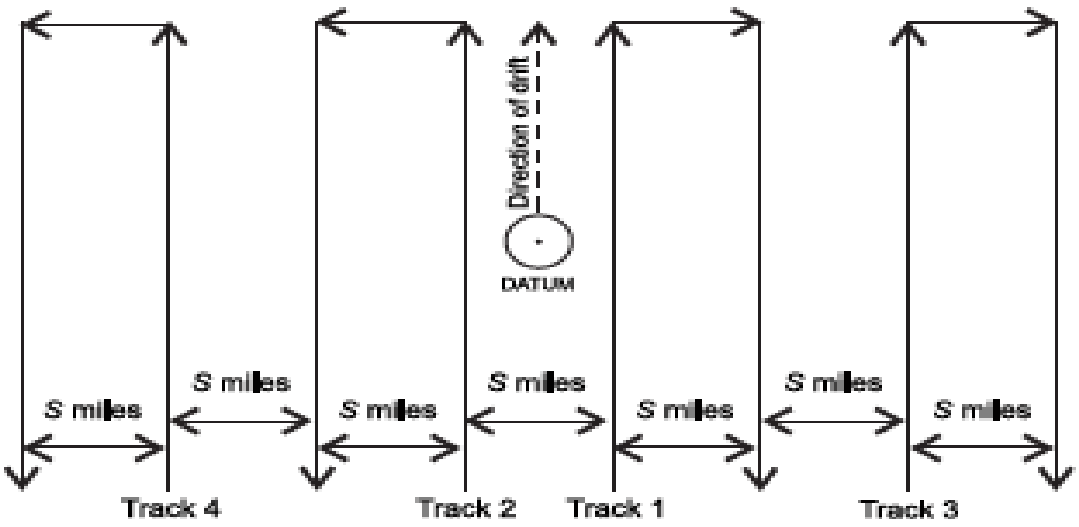
Parallel Track Search – one vessel



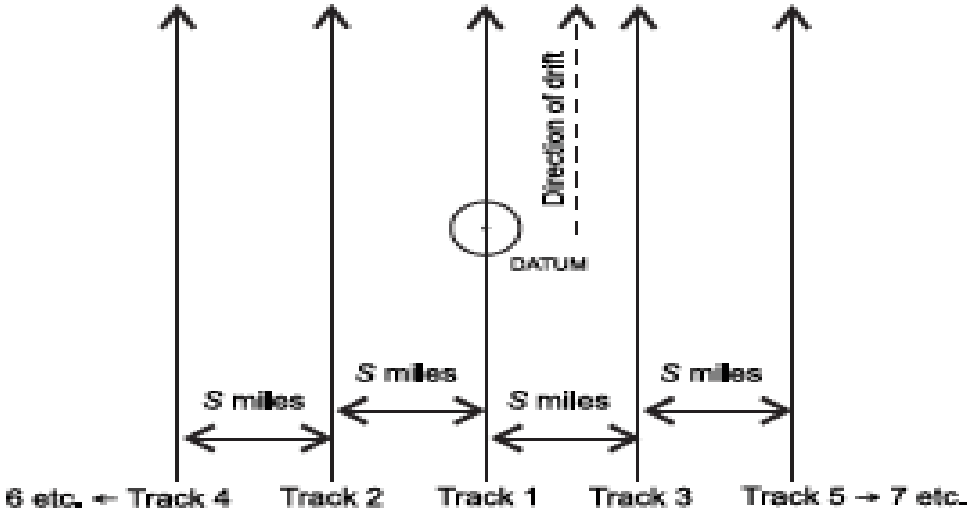
PATTERN 2
Parallel track search – 2 ships



PATTERN 3
Parallel track search – 3 ships

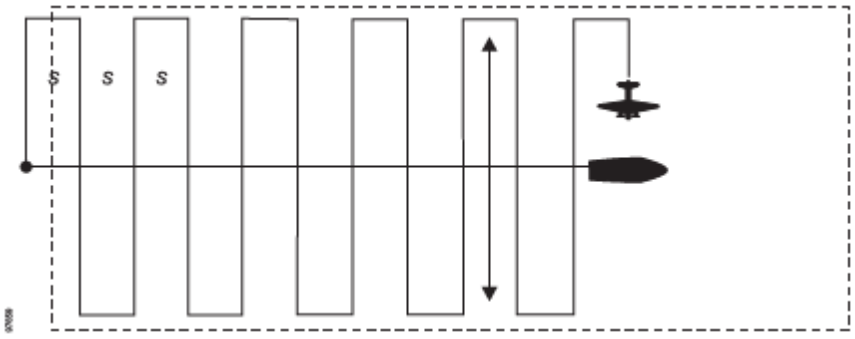


PATTERN 4
Parallel track search – 4 ships



PATTERN 5
Parallel track search – 5 or more ships

Creeping line search, co-ordinated (CSC)



- Normally used only if there is an OSC present to give direction to and provide communications with the participating craft.
- This is a very commonly used search pattern.
- The aircraft does most of the searching, while the ship steams along a course at a speed as directed by the OSC so that the aircraft can use it as a navigational checkpoint.
- The aircraft, as it passes over the ship, can easily make corrections to stay on the track of its search pattern.
- Ship speed varies according to the speed of the aircraft and the size of the search area.

Initiation of the search

- If one vessel arrives in advance of the others, commence an expanding square search
- The datum may be marked by a liferaft or other floating marker with a leeway similar to the distressed vessel.
- As other vessels arrive, the OSC should select one of the search patterns.
- In good visibility and with sufficient search facilities, the OSC may let the first facility continue its expanding square search while the others conduct a parallel track search.
- In restricted visibility, or if sufficient vessels are not available to conduct the search, it will be better to stop the expanding square search initiated by the first vessel arrived on-scene and start a parallel track search with other vessels.

In restricted visibility

- A parallel track search may cause problems due to:
  - desirability of reducing the interval between SAR facilities as much as possible consistent with safety
  - resulting loss of search area coverage
  - potential risk of collision.

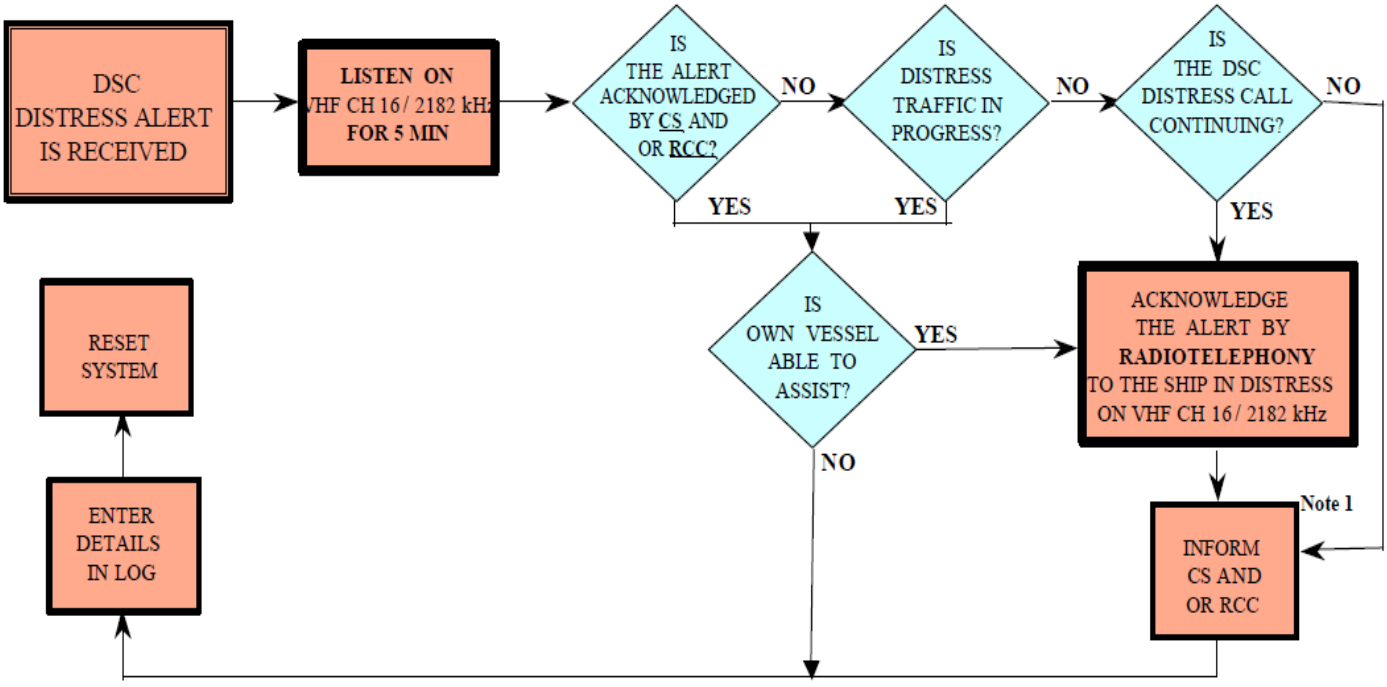
- Reduction of the speed would be necessary.
- Following to be considered before initiating a search pattern in restricted visibility:
  - Searches will take long time due to reduction of speeds.
  - To carry out a good search, the track spacing need to be reduced.
  - If the track spacing is reduced, need to increase the number of tracks.

- May have to reduce the search area considering the direction and the rate of estimated drift.

15) Once a distress alert is received

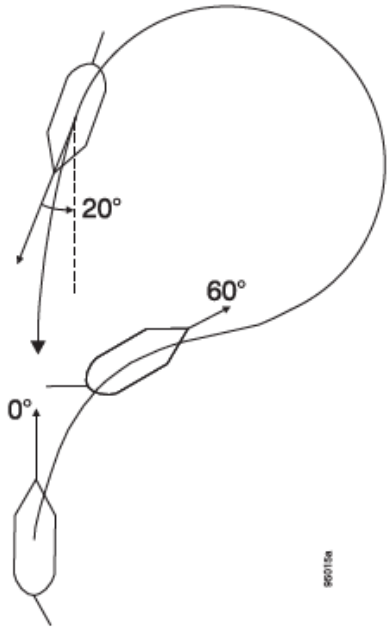
FLOW DIAGRAM 1

ACTIONS BY SHIPS UPON RECEPTION OF **VHF / MF** DSC DISTRESS ALERT



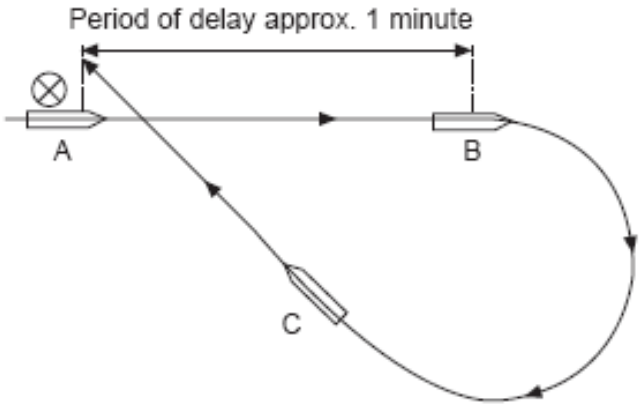
16) Turning a vessel in case of a MOB[22]

Williamson turn



- Wheel hard over to MOB side.
- After deviating about 60° from the original course, put the rudder hard over to opposite direction.
- When heading is about 20^0 short of the reciprocal course, rudder to midship position and steady her when she is on the reciprocal course.
- This is a good operation in restricted visibility.

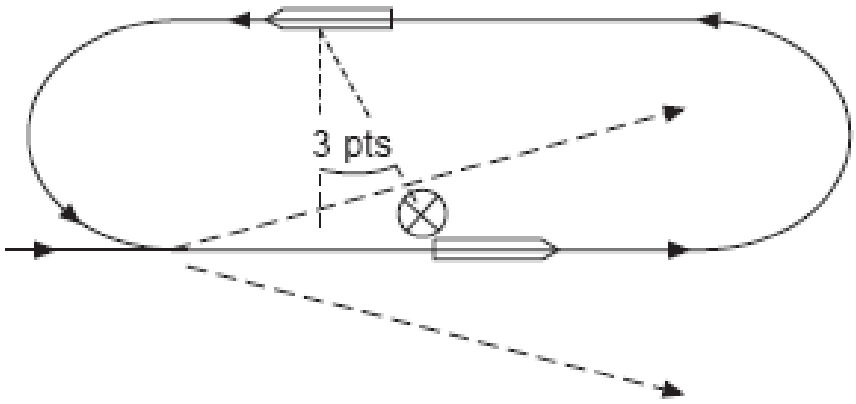
Delayed turn



[22] IAMSAR Manual Volume III

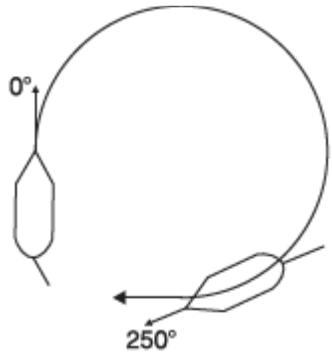
- A period of delay to be applied until the person is clear from the stern. No water turbulence till the man is cleared from stern.
- Period of delay depends upon the speed and length of the vessel
- High possibility of losing the sight at the time of turn.
- May not be a good operation in restricted visibility.

Double turn



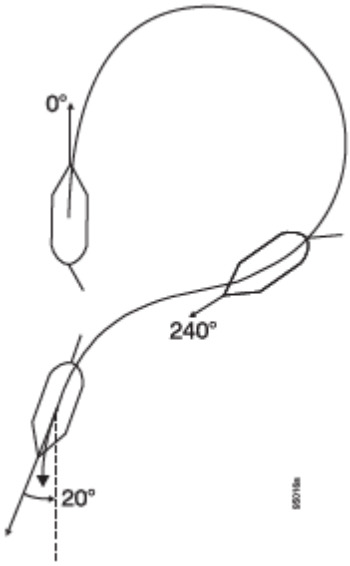
- Man remains on the same side throughout the operation.
- First turn should start when the man is clear from the stern.
- Second turn should start when the man is 3 pts abaft the beam.
- May not be a good operation in restricted visibility.

One turn (Single turn, Anderson turn)



- Rudder hard over to man overboard side.
- After deviating from the original course by 250° rudder to midship & stopping manoeuvre to be initiated.
- Fast recovery method.
- Approach to the person is not straight.

Scharnov turn



- This turn shall not be used when an immediate action is required.
- Rudder hard over.
- After deviation 240° from the original course, rudder hard over to opposite side.
- When heading is 20° short of reciprocal course rudder to midship.

Loren turn

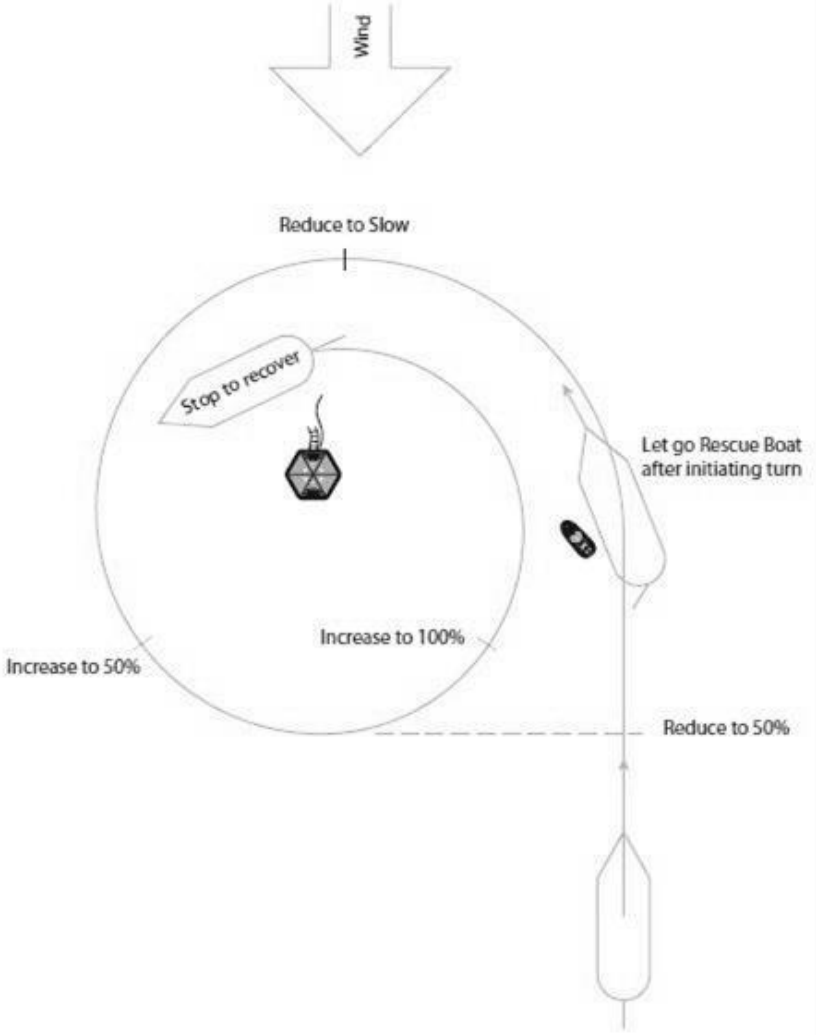
After coming to the MOB position if the weather is bad, consider the use of **Loren turn** to rescue the person. Loren turn means circling around the datum point in order to make a relatively calm area at the datum point. Refer the IAMSAR Volume III. Loren turn will[23];

- facilitates launch and recovery of a rescue boat
- facilitates rescue work by other craft
- circling calms the sea by interfering with wave patterns
- the more turbulence created by the ship the better
- additional ships circling to windward will calm the sea further

a) Loren Turn procedure;
   - Head into the wind at full speed.
   - Begin the circle and reduce to slow when the wind is abeam.
   - When the wind crosses the stern to the opposite quarter, increase to half speed.
   - Continue circling as long as calmer water is needed.

[23] IAMSAR Volume III

- Slow down, or stop, to launch and recover rescue boat on the leeward side, inside the circle.



17) Actions to be taken in case of pier damage during mooring operations

In accordance with the 'Harbours, Docks and Piers Clauses Act 1847' (this is still in force in UK), the registered owner is liable for any damages made to a pier. On the other hand, in accordance with the English law, pilot is considered as a ship owner's employee. Therefore, damages made to infrastructure of a port authority has to be paid by the owner of the vessel. But, if the master can prove that the pilot was incompetent or not medically fit or in a similar situation, the ship owner may able to avoid liabilities depending upon the local legislation.

In general, a master has to consider the below points in case of a damage made to infrastructure of a port by his ship:

- If the incident has occurred while berthing, depending upon the impact, master may have to appoint few ship staff to assess the damage if berthing operation is yet to complete. If the berth is completely damage, you may have to consider of anchoring the vessel in a safe position immediately. If it is a minor damage, can continue berthing without utilizing people for damage assessment.
- If the incident has occurred while un-berthing, may have to consider of anchoring the vessel for damage assessment.
- Deploy appropriate contingency plan.
- Carryout a damage assessment (soundings, physical inspections, possibility of fire, oil spills, injuries to staff etc.)
- Take photo graphic evidences.
- Report to:
  - Vessel owners
  - Vessel managers (if any)
  - Charterers (if any)
  - P & I club
  - Flag state (depending upon the severity and their regulations)
  - Class (depending upon severity)
  - Local authorities through the pilot

- The report made to the P & I may contain;
  - Date & time of the incident;
  - Geographical place of the incident;
  - Whether the pilot onboard or not;
  - Ranks who on the bridge;
  - With tugs or without tugs;
  - Course & speed at the time of the incident;
  - Weather condition (wind force, wind direction, condition of the sea etc.);
  - Condition of the visibility; and
  - Names of people who witnesses the situation.

- If the vessel is severely damaged or when there is a pollution threat, may have to take services of external parties in the port state. Usually, within port limits harbour tugs cannot claim salvage as they are obliged to give such services, but may claim for their services (whether they claim or not, safety of people, vessel, cargo & marine environment is important). Information about such service providers can be obtained from local agents and pilot.
- Never accept the fault (especially when pilot onboard or tugs involved). Never sign any letters regarding compensation claims.
- Make correct necessary logbook entries.
- Sometimes, the port authority may require the master to sign a ‘Letter of Acknowledgement’. Try to avoid signing such letters. But, if they are strongly insisting on signing such a letter, the

master may have to sign. In such a case, make sure, the letter contains statement of facts only. Refer the below[24] sample 'Letter of Acknowledgement':

LETTER OF ACKNOWLEDGEMENT (Damage to Jetty)

Date :
To : (Name of owner / manager of property)

At around 2000 hours on 30th of July 2017, during operations for berthing to the jetty at (place), the vessel contacted the fenders installed on the jetty and 02 sets of fenders got damaged.
I acknowledge the above fact.

(signature)
Taro Nippon

Master of PI Maru
Owned by PI Maritime Co. Ltd.
2-15-14, Nihonbashi-Ningyocho, Chuoh-ku, Tokyo

[24] https://www.piclub.or.jp/?action=common_download_main&upload_id=4666

CASUALTY INVESTIGATION

The IMO adopted the Casualty Investigation Code aiming to give all the States involved in marine safety investigations a common approach and the objective of the Code is to conduct investigations to prevent marine casualties and marine incidents in the future. Ship's masters are also sometimes required to carry out safety investigations alone or with the aid of external personnel. Therefore, selected areas from the casualty investigation Code is provided below for better understanding:

A **marine casualty** *means an event, or a sequence of events, that has resulted in any of the following which has occurred directly in connection with the operations of a ship:*

- *the death of, or serious injury to, a person;*
- *the loss of a person from a ship;*
- *the loss, presumed loss or abandonment of a ship;*
- *material damage to a ship;*
- *the stranding or disabling of a ship, or the involvement of a ship in a collision;*
- *material damage to marine infrastructure external to a ship, that could seriously endanger the safety of the ship, another ship or an individual; or*
- *severe damage to the environment, or the potential for severe damage to the environment, brought about by the damage of a ship or ships.*

A ***marine incident*** *means an event, or sequence of events, other than a marine casualty, which has occurred directly in connection with the operations of a ship that endangered, or, if not corrected, would endanger the safety of the ship, its occupants or any other person or the environment.*

A **causal factor** *means actions, omissions, events or conditions, without which:*

- *the marine casualty or marine incident would not have occurred; or*
- *adverse consequences associated with the marine casualty or marine incident would probably not have occurred or have been as serious;*
- *another action, omission, event or condition, associated with an outcome in above two, would probably not have occurred.*

A **very serious marine casualty** *means a marine casualty involving the total loss of the ship or a death or severe damage to the environment.*

However, a marine casualty or marine incident does not include a deliberate act or omission, with the intention to cause harm to the safety of a ship, an individual or the environment.

When a marine casualty occurs on the high seas or in an exclusive economic zone, the flag State of a ship, or ships, involved, shall notify other substantially interested States as soon as is reasonably practicable (Compiler's remarks – in case of marine casualty, the master is required to report the matter to the flag state).

At the same time, a marine safety investigation shall be conducted by the flag state into every very serious marine casualty.

All States shall ensure that their national laws provide investigator(s) carrying out a marine safety investigation with the ability to board a ship, interview the master and crew and any other person involved, and acquire evidential material for the purposes of a marine safety investigation.

Where a marine safety investigation requires a seafarer to provide evidence to it, the evidence shall be taken at the earliest practical opportunity. The seafarer shall be allowed to return to his/her ship or be repatriated at the earliest possible opportunity. The seafarer's human rights shall, at all times, be upheld.

All seafarers from whom evidence is sought shall be informed of the nature and basis of the marine safety investigation. Further, a seafarer from whom evidence is sought shall be informed, and allowed access to legal advice, regarding:

- *any potential risk that they may incriminate themselves in any proceedings subsequent to the marine safety investigation;*
- *any right not to self-incriminate or to remain silent;*
- *any protections afforded to the seafarer to prevent the evidence being used against them if they provide the evidence to the marine safety investigation.*

The evidence for which ready access should be provided should include:

- *survey and other records held by the flag State, the owners, and classification societies;*
- *all recorded data, including voyage data recorders; and*
- *evidence that may be provided by government surveyors, coastguard officers, vessel traffic service operators, pilots or other marine personnel.*

When a marine safety investigation is commenced under this Code, the master, the owner and agent of a ship involved in the marine casualty or marine incident being investigated, should be informed as soon as practicable of:

- *the marine casualty or marine incident under investigation;*
- *the time and place at which the marine safety investigation will commence;*
- *the name and contact details of the marine safety investigation Authority(ies);*
- *the relevant details of the legislation under which the marine safety investigation is being conducted;*
- *the rights and obligations of the parties subject to the marine safety investigation; and*
- *the rights and obligations of the State or States conducting the marine safety investigation.*

Any ship involved in a marine casualty or marine incident may continue in service, and that a ship should not be delayed more than is absolutely necessary.

Other substantially interested States (such as coastal states, port state etc.) may also:

- *interview witnesses;*
- *view and examine evidence and make copies of documents;*
- *make submissions in respect of the evidence, comment on and have their views properly reflected in the final report; and*
- *be provided with the draft and final reports relating to the marine safety investigation*[27].

The process of carrying out an investigation will be provided in the ship's SMS. At the same time, a SMS may define the terms 'marine casualty', 'marine incident' etc. different than above, as it may change according to the flag state.

SMS may also state what are the incidents that can be investigated by ship's personnel and what investigations may be conducted by company personnel depending upon the severity of the incident. Following is a general approach into an investigation process, so that if you are required to carry out an investigation, will be helpful to you. Remember, the investigation shall always be conducted by referring to the facts and shall not create a presumption of blame or liability.

- Depending upon the severity of the incident, with the instructions from the company, you may have to protect the site of the incident if it is possible to do so.
- Investigation to be completed as soon as possible, before the memories fade away.
- Observe the place of incident very carefully for possible facts and evidences.
- Always keep these words in your mind during the investigation – how, where, when, why, what and who.
- Identify witnesses and take statements.
- Interviewing of the witnesses to be done individually. The interviewee should be informed, before the interview starts, about the purpose of the investigation. The witness may be accompanied by a person nominated by him. Company SMS may contain 'witness statement form/s' to support the investigator.
- Collect evidences such as statements of facts, photographs, videos etc.
- Try to identify the causal factor/s with the aid of the evidences.
- Identify the root cause.
- Write the report and send it to the appropriate personal as listed in the ship's SMS. The report shall contain at least:
  - Initial data such as name of the vessel, date of investigation, place, name of the investigator etc.
  - Factual information such as circumstances at the time of the event, description of the vessel, description of crew, chronology of the events, documents, interviews and technical study.
  - Analysis of the incident.
  - Conclusions.
  - Recommendations and
  - Annexes which contain photos, documents, witness statements etc.

[27] Casualty Investigation Code 2008

LIMITATIONS AND RESTRICTIONS ON TRADING AREAS OF A VESSEL

Masters are required to have a good knowledge of the vessel's trading limits to ensure the safety of ship, cargo & people onboard are maintained, marine environment is not affected, charter party is not breached, and marine insurance is not affected. There are couple of documents where limitations on trading areas are specified where a master has to be aware of as discussed in detail below.

1) Limits imposed by charter parties

If the vessel is chartered, for the purpose of protecting the owners' interest and charterer's interests, masters is supposed to ensure the vessel is not used for trading beyond the areas as specified in the charterparty. As an example, the NYPE 2015 (New York Produce Exchange Form 2015) states:

- *The Owners agree to let, and the Charterers agree to hire, the Vessel from the time of delivery, for …… within below mentioned trading limits.*

- *Trading Limits - The Vessel shall be employed in such lawful trades between safe ports and safe places within the following trading limits …….. as the Charterers shall direct.*

- *Berths - The Vessel shall be loaded and discharged in any safe anchorage or at any safe berth or safe place that the Charterers or their agents may direct, provided the Vessel can safely enter, lie and depart always afloat.*

- *The Vessel during loading and/or discharging may lie safely aground at any safe berth or safe place where it is customary for vessels of similar size, construction and type to lie at the following areas/ports ……. (if this space is left blank then this sub-clause shall not apply), if so requested by the Charterers, provided it can do so without suffering damage.*

- *The Charterers shall indemnify the Owners for any loss, damage, costs, expenses or loss of time, including any underwater inspection required by class, caused as a consequence of the Vessel lying aground at the Charterers' request.*

2) Limitations due to constructional restrictions

Vessels which are built to proceed into ice areas and winter areas during winter seasons are known as 'ice class' vessels. The ice class vessels are strengthened to navigate in areas of **SEA ICE** only. This can be identified by referring into Class Certificate. There are different types of ice class ships and the notations used by different classification societies to identify the same ice class vessels are different from each other. Refer the below table which shows five numbers of ice class vessels and the notations used for each type by different classification societies.

Remember, the ice class defines what kind of ice the vessel is designed to withstand and not the area the vessel will sail or operate in.

No	RS Russian Register**	GL	DNV	BV	LR	RINA	ABS	NK	Finnish-Swedish Ice Class
1	LU 5 / Arc 5	E 4	ICE – 1A*	1A SUPER	Ice Class 1AS FS(+) Ice Class 1AS FS	1A Super	1AA	1A Super	1A Super
2	LU 4 / Arc 4	E 3	ICE – 1A	1A	Ice Class 1A FS(+) Ice Class 1A FS	1A	1A	1A	1A
3	LU 3/ Ice 3	E 2	ICE – 1B	1B	Ice Class 1B FS(+) Ice Class 1B FS	1B	1B	1B	1B
4	LU 2/ Ice 2	E 1	ICE – 1C	1C	Ice Class 1C FS(+) Ice Class 1C FS	1C	1C	1C	1C
5	LU 1/ Ice 1	E	ICE - C	1D	Ice Class 1D	1D		1D	

(Source : OCIMF website)

With regards to Lloyds notations the ice classes are;

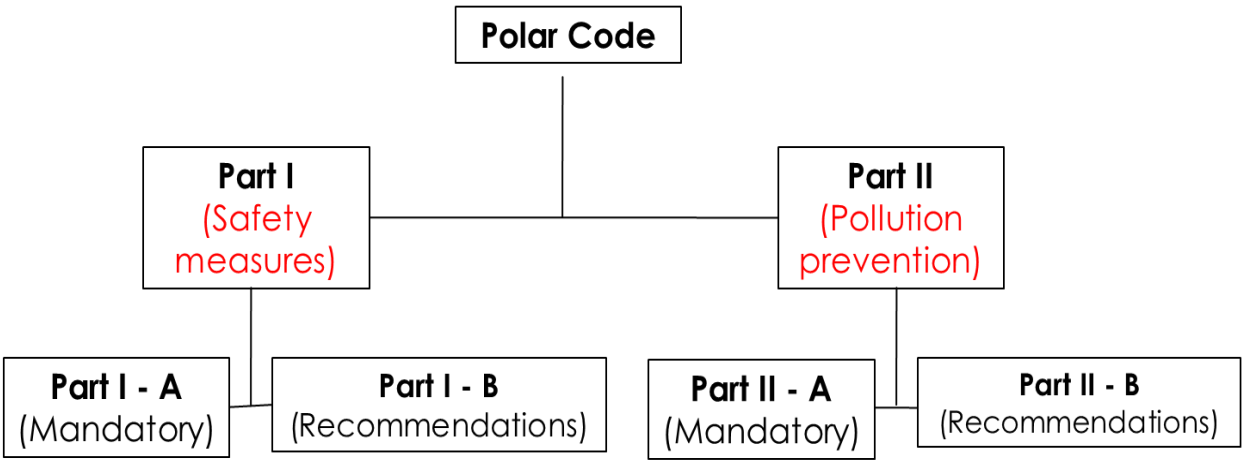
- Ice Class 1AS - design notional level ice thickness of 1.0m
- Ice Class 1A - design notional level ice thickness of 0.8m
- Ice Class 1B - design notional level ice thickness of 0.6m
- Ice Class 1C - design notional level ice thickness of 0.4m
- Class II and Class III vessels are open water vessels with no ice strengthening

Masters are not aware of the meaning of these notations and their applicable areas around the world. Only thing is, if the master suspects that the vessel is not sufficiently strengthened & do not have sufficient equipment to proceed to a port in the ice areas, may clarify the matter with the ship owner.

On the other hand, there are some ports where there are regulations stating that a particular vessel to have certain ice class notations when she is coming to the port during certain times of the year. A ship master may not be aware of this, but, need to take information from ship owner, charterer, agent etc.

3) Polar Class ships (Polar Code)

Structure of the Polar Code

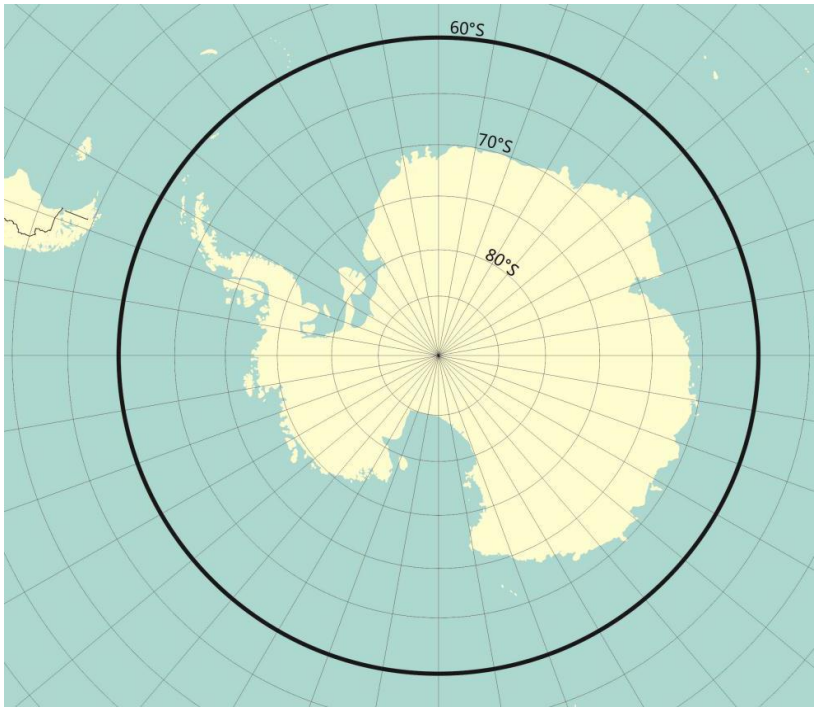


Application of the Code

Part I - Cargo ships of 500 GT or more, and to all passenger ships
Part II - All ships certified under MARPOL Annexes I, II, IV and V

Geographical trading limits

Antarctic area - Ships navigating South of 60^0 S



Arctic area - Generally, Ships navigating North of 60^0 N

Categorization of polar ships

- ***Category A*** *ship means a ship designed for operation in polar waters in at least* medium first-year ice, which may include old ice inclusions.

- ***Category B*** *ship means a ship not included in category A, designed for operation in* polar waters in at least thin first-year ice, which may include old ice inclusions.

- ***Category C*** *ship means a ship designed to operate in open water or in ice conditions* less severe than those included in categories A and B.

Ice classification and polar classification

The existing ice class notation is used to determine her polar ship category. Refer the below table as an example of categorization of ice class notations.

Polar category	Ice class
Category A	PC1 PC2 PC3 PC4 PC5
Category B	PC6 PC7
Category C	ICE-1A* / E4 ICE-1A / E3 ICE-1B / E2 ICE-1C / E1 ICE-C / E None

(Source : www. DNV_GL_Polar_Ship_Categories%20(1).pdf

Documents required

- **Polar Ship certificate**
  - The safety part of the code has design, construction, equipment, operational, training, search and rescue requirements related to the potential hazards of operating in polar regions

- **Polar Water Operational Manual (PWOM)**

  - Provide information regarding the ship's operational capabilities and limitations in order to support decision-making process

Intact stability criteria

During periods where ice accretion is likely to occur, the following icing allowance shall be made in the stability calculations:

- 30 kg/m² on exposed weather decks and gangways;
- 7.5 kg/m² for the projected lateral area of each side of the ship above the water plane; and
- the projected lateral area of discontinuous surfaces of rail, sundry booms, spars (except masts) and rigging of ships having no sails and the projected lateral area of other small objects shall be computed by increasing the total projected area of continuous surfaces by 5% and the static moments of this area by 10%.

Information on the icing allowance included in the stability calculations shall be given in the PWOM.
Ice accretion shall be monitored and appropriate measures taken to ensure that the ice accretion does not exceed the values given in the PWOM.

Voyage planning

The master shall consider the following while planning a voyage:

- Procedures required by the PWOM;
- Any limitations of the hydrographic information and aids to navigation available;
- Current information on the extent and type of ice and icebergs in the vicinity;
- Statistical information on ice and temperatures from former years;
- Places of refuge;
- Current information and measures to be taken when marine mammals are encountered, relating to known areas with densities of marine mammals;
- Current information on relevant ships' routing systems, speed recommendations and vessel traffic services relating to known areas with densities of marine mammals;
- National and international designated protected areas along the route; and
- Operation in areas remote from SAR capabilities.

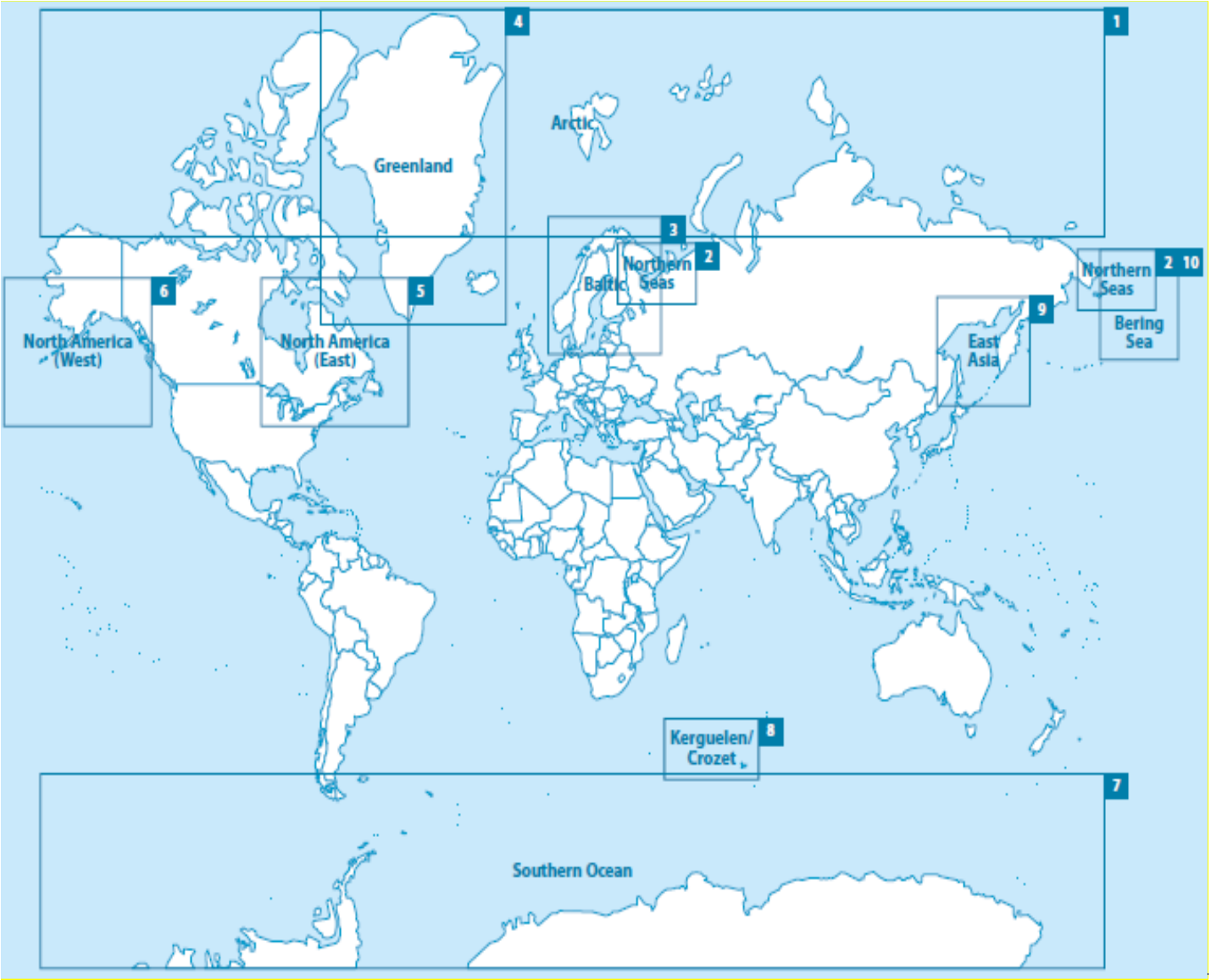
4) <u>With regards to marine insurance</u>

The most common trading limits due to ice **were known as** "Institute Warranty Limits' (IWL) and **now the same is known as** "International Navigating Limits" (INL). Sometimes these limits were referenced in marine hull and machinery insurance as well as in charter parties both. INL contains seasonally excluded areas as well as permanently excluded areas. Following areas are few examples of permanently excluded areas from INL:

- North of 70^0 N latitude,
- White Sea.
- Chukchi Sea,
- Greenland territorial waters
- St. Lawrence Seaway
- Great lakes

Unless and to the extent otherwise agreed by the underwriters in accordance with, the vessel shall not enter, navigate or remain in the areas specified below at any time or, where applicable, between the dates specified[28] in INL (basically, these dates refers to winter seasons in those areas).

[28] https://www.standard-club.com/media/2767665/loss-prevention-international-navigating-limits.pdf



If entering into these areas (areas 1 to 10 in above diagram), shipowner must ensure that his H & M insurance is held covered. The shipowner is therefore required to inform the hull underwriter when a vessel is planned to enter an excluded area, including transiting the North Sea Route, so that the H & M insurance will be held covered. When the insurance is held covered, the shipowner will have to pay an additional premium for the increased risk. The additional premium usually only covers one voyage but there can be arrangements for seasonal premiums[29].

Sometimes, a marine insurance may refer to some other limiting conditions other than INL. Refer the below copy of an insurance related document kept onboard:

[29] https://www.swedishclub.com/loss-prevention/trading-area/polar-regions/

Captain's Policy

We hereby confirm having effected Hull and Machinery insurance covering the below vessel, on terms and conditions as follows:

Assureds	[redacted]		
Co-assured	[redacted]		
Vessel	Multi purpose vessel	: [redacted]	
	Flag	: Hong Kong	
	Built	: 2012	
Period	From	: 12th March 2012	
	To	: 31st May 2013 both days inclusive	
Interest	Hull and Machinery marine risks		
Sum Insured	Hull and Machinery	USD	39.000.000
Trading	Trading limits as per Danish Policies including Assured's Clauses.		: Special

In accordance with the above document, the marine issuance will be held covered only within the trading limits as per Danish Policies including assured's Special Clauses.

Masters are not required to memorize INL or no need to know localized insurance related limits. It should be the duty of the ship owner to ensure not to send the vessel beyond the limits of insurance coverage. The master shall notify the ship owner immediately if he suspects a breach or an expected breach of trading limits in accordance with the insurance policy. This has nothing to do with any trading agreement in any charter party.

ISM Code

In accordance with the ISM Code, the master is responsible for:

- implementing the safety and environmental-protection policy of the Company;
- motivating the crew in the observation of that policy;
- issuing appropriate orders and instructions in a clear and simple manner;
- verifying that specified requirements are observed; and
- periodically reviewing the SMS and reporting its deficiencies to the shore-based management.

The company is obliged to provide clear instructions to the master in achieving the above-mentioned objectives. Generally, follow the below guidance in achieving the above objectives.

Implementation of ISM

Ensure that the;

- master himself is aware of the SMS;
- certificates related to ISM Code, SMS documents, placards, posters, notices etc. are onboard and maintained in accordance with the company requirements;
- company policies are understood by crew & officers;
- staff are aware of their duties and emergency duties;
- emergency schedules are displayed;
- safety, security and pollution prevention placards are displayed;
- safe working practices are being followed;
- safety checklists are used prior to the commencement of work;
- relevant staff members are having access to the relevant SMS documents;
- relevant records are maintained;
- investigation of accidents/near misses & preventive measures taken;
- training and drills are conducted in accordance with the company's drill matrix;
- risk assessment is carried out before the commencement of any work;
- work & rest hours are being maintained;
- watch schedules are displayed and maintained;
- clear and appropriate orders & instructions are given;
- staff are aware of the DPA and his contact details; and
- onboard inspections are carried out to ensure that the ISM is properly implemented.

Motivation of the crew

Explain the objectives of the ISM Code to the staff and make them understand that by complying with the ISM Code, their lives, ship, cargo and the marine environment can be protected.
Motivations of the staff can be done through;

- Safety Committee Meetings;

- Videos;
- Tabletop discussions;
- Onboard discussions with regards to company circulars related to accidents and incidents;
- Onboard discussions with regards to near misses and preventive measures;
- Training sessions; and
- Emergency drills.

Issuing of appropriate orders and instructions

A ship's master will have to issue various orders and instructions during the day to day operations and during emergency situations. These orders may be divided in to the following two categories:

- Situational orders/instructions and
- Long term orders/instructions

When issuing long term orders, it is always better to be proactive rather than reactive. Whatever the orders or the instructions must be clear and make sure staff has understood them. Orders and instructions can be issued through;

- master's standing orders;
- night order book;
- displaying of posters/notices; and
- verbal orders

Verification to ensure that specified requirements are observed

It is important to carryout verifications to ensure the specified requirements are observed and the objectives of the ISM Code are achieved. This can be achieved by;

- direct workplace observations;
- referring to records such as:
  - checklists;
  - records;
  - logbooks;
  - voyage plans; and
  - PMS.
- question and answer sessions;
- drills (by monitoring the performances and progress of the staff); and
- carrying out audits by the master himself.

Periodical review of the SMS and report

Master is required to review the SMS periodically (time frame to be specified by the company) to ensure the objectives of the ISM Code are achieved. The company to be notified, if any deficiencies are found along with the proposals to rectify the matters and recommendations to improve the system. Reviewing of the system can be done through;

- documentation reviews to ensure the contents are correct and applicable to the vessel;
- past audit reports;
- PSC inspection reports;
- discussions in safety committee meetings;
- direct workplace observations;
- monitoring onboard training;
- accidents and near miss records (in case of accidents or near misses, the master is supposed to take corrective actions and preventive actions rather than waiting for a periodical review, but, the master may be able to take further proactive measures if the incidents are analysed critically); and
- Evaluating the existing practices against international standards, trade practices and personal experience.

The SMS will be having ‘master’s review’ forms in order to facilitate the master, to carry out the review easily. The following is a general format of ‘master’s review’ form.

Follow-up of former reviews			
Date of Last Master Review:			
List of previous objectives			**Comments of the company**
Item	Action	Status	

Document Review		
Document	**Date of last version on board**	**Compliance (to be filled by Company)**
SMS		Yes / No
SSP		Yes / No
SOPEP		Yes / No
SMPEP (if applicable)		Yes / No
Risk Assessment		Yes / No
Garbage Management Plan		Yes / No
Ballast Water Management Plan		Yes / No
SEEMP		Yes / No
NOx Technical file (if applicable)		Yes / No
Food Safety Plan		Yes / No
Safety circulars from company		Yes / No
Emergency response manual		Yes / No
Emergency Towing Booklet		Yes / No
Emergency Response Services		Yes / No
SOLAS Training Manuals		Yes / No
Bio fouling management plan		Yes / No
Safety and Security Directory		Yes / No
VGP		Yes / No
STS operations plan (if applicable)		Yes / No
VOC management plan (if applicable)		Yes / No
Bridge Library		Yes / No

Safety Culture – Master's comments	**Comments of the company**
Manuals, procedures and other checklists	
State how relevant and is it efficient enough to achieve the levels required	
Hand Over Procedures	
Address the relevance & efficiency	
CBT & Videotel Training	
Is it dully followed by crew? *Is the training efficient?*	

Risk Assessment – Master's comments	**Comments of the company**
List down the risks that you have assessed which are not given in the risk assessment	
State the applicability and usability of the risk assessment system	

Deficiency Review		**Comments of the company**
	Number of deficiencies since the last review	
PSC		
External audits		
Internal audits		

Ship's Security Review – Master's comments	**Comments of the company**
Has the SSP been reviewed as required?	
State the efficiency of the current ship security system onboard	

Safety & Environment – Master's comments	**Comments of the company**
Describe the efficiency of the SMS in enhancing safety onboard	
Describe the efficiency of the SMS in preventing marine pollution	
Safety Committee Meetings *Date of last Meeting:* *Is it efficient?*	
Near Miss Report / Injury Report / Damage Report *Address the relevance & efficiency*	
Safety / Security circulars *Address the relevance & efficiency*	
Communication with company & fleet – Master's comments	**Comments of the company**
Reporting methods *Address the relevance & efficiency*	
Fleet Management Circular Letters *Address the relevance & efficiency*	
Planned Maintenance System *Address the relevance & efficiency*	
Training provided by the company: *Address the relevance & efficiency*	

Emergencies – Master's comments	**Comments of the company**
Is the planning of drills updated? *Address the relevance & efficiency of the emergency procedures*	
List the emergency situations since last Master Review:	
Shore Support in Emergency Management *Address the efficiency & difficulties encountered*	
Hygiene – Master's comments	**Comments of the company**
Food Safety Plan *Address the relevance & efficiency*	
Fresh Water Safety Plan *Address the relevance & efficiency*	
Additional Comments by the Master	**Comments of the company**

ISPS CODE

Interim International Ship Security Certificate

An Interim ISSC which is valid for a maximum period of 6 months may be issued in the following situations:

- on delivery or prior to its entry into service
- change of flag or
- change of ownership of a vessel

Interim ISSC will be issued once it is verified that (below excludes the responsibilities of a CSO):

- the ship security assessment has been completed (refer the ISPS Code for more details),
- a copy of the SSP is onboard, has been submitted for approval and being implemented onboard,
- the ship is provided with a ship security alert system,
- arrangements have been made for initial, renewal and intermediate verifications along with additional verifications if required by the Flag,
- the master, the SSO and other ship's personnel with specific security duties are familiar with their duties and responsibilities, and
- the SSO meets the training, certification and competency requirements of the ISPS Code.

Full term ISSC

A full-term certificate will be issued only when the vessel complies with the relevant areas of the ISPS Code subjected to Initial, Intermediate and Renewal audits which shall be performed only under normal operating conditions. This is valid for a period of 5 years subject to at least one intermediate verification between the second and third anniversary dates of the certificate.

Endorsements

ISSC will be endorsed by the certificate issuing authority after a successful completion of;

- intermediate verification
- additional verifications (if required by Flag State)
- renewal verification, but when a new certificate cannot be placed onboard before the expiry date of the certificate
- additional verifications to avoid exceeding the maximum intervals between verifications as provided in the ISPS Code

The ISSC may be endorsed in the following circumstances as well:

- If a certificate is issued for a period of less than five years, the Administration may extend the validity of the certificate beyond the expiry date to the maximum of 5 years, provided that the required intermediate and renewal verification periods are not exceeded
- At the time of expiry if the vessel is not in a port where verification facilities are available, existing certificate may be extended until next port where facilities are available, but not more than 3 months
- If the intermediate verification is completed before the required period, the expiry date shown on the certificate shall be amended by endorsement on the certificate

Harmonizing of audits

If requested by the company, the expiry dates of the vessel's SMC (Safety Management Certificate) and the ISSC may be harmonized.

SSO's responsibilities

The SSO is responsible for the following:

- To carryout regular security related inspections and checks on board the vessel.
- Maintenance and updating of security measures and security equipment.
- Co-ordination between the ship and ports.
- Proposing modifications to SSP.
- Co-ordination between the ship and the company security officer.
- Reporting of security related incidents.
- Training of on-board personnel.

The SSO shall ensure that the following documents which are related to ISPS Code are maintained:

- Records of training and drills.
- Records of security threats and incidents.
- Records of breaches of security.
- Records of changes of security levels.
- Reports of communications related to security.
- Reports of audits and reviews of security activities.
- Records of periodical reviews of ship security assessment and ship security plan.
- Records of implementation of amendments to the plan.
- Records of maintenance, testing and calibration of security equipment.

Reviewing of the ship security plan

The ISPS code requires the SSO to carry out reviews of implementation of the plan within interval not more than 12 months to evaluate the continuous effectiveness of the plan, and to determine whether the plan needs amending. But, the SSO is also to make review of the plan under following conditions:

- If any ship security incident happens to the ship.
- Major hidden security trouble is detected during a security audit of the ship.
- Major hidden security trouble is detected during security drills on the ship.
- The company security officer requires the SSP to be reviewed.

In accordance with the ISPS Code following to be considered while reviewing:

- Whether the security equipment is in normal conditions; whether the signs of the restricted areas are clear; whether the stores of lamps are sufficient; whether locking and closing devices in the restricted areas are effective.
- Whether the persons can control the boarding points in accordance with the requirements of the specifications and procedures; whether security patrol can carry out their duty in accordance with the requirements and visitors are accompanied.
- Any security incident has happened since last review.
- Administrative actions taken against the ship by the flag state, port state security authorities due to security issues since last review.
- How many times of training have been carried out to the ship and what are the training contents since last review.
- How many security drills have been carried out onboard and what are the results since last review?
- Whether the crew can be familiar with their own security duties through training and drills.
- Whether the records related to the ship security are accurate and kept in good condition.
- Whether the plan is well implemented in the ship? Is there any difficulty encountered while implementing the SSP.

After the review;

- SSO to complete the ‘Review form’ of the SSP;
- Master to sign the review form;
- Review form to be sent to CSO;
- If the CSO considers it necessary to amend the ship security plan, he is to organize re-assessment of the ship security;
- CSO to amend the SSP in accordance with the results of the assessment;
- CSO to send the amended SSP with the results to the administration for review; and
- Revised SSP to be implemented once it is approved.

Access to the SSP

Section 9.8.1 of the ISPS Code states "*If the officers duly authorized by a Contracting Government have clear grounds to believe that the ship is not in compliance with the requirements of chapter XI-2 or part A of this Code, and the only means to verify or rectify the non-compliance is to review the relevant requirements of the ship security plan, limited access to the specific sections of the plan relating to the noncompliance is exceptionally allowed, but only with the consent of the Contracting Government of, or the master of, the ship concerned. Nevertheless, the provisions in the plan relating to section 9.4 subsections .2, .4, .5, .7, .15, .17 and .18 of this Part of the Code are considered as confidential information and cannot be subject to inspection unless otherwise agreed by the Contracting Governments concerned*".

Section 9.4 of the ISPS Code contains following:

9.4 *Such a plan shall be developed**,** taking into account the guidance given in part B of this Code and shall be written in the working language or languages of the ship. If the language or languages used is not English, French or Spanish, a translation into one of these languages shall be included. The plan shall address, at least, the following:*

.1 *measures designed to prevent weapons, dangerous substances and devices intended for use against persons, ships or ports and the carriage of which is not authorized from being taken on board the ship;*

.2 *identification of the restricted areas and measures for the prevention of unauthorized access to them;*

.3 *measures for the prevention of unauthorized access to the ship;*

.4 *procedures for responding to security threats or breaches of security, including provisions for maintaining critical operations of the ship or ship/port interface;*

.5 *procedures for responding to any security instructions Contracting Governments may give at security level 3;*

.6 *procedures for evacuation in case of security threats or breaches of security;*

.7 *duties of shipboard personnel assigned security responsibilities and of other shipboard personnel on security aspects;*

.8 *procedures for auditing the security activities;*

.9 *procedures for training, drills and exercises associated with the plan;*

.10 *procedures for interfacing with port facility security activities;*

.11 *procedures for the periodic review of the plan and for updating;*

.12 *procedures for reporting security incidents;*

.13 *identification of the ship security officer;*

.14 *identification of the company security officer including 24-hour contact details;*

.15 *procedures to ensure the inspection, testing, calibration, and maintenance of any security equipment provided on board;*

.16 *frequency for testing or calibration of any security equipment provided on board;*

.17 *identification of the locations where the ship security alert system activation points are provided; and*

.18 *procedures, instructions and guidance on the use of the ship security alert system, including the testing, activation, deactivation and resetting and to limit false alerts.*

Following note was obtained from a vessel's SSP for your further knowledge:

IMPORTANT NOTES

01)
The SSP is not subject to detailed inspection (other than confirming its existence on the ship) by duly authorized officials of a Port State unless there are "clear ground" to believe that the ship is not in compliance with the requirements of SOLAS or the ISPS Code. The only means to verify or rectify the non-compliance is to review the relevant requirements of the SSP. In such a case, limited access to the SSP relating to the non-compliance is exceptionally allowed, but only with the consent of the Flag State, or the Master. Any such request or demand must be immediately be reported by the ship to the CSO for guidance and reference to the Flag State before any details are revealed to Non-Flag State officials.

02)
English is the official working language in all departments.

MLC 2006[30]

Application of the Convention

MLC 2006 applies to all ships used for commercial purposes excluding the following:

- Vessels exclusively trading in;
  - inland waters or closely adjacent
  - sheltered waters
  - areas where port regulations apply
- fishing vessels
- ships of traditionally built such as dhows and junks
- warships or naval auxiliaries

Documentation & certification for the vessel

There are three types of documents to be carried onboard a vessel. As below:

- Interim Maritime Labour Certificate
- Maritime Labour Certificate
- Declaration of Maritime Labour Compliance Part I (DMLC Part I) – issued by the RO or Administration
- Declaration of Maritime Labour Compliance Part II (DMLC Part II) – prepared by the shipowner

Refer the Appendix A5-II of the Convention for the formats of above certificates.

Even though the Convention applies to all the vessels mentioned above, only the following types of vessels are required to possess above mentioned certificates:

- 500 GT or more engage in international voyages
- 500 GT or more engage in coasting off another member state

Following documents, records and publications to be carried onboard all the applicable vessels:

- Copy of MLC 2006.
- Onboard complain procedures.
- Risk assessment procedures.
- Copy of the applicable national provisions with regards to repatriation.
- Copies of Seafarer's Employment Agreements.
- Copies of Collective Bargaining Agreements, if applicable.
- A document evidencing financial security for;

[30] MLC 2006 and Guidelines for port State control officers carrying out inspections under the Maritime Labour Convention, 2006

  - repatriation;
  - long-term disability; and
  - death.
- Evidence of proof the recruiting agency is complying with MLC 2006 (if seafarers are from non-ratifying countries.
- Need to carry following publications with regards to medical emergencies:
  - Medical guide
  - Up-to-date list of radio stations
  - International Code of Signals

- Medical chest certificate.
- Records of seafarer's minimum rest or maximum work hours.
- Evidences of having a safety committee onboard.

Interim ML Certificate may be issued:

- To new ships
- When a ship changes flag
- When the ship owner is changed

The flag state will inspect the vessel to ensure the full compliance with the Convention (i.e. the Regulations, Standards and Guidelines) prior issuing ML Certificate. Usually, 'Guidelines' provided under all most all the Conventions and Codes adopted by the IMO, are just guidelines only. They are not required to comply with. But this Convention clearly states that "*the members shall give due consideration to implementing its responsibilities in the manner provided for in Part B of the Code*". Part B contains the guidelines provided under the Code. Therefore, applicable vessels are required to comply with Regulations, Standards & also Guidelines as provided in the Convention.

Validity periods of the certificates

- The maximum validity period of a Maritime Labour Certificate shall not be more than 5 years.
- An intermediate inspection shall be carried out between 2nd & 3rd anniversary dates.
- If the renewal inspection conducted within 3 months before the expiry of the ML Certificate, valid for five years from the date of expiry of existing certificate.
- If the renewal inspection conducted more than 3 months before the expiry of the ML Certificate, valid for five years from the date of completion of the inspection.
- Interim ML Certificate is valid not more than 6 months.

Procedure of issuing an interim certification

- An initial inspection will be carried out.
- Ship owner to demonstrate that the vessel has sufficient procedures to implement the Convention (shipowner is required to complete DMLC Part II).
- Master to be familiar with the Convention & his responsibilities in implementation.
- Sufficient information provided to the competent authority to make DMLC.

MLC 2006 states that "*a declaration of maritime labour compliance need not be issued for the period of validity of the interim certificate*". This means that a DMLC Part I is not required during the period of validity of the Interim MLC.

Change over from interim certification to full term certification

A full inspection will be carried out before the expiry of the interim certificate by the issuing authority. As mentioned before, this inspection will be conducted to ensure the compliance of Regulations, Standards and Guidelines of the Convention.

Contents of Part I & II of the DMLC

Part I of the DMLC shall be completed by the flag administration or recognized organization (as applicable) and shall contain;

- List of areas to be inspected in accordance with MLC 2006
- National requirements for the relevant areas of the Convention (reference to national legislation & summary of main contents of the legislation)
- Any ship-type specific requirements under the national legislation
- Any substantially equivalent provisions granted
- Any exemptions granted

Part II of the DMLC shall be drawn up by the ship owner and shall contain the measures adopted to comply with the national legislation and how they are continuously improved.

The ML Certificate issuing authority is required to review the measures adopted by the shipowner before issuing the DMLC Part I.

Port State inspections

The master is required to produce ML Certificate and DMLC and they will be prima facie evidence of compliance with the requirement of the Convention.

A more detailed inspection may be carried out to access the working and living conditions onboard if a PSCO finds that;

a) the required documents are not produced or
b) the documents are not maintained or
c) the documents are falsely maintained or
d) documents do not contain the information required or
e) the documents are invalid or
f) there are **clear grounds** for believing that the working & living conditions do not confirm to the requirement of this Convention (Articles, Regulations and Part A of the Code) or
g) there are **reasonable grounds** to believe that the ship has changed flag for the purpose of avoiding compliance with the Convention or
h) there is a complaint alleging that specific working and living conditions on the ship do not confirm to the requirements of the Convention

In the case of above (a) to (g), a more detailed inspection shall be carried out and may cover the matters listed below:

- Minimum age
- Medical certification
- Qualifications of seafarers
- Seafarers employment agreements
- Use of any licensed or certified or regulated private recruitment and placement service
- Hours of work or rest
- Manning levels for the ship
- Accommodation
- On board recreational facilities
- Food and catering
- Health and safety and accident prevention
- On board medical care
- On board complaint procedures
- Payment of wages
- Financial security for repatriation
- Financial security relating to shipowner's liability

In the case of above (h), a more detailed inspection shall generally be limited to the matters within the scope of the complaint.

If the PSCO decides to carry out a more detailed inspection, the ship's master should be informed.

Master's responsibilities in accordance with the MLC 2006

a) Need to have a good knowledge about most of the areas covered in DMLC Part I, which includes but not limited to exceptions granted, substantial equivalences granted, work that may jeopardize the health & safety of young seafarers, night work applicable for young seafarers etc.
b) All seafarers onboard shall have valid medical certificates in accordance with the duties they are required to perform. Medical certificates issued under STCW alone are accepted by the MLC 2006.
c) Make sure the seafarers are trained or certified as competent or otherwise qualified to perform their assigned duties onboard. Note the points below, with regards to this requirement:
    - In accordance with STCW Code all the seafarers are required to have undergone the four basic courses. Seafarers who have started their sea carrier after 1st of January 2014 are required to have undergone security awareness course or designated ship security duties course.
    - In accordance with the STCW Code seafarers are required to be competent &/or qualified to carry out the tasks and duties that they are assigned for.
    - In accordance with the MLC 2006, ship's cooks shall:
        - be 18 years or more in age
        - possess a certificate issued by a competent authority and the areas of training covered in the certificate shall include:
            - practical cookery,
            - food and personal hygiene,
            - food storage,
            - stock control and
            - environmental protection and catering health and safety
d) Make sure all the seafarers have successfully completed onboard personal safety familiarization.
e) Ensure the minimum age of seafarers shall be not less than 16 years of age (for Sri Lankan CDC holders the minimum age is 18 years)
f) Ensure no "**night work**" or "**work is likely to jeopardize health or safety**" are not delegated to seafarers under the age of 18 years. In accordance with the Convention, "night" shall cover a period of at least nine hours starting no later than midnight and ending no earlier than 5 A. M.
    - Refer the "**minimum age**" regulation on DMLC Part I for the flag specific definition of "**night**" and "**work is likely to jeopardize health or safety**"
    - An exception to compliance with the "night work" restriction may be made by the flag state when:
        - If the effective training of such seafarers in accordance with training programme is impaired or
        - If the training programme or specific nature of the duty requires to perform duties at night and the flag states has decided after consultation with the shipowners & seafarer's organizations concerned, that such work will not be detrimental to seafarer's health or well-being.

g) Records of all the results of inspections carried out with regards to the Convention, deficiencies found, and the dates rectified, shall be maintained onboard and ensure they are available to;
   - Seafarers
   - Flag state inspectors
   - PSC officers
   - Shipowner &
   - Seafarer's representatives

h) Two copies of reports will be provided to the master after flag state inspections and one of them shall be posted on the ship's notice board.
i) Copy of the current valid ML Certificate and DMLC shall be posted in a common place onboard.
j) Copy of the current valid ML Certificate and DMLC to be made available if requested by;
   - Seafarers
   - Flag state inspectors
   - PSC officers
   - Shipowner &
   - Seafarer's representatives

k) Complaint procedures onboard:
   - Complaint procedures shall be available onboard.
   - Such procedures shall seek to resolve complaints at the lowest level possible, but, seafarers have rights to complain directly to the master or if they consider necessary, may complain to external authorities.
   - A seafarer shall have rights to accompany or represent while making a complaint.
   - Shall not take any adverse actions with respect to lodging a complaint which is not manifestly vexatious or maliciously made.
   - All the seafarers onboard shall be provided with a copy of the complaint procedure.
   - Complaint procedure shall include the contact information of the competent authority in the flag state and if the seafarer's country of residence is different, shall include the name of a person or persons onboard the vessel that can assist seafarers with regards to the complaint confidentially.

l) Make sure the Medical care certificate of the person who is responsible for onboard medical care is valid in accordance with the flag state requirements. (The validity period of the Medical care certificate is usually 5 years).
m) With regards to wages of the seafarers:
   - Ensure they are being paid in accordance with the Seafarer Employment Agreement at least at monthly intervals.
   - Ensure no un-authorized deductions are made.

- A pay slip or wages slip shall be given to seafarers indicating monthly wages and authorized deductions.

n) The food onboard must be in good quality with nutritional value for seafarers, in sufficient quantities and it shall respect the religious and cultural believes of the seafarers as well.
o) Ensure the drinking water is in good quality and shall maintain records of drinking water tests carried out.
p) Information on food and drinking water safety reports should be readily available to members of the crew.
q) Accommodation, provision rooms, cold room and galley inspections to be carried out in accordance with the flag state requirements. In accordance with MLC 2006, provision rooms, cold room and galley inspections to be carried by the master or by a person authorized by the master. The results of this inspection to be recorded in the official record book.
r) Make sure to allow seafarers to visit qualified medical doctors or dentists in ports of call if practicable, at the shipowner's cost.
s) There must be onboard procedures in place for taking radio or satellite medical advice.
t) Shall have a safety committee if there are five or more seafarers onboard and ensure the responsibilities and duties of the seafarers appointed as safety representatives are specified.
u) Ensure a risk assessment procedure is available and risk assessments are carried out.
v) Make sure sufficient numbers of personal protective equipment are available to seafarers onboard.
w) Ensure an accident reporting procedure is available onboard.
x) Seafarers have a right to be repatriated within 12 months after the commencement of work, but, they may continue beyond the said period depending upon the requirements of the flag state regulations.

Preparing a vessel for PSC inspections

PSC inspections will be carried out only to ensure a vessel's compliance with the Regulations and the Standards of the Convention. The following details will be very important when preparing a vessel for PSC inspections:

a) Master of the vessel or duty officer may request to produce identity documents of the PSC inspector while boarding a vessel.
b) Ensure the ML Certificate and the DMLC are valid and complete.
c) If the documentations are in order, further inspections may not be carried out unless there are clear grounds for non-compliance with the Convention.
d) Ensure the previous deficiencies and non-conformities are rectified. If they are not rectified, ensure the plans of actions for rectification are available and complying with such plans of actions.
e) Deficiencies found during the flag state verifications shall be available onboard with the dates when the deficiencies were found to have been remedied.

f) Ensure the compliance with 'substantial equivalence' and 'exemptions' as provided in the DMLC Part – I.
g) Make sure the Continuous Synopsis Record is in order as the PSC officers may check it to verify whether the flag is changed to avoid compliance with the Convention.
h) The PSC officer may need to verify the purpose of change of flag if it is changed recently. If any significant outstanding deficiencies were not transferred to new flag's records, he may carry out a detailed inspection.
i) PSC officers may check following documents as well:
    - Ship's crew list, seafarer's passports to verify the age of seafarers.
    - Work schedules of the seafarers who are below 18 years to see whether they have been working during night hours.
    - The types of work allocated to those who are below 18 years to ensure they have not carried out any work that may jeopardize the safety of them.
    - Recent accident reports and safety committee reports to see whether any seafarers below 18 years of age were involved.
    - Medical certificates to ensure no medically unfit seafarers are employed. Remember, the validity of the medical certificate may depend upon the flag state.
    - The minimum safe manning document to verify the qualifications and required number of seafarers on board.
    - Certificates and endorsements of the STCW personnel to verify their qualifications.
    - Crew list to:
        - check the allocated duties for the seafarers.
        - ensure the vessel is manned in accordance with the minimum safe manning document.
        - sufficient number of cabins are available
    - Medical care certificate of the person who is responsible for medical care of the seafarers onboard.
    - Certificates of ship's cook.
    - Onboard safety familiarization check lists to confirm that the seafarers are given proper safety training onboard.
    - If the ship owner has used a crewing agency from a non-ratifying country, need to have a documentation to show that the shipowner has, verified through a proper system that the service is operated consistently with the MLC, 2006. This could be done by the shipowner himself or through RO. This is not required if the shipowner has used a crewing agency from a ratified country.
    - The Seafarer Employment Agreement/s shall contain at least the minimum information as required by the Convention, such as seafarer's name, date of birth, age, place of birth, shipowner's name, his address, seafarer's capacity onboard, wages, place and date of agreement etc.
    - The seafarer's copy of Seafarer Employment Agreement to ensure that, it is given to him/her.

- Any form of document such as CDC to ensure a record of employment on board is given to seafarers. At the same time, it shall not contain any statements as to the quality of their work or as to their wages.
- If applicable, the collective bargaining agreement.
- Payroll records to ensure the seafarers are being paid at intervals no greater than one month.
- Pay slips or wages slips which are given to seafarers.
- Documents showing service charges and exchange rates applied to any remittances made to the seafarers' families or their own bank accounts.
- Record of work **OR** rest hours.
- Work schedules, bridge/engine logbooks, bridge/engine order books to ensure compliance with work and rest hours.
- Records of inspections carried out in the accommodation.
- May refer ship's construction plans to check the sizes and numbers of cabins and other areas.
- Records of inspections with regards to food and drinking water.
- Menu plans to ensure variety of quality and nutritious food is given.
- Medical report forms and records of radio or satellite medical advice taken to ensure the seafarers have prompt access to medical care ashore.
- Records of safety committee meetings to ensure a safety committee is available.
- Record of risk assessments.
- Documents relating to occupational safety and health onboard, accident prevention and accident reporting.
- Documents relating to onboard complaint procedures to ensure such procedures are available.

j) Ensure LSA training manual, FFA training manual, safety videos etc. are available for training purposes.
k) Ensure the accommodation is cleaned and well maintained.
l) Sufficient recreational facilities shall be available.
m) Make sure the lighting, heating and ventilation systems of the accommodation are in order.
n) Noise, vibrations and other factors which affect the health safety of the seafarers must be controlled.
o) Ensure that the sanitary facilities are available and properly maintained.
p) Ship's medical chest shall be cleaned and in proper order.
q) Make sure the food storage areas, galley, cooking equipment, drinking water storage tanks and associated equipment are in good order and condition.
r) Ensure a complaint handling procedure is available onboard and a copy of such procedure is given to each seafarer onboard.
s) Finally, the PSC officers may have private interviews with seafarers to ensure the compliance with the Convention.

Detention of ships

PSC inspectors will not detain ships unless there is a serious breach of the requirements of the Convention, as the Convention clearly states that ships shall not be unduly detained or delayed. If a ship owner manages to prove that a vessel is unduly delayed or detained, compensation can be claimed. If a PSC inspector decides to detain a vessel:

- He will inform the flag state and he may invite a representative of the flag State to be present, if possible.
- He will inform the shipowner and seafarer's organization in port state.
- He may request the shipowner's representatives or seafarers' representatives to propose a plan of action for correcting the situation.
- Such plan of actions should contain an undertaking by the shipowner to facilitate the inspection of the ship by PSC officer in other ports in order to verify that the plan of action to rectify the non-conformities has been properly implemented.

Medical certificate

The following requirements are similar to the STCW requirements:

- Medical certificate is valid for a period of two years. For seafarers with less than 18 years of age, the validity period is one year. The Convention is silent on the validity period of medical certificates with elderly seafarers, but in accordance with the Sri Lankan seafarers if the age is above 55 years, the validity period is one year.
- If the period of validity of a medical certificate expires in the course of a voyage, then the medical certificate will continue to be valid until the next port of call where a recognized medical practitioner is available, provided that the period does not exceed 03 months.
- In urgent cases, seafarers can work without a valid medical certificate until the next port of call where a recognized medical practitioner is available, provided that:
  - Such time period does not exceed 03 months; and
  - The seafarers are having a recently expired Medical Certificate.

MARPOL ANNEX – VI

Marine pollutants

Under MARPOL Annex VI followings are considered as marine pollutants:

- Ozone depleting substances
- Nitrogen Oxides
- Sulphur Oxides
- Particulate matter (Particulate matter is solid particles and liquid droplets suspended in air[31])
- Volatile organic compounds (applies to tankers only, regulated by port authorities)
- Emissions from ship's incinerators and
- Carbon oxides

Summary of the documents required by Annex VI

Document	Required by	Objectives
International Air Pollution Prevention Certificate	MAPOL Annex VI	Reduce air pollutions by; • SOx • NOx • Emissions from incinerators • Ozone depleting substances • VOC
Ozone-depleting Substances Record Book	MAPOL Annex VI	Reduction of emission of ozone depleting substances
List of equipment containing ozone depleting substances	MAPOL Annex VI	Reduction of emission of ozone depleting substances
Bunker Delivery Note	MAPOL Annex VI (Retain onboard for 03 years after receiving bunkers)	Reduce SOx emissions
Fuel Oil Changeover Procedure	MAPOL Annex VI	Compliance with low sulphur requirements when entering into ECA areas.
Record of fuel changeover	MAPOL Annex VI	Compliance with low sulphur requirements when entering into ECA areas.
Manufacturer's Operating Manual for Incinerators	MAPOL Annex VI	Incinerators are designed to incinerate garbage and other shipboard waste in view of reducing the pollution by Annex V pollutants. But, need to comply with emission control regulations as well.

[31] https://safety4sea.com/wp-content/uploads/2016/06/DNV-GL-Brochure-Black-Carbon-2016_06.pdf

EEDI Technical File	MAPOL Annex VI	Reduction of CO_2 emission by maximizing energy efficiency
Ship Energy Efficiency Management Plan (SEEMP)	MAPOL Annex VI	Reduction of CO_2 emission by maximizing energy efficiency
International Energy Efficiency Certificate	MAPOL Annex VI	Reduction of CO_2 emission by maximizing energy efficiency
Engine International Air Pollution Prevention (EIAPP) Certificate	MAPOL Annex VI	Reduction of NOx emissions
NOx Technical File	NOx Technical Code	Reduce NOx emissions
Record Book of Engine Parameters	NOx Technical Code	Reduce NOx emissions
NOx Technical Code – Not required to carry onboard	This was adopted by Resolution 2 of 1997 MARPOL Convention	Reduce NOx emissions
VOC Management Plan	MAPOL Annex VI	Control the emission of Volatile Organic Compounds from tankers

Further details of above certificates and documents

IAPP certificate

This certificate is issued once the installations of the engines are completed and certifies that all the engines are still complying with the requirements of the Convention, which means, no any modifications done at the time of installing for the diesel engines having EIAPP certificate. Unlike the EIAPP certificate, only one IAPP certificate is issued for all the marine diesel engines onboard and will be valid for a period of 05 years subjected to annual and intermediate surveys. This is applicable only to new ships.

When a nominated surveyor or recognized organization determines that the condition of the equipment does not correspond substantially with the particulars of the IAPP certificate, it shall ensure that corrective action is taken and shall in due course notify the Administration. If such corrective action is not taken, the certificate shall be withdrawn by the Administration[32].

Supplement to IAPP certificate contains a record of construction and equipment, which includes the following:

- Ship particulars
- Control measures for emissions of;
    - Ozone depleting substances;
    - NOx
    - SOx

[32] Resolution MEPC. 176 (58), IMO

    - VOC
- Compliance of the incinerator with the requirements
- Fittings, materials, appliances or apparatuses used in controlling the ships' emissions to comply with the regulations and
- Endorsement that provided data are correct

EIAPP certificate

This certificate certifies that the marine diesel engine has been surveyed for pre-certification in accordance with the requirements of the Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines made mandatory by Annex VI of MARPOL and the marine diesel engine is fully complying with the applicable regulation 13 of Annex VI.

Each diesel engine above 130 kW onboard shall have EIAPP certificate. That means, if the vessel is having one main engine and two auxiliary engines more than 130 kW, that vessel is required to have three EIAPP certificates. This certificate is issued before the engines are fitted to a ship and is valid for the lifetime of the engine.

IEEC

The IEEC shall be valid throughout the life of the ship unless;

- the ship is withdrawn from service or
- a new certificate is issued following major conversion of the ship; or
- Upon transfer of the ship to the flag of another State

The supplement to the certificate contains a record of construction relating to energy efficiency which includes the following:

- Particulars of ship
- Propulsion system
- Attained EEDI
- Required EEDI
- SEEMP
- EEDI Technical File
- Endorsement that provided data are correct

Technical Code on Control of Emission of Nitrogen Oxides from Marine Diesel Engines (NOx Technical Code)

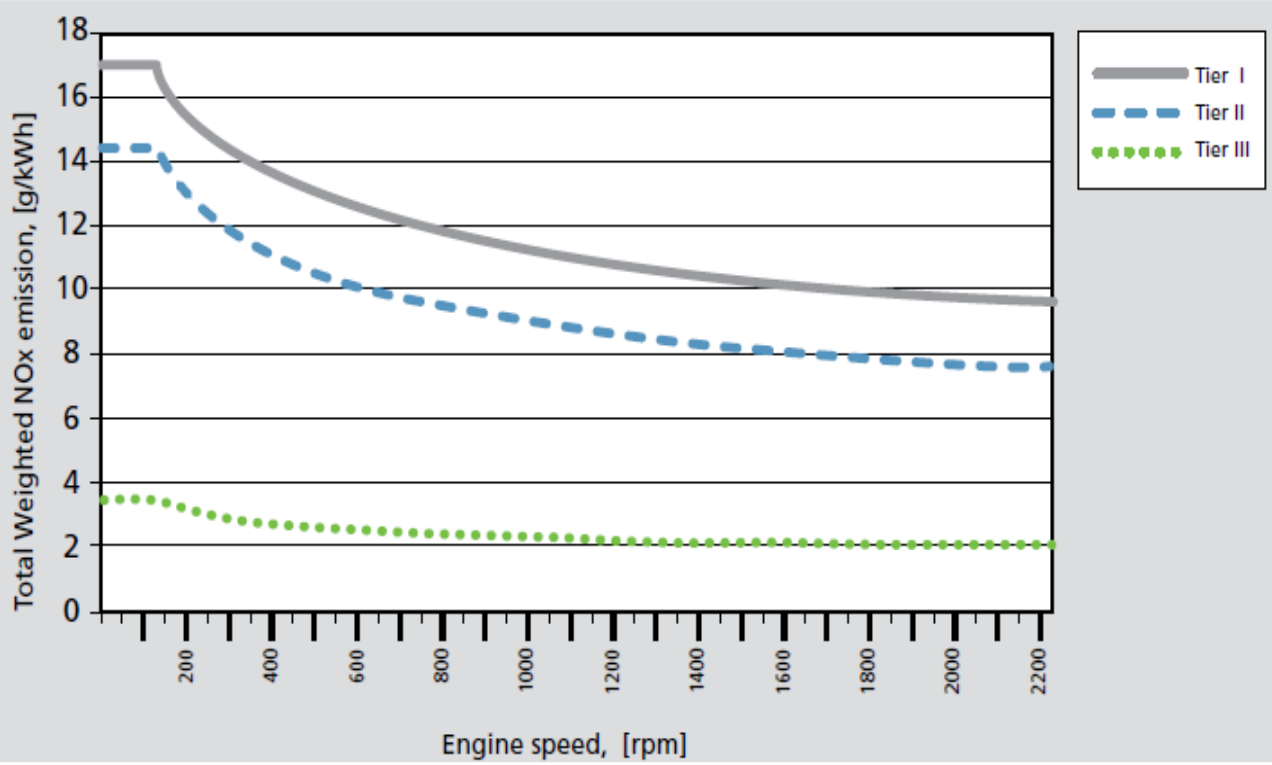
Regulation 13 of MARPOL Annex VI requires to control the emission of NOx from marine diesel engines, but, this regulation does not apply to;

- Emergency diesel engines,
- engines installed in lifeboats or
- any equipment intended to be used solely in case of emergency.

IMO's intention is to reduce the NOx emissions gradually, by making three tiers, namely, Tier I, Tier II and Tier III.

Tier	Year constructed	NOx emission
Tier I	Ships constructed from 1st January 2000 to 1st January 2011	Initial reduction
Tier II	Ships constructed on or after 1st January 2011	Reduced than Tier I
Tier III	Ships constructed on or after 1st January 2016	Additional limitations when operating in an Emission Control Area.

The below graph illustrates the allowable NOx emissions from diesel engines[33]



[33] Marpol 73/78 Annex VI Regulations for the Prevention of Air Pollution from Ships, DNV

Ships constructed on or after 1 January 1990 but prior to 1 January 2000 shall comply with the Tier I NOx emission limits. However, the requirement is limited to engines with a power output of more than 5000 kW and a per cylinder displacement at or above 90 litres.
The purpose of this NOx Technical Code is to provide mandatory procedures for the **testing**, **survey** and **certification** of marine diesel engines, so that the engine manufacturers, shipowners and Administrations can ensure that all applicable marine diesel engines comply with the relevant limiting emission values of NOx as specified within regulation 13 of Annex VI. In detail, this Code contains;

- NOx emission standards
- Approval procedures for family and group engine concepts[34]
- Procedures for NOx emission measurements
- Procedures for demonstrating compliance with NOx emission limits onboard
- Certification procedures of existing engines
- Format of EIAPP certificate
- Format of the supplement to EIAPP certificate

NOx Technical file

This is an engine specific **approved** (flag or RO) document which defines the engine in terms of rating, application, performance, limitations and NOx relevant components and settings, the emission test report relevant to that engine and the means by which that engine is to be subsequently surveyed in order to demonstrate compliance.

Where amendments, additions or deletions are necessary, these will need to be duly approved by the flag or RO on behalf of Flag. NOx technical file contains[35];

- list of equipment or settings / operational values on equipment which control emission of NOx;
- list of adjustments / alternatives for engine components;
- full record of the relevant engine's performance, including the engine's rated speed and rated power;
- a system of onboard NO, verification procedures to verify compliance with the NO, emission limits during onboard verification surveys;
- a copy of the relevant parent engine test data, as given in section;
- if applicable, the designation and restrictions for an engine that is an engine within an engine family or engine group[36];

[34] Engine family means photocopy engines which does not require any modifications when installing. Engine group means photocopy engine which may require small changes
[35] NOx Technical Code, IMO
[36] Only one engine may be surveyed in case of photo copied engines

- specifications of those spare parts/components that, when used in the engine, according to those specifications, will result in continued compliance of the engine with the applicable NO, emission limit; and
- the EIAPP Certificate, as applicable.

Record Book of Engine Parameters

This is a document which is maintained to record all replacements and changes to NO_x critical components, settings and operating values.

Unlike the NOx Technical File, this is maintained by the ship staff.

SEEMP

SEEMP is **not required to be approved** and it has two parts. The purpose of part I of the SEEMP is to establish a mechanism for a company and/or a ship to improve the energy efficiency of a ship's operation[37] and it is mandatory on ships of 400 GT and above. At the same time, air emissions to the marine environment can be reduced by improving the energy efficiency onboard.

IMO is carrying out a research on the CO_2 emissions from ships of 5,000 GT and above. For the purpose of this research, all the ships are required to collect certain data and forward to their flag states. Part II provides the methodologies of collecting such data.

Therefore, Part II is applicable only for the ships of 5,000 GT and above.

Guidance on best practices for fuel efficient operations which shall be addressed in a SEEMP

IMO Resolution MEPC.282(70) also addresses various methods of fuel-efficient operations as well. Few such methods are listed and described below generally, which are important for a master. Remember, refer an actual SEEMP onboard for ship specific measures of fuel-efficient operations.

- Optimum trim
  Loaded or unloaded, trim has a significant influence on the resistance of the ship through the water and optimizing trim can deliver significant fuel savings. For any given draft there is a trim condition that gives minimum resistance. Therefore, make sure the vessel is maintaining optimum trim for the draught applicable.

[37] Annex 10, Resolution MEPC.282(70), IMO

- Optimum ballast
  Ballast should be adjusted taking into consideration the requirements to meet optimum trim and steering conditions. Optimum ballast conditions achieved through good cargo planning.

- Hull maintenance
  Generally, the smoother the hull, the better the fuel efficiency. Hull resistance can be optimized by new technology-coating systems, possibly in combination with cleaning intervals. Regular in-water inspection of the condition of the hull is recommended.

  Consideration may be given to the possibility of timely full removal and replacement of underwater paint systems to avoid the increased hull roughness caused by repeated spot blasting and repairs over multiple dockings.

- Improved cargo handling
  Now a days, the cargo handling is mainly controlled by the ports, but, if the cargo is handled to obtain the optimum draughts and trim, energy waste due to ballast operations can be eliminated.

Apart from the methods listed above in the said Resolution and requirements of the ship specific SEEMP, as a master you may consider of the following in making the vessel fuel-efficient.

- Not to keep engines on standby unless it is required for the safety, security and pollution prevention measures.
- Make sure the pilots, tugs, berth etc. are ready through the port authority, pilot station, ship's agent in case of berthing, unberthing, anchoring, picking up anchor to avoid keeping the engines ready unnecessary.
- Clear instructions are provided to staff with regards to;
  - switching off unnecessary lights.
  - avoidance of unnecessary uses of cargo gears, mooring winches, windless and other deck and engine machinery.
  - switching off cargo gears or switch to standby mode when there are delays (as an example – when the cargo operations are ceased for shift change or tea or lunch) provided it is safe to do so.
  - proper use of auto pilot to reduce unnecessary rudder movements.
  - having proper communications between the departments onboard in case of vessel's maintenances so that additional generators are not required to start unnecessarily, and they can be switched off immediately after the operations are completed.

- Ensure the deck machineries are maintained in accordance with the vessel's PMS which will increase not only the safety but the efficiency as well by reducing resistances or frictions.
- Instruct the chief officer to reduce the use of ballast pumps by ballasting or de-ballasting by gravity provided it is safe to do so.

- Carryout training sessions onboard to increase the awareness of the staff on increasing efficiency by energy saving.

Fuel Oil Changeover Procedure and Logbook (record of fuel changeover)[38]

Those ships using separate fuel oils to comply with MARPOL Annex VI, regulation 14.3 and entering or leaving an ECA shall carry a written procedure showing how the fuel oil changeover is to be done. The volume of low-sulphur fuel oils in each tank as well as the date, time and position of the ship when any fuel oil changeover operation is completed prior to the entry into an emission control area or commenced after exit from such an area shall be recorded in such logbook as prescribed by the Administration.

EEDI and EEOI in detail

EEDI (Energy Efficiency Design Index)

The Energy Efficiency Design Index (EEDI) is required only for new buildings. The term "new ship" is defined as a ship for which the building contract is placed on or after 1st January 2013; or in the absence of a building contract, the keel of which is laid or which is at a similar stage of construction on or after 1st July 2013; or the delivery of which is on or after 1st July 2015.

- EEDI is a measure of CO2 emissions per ton per nautical mile. Lower the EEDI, higher the efficiency of the vessel.
- This is mandatory on new ships of 400 GT or more.
- Actual EEDI of a vessel is called the "**attained EEDI**" and it is calculated by using IMO guidelines.
- The "**required EEDI**" is the EEDI that a vessel to be designed at the time of construction and it is provided by the IMO for various ship types and their tonnages.
- The "**Attained EEDI**" shall be **below** the "**required EEDI**".
- An EEDI **technical file** is required to be maintained. "EEDI Technical File" is a document that contains the information necessary for the calculation of the attained EEDI and that shows the process of calculation. Refer the '2014 GUIDELINES ON SURVEY AND CERTIFICATION OF THE ENERGY EFFICIENCY DESIGN INDEX (EEDI), AS AMENDED', for a sample EEDI technical file.
- The technical file shall be approved by RO and is subjected to the **verification by the flag state.**
- EEDI may be reduced by various methods such as advanced technologies, alternative fuels, deadweight increase, economical speed etc.

[38] https://www.dnvgl.com/maritime/energy-efficiency/eedi-and-eeoi.html

EEOI (Energy Efficiency Operational Indicator)

The Energy Efficiency Operational Indicator (EEOI) is a monitoring tool for managing ships and fleet efficiency performance over time. The EEOI enables operators to measure the fuel efficiency of a ship in operation and to gauge the effect of any changes in operation, e.g. improved voyage planning and more frequent propeller cleaning, or the introduction of technical measures such as waste heat recovery systems or a new propeller[39].

$$EEOI = \frac{\text{Fuel} \times \text{CO2 Conversion factor}}{\text{Cargo quantity} \times \text{Distance}}$$

This is a voluntary technical measure for ships in service (on vessels that the EEDI is not applicable) for the purpose of reducing CO_2 emissions from ships.

[39] https://www.dnvgl.com/maritime/energy-efficiency/eedi-and-eeoi.html

Ballast water management Convention

Application

Ballast water management Convention came in to force on 8th of September 2017. But, Sri Lanka is not a party to the BWM Convention (as of 12th November 2020). The Convention applies to all ships using ballast water in international trade, except:

- Ships which are not designed to carry ballast water
- Ships that only operate in the local waters
- War ships, naval auxiliary, or ship owned and operated by a State and used only on Government, non-commercial service
- Ships with sealed or permanent ballast water tanks

Exceptions

Ballast water convention shall not apply to;

- Ballasting or de-ballasting of Ballast Water and Sediments in emergency situations or saving life at sea; or
- The accidental discharge or ingress of Ballast Water and Sediments due to damage to a ship:
  - provided that all reasonable precautions have been taken to prevent or minimize the discharge; and
  - unless the owner, Company or officer in charge wilfully or recklessly caused damage; or

- Ballasting or de-ballasting of Ballast Water and Sediments to avoid or minimize pollution incidents from the ship; or
- Exchange of ballast water on the high seas; or
- De-ballasting the Ballast Water and Sediments which was taken in from the same location.

Exemptions

Exemptions may be granted to a ship or ships on a voyage or voyages between specified ports or locations; or to a ship which operates exclusively between specified ports or locations.

Any exemptions granted under this regulation shall be recorded in the Ballast Water record book and effective for a period of no more than five years subject to intermediate review.

Regulations D – 1 and D – 2

There are two standards (D – 1 and D – 2) for ballast water management onboard ships in accordance with the ballast water management convention. D – 1 refers to ballast water exchange methods and D – 2 refers to ballast water treatment methods. From 8th September 2017, all new ships are required to be complied with the D – 2 standards. The existing vessels may comply with the D – 1 standard until it is phase out by D – 2 standards. Phasing out of D – 1 standard is linked to IOPPC renewal survey. In accordance with the D – 1 standard phasing out timetable, D – 1 will be completely phased out by 8th September 2024.

Ballast water exchange methods (Regulation D – 1 of the Convention)

The Regulation D – 1 identifies three methods of ballast water exchange, which are considered that at least 95% of volumetric exchange of ballast water could be achieved. Refer the below table for a detailed information of ballast water exchange methods[40].

Methods	Procedures	Remarks
Sequential method	Tank is first emptied and then refilled with replacement ballast water to achieve at least a 95% volumetric exchange	
Flow-through method	Ballast water is pumped into a ballast tank, allowing water to flow through overflow	The flow-through method and the dilution method are considered as "pump through" methods. Pumping through to be continued until three times the volume of the tank is overflown
Dilution method	Ballast water is filled through the top of the ballast tank with simultaneous discharge from the bottom at the same flow rate and maintaining a constant level in the tank throughout the ballast exchange operation	

Ballast water exchange is to be conducted at least 200 nm from the nearest land and in water at least 200 m in depth, or in cases where the ship is unable, at least 50 nm from the nearest land and in water at least 200 m in depth, or in a designated ballast water exchange area.

If the requirements of Regulation D-1 (distance from the nearest or the required water depth) are not met throughout the journey and an exchange area also does not exist, an exchange is not required. However, the circumstance must be documented in the Ballast Water Record Book. It is not necessary to deviate from the planned route to comply with D-1.

If the master reasonably decides that to perform ballast water exchange would threaten the safety or stability of the ship, its crew or its passengers, because of adverse weather, the ship's design, stress,

[40] Resolution MEPC.288(71), IMO

equipment failure, or any other extraordinary condition, a ship shall not be required to comply with regulations and the reasons shall be entered in the ballast water record book.
When a ship is required to conduct Ballast Water exchange and does not do so in accordance with this regulation, the reasons shall be entered in the Ballast Water record book.

Documents required under D – 1 standard

- Approved BWM Plan;
- Ballast water record book (need to keep onboard at least for a minimum period of two years after the last entry has been made);
- International Ballast Water Management Certificate (for vessels of 400 GT & above);
- Document of Compliance (for vessels flying the flag of non-ratified countries)

Documents required under D – 2 standard

- Approved BWM Plan;
- Approved technical documentation for the BW treatment system;
- Ballast water record book (for a minimum period of two years after the last entry has been made);
- Vessels of 400 GT & above – International Ballast Water Management Certificate;
- Vessels flying the flag of non-ratified countries – Document of Compliance;
- Calibration certificate certifying the date of the last calibration check;
- Self-monitoring parameters of the treatment facility shall be available for official inspections (printouts or soft copies);
- Copy of the Type Approval Certificate of the ballast water treatment system;
- Operation, maintenance and safety manual of the ballast water treatment system;
- Installation specifications, e.g. installation drawing, Piping and Instrumentation diagrams, etc.; and
- Installation commissioning procedures.

Sediment Management for Ships

All ships shall remove and dispose of Sediments from spaces designated to carry Ballast Water in accordance with the provisions of the ship's Ballast Water Management plan.

Surveys and certification

Ships of 400 GT and above to which this Convention applies, shall be subjected to surveys specified below:

- An initial survey before the ship is put into service. This will verify:
  - that the Ballast Water Management plan is available
  - the associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the requirements

- An annual survey within +/- 03 months of each Anniversary date. The survey will be endorsed on the International ballast water management certificate.
  - This will be a general inspection of the structure, any equipment, systems, fittings, arrangements and material or processes to ensure that they have been maintained in accordance with the requirements.

- An intermediate survey within +/- 03 months of the 2nd Anniversary date or within +/- 03 months of the 3rd Anniversary date. One of the above-mentioned annual surveys shall be replaced by this. This also will be indorsed on the certificate.
  - This will ensure that the equipment, associated systems and processes for Ballast Water Management fully comply with the requirements and are in good working order.

- A renewal survey at intervals of not exceeding 05 years.
  - This is to ensure that the Ballast Water Management plan and any associated structure, equipment, systems, fitting, arrangements and material or processes comply fully with the requirements of this Convention.

- An additional survey either general or partial, shall be made after a change, replacement, or significant repair of the structure, equipment, systems, fittings, arrangements and material to ensure the compliance with the Convention.

If a renewal survey has been completed and a new Certificate cannot be issued or placed on board, the surveyor may endorse the existing Certificate and such a Certificate shall be valid for a further 05 months from the expiry date.

If a ship at the time when the Certificate expires is not in a port in which it is to be surveyed, the Administration may extend the period of validity of the Certificate to complete the voyage and for a maximum period of 03 months.

PSC inspections

Parties to the ballast water Convention may check the compliance with the Convention on the vessels visiting their ports. Such inspections may include:

- Ensuring a valid ballast water management certificate is available;
- Ensuring an approved ballast water management plan is available;
- Inspection of ballast water record book. They may take copies of the entries made on the ballast water record book;
- Documents related to ballast water treatment system;
- Ensuring an officer is appointed for the ballast water management onboard and he is aware of the ballast water management;
- Sampling of ship's ballast water.

But, remember, the time required to analyse the samples shall not be used as a basis for unduly delaying the operation, movement or departure of the ship[41].

In case of the treatment system (D – 2) is out of order

- Inform the port.
- May have to stop cargo operations until the matter is rectified.
- Refer the BW management plan.
- Check the viability of discharging ballast water to a reception facility.
- If it occurs before arrival, comply with the D-1 standards.
- Check the viability of changing the loading/discharging sequence or cargo stowage provided it is safe to do so.

Special regulations in North Sea[42]

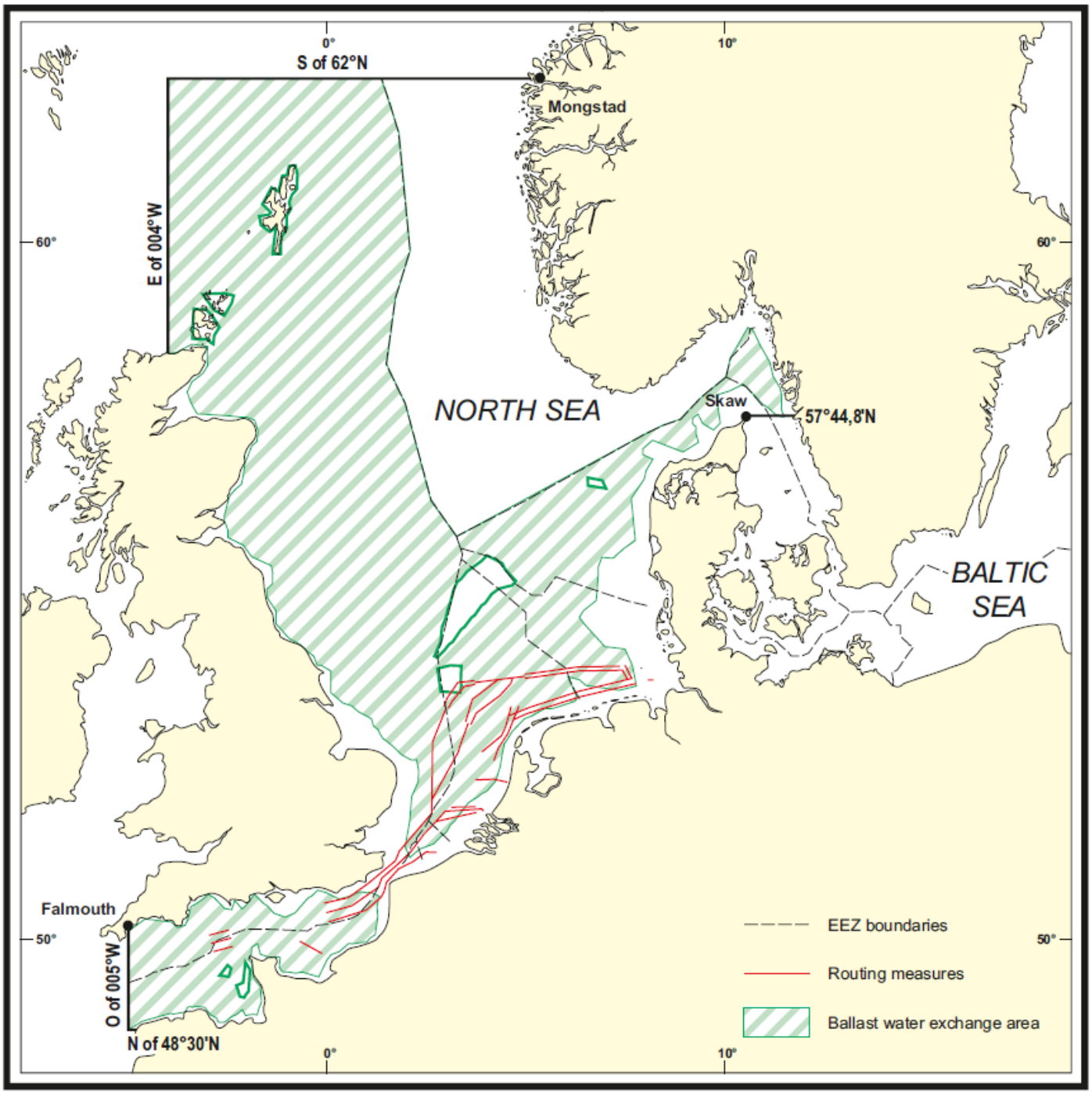
Various countries or combination of countries may take actions to control or minimize the damage to their marine environment by ship's ballast water and sediments. Therefore, masters are required to comply with such requirements when going into those areas. This information would be obtained from flag state, port states and the ship's agents in the ports. The best and the oldest example for such local regulations is the restricted areas in the Australian coast. Following is another example implemented in the North Sea.

The OSPAR States (OSPAR is a Convention adopted to protect the marine environment in the North-East Atlantic area. OSPAR means 'Convention for the Protection of the Marine Environment

[41] Article 9, para 1, sub para (c), BWM Convention

[42] Ballast Water Management Convention, BUNDESAMT FUR SEESCHIFFFAHRT UND HYDROGRAPHIE

of the North-East Atlantic') have adopted a special ballast water exchange area for vessel exclusively navigating only in that area. The green colour shaded area of the below diagram illustrates the said ballast water exchange area.



Note the below requirements that the vessels are required to comply with in accordance with the OSPAR States:

- Ships with their port of departure or their destination outside the North Sea shall not exchange their ballast water in the North Sea exchange area but rather use the 200 nm and at least 200 m

water depth on their way before or after traveling the North Sea (or if this is impossible 50 nm/200 m water depth).

- Ships on voyage in intra North Sea traffic (and only these) are required to conduct an exchange in the designated exchange area of the North Sea if the exchange area is on their way. Ships are not obliged to divert from the planned travel route or to delay the voyage to conduct a ballast water exchange. They are possibly required to conduct a partial exchange only.

- Intra North Sea traffic comprises all ships that operate within the North Sea only and take up or discharge ballast water in that area. This includes all rivers opening into the North Sea, as well as the Kiel Canal, which forms part of the river system Elbe. In each case, each section of the voyage has to be considered separately, i. e. even though a ship is heading for the Baltic Sea, it is considered as being intra North Sea traffic if it takes up or discharges ballast water in the North Sea/Kiel Canal.

- The intra North Sea exchange area does not apply to ships coming from the Baltic Sea or coming from the North Sea calling at a Baltic Sea port either; ships on these kinds of voyages need not conduct an exchange in accordance with D-1.

Exchange of ballast water in Baltic Sea[43]

- Ships traveling between two ports in the Baltic Sea do not have to conduct a ballast water exchange. There is no ballast water exchange area in the Baltic Sea.

- Ships coming from North Sea areas traveling into the Baltic Sea do not have to conduct an exchange in accordance with D-1, because they do not pass an exchange area that applies for them. The intra North Sea exchange area only applies for intra North Sea traffic.

- Ships coming from other areas (Atlantic etc.) to the Baltic Sea conduct a ballast water exchange according to the D-1 standard. Therefore, on long voyages, the exchange takes place before entering the Baltic Sea provided that circumstances (200 nm/200 m or 50 nm/200 m distance from the nearest land, i.e. from the baseline/water depth or a usable exchange area) will allow it.

[43] Ballast Water Management Convention, BUNDESAMT FUR SEESCHIFFFAHRT UND HYDROGRAPHIE

MERCHANT NAVY CODE OF CONDUCT[44]

Merchant Navy Code of Conduct is made up with the consent of seafarer's unions and employer's organization and it sets out disciplinary rules, with regards to the standards of behaviour generally to be expected by all seafarers.

This Code has been agreed between Nautilus International, the National Union of Rail, Maritime and Transport Workers (RMT) and the UK Chamber of Shipping and approved by the Maritime and Coastguard Agency.

This Code is applicable on UK flagged ships only. But still it is better to have a good knowledge of the same, since the other flag states also more or less have the same ethics onboard. A master is required to refer the flag state regulations and codes before taking actions with regards to behavioural measures of seafarers. Certain important areas from the Code are given below to have a better understanding of the Code.

Conduct in emergencies

In any emergency or other situation in which the safety of the ship or of any person on board or the marine environment is at stake, the Master, Officers and Petty Officers are entitled to look for immediate and unquestioning obedience of orders. There can be no exceptions to this rule. Failure to comply will be treated as among the most serious of breaches of discipline and may also warrant prosecution under the provisions of the Merchant Shipping Acts.

Gross misconduct (Paragraph - 7)

Acts of gross misconduct, examples of which are listed below, may, if appropriate in the circumstances and established to the satisfaction of the Master, lead to dismissal from the ship either immediately or at the end of the voyage and to dismissal from employment. This is separate from any other legal or disciplinary action which may be called for.

i. assault (including threatening behaviour)
ii. wilful damage to the ship or any property on board
iii. theft (including attempted theft) or possession of stolen property
iv. possession of offensive weapons
v. persistent or wilful failure to perform duty
vi. unlawful possession or distribution of drugs
vii. conduct endangering the ship, persons or cargo on board, or the marine environment

[44] Code of Conduct for the Merchant Navy, August 2013

viii. combination with others at sea to impede the progress of the voyage or navigation of the ship
ix. disobedience of a lawful order
x. to be asleep on duty or fail to remain on duty, if such conduct would prejudice the safety of the ship, persons or cargo on board, or the marine environment
xi. breach of company rules and procedures relating to alcohol, drugs or smoking.
xii. failure to report to work without satisfactory reason or absence from place of duty or from the ship without leave
xiii. interference with the work of others
xiv. behaviour which seriously detracts from the safe and/or efficient working of the ship
xv. conduct of a sexual nature, or other conduct based on sex affecting the dignity of women and men which is unwanted, unreasonable or offensive to the recipient
xvi. behaviour which seriously detracts from the social well-being of any other person on board, including but not limited to bullying, harassment, intimidation and coercion
xvii. causing or permitting unauthorised cargo, possessions or persons to be on board the ship or in parts of the ship where prohibited
xviii. smuggling of any nature or breach of Customs' regulations, including but not limited to contraband, stowaways or refugees
xix. demanding and/or receiving any commission or any other favour or benefit from any passenger, customer or supplier (excluding only unsolicited tips given by passengers for service provided, to the extent permissible under company rules)
xx. deliberate misuse of a harbour pass or personal identity card.
xxi. commission of a breach of a lesser degree listed in Paragraph 9 after warnings have been given in accordance with the procedures in Paragraph 8

Less serious misconduct (Paragraph - 8)

Breaches of a lesser degree of seriousness may be dealt with by:

a) an informal warning administered at an appropriate level
b) a formal warning by an Officer
c) a written warning by a senior Officer
d) a final written warning by a senior Officer or the Master.

When a warning other than an informal warning is given, the seafarer should be advised of the likely consequences of further breaches of discipline.

Paragraph – 9

Examples of breaches of the disciplinary rules where use of the Paragraph 8 procedure is considered appropriate are listed below.

a) offences of the kind described at Paragraph 7, which are not considered to justify dismissal in the particular circumstances of the case
b) minor acts of negligence, neglect of duty, disobedience and assault
c) unsatisfactory work performance
d) poor time keeping
e) stopping work before the authorised time
f) offensive or disorderly behaviour.

Immediate suspension (Paragraph – 10)

In serious cases the Master may suspend a seafarer from duties and take such action to preserve the safety of the ship, persons or cargo on board, or the marine environment, as he considers appropriate. In such cases the Master may require the seafarer to be disembarked and repatriated as soon as practicable. Shipboard procedures may not then apply. In such an event, disciplinary action will be initiated ashore by a shore manager.

Initial meeting/Informal Warning (Paragraphs 11 to 14)

11) A seafarer who is alleged to have breached the disciplinary rules will be called to a meeting with a Petty Officer or Officer or the Master as appropriate.
12) At the meeting the seafarer will be told of the alleged breach, given the opportunity to give his/her explanation and say whether or not s/he admits it.
13) If the Petty Officer, Officer or Master is satisfied that no further action is called for or that the breach needs no more than an Informal Warning, s/he will proceed accordingly, and the matter will then be regarded as resolved.
14) If the Petty Officer, Officer or Master decides that formal action is required the seafarer will be advised accordingly. In the discretion of the Petty Officer, Officer or Master, the seafarer may be suspended from duty.

Formal action (Paragraphs 15 to 18)

15) An Officer or the Master will investigate the allegation. Written statements may be taken from witnesses. The investigation should be completed without undue delay.

16) If, following the investigation, the Officer or Master concludes that no further action is called for, or that the breach needs no more than an informal warning, s/he will proceed accordingly, and the matter will then be regarded as resolved.
17) If the Officer or Master concludes that formal disciplinary action is called for:
    a) If there is no current prior warning and the breach is considered to be one of a lesser degree, the Officer or Master will undertake a disciplinary hearing or refer it to an appropriate Officer for action.
    b) If there is a current prior warning or if the breach is considered to be sufficiently serious to warrant action at senior Officer level or above, a senior Officer or the Master will undertake a disciplinary hearing.
    c) If the breach is considered to be gross misconduct, the Master will undertake a disciplinary hearing.

18) The seafarer will be given written notice of the disciplinary hearing. This will specify:
    a) date, time and place of the hearing;
    b) the conduct allegedly committed;
    c) the disciplinary rule(s) allegedly breached;
    d) the potential penalty if a breach of discipline is substantiated and
    e) the seafarer's rights at the hearing as in paragraph 19.

    It will be accompanied by copies of any relevant statements.

The disciplinary hearing (Paragraphs 19 to 26)

19) At the hearing the seafarer may:
    .1 be accompanied at the hearing by a work colleague, or trade union official if available
    .2 call relevant witnesses
    .3 question witnesses on their evidence and
    .4 make any statement or comments on the evidence, in response to the alleged breach the appropriate penalty if the breach of discipline is substantiated.

20) At any hearing the seafarer will be invited to say whether or not s/he admits the alleged breach of discipline.
    a) If s/he admits it, the hearing will move immediately to consideration of penalty.
    b) If s/he does not admit it, the hearing will consider relevant evidence including any presented by the seafarer.

21) In exceptional circumstances, it may be appropriate to conduct the hearing ashore.
22) If in the cause of the hearing it appears to the person conducting it that:
    a) the matter warrants more serious action than originally envisaged, the hearing will be adjourned, and the matter referred to more senior level for action. A new notice of

disciplinary hearing will then be issued to the seafarer detailing the matters in paragraphs 18 (a) to (d);

b) the matter warrants less serious action than originally envisaged, the hearing may be adjourned, and the matter referred to a lower level for action.

23) After the hearing the person conducting it will give his/her determination. S/he will say whether or not s/he finds a breach or breaches of discipline to have occurred and, if so, specify the breach or breaches and the appropriate penalty.

24) The penalties which may be imposed are as follows:

Master	Dismissal from ship
	Final warning
	Written warning
	Formal warning
	Informal warning
Senior Officer	Final warning
	Written warning
	Formal warning
	Informal warning
Officer	Formal warning
	Informal warning
Petty Officer	Informal warning

25) The seafarer will be given written notification of the outcome of the hearing and the reasons for the decision as soon as practicable following the hearing. The seafarer should be told how long any warning will remain current.

26) The seafarer will be given a copy of any entries made in the ship's Official Logbook.

PREPARING VESSELS FOR INSPECTIONS, AUDITS AND SURVEYS

Please be kind enough to refer the "Guide for chief mate's oral examination" as well, because most of the survey preparations are addressed in detail in that book. Areas which are not covered in that book are addressed under this topic.

1) PSC inspections

Port State Control Officers (PSCO) carryout 'inspections' and not 'surveys' or 'audits'. Any condition found not to be in compliance with the requirements of a relevant convention is known as 'deficiency', not as 'observation' or 'NCR' or 'major NCR'. A PSCO may carry out inspections to ensure the compliance with the following Conventions:

- SOLAS 1974 and Protocol 1988
- Load line convention 1966 & Protocol 1988
- MARPOL'73 as amended
- STCW'78 as amended
- International Tonnage Convention 1969
- International Anti-Fouling Convention 2001
- COLREG 1972
- CLC 1969 & Protocol 1992
- CLC (Bunker) 2001
- BWM 2004
- Wreck removal Convention 2007 and
- MLC 2006

Important points to note[45]

- PSCO should present his identity document if it is asked by the master.
- "**Clear grounds**" to conduct a more **detailed inspection** include but are not limited to:
  - absence of principal equipment or arrangements;
  - certificate/s are clearly invalid;
  - documentation is incomplete, is not maintained or is falsely maintained;
  - if the PSCO observes that serious hull or structural deterioration or deficiencies;
  - master or crew is not familiar with essential shipboard operations;
  - key crew members are not able to communicate;
  - emission of false distress alerts not followed by proper cancellation procedures; and
  - receipt of a report or complaint containing information that a ship appears to be substandard.

[45] Procedures for port state control, 2017

- If the PSCO has **clear grounds for carrying out a more detailed inspection**, the master will be informed, and the master may;
  - Contact the flag or
  - RO depending upon who has issued the certificate and invite their presence onboard.

- If the **ground for detention are due to accidental damage**, no detention order will be issued, provided that:
  - Reports are made as appropriate to the Flag State or RO;
  - Port State is informed before entering the port;
  - The remedial action is up to the satisfaction of the Port State;
  - Deficiencies which are clearly hazardous to safety, health or environment have been rectified and Port State is informed.

- A ship will be regarded as **substandard** when:
  - principal equipment or arrangement are not available;
  - equipment or arrangement are not complying with relevant specifications;
  - there is substantial deterioration of the ship or its equipment;
  - the crew are insufficient of operational proficiency, or not familiar of essential operational procedures; and
  - insufficiency of manning or insufficiency of certification of seafarers.

- If the **rectifications cannot be carried out in that port for DETAINABLE deficiencies**, PSCO may allow the vessel to sail, subject to appropriate conditions and the PSCO will notify the;
  - Flag State and
  - Competent authority of the next port.

- The PSCO should endeavour to secure the rectification of all deficiencies detected.
- Deficiency reports to be made by the PSCO to:
  - IMO (for certain deficiencies only);
  - Flag state;
  - Classification society (if appropriate); and
  - Next Port State, if allowed to sail with known deficiencies.

- If the PSCO decides to detain a vessel, the master or the company has a right to appeal.

Closing procedure of identified deficiencies

First of all, if the raised deficiency is not reasonable, the company or the master may appeal to the PSC authority of the Port State. The appealing procedure may be taken from the web site of the

respective MOU (Example - Paris MOU, Tokyo MOU etc.) or agent or the PSCO himself. In case of a justifiable deficiency, note the following:

- The closing procedure depends upon the MOU. These procedures are available in the websites of the MOUs or can get information from the PSCO himself.
- After the inspections, the PSCO will issue an inspection report.
- This inspection report will contain;
  - Vessel particulars;
  - Date of inspection;
  - Codes or types of deficiencies. MOUs uses different codes for deficiencies. Masters are not required to remember theses codes. Meaning of the codes can be found by the PSCO and from the website of the particular MOU;
  - Applicable Convention references,
  - When the deficiency to be closed etc.
- The inspection record shall be kept onboard in accordance with the vessel's filing system.
- Minor deficiencies may be rectified during the inspection. Even though the matter is rectified, minor deficiency also could be included in the inspection report, but, it will be indicated as closed.
- Some MOUs, (example – Tokyo MOU) may require another inspection to close a deficiency in the database, which is not mandatory.
- In accordance with the regulations of AMSA, a deficiency raised cannot be closed unless it is inspected by their own inspectors or another Tokyo MOU PSCO (Note that Australia also a member of the Indian MOU).
- Some PSC may require the vessel's class to verify the rectification.
- In accordance with the Paris MOU;
  - Deficiencies which cannot be rectified before departure will be allowed to rectify in the next port.
  - Master will be allowed to close certain types of deficiencies within an allowed time frame.
  - Certain types of deficiencies will be required to be completed before departure (these are not that serious to detain) and it will be verified & recorded by a PSCO before departure.
  - If the deficiency is serious, the vessel will be detained and once it is rectified, a PSCO will verify and record it as closed.
- Now, you may have understood that different MOU or PSC may require different methods to close a raised deficiency. Therefore, if a deficiency is issued, the master must clarify the closing procedure with the PSCO.
- If the master is allowed to close deficiency, once it is rectified, master has to report it to the PSC authority and also to the company.

If no deficiencies found

- The PSCO will issue an inspection report with zero deficiencies.

- This report shall be kept onboard in accordance with the ship's filling system.
- Even there were no deficiencies, still the master has to inform the company in accordance with the company's reporting procedure.

Procedure of appealing against a detention order

If the master or the company think that the PSCO's decision to detain the vessel is unfair, they can make an appeal. Deferent Port States may have different methods of appealing. This may be clarified with the web site of the applicable MOU or agent or the PSCO himself. In accordance with the Indian MOU, the appeal procedure in Sri Lanka is as follows[46]:

- An appeal may be made by;
  - Owner
  - ISM operator of the Company
  - Master
  - Vessel's Flag
- First level appeal shall be made to the PSCO who decided to detain the vessel.
- If the PSCO is not willing to change his decision, the second level appeal can be made to the DGMS (Director General of Merchant Shipping).
- The second level appeal must be made within 15 days.
- The second level appeal may be made by;
  - a letter
  - a fax
  - an email

A vast area may be covered during PSC inspections. Therefore, it is very difficult to list down each and every item that they may check. No special preparations are required if the vessel is maintained in accordance with the international standards and the company SMS. The following provides the areas that a master needs to consider when preparing a vessel for a port state inspection.

With reference to certificates:

- All the statutory certificates are available and valid.
- Crew & officers are appropriately qualified in accordance with the minimum safe manning certificate and having CEC as required.
- Medical certificates for the staff are available and valid.
- Type specific ECDIS certificates available for deck officers if the vessel is ECDIS compliant.
- Service and test certificates for LSA, FFA and other equipment (such as for the GMDSS, AIS, VDR, LRIT etc.) are available.

[46] http://www.iomou.org/naprocmain.htm

With reference to documents

- Record of former PSC inspections and evidences of taking corrective actions.
- Updated and corrected deviation card available.
- The latest passage plan and charts used may be inspected to ensure recommended practices are used.
- Work and rest hours are complied with, recorded and they are not contradictory to other documents.
- Drills conducted in accordance with the international and flag state regulations.
- Official logbook, deck logbook, port logbook, bell book, GMDSS log, compass error log, oil record book/s, engine logbook, garbage record book and ballast water record book etc. are completed correctly.
- PMS updated.
- Evidences of risk assessments carried out.
- Complaint procedures onboard.
- Evidences of periodical inspections of accommodation, food and drinking water, galley, food/drinking water storage areas and food/ handling equipment are available.
- Manuals such as training manuals, stability book, loading manual, cargo securing manual, SOPEP, SMPEP, damage stability book, damage control plan, grain loading manual, ship construction file, SEEMP, coating technical file, emergency towing procedures etc. available and updated where necessary.
- Operating instructions of emergency fire pumps, fixed CO_2 system, fixed foam system, lowering of lifeboat, lifeboat engine, and emergency steering change over etc. are posted and legible.
- Fire plan and LSA plan are updated and contains IMO symbols as appropriate.

With reference to maintenance

- Required charts and publications available and updated.
- Bridge equipment, back-up systems and GMDSS battery room in order.
- Windless and the mooring equipment in order.
- Fixed CO_2 systems and fixed foam firefighting systems are in good working order.
- Fire pumps and the emergency fire pump to be in good working order.
- Fire dampers, quick or self-closing valves, remote control systems are in good working condition.
- Lifeboat and the associated equipment to be in good working order.
- Emergency generator is working in order and make sure it will be started within 45 seconds automatically.
- LSA and FFA equipment are available in appropriate places.
- Markings on the LSA, FFA, pipelines, vents, dampers, windless, mooring winches, sounding pipes etc. must be clearly legible.

- Cleanliness of accommodation, bathroom/toilets, galley and deck.
- Accommodation air conditioning and heating must be in good working condition.
- ISPS equipment are available and maintained.
- Open and closed positions of the fire damper are marked and legible.
- Ensure sufficient illumination is available and emergency lighting is in good order.
- Deck isolating valve on the fire main is in working order.
- Portable firefighting systems are serviced and inspected.
- Hatch covers and weather tight closing devices are working in order.
- Load line marks to be clearly visible.
- Deck, hull, cranes, derricks, railings, gangway etc. are maintained in good order.
- Safety signs and other marks are clearly legible in the deck area.

Officers and crew competency

- Master to have good knowledge about SMS, overriding authority, flag state regulations and company regulations and guidelines.
- Officers are competent in operating bridge equipment including ECDIS.
- All the staff members are well updated with their:
  - Duties with reference to SMS,
  - Duties during emergencies,
  - Alarm signals,
  - Name and the contact numbers of the DPA and
  - Name and the contact numbers of the CSO.

- Ensure all are competent in carrying out drills and ensure that they are very thorough with:
  - lowering of lifeboats,
  - starting of lifeboat engines,
  - wearing BA set and the fireman's outfit,
  - starting of emergency fire pump,
  - emergency steering change over procedure,
  - starting of emergency generator and
  - operation of fixed CO_2 and foam fire existing systems.

- Training and drills conducted in accordance with the ship's drill matrix.
- Safety committee meetings held and complains raised during the meetings are dealt with.

With reference to engine room

- The engine record books and oil record books are properly completed.

- Oily water separator and the associated equipment shall be in good working order. Make sure there are no additions or removal of pipes to the oily water separator without approval.
- Cleanliness of the engine room.
- Ensure the illumination in order.
- Engine technical files available.
- Generators and related equipment are tested and working in order.
- Spray shields to be available for high pressure fuel lines.
- The fixed freshwater sprinkler systems are working in order.
- Safety and operational instruction posters are available and clearly legible.

With reference to MARPOL Annex VI:

- Bunker delivery notes and sample of fuel oil are available as evidence for the sulphur content in the fuel oil used.
- Appropriate entries are logged when entering ECA which includes the following:
  - Name of ECA,
  - Date and time of entry into ECA,
  - Date and time of change over completed,
  - Position of the changeover completed and
  - Volume low sulphur remaining in each tank.

- Sufficient heating facilities are available for the low sulphur fuel oil tanks and pipelines when operating or expecting to operate in low temperature climate conditions.

2) Condition surveys

Conditions surveys are carried out by P & I clubs (but, not all the clubs) to ensure the vessels in the club are complying with the standards of the club. The occasions of the condition surveys may differ from club to club. UK P & I club may carryout condition surveys in the following cases:

- When ships over 10 yrs old are entered in the club, this can be either a pre-entry or a post entry condition survey.
- If after a visit by a club Risk Assessor, the assessor feels that the ship does not conform to the Club's standards.
- Following a claim which could possibly have occurred due to a lapse in on board maintenance/management.
- If information is received from a third party e.g. PSC that the ship is below Club's standards.
- If the ship changes classification societies, usually from an IACS to a non IACS society.
- If after a lengthy period of layup (6 months or more) a ship is re-activated.

An inspection check list can be found from the UK P & I club website for your studies. But this will not be a major problem if the vessel is maintained in accordance with the company SMS and international conventions and codes.

SHIP HANDLING AND MANOEUVRING

Bridge resource management

Sometime back ship handling and manoeuvring was a 'one man show'. When the OOW is at the con, he ran the show. When the master is at the con, he used to run the show. When the pilot is on the bridge, he ran the show. This one-man show has caused several numbers of accidents, groundings and pollutions. These incidents are very seldom results of a single event, they are almost invariably the result of a series of non-serious incidents; the culmination of an error chain. Therefore, in the case of ship handling and manoeuvring (during navigation, anchoring, berthing, un-berthing etc), ship masters are required to utilize all the equipment and man power available correctly and at the correct time to ensure a safe navigation, which is known as Bride Resource Management (BRM).

When BRM is practiced correctly onboard, the result should be a bridge team that:

- Maintains its situational awareness,
- Continually monitors the progress of the vessel, making proper adjustments and corrections as necessary, to maintain a safe passage,
- Acquires relevant information early,
- Appropriately delegates workload and authority,
- Anticipates dangerous situations,
- Avoids becoming pre-occupied with minor technical problems and losing sight of the big picture,
- Undertakes appropriate contingency plans when called for,
- Recognises the development of an error chain and
- Takes appropriate action to break the error-chain sequence[47]

At the same time make sure to carry out a risk assessment before the commencement of any task or change of anticipated situation and ensure the risk is under control, brief the bridge personal about the operation and all available resources are used properly.

Important points to consider

Need to keep the below mentioned points before and while carrying out manoeuvres:

- Test engines ahead/astern, steering and other auxiliary machinery well before the operation.
- Always better to have slow, but, controlled speed.
- Need to have good knowledge of the wind, current and their effects on the vessel's movement.

[47] The navigator, Issue no. 07, October 2014, Nautical Institute

- In a channel when there is a current, the maximum rate of the current occurs at the centre of the channel and very close to the banks of the channel the rate of current is very less. This can be used to the advantage of ship handling.
- The rate and the set of a current may change considerably with the time.
- Need to have knowledge of the position of the pivoting point. The position of the pivoting point depends upon number of factors. Usually, while moving ahead, pivoting point is at 1/4 to 1/3 ship's length from the bow. When a vessel is moving stern, pivoting point is at 1/4 to 1/3 ship's length from the stern.
- When the vessel is not having forward or aft movement, pivoting point depends upon the magnitude and the position of the applied forces. If one tug is used, pivoting point will move closer to the tug. If two tugs were used (fwd & aft), pivoting point will move closer to the tug which applies more force.
- A pivoting point does not exist when a vessel is stopped and no any forward or aft or athwart ship movement at all.
- When a vessel is being turned while moving ahead or astern, she moves laterally as well. As an example (for a right-hand screw propeller), if the helm of a vessel moving ahead is put to port, the lateral movement will be to starboard. With a vessel turning to starboard while moving astern, the lateral movement will be starboard.
- Thrusters (bow or stern) will not be effective with speeds of about more than 2 knots. Therefore, to have better effects of thrusters, speed is required to be reduced or stopped.
- Need to concentrate more on bringing the stern alongside when berthing a vessel with a bow thruster. Because, with the aid of the bow thruster, bow can be brought alongside easily.
- The interaction between the vessel and the berth depends upon whether the berth is an open berth or a closed berth. Open berth means a berth constructed on pillars with water underneath the berth. Closed berth means a solid berth constructed on the seabed without water underneath the berth. The bank suction and bank cushioning effects will occur with the closed berths, but, not with open berths.
- You need to know whether the propeller of your vessel is right-handed or left-handed, or the vessel is having pitch control propellers.
- When a half ahead or a fuller ahead kick (depending upon the loaded condition of the vessel) is given with the rudder hard over, vessel will start turning rather than start going ahead.
- A vessel will be easy to control with a head current than with a current from the stern. That is why, when two vessels are approaching each other at a very narrow area in a channel where only one vessel can pass at a time, the vessel which is having the current coming from head is supposed to give way to the other.

Factors affecting a vessel's turning circle and their effects

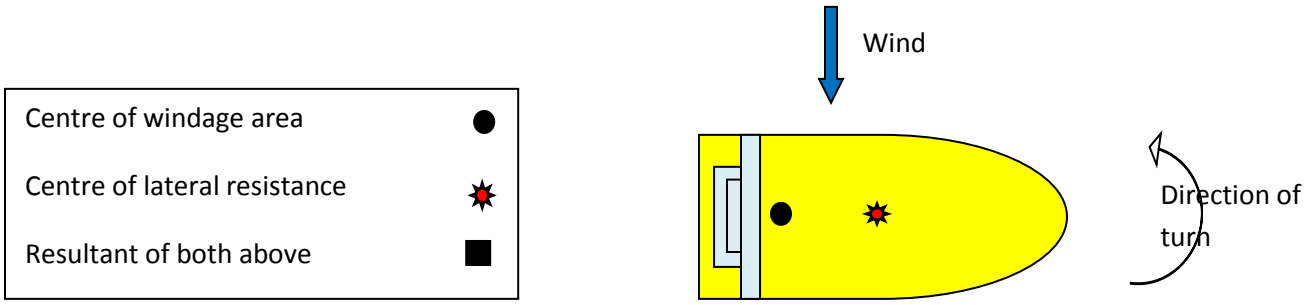
- **Trim** - If the vessel is trimmed by head turning circle will be reduced
- **List** - If the vessel is listed, turning circle would be large when turning to the listed side
- **Depth of water** - Turning circle will be increased when in shallow waters
- **Speed** - Turning circle will be reduced with higher speeds
- **Displacement** - Increases the turning circle with higher displacements
- **Bulbous bow** - It may move the pivot point forward and increase the lever available to the rudder, decreasing the radius of turning circle
- **Propeller design** - Right hand screw propeller will experience a larger turning circle when turning to starboard side
- **Wind** - The effect of wind depends upon the relationship between the centre of windage and the pivoting point. The effect will vary during the turn. An initial head wind on a vessel with the centre of windage aft will reduce the rate of turn in the windward half of the circle, increasing the radius of curvature, advance and transfer, then the rate of turn in the leeward half of the circle and reduce the radius of curvature (explained in detail below).

Effects of wind on a vessel

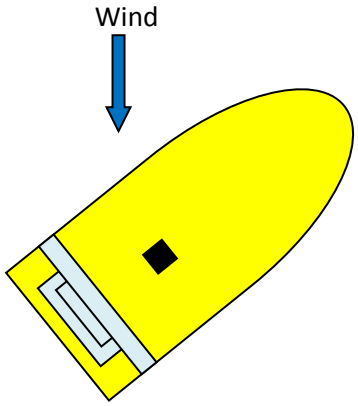
Vessels with aft accommodation and stopped

When a vessel is stopped pivoting point does not exist, but, centre of lateral resistance will exist. Centre of lateral resistance means, the point on the hull **(below water line)** where the total resistance force will act by the water against the movement of the vessel. On a moving vessel, the pivoting point and the centre of the lateral resistance both are at the same position.

When there is no head movement, the centre of lateral resistance will be closer to the midship area. But, the centre of the windage area will be closer to the accommodation. Therefore, the distance between the centre of the windage are and the centre of lateral resistance will be less, creating a small 'turning lever'. Refer the figure below:

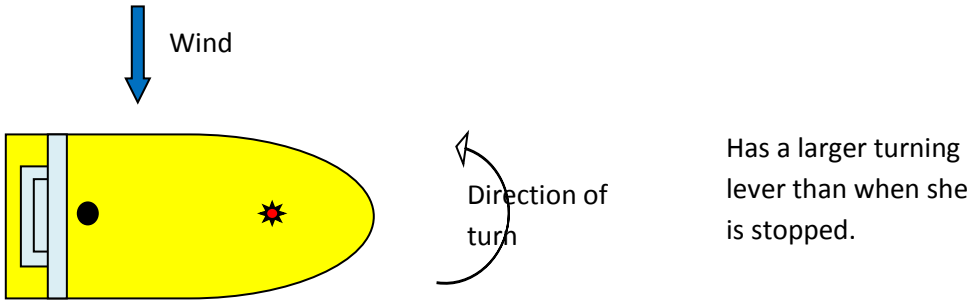


When stared to turn due to wind, the centre of lateral resistance will move aft and the centre of the windage area will move fwd. When both are at the same place, she will settle down in that heading. Refer the figure below:



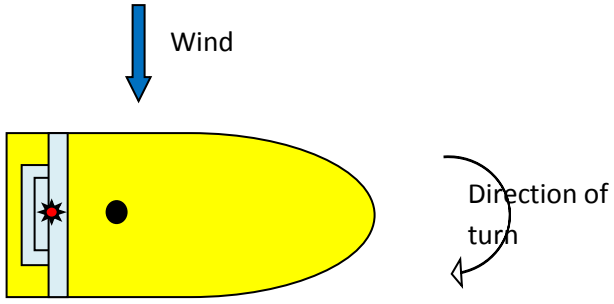
Vessels with aft accommodation and moving ahead

When moving forward, the pivoting point is fwd of amidships. Therefore, the turning lever is larger than above, which requires more counteracting efforts.



Vessels with aft accommodation and moving astern

When moving astern, the pivoting point will move aft of the centre of the windage area. Refer the figure below:



Container ships and car carriers

When all the bays are loaded with same number of container tiers on deck, the position of the windage area could be calculated by means of the ship's stability book and can be able to estimate the behaviour of the vessel. But, when the bays are loaded with different number of tiers, may find difficulties in predicting the behaviour of a vessel, but need to understand how she behaves while manoeuvring.

On car carriers when stopped, the turning lever will be very small since the centre of lateral resistance and the centre of windage area both more or less are at the same place. Therefore, a car carrier without head way may settle down with a heading closer to 90^0 to the wind direction.

When a car carrier moving forward, the turning lever will be smaller than a vessel with aft accommodation moving fwd. Because the centre of windage area will be closer to the midship area. Therefore, efforts required to maintain the heading will be less, but, she will experience a serious lateral drift than an aft accommodation vessel.

When a car carrier is moving astern, a large turning lever will be generated, and the bow will be pushed down the wind very much faster than an aft accommodation vessel moving astern.

<u>Kick ahead or kick astern</u>

Kick ahead is usually used to;

- gain steerage when she is moving ahead at very slow speed
- initiate a turn (while moving or not moving)
- turn short round

If a kick ahead is used to initiate a turn, then the engines are required to stop before she gains forward movement and need to put the wheel hard over. A vessel will gather forward movement if frequent kicks ahead or prolonged kick ahead are used and the objective of it may be lost. At the same time, in case of turning, engine should be stopped before reducing the helm.

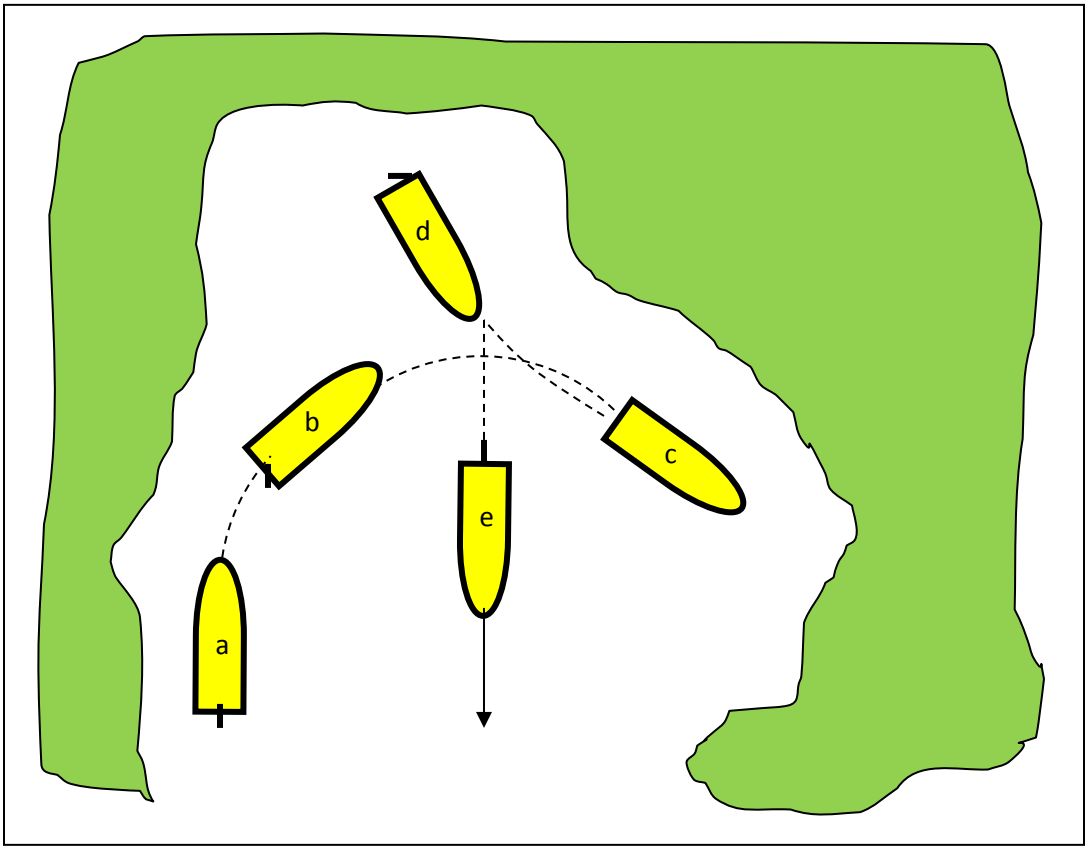
Kick astern is usually used for the purpose of initiating a turn or while turning short round.

Anything lesser than 'half ahead' or 'half astern' will also contribute to increase or initiate a head or a stern movement rather than helping the vessel to turn.

Turning short round

Turning short round means, turning a vessel within her own length. But, practically, she may go beyond her own length due to the manoeuvring characteristics of the vessel, wind, current and the experience of the handler.

Turing short round with a right-handed screw propeller



With a right-handed propeller; the turn should be made to starboard as shown in the above diagram so that the effect of transverse thrust, when the engines are going astern is of assistance. Approach the turning point, keeping to the port hand side of the channel with engines slow ahead and make sure

to leave enough room at the port side for the stern to swing. The below alphabetical letters refer to the letters on the above diagram.

a) Start the manoeuvre from the port side of the channel to provide the maximum distance for the head reach movement of the vessel.
b) Rudder hard a-starboard, main engines full ahead. Do not allow the vessel to gather too much headway. Stop engines.
c) Rudder amidships, engines full astern.
d) As sternway gathered, the bow of the vessel will cant to starboard while the port quarter will more in the opposite direction, owing to the effects of the transverse thrust. Stop engines. Helm to starboard and engine ahead.
e) Engines ahead and steering the reciprocal course if required

If a current is running, it usually has a greater rate at the centre than at the side of the channel. If the current is coming from the stern of the vessel, this may be used to help the manoeuvre by keeping the vessel closer to the starboard side of the channel (initiate the turn with stern propulsion and the stern will be pushed by the current). Depending upon the trim, loaded/ballast condition, and the available sea room, may have to take counter measures as well. If the current is coming from ahead, it is advisable to start the turn by keeping the vessel closer to the port side of the channel. It should be noted that a head wind will also assist this manoeuvre.

In twin-screw vessels, usually the starboard propeller is right-handed, and the port propeller is left-handed. To turn such a vessel short round to starboard from rest, the port engines should first be put to half ahead and then as the vessel starts to move the starboard engine should be put to full astern. The turning action of the two propellers is used in this way is assisted by the effect of the transverse thrust on both. To turn short round to port side, the starboard propeller is put ahead and the port propeller astern and once again, the effect of transverse thrust is to assist the turn.

Remember that the transverse thrust of the propeller changes in strength and may even act in the reverse sense to the normal in shallow water.

Other means of turning a vessel

A vessel may be swung into her reciprocal course other than by turning short round as explained below. But, the master needs to have a good understanding about the vessel's behaviour and the environmental effects on the vessel in selecting the turning options.

a) With the aid of a bow thruster

Bow thrusters are very effective in turning a vessel very quickly but need to have a ship's speed of less than 2/3 knots to have a good turning effect.

Always better to turn a vessel toward the wind as aft accommodation vessel without deck cargo tends to turn toward the wind. Towards the end of the operation, need to use the bow thrusters in the opposite direction to control the turn.

When a vessel is experiencing a head wind or current, she may be swung into any side. To maintain the vessels position, need to have head movements at the commencement of the turn and towards the end of the turn, need to have stern movements.

When a vessel is experiencing a stern wind or current, it is better to start turning towards the starboard side if she is a right-handed screw propeller. Because the paddle wheel effects generated during the stern propulsion that is used to keep the vessel in the same position can be used to turn the vessel quickly. Towards the end of the turn, to maintain the vessel's position, will have to use head movements on the engines.

b) With the aid of anchors

A vessel may be swung around the anchor as well. She can be turned either to starboard or port side, as the paddle wheel effect cannot be used effectively while turning around an anchor.

The bow thrusters cannot be used effectively for the purpose of turning a vessel around anchors.

If the vessel is to be turned to starboard side the starboard side anchor is to be used and vice versa.

The length of the cable to be paid out depends upon the weather condition, size of the vessel, loaded/ballast condition etc. But, dropping the cable under foot would be sufficient for a medium size vessel in calm weather conditions. At least half ahead kicks on the engines would be required with the helm hard over or at least 20^0.

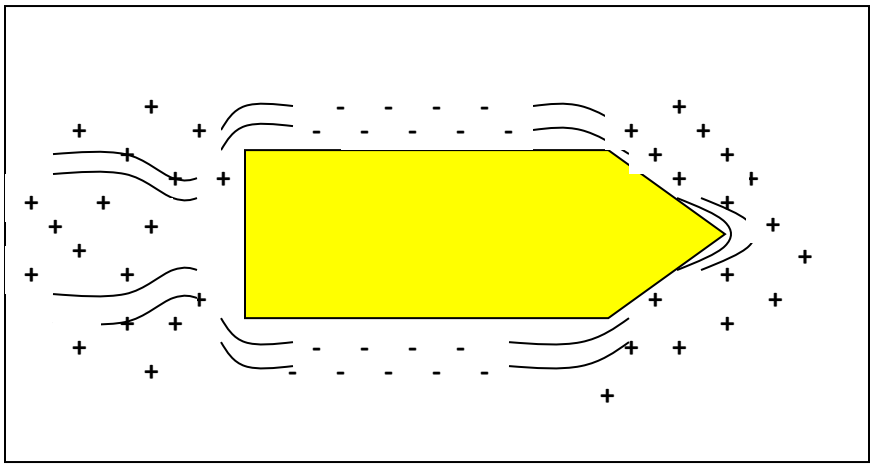
When experiencing a head wind or current, turning around an anchor may not be an easy task, as there is a high possibility of vessel running over the anchor cable.

Turning around anchor may be an ideal option when experiencing a stern wind or current. An initial action with the helm and the engines to turn would be sufficient as the vessel will be turned automatically after that.

Interaction between ships

Hydrodynamic interaction may occur between ship & sea bottom, ship & bank and ship & other ships. The effect caused by the ship & bottom interaction is called as smelling the ground. The effect caused by the ship & bank is called as bank cushioning effect. Generally, the effect caused by ship & ship

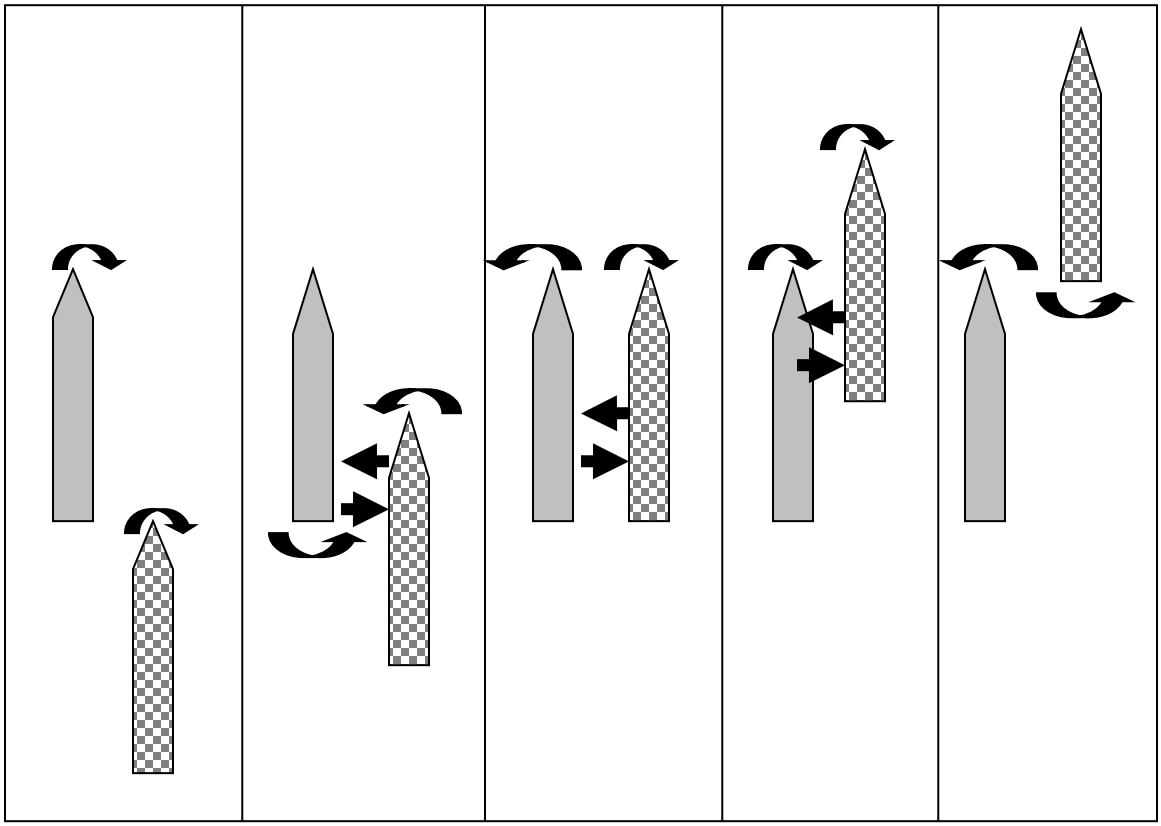
interaction is known as interaction or interaction between ships. When a ship moves forward, there is a region of high pressure at the bow and the stern. **The stern high-pressure region is of lower magnitude due to frictional loses**. The water displaced by the ship at the bow flows around and under the hull towards the stern and creates negative pressure in the mid-ship region.



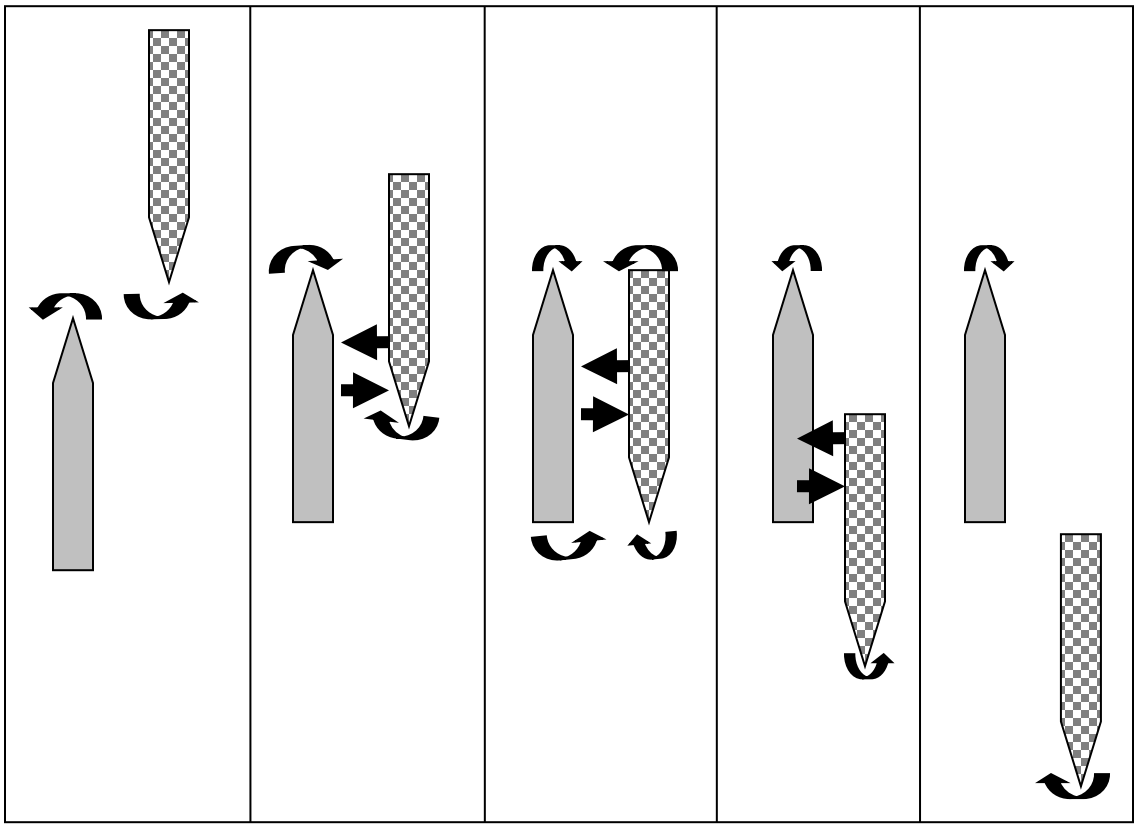
Hydrodynamic interaction between ships occurs at any depth but it is amplified in shallow waters and it is proportional to the ships passing speeds. i.e. if the speed is more, interaction between ships is more and vice versa. Typically, interaction effects are more pronounced if the side shell to side shell distance is less than two times the beam of the wider ship. When different sizes of ships pass close to each other, effects of interaction are more on the smaller vessel. When a large vessel and a small vessel passing closely, there is a possibility of capsizing of the smaller vessel due to interaction.

a) Interaction between ships when over taking

Students must understand, these effects depend upon the sizes of the ship, their speeds, distances between the vessels and other effects from surrounding areas, such as the bank cushioning effects etc. The most important thing is to understand the pressure distribution system around a vessel. Once it is understood, all these can be predicted accurately.



b) Interaction between ships when passing close by in reciprocal courses

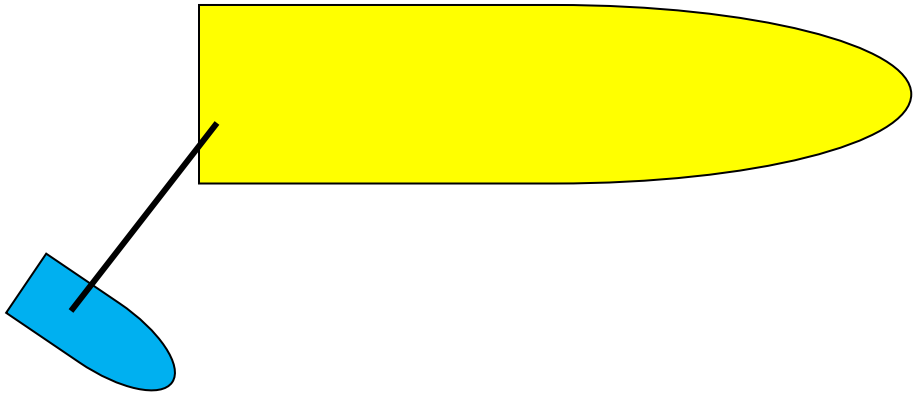


Important points to remember about ship to ship interaction

- Effects of interaction between the vessels will be mostly felt on the smallest vessel.
- Effects of interaction are more dangerous in the case of overtaking rather than passing in reciprocal courses.
- In case of overtaking, the vessel being overtaken may take a sheer into the path of the other.
- The effects of interaction can be reduced by increasing the distance between the vessels and reducing the speed, speed to be reduced well in advance if that is the only option available (before the effects of interaction are felt).

Girting

Girting occurs on tugs when the tow line is secured on the midship area of the tug and when the tow line is perpendicular (or nearly perpendicular) to the fore and aft direction of the tug.



When the force on the tow is higher than the righting moment of the tug, she will continue to heel without coming back to the upright position. This is known as girting, girthing, tripping or girding. A tug may capsize due to girting.

Shallow water effects

Generally, with regards to navigation, shallow water means an area having a depth of less than 1.5 times the ship's draught. A master is required to refer the ship's SMS, as the company may define the term shallow water with a higher depth / draught ratio. The higher most figure to be used in ship handling.

The shallow-water effects become more prominent as the under-keel clearance decreases since there is no sufficient water around the vessel. The shallow-water effects include:

- sluggish response to helm,

- the speed falls less during turns,
- a large increase in turning circle,
- a more pronounced effect from transverse propeller thrust,
- a possibility that transverse thrust may act opposite to that expected,
- the ship carries her way longer and responds slowly to changes in engine speed,
- change of trim,
- an increase in squat and
- vibration.

a) Squat effect

The squat effect is the hydrodynamic phenomenon by which a vessel moving quickly through shallow water creates an area of lowered pressure that causes the ship to be closer to the seabed than would otherwise be expected. Although the same thing happens in deep waters as well, deep water squat is not that important as there is sufficient water available below the keel. Squat is more prominent when the depth is less than 1.5 times the draught of a vessel.

Therefore, the squat is the result of hydrodynamic interaction between ship and sea bottom. It is not an increase in draft. Therefore, the mean draught remains the same. Water flow around box-shaped ships is more restricted and it is expected that these vessels squat will be more pronounced. If the vessel is even keel, squat will cause a trim by the bow for box-shaped vessels. Squat will cause a trim by stern for finer vessels. In case the vessel is already trimmed, squat will be further trimmed in the same direction. The navigator may suspect that the vessel is experiencing squat effect when;

- the steering is sluggish;
- the vibration is high;
- RPM fluctuates;
- water at the stern is discoloured;
- trim is changed; or
- any combination of above

The only available method to reduce the squat effect is to reduce the speed. The squat can be calculated by the following formulas, but, the mariners are advised to refer the formulas or the squat tables provided by the company or if it is not available, may use the higher most value obtained from the following three formulas:

Squat = 10% of the draught or
= 0.3 m for every 5 knts or
= V^2 (in knts)/100 (answer is in metres)

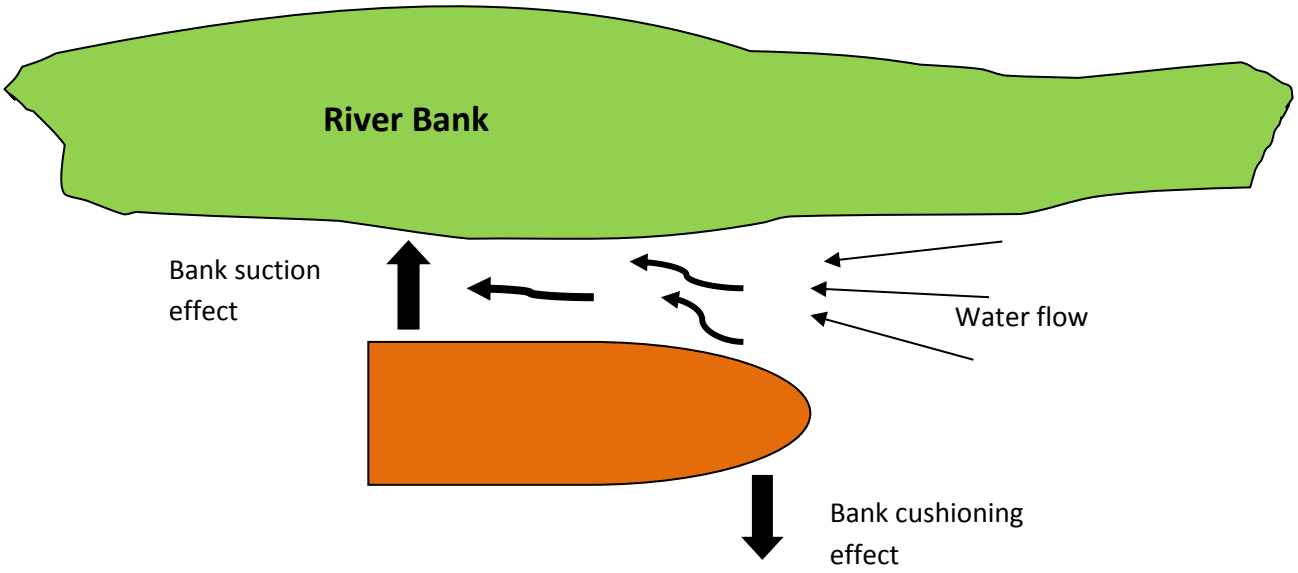
The squat in shallow water (ratio of water depth/draught = 1/1.5) may be doubled that in deep water. The squat in canals and restricted channels in proximity to other vessels may be significantly greater.

b) Smelling the ground

This occurs when a vessel is coming close to shallow water areas. A vessel coming closer to such a shallow water area will experience a sudden sheer towards the shallow area and then violently away from the shallow area. That is why it is known as smelling the ground.

c) Bank cushioning and bank suction effects

When a vessel is moving close to a bank, high pressure develops between the bank and the bow of the ship making the bow to push away from the bank. This is known as bank cushioning effect or the bow cushioning effect. The width of the arrows indicates the speed of the 'water flow' in the diagram below.



Due to the loss of pressure and the increased speed of the water along the hull of the ship, she will be bodily sucked towards the bank and this effect is known as bank suction effect.

d) Manoeuvring in narrow channels and in shallow areas

The effects of bow cushioning and the bank suction will be encountered depending upon the width of the channel and the size of the vessel. Forces will be balanced when the vessel is at the centre of the narrow channel.

The bow cushioning effects can be used as an advantage to a vessel when she is coming to a bend on the channel. If the bend is to the starboard, she will start turning to starboard automatically without the use of helm. If the helm also used to starboard, she may run aground on the starboard side. The watchkeeper should use port helm to control the rate of turn caused by the bank cushioning effect.

Depending upon the size and speed, a vessel pulls a volume of water which equals to about 40% of the displacement behind the stern in very shallow water areas. If the vessel is stopped, the said volume of water will continue to move and when it reaches the vessel's stern, it may generate a strong and unexpected turning moment, causing the vessel to begin to sheer unexpectedly.

The effectiveness of the rudder may be reduced in shallow areas and the minimum RPM required maintaining the steerage will be higher than in open waters.

In case of passing closely with another vessel in a narrow channel, need to think of hydrodynamic forces between the riverbanks and the other vessel. When a vessel to be over taken and if you are expecting to overtake the other vessel on your port side (when the other vessel is fine on your bow, port bow in this case) may have to use port helm to counteract the starboard manoeuvre generated by the interactions between the ships. You may run aground if starboard helm is used. If the vessel to be overtaken is right ahead of your vessel and expecting to overtake on your port side then initial little helm to starboard may be sufficient. You need to identify the movement of the vessel caused due to interaction when coming closer to the other vessel and act accordingly.

In case of ships proceeding in reciprocal courses, the interaction between the ships will be magnified rather than in case of overtaking. Therefore, may have to reduce the speeds considerably before the interaction effects are felt by the other vessel.

<u>Rough weather conditions</u>

a) Rolling synchronization

Rolling synchronization occurs when the vessel's natural rolling period equals with the wave encounter period. This happens when a vessel is experiencing beam seas. When the rolling synchronization occurs; vessel's rolling angle will be increased with each wave. She will experience vigorous rolling movements and there is a high possibility of capsizing the vessel.

Rolling synchronization can be avoided simply by altering the course. Change of ship's speed is not effective in reducing the rolling synchronization at all.

b) Pitching synchronization

Same as rolling synchronization, pitching synchronization occurs when a vessel's natural pitching period equals the wave encounter period. This happens when a vessel is experiencing head seas and when the pitching synchronization occurs; vessel's pitching will be increased with each wave. When a vessel is experiencing pitching synchronization, she will experience violent pitching movements and bow will start digging into head seas.

Reduction of ship's speed is the most suitable action to reduce this effect. The second option available is to alter the course. Speed shall not be increased to avoid this, as it may start pounding the vessel. The slamming effect of the forward section against the sea is known as pounding. This is also dangerous as she may encounter structural damage.

c) Parametric rolling

Parametric rolling means sudden, unstable, unsymmetrical (unsymmetrical means stbd rolling angle does not equal to port side rolling angle) and large rolling motions of a vessel while encountering head or stern seas. This is a dangerous phenomenon and could occur with rough weather as well as moderate weather conditions. A vessel may experience parametric rolling even though she is complying with the required stability criteria.

Parametric roll is a **threshold phenomenon** as a combination of **environmental**, **operational** and **design parameters** needs to **come together** before it is encountered[48]. Which means, a vessel may encounter parametric rolling with any stability conditions provided the environmental and design parameters are tallying with the present stability condition of the vessel.

Parametric rolling may occur in two different situations[49]:

- The stability varies with an encounter period T_E that is about equal to the roll period T_R of the ship (encounter ratio 1:1). Compiler's comment – In simple terms, what it means is vessel's pitching period is equal to rolling period.
- The stability varies with an encounter period T_E that is approximately equal to half the roll period T_R of the ship (encounter ratio 1:0.5). Compiler's comment – In simple terms, what it means is that the vessel experiences two rolling motions within one pitching period.

[48] Gard guidance on freight containers, Gard, http://www.gard.no/Content/20940752/GardGuidanceContainers_optimised3.pdf
[49] MSC.1/Circ.1228, IMO

The other factors which increases the risk of parametric rolling includes[50];

- the ship travels with a small heading angle to the predominant wave direction (head or stern seas)
- the wavelength is comparable to the ship length
- wave height is large and
- the ship's roll damping characteristic is low

Parametric rolling is very common with container ships as they have parallel hull around the mid length of the vessel and large flares at the fwd and aft ends.

Hull form of a container ship[51]

Parametric rolling may be experienced by certain generations of Pure Car & Truck Carriers (PCTC) as well as they are also having similar hull forms[52].

With regards to transverse stability;
KM = KB + BM

When a ships draught is less, KB will be less. When the water plane area is less BM will be less and finally, KM will be less. By keeping this in mind refer the diagram below;

Wave crest is amidships[53]

[50] Gard guidance on freight containers, Gard, http://www.gard.no/Content/20940752/GardGuidanceContainers_optimised3.pdf
[51] As investigation of head-sea parametric rolling and its influence on container lashing systems, https://www.steamshipmutual.com/ParametricRoll.pdf
[52] Evaluation of vulnerability to parametric rolling, Anders Sjule, http://www.diva-portal.org/smash/get/diva2:1057139/FULLTEXT01.pdf
[53] Gard guidance on freight containers, Gard, http://www.gard.no/Content/20940752/GardGuidanceContainers_optimised3.pdf

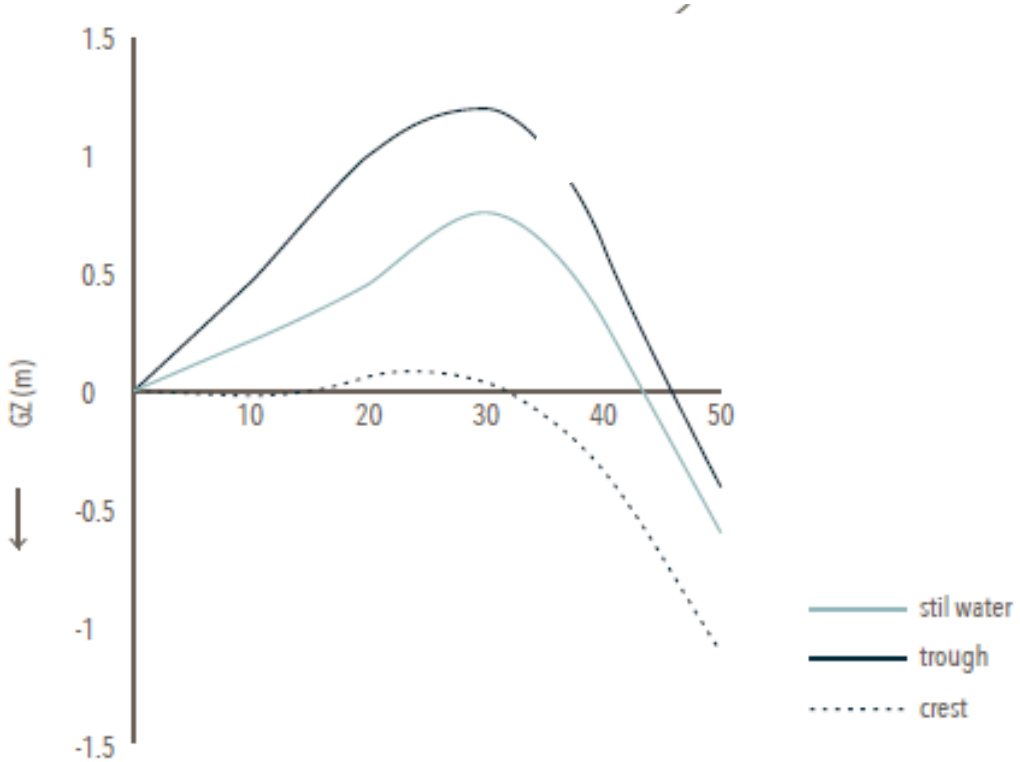
In the above situation, KM is reduced as water plane area is reduced. But KG does not change. Therefore, when the midship section of a vessel is on a crest of a wave, GM will be virtually reduced, because;
GM = KM – KG

When the opposite happens with a container vessel;

Wave trough is amidship[54]

Since the container vessel are having large flares fwd and aft, the water plan area will be increased. This will increase the KM virtually and that will cause the GM to increase virtually.

Refer the GZ curve below for both the above situations above:



Source – Gard guidance on freight container

[54] Gard guidance on freight containers, Gard, http://www.gard.no/Content/20940752/GardGuidanceContainers_optimised3.pdf

Therefore, when a vessel is experiencing parametric rolling, the stability of the vessel will be improved when the wave trough is amidships, and the stability will be worsening when the wave crest is amidships. At the same time, higher the wave height, higher the virtual loss of GM and if the vessel is not having a sufficient GM for that particular threshold phenomenon, she may encounter a negative GM as well.

Actions to be taken to avoid parametric rolling and damages

- Master is required to select the course and the speed in such a way to avoid the encounter ratios of 1:1 and 1: 0.5 as mentioned above[55]. To avoid this, need to know the rolling period before hand. Therefore, vessel's rolling period is to be monitored during calm weather conditions.
- Have a higher GM but without making her stiff, so that the GM will not become negative while experiencing parametric rolling.
- Ensure the GM is similar to the GM used in the cargo securing manual (CSM) in arranging the lashing arrangements. Parametric rolling cannot be avoided by this, but, damages due to rolling and pitching can be avoided. The stresses acting on lashing material will be increased during rolling and pitching. If the vessel's GM is not similar to the GM used in CSM, the stresses on the lashing material will be further increased causing damages to lashing materials and then the cargoes.
- Master to make proper route planning by referring to the forecasted weather.
- Reduce the FSE as this will increase the virtual loss of GM during parametric rolling.
- Follow the instructions provided in the stability book in avoiding parametric rolling.

d) Pooping

Pooping means shipping spray and seas over the poop deck. Pooping occurs when a vessel is experiencing following or quartering seas and when the speed of the swell/wave is higher than the speed of the ship. While the wave/swell is trying to overtake the vessel, shipping seas may take place from the poop deck. This is a dangerous phenomenon with smaller ships than with large ships. Pooping is dangerous mainly due to two reasons. First one is that there are more openings around the poop deck than in the forecastle, therefore possibility of flooding is higher, and the second reason is that no much control over the manoeuvring of a vessel when pooping occurs. The only option available to avoid pooping is to alter the course.

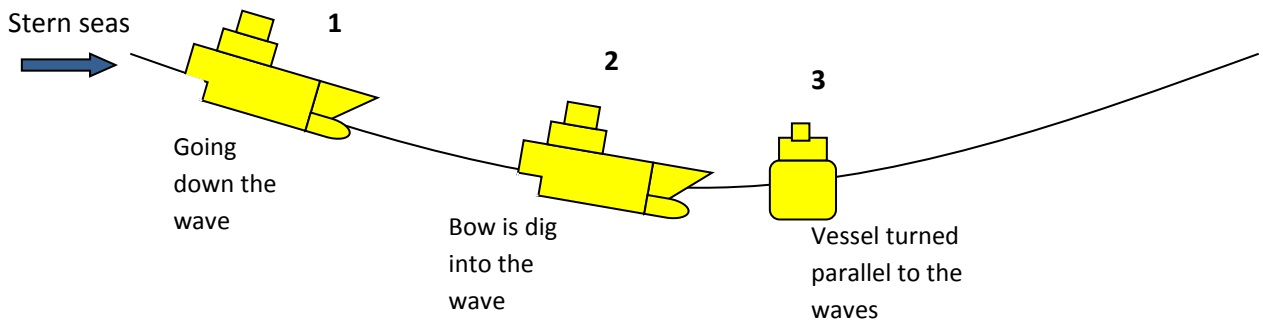
[55] MSC.1/Circ.1228, IMO

e) Broaching

Same as pooping this also occurs during stern seas. A vessel riding down a wave is known as surfing or surf riding. This will accelerate the speed of the vessel considerably causing the bow to dig into the wave ahead and finally, the forces acting behind the vessel may swing the stern violently either to port or stbd side creating a severe list. This phenomenon is known as broaching. A vessel may capsize due to sever broaching. This is also a dangerous phenomenon on smaller ships rather than on larger ships. This could be avoided easily by altering the vessel's course.

Surf-riding and broaching-to may occur when the angle of encounter is in the range $135° < \alpha < 225°$.

Where:
α = angle of encounter ($\alpha = 0°$ in head sea, $\alpha = 90°$ for sea from starboard side)



f) Altering course in heavy weather[56]

If a vessel is turned in to the seas or away from the seas in heavy weather, carelessly, she may encounter excessive damages. Therefore, a careful observation must be done about the sea condition, which needs experience and good seamanship. Always try to turn her in a relatively calm area. When turning, the speed must be minimized to maintain steerage and large helm will be required. To initiate the turn full helms and the short but full engine movements may be required. Always try to avoid pooping and broaching effects and rolling synchronization.

When turning away from the seas or when turning in to the seas an experienced mariner would initiate it in a trough of a wave than on a crest of a wave. When turning away from the seas the latter half of the turn should be completed faster to avoid broaching and rolling synchronization. When turning into the seas again the letter half of the turn should be completed as soon as possible to avoid heavy rolling and swaying.

[56] Theory and practice of seamanship, Graham Danton

g) Steering ‘weather courses’, ‘heave to’ and ‘hove to’

When a vessel is experiencing severe weather conditions, she may have to steer various courses to avoid heavy pitching, rolling synchronization and pitching synchronization etc. This is generally known as steering ‘weather courses’ and this could be done by hand steering or by auto pilot. But, if the auto pilot is used, make sure to increase the weather setting on the autopilot. On smaller vessels, steering weather courses with the autopilot may not be possible even with the increased weather setting on the auto pilot and probably need to use hand steering.

While a vessel is heading towards the sea to avoid severe rolling, she may start severe pitching. In that case, she may have to reduce the speed to avoid severe pitching. In very rare cases, may have to reduce the speed to such an extent that she will be stopped over the ground. That means, she will be having a speed just enough to climb the waves only. This is known as ‘heave to’ and the past tense is ‘hove to’. Whether to start ‘heaving to’ or not completely depends upon the size of the vessel and the weather condition. A smaller vessel experiencing heavy seas may have to ‘heave to’ where, a larger vessel facing the same weather condition may not require ‘heave to’ even though she may have to reduce the speed to a certain extent.

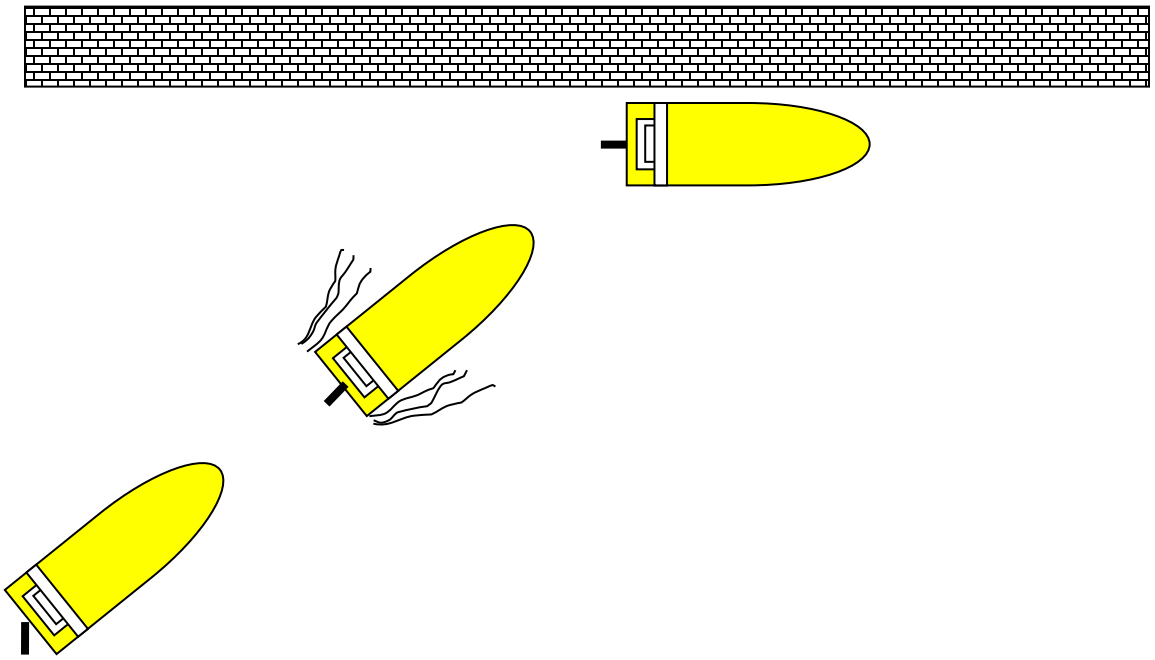
Berthing

Below approaches are described for vessels with right hand pitched propellers when handling without tugs. At the same time, remember that the actual procedures may change depending upon the behaviour of individual vessel, weather condition, positions of berths/other vessels etc. Certain approaches will not be applicable on large vessels and may require services of one or more tugs. Apart from the examples provided below, you are required to think of various scenarios with the wind, current from various directions to gain a better knowledge of berthing and unberthing.

a) Berthing without wind or current – Port side along side

A vessel with a right-handed screw propeller will be easy to berth port side alongside since the paddle wheel effect can be used for the benefit of the berthing operation. In case of berthing port side;

- approach the berth at an angle.
- proceed at a controllable speed.
- headline to be passed as soon as possible.
- use stern power to turn the vessel parallel to the berth.
- pass the stern rope as soon as possible.
- the ropes to be slacked or heaved up depending upon the lateral distance to the vessel from the berth and the final berthing position.

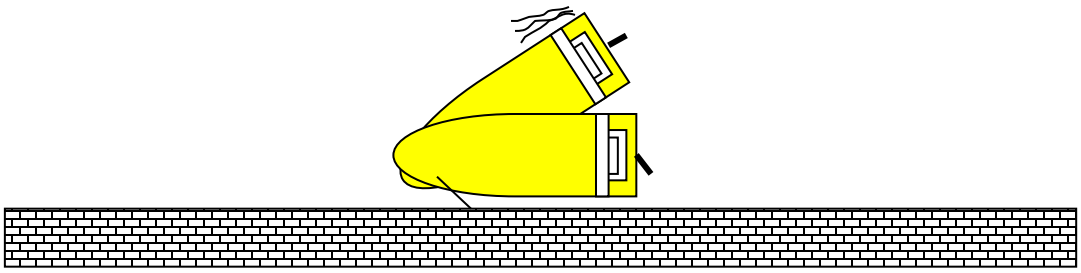


b) Berthing without wind or current – starboard side along side

- Most advisable direction is to approach the berth parallel to the jetty.
- Need to proceed at a reduced speed to avoid bow cushioning effect and stern suction effect. These effects would not be encountered in the case of open berths.
- Pass the fwd and aft springs first.
- When the vessel is at the correct position, need to use stern propulsion to stop the head movement. If the stern propulsion is too high, the bow will turn towards the berth and the stern away from berth. Therefore, the initial head movement and the final stern movement both shall be at controllable speeds.
- If required, to counteract the starboard turn, prior to the stern propulsion, may initiate a port swing with port helm.

c) Un-berthing without wind or current – port side along side

- Let go all the ropes except one of the fwd springs. The longest and the strongest is the most suitable.
- Tighten the fwd spring rope until the bow is sufficiently turned towards the berth.
- May use a head kick (preferably half ahead) with the wheel hard over to the port side to initiate the port turn.
- When the vessel is sufficiently turned, let go the fwd spring rope.
- Use the engines astern to move the vessel off the berth.



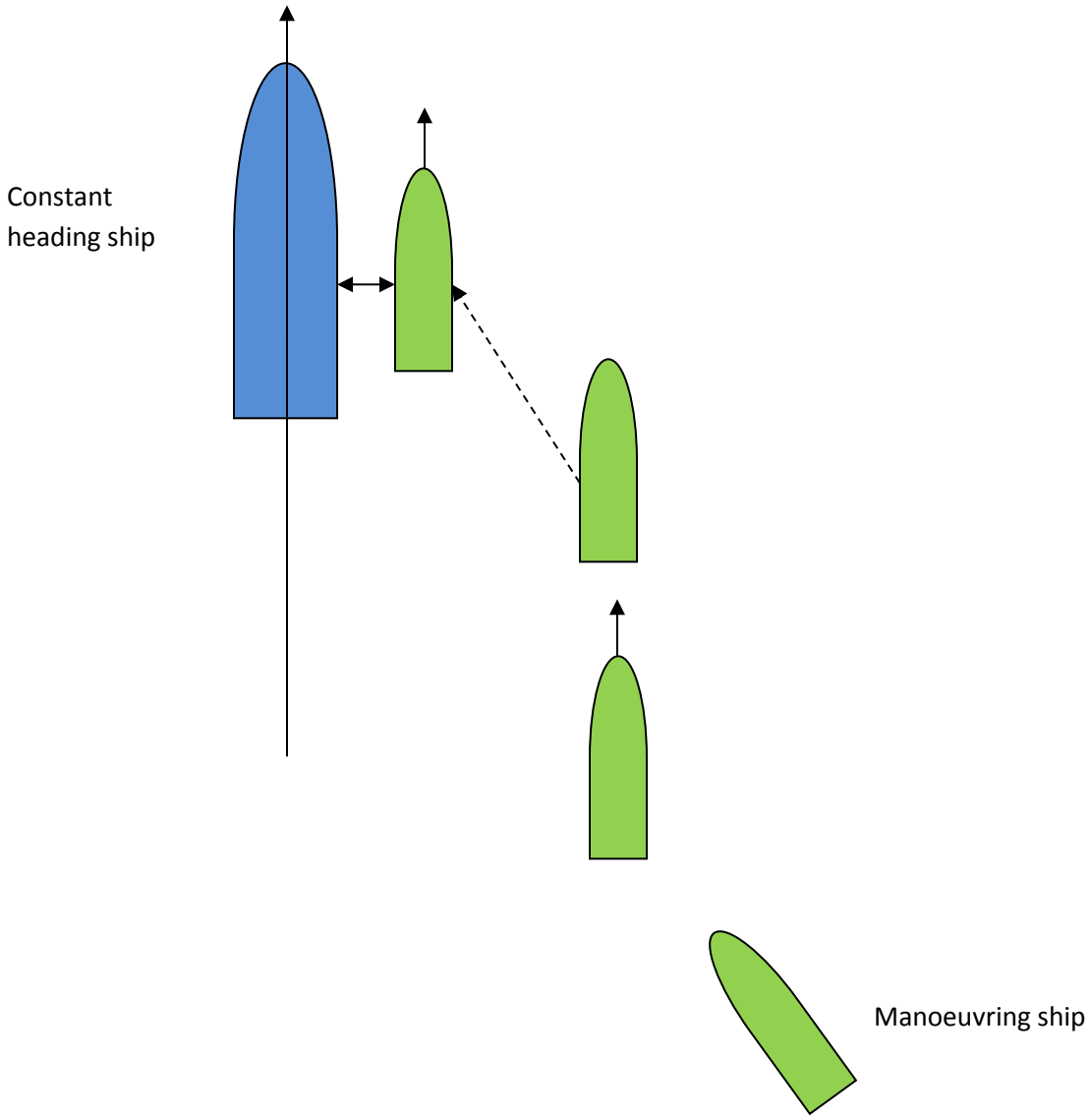
Manoeuvring for STS operations[57]

Double banking while under way

The larger of the two ships should maintain steerage way at slow speed (preferably about 5 knots) keeping a steady course. Local conditions and knowledge will dictate the appropriate heading with due regard to transfer area and weather conditions. The manoeuvring ship (smaller vessel) has to manoeuvre alongside.

It is recommended that the manoeuvring ship approaches and berths with the port side to the starboard side of the constant heading ship. Refer the figure below:

[57] STS Operations Plan



Be aware that some local jurisdictions may have regulations specifying some aspects of manoeuvring between the ships.

General advice for controlling the two ships

Each ship should take the following into account:

- courses requested by the manoeuvring ship must be followed by the constant heading ship.
- ship's speed should be controlled by adjusting engine revolutions (or propeller pitch). Any adjustment should be limited; for example, to plus or minus 5 rpm rather than using the telegraph. However normal full operating range must remain readily available.
- for diesel engines, ascertain number of air starts available.

- at night the deck should be adequately lit and, if possible, the ship's side and fenders should be lit by spotlights
- the side for mooring should be clear of all over side obstructions.
- the navigation lights and shapes appropriate to STS transfers should be displayed.
- there should be effective radio communications between the bridge and mooring personnel.
- there should be effective communications between the Masters of each ship.

Advice for manoeuvring alongside

- If either of the Masters of the ships or the STS Superintendent has the slightest doubt about the safety of the manoeuvre, the berthing operation should be aborted.
- At all times each ship is responsible for maintaining a proper lookout.
- Generally, during manoeuvring, the wind and sea are kept on the port bow of the usually larger constant heading ship; however local conditions or knowledge may indicate an alternative approach.
- The angle of approach adopted by the manoeuvring ship should not be excessive.
- A common method of berthing is for the manoeuvring ship to approach the constant heading ship from the quarter on the side of berthing. On closer approach the manoeuvring ship should parallel the course of the constant heading ship at a safe distance that is appropriate to the conditions, before positioning itself relative to the constant heading ship. Contact is made by manoeuvring ship reducing the distance by appropriate rudder and engine movements until the fenders touch.
- The two ships should preferably make parallel contact at the same speed with no astern engine movements being necessary.
- No engine movement on the constant heading ship should be made without advising the STS Superintendent or Master of the manoeuvring ship.
- The effects of ship interaction should be anticipated when manoeuvring at close quarters.

Manoeuvring two double banked ships to an anchorage

On completion of mooring, the constant heading ship will usually power all future manoeuvres and, if a transfer at anchor is planned, will proceed to the agreed anchoring position. During this time, the (former) manoeuvring ship will have its engines stopped and rudder amidships. It should be emphasised that, for this period, in order to avoid problems for the manoeuvring ship the constant heading ship should not use strong astern engine movements. ***Speeds through the water should be minimal.***

The constant heading ship should use the anchor on the side opposite to that on which the other ship is moored.

Once at anchor, each ship is responsible for watch keeping arrangements.

Manoeuvring two double banked ships for under way STS operations

As long as adequate sea-room is available and traffic conditions, weather, sea conditions and forecasts are suitable, then transfers of this type can be carried out, but it should be noted that speeds through the water should be minimal.

The constant heading ship maintains steerage way at slow speed on a steady course and the (former) manoeuvring ship keeps its rudder amidships and remains (with engines stopped) as a towed ship. In order to minimise towing loads on the moorings, the constant heading ship should alter her engine revolutions sparingly, adjusting speed very gradually. The chosen course and speed should be agreed by the two Masters and the STS Superintendent and should result in minimum relative movement between the two ships and minimum turbulence in the gap between the hulls.

Under such circumstances, while the ships are moored together as a unit, safe navigation and collision avoidance is usually the responsibility of the constant heading ship but may be under the direction of the person in overall advisory control aboard the lightering ship.

The two ships can drift freely provided conditions are suitable and a transfer area of suitable size is available.

The use of the underway transfer system requires a full navigational watch to be kept on the bridge of each ship.

Manoeuvres with One Ship at Anchor

One ship anchors in a pre-determined position using the anchor on the side opposite to that on which the other ship will moor. The berthing operation should only commence after the anchoring ship is brought up to her anchor and is lying on a steady heading with reference to prevailing current and wind conditions.

The Master of the ship which is to anchor should allow for the fact that the single anchor will be required to hold both ships. When anchoring in deep water, and using an extended scope of cable, the Master of the ship that is to anchor should also ensure that the windlass is capable of recovering the cable and anchor once the operation is completed.

The type of berthing operation then undertaken by the manoeuvring ship is similar to a normal approach to a jetty. A risk assessment should be undertaken by the organisers to evaluate the necessity of tug assistance for the manoeuvring ship.

A careful watch should be kept on the heading of the anchored ship and the anchored ship should advise the manoeuvring ship immediately if she has any tendency to yaw. Where there is a tendency

to yaw excessively, a tug should be employed to hold the anchored ship on a steady heading. If no tug is available, postponement of the operation should be considered.

This manoeuvre can be preferred for more constrained transfer areas, especially when tug assistance is available, or if the manoeuvring ship is fitted with a bow thruster. Where current and wind are not from the same direction or the wind varies in speed or direction the anchored ship can yaw (or lie cross-current), making it difficult for the manoeuvring ship to berth alongside. Also, both ships could experience different effects due to their different freeboards and draughts. In these circumstances tug assistance may be advisable to hold the anchored ship on a steady heading during berthing.

It is recommended that the services of an experienced STS Superintendent be utilised for this type of operation. ***However, berthing should not be attempted when the tidal stream is due to change.***

When approaching a ship at anchor some Masters recommend a wider angle of approach than that adopted for manoeuvres underway. A wider angle of approach, especially when tugs are not available, helps to avoid early ship-to-ship contact in cases where the anchored ship might yaw unexpectedly. It is recommended that the manoeuvring ship approaches and berths with her port side to the starboard side of the other ship. When mooring to an anchored ship, care should be taken not to pull the anchored ship quickly towards the manoeuvring ship.

Anchoring procedure

Consider the following points before, while and after anchoring:

- Select an area for anchoring. Consider the below points in selecting an area:
  - Availability of designated areas
  - Information in the Pilot volumes
  - Distances to navigational dangers
  - Condition of the sea bottom
  - Traffic around
  - Distances to under water obstructions
  - Shelters available
  - Availability of currents
  - Possibility of bad weather
  - Availability of swinging room
  - Type of anchoring method
  - Piracy

- Carryout a risk assessment.
- Check the wind and the current
- Make an anchoring plan.
- Decide on the number of shackles to be let gone. It depends upon:

- Length of stay
- Depth available
- Availability of wind and current
- Distance to navigational dangers
- Ballast / loaded condition of the vessel

- The number of shackles to be used can be decided by the following formulas as well (D = depth in 'm'):
  - Number of shackles of cable = $1.5\sqrt{D}$
  - Length of cable in 'm' = 6 to 10 x D

- Decide whether to let go the anchor or walk back the anchor. On smaller and medium sized vessels anchor may be let gone in shallow waters. Never let go the anchor on large vessels or in deep water anchoring. There is no an internationally accepted definition for deep water and shallow water, which depends upon the draft depth ratio. Refer the ship's SMS. But, usually, anchoring in depths less than 35-40 m are considered as shallow water anchoring.
- Ensure the bridge, engine room and forecastle are ready and sufficiently manned.
- Make sure the bridge controls are tested including the stern propulsion to ensure proper functioning.
- Ensure the anchor lashings are removed and in cock-a-bill position.
- Approach the anchoring area with a controllable speed and facing the wind/current whichever the highest. Refer the headings of the vessels which are already at anchor.
- Monitor the progress of the vessel throughout.
- Stop the vessel at the point at which the vessel is expecting to drop the anchor.
- Initiate a stern movement. While giving a stern movement, observe the propeller wash. On smaller and medium sized ships, when the propeller wash is passing the bridge wing (on aft accommodation ships), stop the engine. On large and fully loaded ships, may have to wait until the propeller wash comes closer to mid ship.
- Start lowering the cable.
- Ensure the cable is having a short stay during the whole operation. May have to use engines to achieve this.
- When the desired numbers of shackles are out, put the brakes on and wait until she is brought up.
- When she is brought up, order the forward party to tight the brakes and put the guillotine on and to raise the anchor ball.
- Ensure the bridge resources are properly managed throughout.
- At night, ensure, appropriate lights are displayed.
- Make sure the OOW has made singing circle.
- Inform the engine room whether the engines to be kept on standby or finish with engines.
- Report to appropriate parties such as port authority, owners, charterers, agents etc.

Open moor, Baltic moor and Mediterranean moor

Refer “Seaman Ship Techniques” by D.J. House for the procedure of the operation.

Running moor and standing moor

This is good when anchoring in restricted areas (especially by land) and when excessive yaw is expected, to reduce the swinging circle. Students must understand that this moor will not increase the holding power as she will be riding to one cable always. Refer “Seaman Ship Techniques” by D.J. House for the procedure of the operation.

CLAUSES ON CHARTER PARTIES AND BILLS OF LADING

Liberty clause on bills of lading

Due to higher risks involved, carriage of cargo on deck is unlawful unless it is a custom of the trade. Examples for the customs of the trade include:

- Carriage of containers on deck,
- Carriage of timber on deck and
- Carriage of heavy lifts on heavy lift carriers

Otherwise a carrier may carry cargo on deck with the consent (agreement) of the shipper. In accordance with the Hague/Visby rules, it will be applied only when;

- the cargo is actually stowed on deck; and
- the bill of lading contains a statement saying that the cargo is carried on deck.

To have more freedom of cargo stowage and carriage, the liberty clause is used by carriers. A usual liberty clause states "*Carrier has liberty to carry goods on deck without notice to the merchant and without stating the on deck carriage on the bill of lading*".

Carriage of deck cargo

Carriage of cargo on deck exposes the carrier to higher risks as there is a high possibility for cargo damage while carrying on the deck. Therefore, carriage of goods on deck should be avoided except in the following situations:

- If the shipper has agreed to carry cargo on deck at their own risk in writing and the same is mentioned on the bill of lading or
- The bill of lading contains 'liberty clause' which allows the carrier to carry cargo on deck provided:
  - Customarily cargo is carried on deck (examples – containers on container ships, timber on timber carriers)
  - Shipper is aware of such customs
  - Cargo is suitable for carriage on deck

The 'liberty clause' is used in the carriage of containers to protect the carrier and allowing him to carry containers on deck.

Off-hire clause

In case of time charter parties, the charterer is required to pay the hire to the ship owner without any delays as agreed on the charter party. But, if the vessel is not in operation as required by the charter

party, the expenses incurred during the period of off hire will have to be borne by the ship owner. If the vessel is off hire, the master is required to inform the time charterer and the ship owner along with the other information required. The master needs to have a general knowledge of the off-hire clause to understand whether a situation can be considered as off-hire of not. Different charter parities may have different off-hire clauses. The following example provides an off-hire clause given in New York Produce Exchange time charter.

"In the event of loss of time from;

- *deficiency of men or stores,*
- *fire,*
- *breakdown or damages to hull, machinery or equipment,*
- *grounding,*
- *detention by average accidents to ship or cargo,*
- *drydocking for the purpose of examination or painting bottom, or*
- *by any other cause preventing the full working of the vessel,*

the payment of hire shall cease for the time thereby lost; and if upon the voyage the speed be reduced by defect in or breakdown of any part of her hull, machinery or equipment, the time so lost, and the cost of any fuel consumed in consequence thereof, and all extra expenses shall be deducted from hire."

Slow steaming clause

To avoid extra fuel consumptions, to reduce emission of pollutants to the marine environment or to increase the efficiency of a vessel, charters may require the vessel to proceed at slow steaming. Slow steaming clauses in voyage charter parties may differ from such clauses in time charter parties. But, again, a master must ensure the safety of the vessel, protection of the marine environment while complying with the slow steaming requests from the charterers. If the vessel is not designed to continue on slow steaming for long times or if the weather condition does not permit slow steaming or for any other reason which jeopardizes safety or marine environment, a master can decide not to continue on slow steaming provided owners and charters are informed. As most of the slow steaming clauses are very lengthy, a part of the slow steaming clause for time charter party from BIMCO is given below:

(a) The Charterers may at their discretion provide, in writing to the Master, instructions to reduce speed or RPM (main engine Revolutions Per Minute) and/or instructions to adjust the Vessel's speed to meet a specified time of arrival at a particular destination.

*(i) *Slow Steaming – Where the Charterers give instructions to the Master to adjust the speed or RPM, the Master shall, subject always to the Master's obligations in respect of the safety of the Vessel, crew and cargo and the protection of the marine environment, comply with such written*

instructions, provided that the engine(s) continue(s) to operate above the cut-out point of the Vessel's engine(s) auxiliary blower(s) and that such instructions will not result in the Vessel's engine(s) and/or equipment operating outside the manufacturers'/designers' recommendations as published from time to time.

Virtual arrival clause in charter parties

The inclusion of "virtual arrival" clauses into charterparties seems to be the latest endeavour to cut costs and meet the great pressure to reduce greenhouse gas emissions. A virtual arrival clause permits a charterer to request an owner to adjust the speed of the vessel to arrive at a loading or discharging port at an agreed date and time. In other words, the clause is designed to assist shipowners, charterers and ports to come to a rational agreement regarding sailing speed and arrival time to avoid port congestion. Like the slow steaming clauses, any reduction in the vessel's speed, with charterers' agreement, should not be considered a breach of owners' due dispatch obligations and should therefore not give rise to an unjustified deviation. By reducing speed to meet a mutually agreed arrival time, the vessel can avoid spending time at anchor awaiting a berth. Virtual arrival can therefore be described as a process that recognises known inefficiencies in the market, such as the need to wait to discharge because the terminal is not ready to handle the cargo, by implementing the possibility to reach a mutually agreed arrival time based on information that reaches the concerned parties under a voyage[58].

Virtual arrival is not just a slow steaming. In this case, the master may adjust the ship's speed to arrive the port at an agreed date and time. Whereas in the case of slow steaming, the vessel continues at the economical speed throughout.

Liberty and deviation clause on charter parties

During the voyage of a vessel she may have to be deviated from the contracted route. If the vessel is deviated, depending upon the circumstances, a shipowner would be held liable for the expenses incurred during the period.

Some charterparties states that the vessel may be deviated for the purpose of bunkering with the charters consent. In that case, if the vessel is deviated without the consent of the charters, it would constitute a deviation.

At the same time, if the vessel is not allowed to deviate to take spares but allowed to deviate for bunkering, she may deviate for bunkering and at the same time may take spares during the bunkering period. But, if the vessel is deviated to take spares for the vessel, no protection for the ship owner even though she is allowed to deviate for bunkering.

[58] http://www.gard.no/web/updates/content/20734104/slow-steaming-and-virtual-arrival

Deviation clauses are used with time charter parties, voyage charter parties and also with bills of ladings. Following is a sample of a liberty and deviation clause.

a) *The Vessel shall have liberty to sail with or without pilots, to tow or go to the assistance of vessels in distress, to deviate for the purposes of saving life or property, and for any other reasonable purpose, which term shall include but not be limited to calling at any port or place for bunkers; taking on board spares, stores or supplies; repairs to the vessel necessary for the safe continuation of the voyage; crew changes; landing of stowaways; medical emergencies and ballast water exchange.*

b) *If the Charterer requests any deviation for the Charterer's purposes and the Owners consent, with such consent to be at the absolute discretion of the Owners, the Charterer shall indemnify the Owners against any and all claims whatsoever brought by the owners of the cargo and/or the holders of Bills of Lading against the Owners by reason of such deviation.*

c) *Prior to giving any such consent the Owners may, at their option, require to be satisfied amongst other things that the Charterer has sufficient and appropriate P&I Club cover and/or if necessary, other additional insurance cover, in respect of such a requested deviation,*

d) *This Clause shall be incorporated into any sub-charter and any bill of lading issued pursuant hereto.*

Both to blame collision clause

The both to blame collision clause is in cooperated into bill of ladings to protect the shipowner against cargo related claims from own cargo owners.

As an example, if the vessel A and B are collided. After the judicial proceedings the fault will be apportioned. Assume that the fault is apportioned as A is 30% to blame and B is 70% to blame.

The cargo owner of vessel A cannot claim for any loses from A as '*the ship owner is not liable for any act or neglect of the master mariner or pilot or …….*' as stated in The Hague / Visby rules.

Therefore, cargo owner of A will claim his total loss from the owner of the vessel B. Vessel B will pay that to the cargo owner A and he will claim the part of that loss (means according to the percentage the vessel A is at fault) from vessel A, because it is a loss for him and it is included in the 100% of the total loss.

Vessel A must pay that share to the vessel B. if the both to blame clause is effective vessel A can claim that loss from her own cargo owner.

Example
Assume that after a collision between two ships, both the vessels have been found equally to blame (each vessel is 50% at fault).

- Damage to cargo onboard the "Carrier" – 10,000 US$
- Damage to the "Non-carrier" – 8,000 US$

The Cargo owner cannot claim from the "Carrier" due to Hague/Visby Rules. Because, The Hague/Visby rules states that "Neither the carrier nor the ship shall be responsible for loss or damage arising or resulting from act, neglect, or default of the master, mariner, pilot or the servants of the carrier in the navigation or in the management of the ship".

Therefore, cargo owner will claim his loss of 10,000 US$ for the "Non-carrier".

Now, the total loss for the "Non-carrier" = 10,000 + 8,000 US$
Since, each vessel is 50% at fault, the "Carrier" liability to "Non-carrier" = 5,000 + 4,000 US$

Therefore, the "Non-carrier" will get 9,000 US$ from the "Carrier". If the both to blame collision clause is effective, "Carrier" will be indemnified by the cargo owner for 5,000 US$ as this is what the "Carrier" has paid to the "Non-carrier" because of the damage to the cargo onboard her own.

Retla clause

While loading steel products and timber, there is a high possibility, steel cargo may contain rust to a certain degree and the timber products may contain moisture to a certain degree. In such situations the master will not be able to issue a clean bill of lading. Therefore, the Retla clause is used by some ship owners to protect themselves against damage claims when clean bill of ladings is issued. Refer the below Retla clause:

" If the Goods as described by the Merchant are iron, steel, metal or timber products, the phrase 'apparent good order and condition' set out in the preceding paragraph does not mean the Goods were received in the case of iron, steel or metal products, free of visible rust or moisture or in the case of timber products free from warpage, breakage, chipping, moisture, split or broken ends, stains, decay or discoloration. Nor does the Carrier warrant the accuracy of any piece count provided by the Merchant or the adequacy of any banding or securing. If the Merchant so requests, a substitute Bill of Lading will be issued omitting this definition and setting forth any notations which may appear on the mate's or tally clerk's receipt."

Under English law, this clause does not protect the ship owner against surface rust of whatever degree. The ship owner will be protected against superficial rust and moisture on steel cargoes. Therefore, if the steel products are rusty than superficial rust the master will have to clause the bills of lading with regards to the apparent order and condition under the advices of the shipowner and the P & I club.

Always safely afloat clause

In some ports it is a custom that vessels may touch the seabed while doing cargo operations. Even though these sea beds are safe (seabed consists of mud or sand, bottom is even, no underwater obstructions etc.) to touch, there is a risk of damage to a vessel due to unforeseen (port authority has not maintained/monitor the sea bed) causes.

This clause is used by ship owners to ensure charterers are not using any ports that there is a possibility of touching the bottom during the cargo operations to avoid risk of damage to ship's bottom. Therefore, master has a responsibility not go into any ports that there is a risk of touching the bottom if ordered by charterer.

Generally, the wording would be as " . . . *the vessel shall proceed to . . . or so near thereto as she may safely get and lie afloat . . . and being so loaded the vessel shall proceed to . . . or so near thereto as she tray safely get and lie always afloat there deliver the cargo, . . .*"

Not always afloat but safely aground (NAABSA)

Charterers prefer to have this clause into their charterparty so that if the vessel is to touch a port where she has to be aground during the cargo operations, there will not be any delays and problems due to master's refusal to enter into such ports.

The wording of such a clause would be *"…Cargoes be laden and/or discharged in any dock or at any wharf or place that charterers or their agents may direct, provided the vessel can safely lie always afloat at any time of tide, except at such places where it is customary for similar size vessels to safely lie aground……*"

If the vessel is ordered to go into a such port, master shall;

- make sure to check the charter party to identify the limits of responsibilities between the parties;
- make sure charts & publications are available & updated;
- check the depths available with publications, agents, port authorities etc.;
- check whether similar size vessels have visited the port;
- check the nature of the seabed, shape of the seabed etc.;
- with the aid of the owners may hire another company to scan the sea bed before arrival;
- ensure that all officers, engineers & crew must be properly instructed;
- check soundings of double bottom tanks before touching the bottom;
- keep the steering motors off during the period of touching the bottom; and
- not go in if there are reasons to believe that the port is not a safe port.

After using such a port, master shall;

- check the soundings of the double bottom tanks after refloating and make sure no change of sounding has taken place;
- make sure everything is fine in the engine room;
- make sure the rudder is working properly; and
- arrange an underwater survey if any doubt of damage to the vessel before she goes back to sea.

IMO INSTRUMENTS

Contracting State and member State

There is a difference between a contracting State and a member State. Member State means a State who is a member of the IMO. A contracting State means a member State who is party to a convention considered.

Example –

Sri Lanka is a member State of IMO. But NOT a contracting State to the ballast water management convention (as of 12th November 2020). Sri Lanka is a contracting State to the STCW convention.

Adopting a convention

Adoption of a convention means that the final convention that has been agreed and documented by the IMO. IMO has six main bodies as listed below, which include the two main organs and four committees.

- Assembly
- Council

Main organs

- Maritime Safety Committee,
- Marine Environment Protection Committee,
- Legal Committee and
- Facilitation Committee.

Committees

The member States may raise their opinions and the need for new conventions, codes or amendments can be discussed within the above bodies. Once it is agreed to have a new convention or amendments, the drafted documents will be prepared by the appropriate committee.

Entry into force

Entry into force means the adopted convention becomes binding for member States which have ratified the convention.

The IMO will decide depending upon the importance of the convention, minimum number of countries that has to ratify the convention and world tonnage required.

Once these requirements are achieved, the contracting States are required to have a grace period to take necessary steps to implement the convention and that period also will be decided by the IMO.

The ratified member States will be bounded by the requirements of the convention at the end of the grace period, after which is known as entered into force.

Example of adopting and entering into force

Member States raised their concerns about the ballast water carried by ships through Marine Environment Protection Committee in 1980s and IMO adopted the Ballast water management convention in 2004.

It was supposed to enter into force 12 months after ratification by a minimum of 30 States, representing 35% of world tonnage. IMO managed to achieve these requirements on 8th September 2016. Therefore, the convention came into force on 8th of September 2017 (one year after ratification requirements are complied with).

Tacit acceptance

In early conventions, amendments came into force only after a percentage of Contracting States, usually two thirds, had accepted them. As the present number of contracting States could be higher than the number of contracting States at the time of coming into force of the initial convention, amending of existing conventions is very difficult and time consuming.

Therefore, IMO adopted the tacit acceptance procedure. "Tacit acceptance" procedure provides that an amendment shall enter into force at a particular time unless before that date, objections to the amendment are received from a specified number of Parties.

Enforcement

Enforcement means implementation of the provisions of the IMO conventions by the contracting States. Once a convention is enforced, the contracting governments has to ensure their flag ships, ship owners, seafarers or any other applicable parties are complying with the requirements of the convention.
At the same time the contacting government has to ensure the vessels that use their ports are also complying with such regulations through PSC inspections.

Amendments

Amendments mean minor changes or additions to existing conventions. This is necessary to keep the conventions updated along with the dynamic environment of the shipping trade. Most of the time, amendments are adopted through resolutions.

Conventions

A convention means an agreement with the States who are party to it, to comply with the provisions of such convention. Unlike bilateral or multilateral agreements, conventions are expected to participate by the whole international community. Conventions may contain mandatory requirements, guidelines, technical requirements, documentary requirements etc.

Protocols

A protocol means an additional instrument that is added to a convention. A protocol is usually relevant to the original convention and could be used to address in detail something in the original convention or add a procedure for the operation or enforcement of the original convention.

Protocols are not automatically binding on the states that have already party to the original convention. Protocols are required to be individually ratified again to enforce. Examples of few conventions and their protocols are:

Convention or protocol	Date of entry into force
Load line convention 1966	21/07/1968
Protocol to load line convention 1988	03/02/2000
FUND 1971	16/10/1978
FUND Protocol 1976	22/11/1994
FUND Protocol 1992	30/05/1996
FUND Protocol 2000	Not entered into force
FUND Protocol 2003	03/03/2005

Resolutions

Resolutions may be adopted by the Assembly or Council or any of the four committees and they are related to the relevant organ or committee. Parties to which the resolution is addressed or if the resolution is an amendment to an existing convention or protocol or code, parties to such convention or protocol or code will be bound by the resolution. Resolutions are expected to enter in to force at the mentioned date and shall be considered binding to the states who are party to the relevant convention or code. Resolutions may contain:

- Amendments to existing conventions
- Amendments to existing codes
- Amendments to existing protocols
- Amendments to guidelines
- Recommendations
- New guidelines, recommendations or requirements

The resolutions are numbered methodologically, and it contains certain information. The English letter/s indicates the relevant IMO organ or the committees, the number outside the brackets indicate the serial number of the resolution and the number within the brackets indicate the session number of the committee where the resolution was adopted. Examples of numbering:

A.917(22) – adopted by 'Assembly', serial number is 917 and it was adopted in the 22nd session.

MSC.198(80) – adopted by 'Maritime Safety Committee', serial number 198 and it was made in the 80th session.

MEPC.116(51) – adopted by 'Marine Environmental Protection Committee', serial number is 116 and it was adopted in the 51st session.

Circulars

Circulars can be issued by main organs or any of the committees at IMO. There are various categories of IMO circulars and they are not mandatory. They may contain:

- Amendments to IMO guidelines
- Guidelines
- Measures
- Clarifications or interpretations for conventions or codes

Codes

There are mandatory codes as well as non-mandatory codes. Mandatory codes are made mandatory through a convention and all the parties to the convention are required to comply with the code by the date mentioned on the convention.

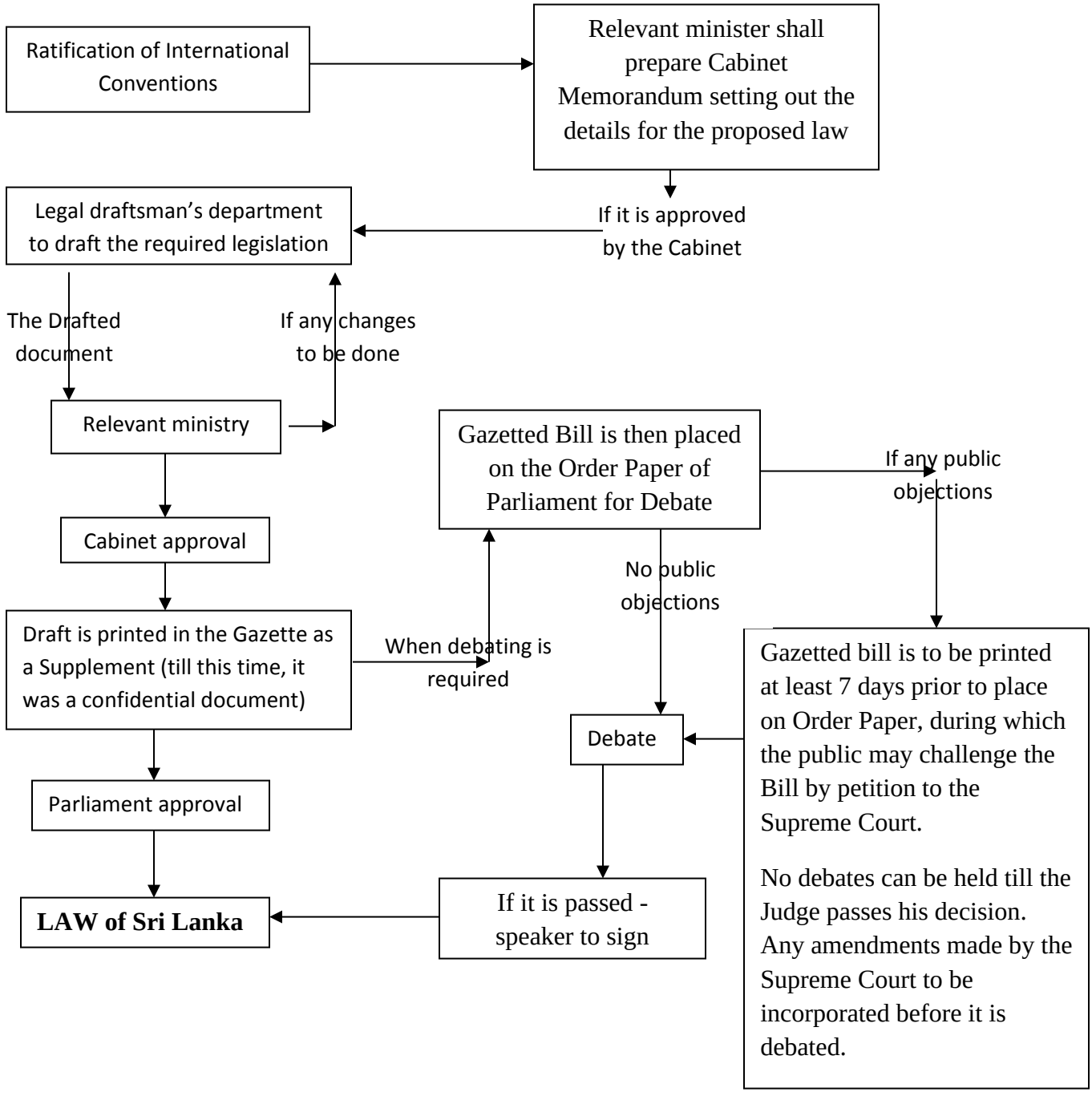
Members of the IMO may use non mandatory codes as guidelines or as regulations as per their local requirements, but internationally they are not required to be complied with.

Usually, codes contain more technical oriented details, procedures, safety precautions, guidelines recommendations etc. to be adhered to while complying with the requirements of a convention (if it comes through a convention). Refer the below table for examples of mandatory codes and non-mandatory codes:

Name of the code	Mandatory/non mandatory	Convention under which the code was adopted
Timber Code	Non mandatory	Adopted by a resolution
BLU Code	Non mandatory	Adopted by a resolution but linked to SOLAS
OSV Code	Non mandatory	Adopted by a resolution
IS Code	Mandatory	Amendments to SOLAS & Load Line protocol 1988
Polar Code	Mandatory	Amendments to SOLAS & MARPOL
IMSBC Code	Mandatory	SOLAS & keep amending through resolutions

MERCHANT SHIPPING LEGISLATIONS OF SRI LANKA

Implementation of IMO instruments in Sri Lanka



Sri Lanka is not party to the following important conventions, protocols and annexes of the conventions[59] (as of 12/11/2020)

- SOLAS protocol 78 & 88
- Load line protocol 88
- SAR Convention 79
- MARPOL Annex VI
- Bunkers convention
- Antifouling convention 2001
- Ballast water convention 2004

Important Acts, Regulations and guidelines applicable to Sri Lankan ships and seafarers[60] (as of 12/11/2020)

- Merchant Shipping Act No. 52 of 1971
- Merchant Shipping (Amendment) Act No. 36 of 1988
- Merchant Shipping (Training, Certification and Watch Keeping) (STCW'78 as amended)- Gazette No.1987/19 (entered into force on 04/10/2016)
- Marine Pollution Prevention Act, No.35 of 2008
- Carriage of Goods by Sea Act No. 21 of 1982
- MSN issued by the DGMS

Sri Lanka's main legislation with regards to merchant shipping is the Act. 52 of 1971. Most of the Gazette notifications such as Gazette No.1987/19 which implemented the 2010 amendments to the STCW convention are issued as allowed by the said Act. At the same time, according to the present legislation, Acts and the Gazettes are legally enforceable, which means violators of any regulations in the Act or Gazettes can be taken to courts. But, Merchant Shipping Notices (MSN) issued by the DGMS office does not has legal status, they are guidelines only.

[59] http://www.imo.org/en/About/Conventions/StatusOfConventions/Pages/Default.aspx
[60] http://www.dgshipping.gov.lk

MISCELLANEOUS

1) Taking over command[61]

- On the way to the master's office, have a general overview of the vessel which include the condition of the hull, draught marks, gangway, deck, alleyways, firefighting equipment, lifesaving equipment etc. to gain a general knowledge of the condition of the vessel.
- Take delivery of the certificates and documents from the outgoing master.
- Refer the 'audit and survey report file' to identify whether any deficiency or condition for the vessel is pending.
- Read the master's handing over notes carefully.
- Make an entry in the official logbook regarding the change of command. This may be made by the incoming master or the outgoing master but need to sign by both.
- If the outgoing master is not available onboard (e.g. expired during the voyage), the new master has to make a statement on the official logbook stating the reasons why a personal hand-over was not possible and an officer has to sign it as witness.
- Enter the name, COC number and the type of the COC in the front cover of the official logbook (for British flagged ships) – this depends upon the flag state
- Enter the details in the "list of crew" in the official log book.
- Take over all the keys.
- Count the balance money with the master's custody and take over.
- Need to ask the combination number (password) of the ship's safe.
- Well aware about the next voyage particulars (draught restrictions, distances, availability of bunkers, charterer's instructions, special requirements regarding the safe carriage of cargoes, whether the next port is safe etc.)
- If the vessel is chartered, need to know the following:
  - The fuel reserves required to have onboard.
  - Speed to be maintained.
  - Reports to be made, when to send them and to whom.
  - Charterer's instructions regarding cargo, lashing, stowing and navigation.
  - Charterer's instructions regarding the bills of lading.
  - Deviation clauses in the charter party.

- After taking over:
  - Need to receive safety familiarization.
  - Read and understand the applicable clauses in the charter party and bills of lading.
  - Familiar with the owner's and charterer's voyage instructions.
  - Have a discussion with the chief officer regarding departure and arrival condition of the vessel, availability of fresh water, stores etc.

[61] Ship master's business companion

- Have a discussion with the chief engineer about availability of bunkers for the voyage, bunker reserves, spares for the intended voyage.
- Have a discussion with the 2nd officer regarding the passage plan, availability of publications and charts etc. Check voyage charts to ensure the passage is safe.
- Check for any outstanding Non-Conformities (NCRs).
- Ensure that the crew is certificated in accordance with the ship's minimum safe manning document.
- If required, make new standing orders.
- Before sailing ensure the vessel will be seaworthy at the time of sailing, during the passage and at the time of arrival.
- Make a full inspection of the vessel as soon as possible.

With regards to Sri Lankan flag ships in addition to above:

In accordance with the Regulation 53 of the Act 52 of 1971, whenever the change of command has taken place, the Registrar or, if the vessel in a foreign port, the Sri Lankan Consular officer to the port is required to endorse and sign on the certificate of registry a memorandum of the change. In case of a Consular officer, it shall be notified to the Chief Registrar.

Refer the Annex – III of this document which shows a format of a Certificate of Registry issued by the Sri Lankan Administration. The name of the first master is entered (printed) with the COC number.

At the same time, according to Regulation 131 of the Act 52 of 1971, the outgoing master must deliver all the documents relating to the ship or her crew which are in his custody to the signing on master.

2) Procedure of changing the ship's name

Masters are required to refer the flag state regulations concerning the procedure of changing the ships name as different flag states may have different practices and procedures in changing a vessel's name. General guidelines are stipulated below:

- No alteration to be done on the vessel's hull until a carving and marking note is received from the flag state.
- The ship's owner to inform the master the date and the time of change of name.
- A surveyor will witness the change of name onboard.
- Re-registration is not required but, a provisional certificate of registry will be issued by the flag state which will be valid for 06 months. Some flags may allow the surveyor to amend the name on the existing certificate of registry until a new certificate is issued.

- The former name on the statutory certificates will be deleted (by striking through) and the new name will be stamped by the surveyor.
- Ship name to be changed on stability book, cargo securing manual, SOPEP, SMPEP, ballast water manual, lifeboats, life rafts, life buoys, ship's hull etc.
- Changes to the statutory documents will be carried out by a class surveyor. Once the name is changed all the documents to be dated, signed and stamped by the surveyor.
- Once the ship's name is marked on the hull and witnessed by the surveyor, the certified carving and marking note to be sent to the registrar of ships.
- Amendment regarding change of name to be made in the amendment sheet of the CSR by the master. This will provisionally replace the original CSR until it is re-issued by the flag. Make sure the data on the new CSR is correct.

3) Procedure of changing the flag

- Among other documents the ship owner is required to produce the below documents to the new flag state:
  - Builder's certificate
  - Foreign registration certificate
  - Bill of sale
  - Demise charter party (if the vessel is demise chartered)
  - International Tonnage Certificate
  - Port state control records
  - Classification society records
  - Ships radio station license
  - Marking note
  - Copies of valid international ship certificates issued by the existing flag state

- Different flag states may require producing other documents such as general arrangement plan, fire control & safety plan (approved by RO), engine room arrangement plan, cargo securing manual (approved by RO), SOPEP (approved by RO), stability book (approved by RO), damage stability book (approved by RO) etc.
- Once the formalities are completed, a marking and carving note will be issued.
- Ship name (if the name to be changed) & port of registry to be changed on stability book, cargo securing manual, SOPEP, SMPEP, ballast water manual, life boats, life rafts, life buoys, ship's hull etc. Changes to the statutory documents will be carried out by a class surveyor. Other changes must be carried out by the ship's staff but will be checked by the surveyor.
- The class must be recognized by the new flag state to carryout surveys and issue certificates.
- Once the ship's name (if the name is to be changed) and the port of registry is marked on the hull and witnessed by the surveyor, the certified carving and marking note to be sent to the registrar of ships.

- The sailing staff need to have COR or CEC as required by the new flag state.
- Relevant regulations of the new flag state to be onboard and the master shall be aware of such regulations.
- May require registering the 406 MHz EPIRB with the flag state and the EPIRB will be coded with a new flag state identity.
- New call sign and a MMSI number may be assigned.
- May required having radio license from the new flag state.
- All the statutory surveys to be carried out with a spectrum of annual or renewal or periodical or intermediate depending upon the due dates of the surveys as appropriate.
- Before issuing a Certificate of Registry, the new flag state is required to have evidence of closure of previous foreign registration.
- Interim certificates for most of the certificates will be issued by the class surveyor on the day of changing the flag.
- Most of the time, most of the full-term certificates are also issued by the classification society.
- Certificate of registration will be issued by the new flag state.
- Some flag states have not delegated the power to issue certain statutory certificates to the classification societies. Therefore, according to the requirements of the new flag, make sure that the statutory certificates are issued accordingly.
- New International Tonnage Certificate will be issued by the new flag based on the former certificate. Tonnage measurements will not be carried out provided no alterations to the vessel's structure.
- The existing Panama and Suez tonnage certificates will not be affected, and they will remain valid provided no alterations to the vessel's structure. The port of registry, ship's name (if required) will be amended by a surveyor.
- Regarding the DOC (ISM Code):
  - If there are other vessels (belongs to the company) registered in the new register, and if the new flag is the predominant flag (having most number of ships of the owner in this flag), existing DOC will not be affected. The existing Letter of Acceptance will be withdrawn.
  - If there are other vessels registered in the new register, and if the former flag is the predominant flag, Letter of Acceptance will be issued by the former flag.
  - If there are no any other ships registered in the new register, a Letter of Acceptance may be issued by the new flag state, provided that they accepts the DOC issued by the former flag state.

- Amendments regarding change of flag to be made in the amendment sheet of the CSR by the master. This will provisionally replace the original CSR until it is re-issued by the new flag. Make sure the data on the new CSR is correct.
- SSP must be approved by a RO and need to issue a new SSP Approval Letter by the new administration.

4) Procedure of changing the class[62]

- Owner must request for transfer of class from the existing class.
- The new class needs the current classification survey status from the existing class.
- Following plans to be submitted by the ship owner or may take from the existing class with the ship owner's consent:
  - General Arrangement
  - Hydrostatic Curves
  - Loading Manual, where required.
  - Damage Stability calculation, where required.
  - Midship Section
  - Scantling Plan
  - Decks
  - Shell Expansion
  - Transverse Bulkheads
  - Rudder and Rudder Stock
  - Hatch Covers
  - Pumping arrangement at the forward and after ends and drainage of cofferdams and pump rooms are to be submitted (for tankers)
  - Machinery Arrangement
  - Intermediate, Thrust- and Screw Shafts
  - Propeller
  - Main Engines, Propulsion Gears and Clutch Systems (or Manufacturer make, model and rating information)
  - For Steam Turbine Vessels, Main Boilers, Super heaters and Economisers (or Manufacturer make, model and rating information) and Steam Piping
  - Bilge and Ballast Piping Diagram
  - Wiring Diagram
  - Steering Gear Systems Piping and Arrangements and Steering Gear Manufacturer make and model information
  - If the vessel is UMS:
    - Instrument and Alarm List
    - Fire Alarm System
    - List of Automatic Safety Functions (e.g. slowdowns, shutdowns, etc.)
    - Function Testing Plan
  - Any other plans depending upon the flag state requirements
- If the age of the vessel is less than 15 years, Interim Certificate of Class (this is a certificate issued for the purpose of trading a vessel until the full-term certificate is issued) will be issued only after the **new class has completed** the:
  - All overdue surveys and

[62] www.iacs.org.uk/download/5798

- All overdue conditions imposed by the former class

- If the age of the vessel is more than 15 years, Interim Certificate of Class will be issued only after the **former class has completed** the:
  - All overdue surveys and
  - All overdue conditions imposed by the former class
- The validity of the Interim Certificate of Class and the subsequent Certificate of Class is subjected to any outstanding conditions of class previously issued being completed by the due date and as specified by the former class. These will be mentioned on the Interim Certificate of Class or attachment to it or survey record and on the survey status report when the full-term Certificate of Class is issued.
- There will be various communications and exchanges between the former class and the new class which a vessel's master is not involved.
- Class entry surveys will be carried out as below:
  - Hull Class Entry Survey (scope of the survey may change depending upon the age of the vessel)
  - Machinery Class Entry Survey which is going to be a general examination of all essential machinery.

Double and dual class (refer IACS procedures for further clarifications or updates)

'Double class vessel' is a vessel which is classed by two Societies and where each Society works as if it is the only Society classing the vessel and does all surveys in accordance with its own requirements and schedule.

'Dual class vessel' is a vessel which is classed by two Societies between which there is a written agreement regarding sharing of work.

5) Can a master stop shore leave to staff onboard?

A master may grant shore leave for the wellbeing of the staff depending upon the operations to be carried out at the port. At the same time a master may stop shore leave if the port is not safe enough. Therefore, a master may cancel or allow shore leave depending upon the circumstances but, shall not cancel shore leave without proper reasons.

6) If any complaints are received with regards to food and water

In accordance with the English law a master is required to take actions if complaints are received regarding quality or quantity or health safety of food and water by three or more persons only. In such a case:

- Carryout an investigation to identify whether the complaint is reasonable.
- If the complaint is reasonable, need to rectify the matter within a reasonable time.
- If the persons made the compliant are not happy about the actions of the master or if the master does not take an action, the seamen may express their dissatisfaction and they can complain it to the superintendent or any other officer within the company and the master is required to facilitate the seamen to do so (complain procedure – MLC 2006).
- As a result of an investigation if the superintendent or other officer in the company inform the master in writing that the food and the water is not in good condition or sufficient quantity, the master shall rectify the matter within a reasonable time

Note that the MLC 2006 states that the food and drinking water supplies, having regard to the number of seafarers on board, their religious requirements and cultural practices as they pertain to food, and the duration and nature of the voyage, shall be suitable in respect of quantity, nutritional value, quality and variety.

7) Food safety

Ship masters are required to refer the following regulations and publications with regards to food safety & hygiene onboard ships:

- Flag state regulations
- Company SMS
- Code of Safe Working Practices (for UK ships)

Generally, following to be complied with, to avoid food poisoning onboard ships:

- Comply with onboard food safety plan. Usually, this covers;
  - Safe procedures of handling food stuffs when received onboard.
  - Proper stowage and segregation of food. (Stowage means stowing of food items in appropriate places such as cold rooms, dry store rooms etc. Segregation means separation of various food items between themselves such as Ready-to-eat food is to be separated from raw food.)
  - Organization of galley.
  - Personal hygiene of personal who are handling food.
  - Safe preparations of food.
  - Precautions to take to avoid contamination with waste or other materials.
  - Safe procedures in storage of cooked food.
  - Safe procedures of cleaning and disinfecting and
  - Check lists to be used with regards to food handling.
- Frequent galley and food storage areas inspections to be carried out and make sure such areas are being maintained as required by the flag state regulations and company SMS.

- Make sure the cooks are properly qualified (MLC 2006, as amended)
- Cooks and messmen must have sufficient knowledge about the requirements of the flag state and company SMS with regards to food safety (onboard food safety plan).
- Ensure the check lists which are in the onboard food safety plan are properly used by the galley department.
- Make sure to post food safety placards in accordance with the company SMS in appropriate places.
- Make sure the cooks and the messmen are maintaining their personal hygiene.
- There must be adequate and suitably located hand-washing and hand-drying facilities for food handling personnel.
- Do not allow any body to catch fish for eating purposes while onboard.
- Do not allow to take food into cabins.
- No persons shall be allowed to enter galley or food storage areas with dirty shoes and clothes.
- Cracked or chipped crockery and glassware should be discarded.
- Ensure a proper garbage management system is maintained onboard.

8) <u>Deaths onboard</u> (In accordance with UK regulations)

- Refer the guidance given in the "Ship master's medical guide" and ensure the person is dead.
- Inform the owners, next of kin and P & I club.
- Carryout out an investigation for the cause of the death if it is due to an accident. Make necessary entries in the 'Accidents and near-misses records' and within 24 hrs inform MAIB.
- Take statements from those who have witnessed the situation.
- Ensure the records of all first aid, medication, TEMAS instructions taken are maintained.
- Prepare the body as the instructions provided in the "Ship master's medical guide", put it in a mortuary bag and place it in the cool room.
- Two officers shall take an inventory of deceased personal belongings and money left behind. The list of inventories to be signed by the two officers. A copy to be sent to the decease's next of kin through the owners.
- Prepare the deceased final wages and take necessary actions to send it to the next of kin.
- Enter the details on the official logbook. This entry shall be signed by the master and witnessed by any crew member. The entries include:
  - Date, time and position/place of death
  - Name and surname
  - Sex
  - Date of birth or age
  - Maiden surname if applicable
  - Occupation
  - Address
  - Nationality

- Cause of death
- If lost from the vessel, steps taken to rescue
- Record of making of a Return, including the person to whom it was made
- Notification of the death to deceased next of kin with their name and address
- List of the deceased personal belongings (above inventory obtained by the two officers can be annexed)

- Complete a Return and forward it to Consul or other officer abroad. Please refer the "Instructions to Master" on the "Return of Births and Deaths RBD 1" below:

Agency

Return of Births and Deaths RBD 1

For the purpose of Regulations 5 and 6 of the Merchant Shipping (Return of Births and Deaths) Regulations 1979

Important: The Consul or other Officer abroad, or the Superintendent in the United Kingdom to whom this Return is given, should forward it without delay direct to:-

Registry of Shipping and Seamen
MCA Cardiff
Anchor Court
Ocean Way
Cardiff
CF24 5JW

Tel: 02920 448800
Fax: 02920 448820
E-mail rss@mcga.gov.uk

Name of Ship	Official number or, if a Fishing vessel, RSS number together with port Letters and Number	Port of Registry (if the ship is registered outside the UK or is unregistered state also the name and address of owners)

Instructions to Masters [1]

A return of Death should be delivered to a Superintendent, Consul or Shipping Master at the earliest opportunity. The Master should produce the Return together with his Official Log Book recording the occurrence.

UK Ships (Registered & Unregistered)
The Master is required to make a Return of:

- Any birth of a child
- Any death in the ship [2]
- The death of any person employed in the ship, where it occurred outside the UK

Other Ships
If the ship calls at a port the Master is required to make a return of any birth or death of a citizen of the UK or Colonies [3] which has occurred in the ship during the voyage.

Instructions to Consuls, Shipping Masters and Superintendents
The officer receiving a Return from a Master must be satisfied that:

- It is correctly completed in all particulars. Any omission or ambiguity (such as stating the cause of death simply as "missing") will lead to delay in registration.
- The person making the Return is the Master of the ship.
- The vessel is a sea-going ship.
- The entry in this Return and in the Official Log Book (where carried) are consistent with one another.

If a death occurred ashore, or the body was brought ashore, it will be helpful if a copy of the Post Mortem findings or other medical or police reports (with a translation into English if in a foreign language) is attached to the Return.

The Officer should also refer to his instructions or notes for guidance in order to find out whether he is to hold an inquiry into the cause of death.

In the event of difficulties, assistance should be sought from the RSS at the above address.

Notes:

1. Master includes every person (except a pilot) having command or charge of any ship.
2. In the ship includes: in a ship's boat or life-raft; being lost from a ship includes: a ship's boat or life-raft.
3. Citizen of the UK and Colonies under the British Nationality Act 1981 means a person who is a:
   - British Citizen
   - British Dependant Territories Citizen
   - British Overseas Citizen
   - British National (Overseas), (under the Hong Kong 'British Nationality' order 1986)

PART A: DEATH AT SEA:

PARTICULARS OF DECEASED

Date of Death	
Place of Death or loss (Latitude and Longitude if at sea)	
Name and Surname of Deceased (also maiden name of woman who has married, if known)	
Sex	
Date of Birth (if known) or age	
Occupation, rank or profession	
Usual residence at time of Death	
Nationality	
Cause of Death Certified correct by ship's doctor or other Medical Practitioner (where possible) When completing this form or making entries in the Log Book as to the "Cause of Death", terms such as "suicide" or "missing" should be avoided and more specific terms such as "gunshot would to the head" or "lost at sea believed killed or drowned" used instead.	

Certificate to be signed by the Master I Certify that: • This Return is correct and true • I have recorded the Death in the Official Log Book or other record of the ship The extract from the Official Log Book at page 4 of this Return is a true extract	Signature of Master ..... Full name of Master (in capitals) ..... Date: .....
Certificate to be signed by the Proper Officer to whom this return is delivered. I Certify that: • This report was made to me at the date and place shown above. • I have examined the Official Log Book containing the relevant entries • I *have/have not held an inquiry under Section 271 of the Merchant Shipping Act 1995 (*please delete as appropriate).	Signature of Officer ..... Full name of Officer (in capitals) ..... Date: .....

Additional particulars in respect of deceased member of the crew, if known:

Name: .....

Relationship .....
and
Address of next of kin .....
.....
.....
.....
.....

Discharge Book Number: .....

UK Ships only. If the deceased was engaged on a "supplementary" agreement for non-UK seamen, please state the date and place that agreement was opened.

Date: .....

Place: .....

Copy of entry or entries relating to death appearing in the narrative section of the Official Log Book or other official record:

Date and hours of the occurrence	Place of the occurrence or situation by Latitude and Longitude at sea	Date of entry	Entries required by Regulations made under Section 77 of the Merchant Shipping Act 1995

- If the death is taken place at sea and if the deceased is one of the persons listed in the Safe Manning Certificate, it will not affect the validity of the certificate, until the vessel arrives port. But, if the death occurs at a port, the validity of the certificate will be affected. Before departure, need to have a replacement or if not possible, a dispensation certificate.
- Inform the agents at the port of arrival.
- Take advices from the local agent and the P & I club regarding the local procedures of repatriation of the body.
- Terminate the crew agreement and it must be witnessed.
- Complete the discharge book and enter "DECEASED" in the "date of discharge" space.
- Amend the list of crew.
- Body and the personal belongings to be delivered to the agent at the port of arrival in accordance with the local procedures.

9) Preparing a vessel for a passage, departure, during the passage and arrival port

Before departure

- Carryout a risk assessment.
- Ensure the next port is:
  - within the range of ports that the vessel is chartered for (if she is chartered),
  - within the area she is constructed to sail, and she is insured for,
  - the port of discharge is as stated in the bill of lading and
  - the port is a safe port for the vessel.
- Decide the route considering all the available information.
- Get the distances (manoeuvring distances and sea passage distances), weather ahead etc.
- Make sure the charts, publications and flags are available.
- Ensure sufficient amounts of bunkers available considering the:
  - voyage distance
  - required speed to be maintained
  - number of days and distances to cover through ECA areas and non-ECA areas
  - fuel consumption
  - amount of reserves to be maintained
  - bunkering enroute and
  - weather ahead
- Ensure sufficient amount of fresh water and provisions available considering the:
  - voyage distance
  - weather ahead
  - amount of freshwater production onboard
  - seasonal requirements
  - availability of supplies during the passage

- Ensure sufficient amounts of spares are available.
- Ensure she is not going to exceed load line marks throughout the passage.
- Calculate the departure and arrival draughts and check whether there are any draught restrictions.
- Ensure the vessel has sufficient stability at the time of departure, during the passage and during the arrival port.
- Consider of areas available for exchanging ballast water if she is expecting to do so.
- With regards to passage planning:
  - Make sure the voyage charts and publications are corrected up to date.
  - Make sure safe passages are plotted (berth to berth) with no go areas, margins of safety, wheel over points, parallel indexes, abort points, contingency anchoring areas, drifting areas and the passages are complying with the international and local regulations.
  - Ensure sufficient under keel clearances and safe distances from navigational dangers are available throughout.
  - Ensure the tidal heights and rates are calculated at critical instances.
  - Make sure sufficient data is available on the bridge and communication channels, mediums are selected for the purpose of reporting throughout the passage.
  - Decide when to adjust clocks if there is a time difference between departure and arrival ports.
  - Debrief the officers about the passage.

- Just before departure ensure:
  - to carry out a risk assessment.
  - appropriate orders are issued for a safe departure.
  - the watchkeeping personal who will be utilized during departure and after departure are well rested.
  - the latest weather reports are available and check the recheck the weather ahead.
  - to check the departure draught and departure condition of stability to ensure they are the same as predicted. If not the same, reconsider of available draught restrictions and seaworthiness during the passage.
  - to try out the bridge controls (departure checklist).
  - all people are onboard, and all stations are manned with sufficient number of people.
  - the expected amounts of cargo is loaded / discharged, cargo related documents are completed and all departure documents are available onboard.
  - to confirm the information relating to the IMDG cargo is readily available on the bridge so that they can be used in an emergency.
  - all watertight doors are closed, cargo secured, stowaway searches are carried out and vessel is ready for departure.
  - Master / pilot exchange procedure to be carried out. Inform all the stations, the agreed departure manoeuvring procedure.

During departure and during the passage ensure:

- the required departure reports are sent.
- to monitor the vessel's progress is complying with the agreed procedure with the pilot.
- the pilot is discharged safely, and all mooring stations are secured for sea.
- the security requirements are complied with.
- decide the time of BOSP and inform engine room as well.
- inform the time of changeover of con to OOW.
- decide whom to be utilized and number of people required for watchkeeping while passing critical points such as TSS, high traffic density areas, pilot boarding, entering narrow areas etc.
- to calculate ETAs at critical points and inform the engine room as well to ensure sufficient number of rested watchkeeping personal are utilized.
- to consider of contingency plans available in case of steering gear, main engine, electrical failure etc. while navigating in critical areas.
- to consider of maintaining a good situational awareness and it may depends upon the:
  - Cultural differences
  - Language barriers
  - Environmental conditions
  - Fatigue
  - Onboard workload
  - Experience

- reports are made as required.
- to check the weather ahead daily.
- to monitor the stability condition throughout the passage. The rolling period of a vessel will give a good indication of the GM of a vessel.
- to exchange ballast water if required. Prior starting ballast water operations consider the time that you are going to spend, methodology of ballast water exchange, stability for worst case scenarios, bridge visibility and the weather condition during such period.
- Appropriate orders are issued for daily operations.

During arrival port ensure:

- to carry out a risk assessment.
- to comply with local regulations.
- the arrival documents (port papers) are prepared.
- the cargo holds / tanks are ready to receive cargo if going for loading.

- to check all arrival charts are ready with the latest information received from the agents & local authorities, radar mappings are ready, charts are entered on the chart plotter, way points are entered on the GPS etc.
- to decide when the engines to be ready, the time of master's presence on the bridge and issue orders to the OOWs appropriately.
- to check the local weather conditions, currents, tidal heights and consider whether amendments to the existing plan is required.
- draught restrictions are complied with.
- to send ETAs to the pilot/port.
- appropriate notices are given to engine room.
- pilot boarding position, time & sides are confirmed.
- to communicate the time of the con change over to OOW.
- to decide when the EOSP is going to be.
- try out engines astern.
- to confirm the bridge equipment are tried out and complied with the arrival checklist.
- to confirm that power is available for bow thrusters, stern thrusters, windless and mooring winches.
- to prepare both anchors ready for letting go.
- all stations are properly manned, and communications tested.
- to decide safe speeds at different stages.
- tugs, pilots, anchoring and berths are available before passing abort points.
- to consider of contingency plans.
- to send NOR as appropriate if the vessel is voyage chartered.
- to take the pilot safely.
- master / pilot exchange procedures to be complied with.
- to brief the bridge / engine watchkeepers and other personal at the stations about expected berthing or anchoring procedure.
- to monitor the vessel's progress is complying with the agreed procedure with the pilot.
- to check the safety of the berth (fenders etc.) and decide the final number of mooring lines required depending upon the size of the vessel, weather condition etc.
- to send reports as appropriate.

10) Delivery and re-delivery procedures (with regard to time charter parties)

In case of delivery[63]

- Vessel to be brought to the port of delivery before the end of cancelling date.

[63] Ship Master's business companion

- Master is required to keep informing the charterer ETA at the port of delivery. Some charter parties may require declaring within a stated period of time after receiving the notice of the delay whether they will cancel or take delivery.
- Ensure the stated amounts of bunkers are available onboard.
- At the time of delivery, an on-hire survey or delivery survey will be carried out by the charterers. Therefore, the master must ensure the vessel is well prepared for the survey. This will be carried out to:
  - check the amount of bunkers available onboard;
  - check the general condition of the vessel;
  - ensure the holds and tanks are fit for the carriage of goods; and
  - check for any existing damages in the cargo holds or cargo tanks (charterers will not be liable for such damages at the time of re-delivery).
- Usually, this survey will be conducted jointly by the charterers and ship owners. The time spent will be at the owner's risk and will not be on-hire until the survey is passed. Any time lost as a result of the on-hire survey shall be for the owner's account.
- May take a count of lashing material.
- The surveyors will issue a 'Delivery Certificate' and the survey report will be attached to the delivery certificate. A delivery certificate will contain:
  - Bunker remaining onboard figures
  - The condition of holds or cargo tanks
  - Date and time of hand over the vessel to charterers

- If any lashing material is received by charterers, make sure to keep them separately not to mix with the lashing material which are already onboard.

  At the same time, note the below abstracts from a 'delivery' clause of a time charter party:

  The vessel on delivery shall be seaworthy and in every way fit to be employed for the intended service, having water ballast and with sufficient power to operate all cargo handling gear simultaneously, and, with complement of Master, officers and ratings who meet the STCW requirements for a vessel of her tonnage.

  The vessels holds shall be clean and in all respects ready to receive the intended cargo, or if no intended cargo, any permissible cargo:

  On delivery / on arrival (delete as appropriate) at first loading port if different from place of delivery. If the vessel fails hold inspection then the vessel shall be off-hire from the time of rejection until the vessel has passed a subsequent inspection[64].

[64] NYPE 2015, Time charter

In case of re-delivery[65]

- Refer the 'Redelivery clause' in the charter party. This clause states the charterer's obligations to redeliver the vessel in the same condition as she was delivered, fair wear and tear accepted. It will also state:
  - Date and place of redelivery and
  - Charterers to give notice of redelivery
- An off-hire survey will be carried out to determine the amount of bunkers onboard and the extent of any damage done during the period of charter. Charterers will be liable for any damages occurred during the period. Therefore, master must ensure all such damages are included in the survey report. Usually, this survey will be carried out by an independent surveyor and a "redelivery certificate" will be issued.
- Any time lost as a result of the off-hire survey shall be for the charterer's account.
- The master must ensure to get repaired any damages which affects the seaworthiness and the cargo worthiness of the vessel immediately. None essential repairs may be carried out at a later stage, but, at the charterer's cost.
- If the charter party states the vessel to be redelivered in "clean" condition, the master must ensure the cargo holds and the cargo tanks are fully cleaned.
- Need to return any lashing materials received by charterers.

11) Carriage requirements of ECDIS[66]

As per SOLAS regulations V/18 and V/19, for a ship to use ECDIS to meet the chart carriage requirements of SOLAS, the ECDIS equipment must conform to the relevant IMO performance standards. ECDIS units on board are required to comply with one of two performance standards (either IMO resolution A.817(19), as amended or resolution MSC.232(82)), depending on the date of their installation. Essentially, where an ECDIS is being used to meet the chart carriage requirements of SOLAS, it must:

i) be type-approved;
ii) use up to date electronic nautical charts (ENC);
iii) be maintained to be compatible with the latest applicable International Hydrographic Organization (IHO) standards; and
iv) have adequate, independent back-up arrangements in place.

A master should refer the flag state regulations with regards to back-up arrangements. As an example, in accordance with the Australian Maritime Safety Agency (AMSA) there are two options for back-up arrangements (remember these are applicable only on Australian flag ships);

[65] Ship Master's business companion
[66] MSC.1/Cicr.1503

Option 1: A second 'compliant' ECDIS which must be independent of the main ECDIS and connected to the ship's main and emergency power supply (refer SOLAS Regulation Chapter II-I). It must also be connected to systems providing continuous position fixing capability. The back-up ECDIS must have the chart database and voyage plan loaded before commencement of the voyage. In confined waters, the back-up arrangements must be in operational mode.

Option 2: A folio of paper charts that satisfies SOLAS carriage requirements, corrected to the latest available Notices to Mariners, covering the intended voyage and showing the intended voyage plan.

With the above AMSA regulations what you are required to keep in your mind is that the passage to be planned before the commencement of the passage with the ECDIS as well as paper charts if it is the back-up system.

Maintenance of the software

ECDIS in operation comprises hardware, software and data. It is important for the safety of navigation that the application software within the ECDIS works fully in accordance with the Performance Standards and can display all the relevant digital information contained within the ENC.

ECDIS that is not updated to the latest version of the IHO Standards may not meet the chart carriage requirements as set out in SOLAS regulation V/19.2.1.4.

Any ECDIS which is not upgraded to be compatible with the latest version of the IHO ENC Product Specifications may be unable to correctly display the latest charted features. Additionally, the appropriate alarms and indications may not be activated even though the features have been included in the ENC. Similarly, any ECDIS which is not updated to be fully compliant with the latest version of the IHO Data Protection Standard may fail to decrypt or to properly authenticate some ENCs, leading to failure to load or install. An up-to-date list of all the relevant IHO standards relating to ECDIS equipment can be accessed from the IHO website (www.iho.int). Therefore, not only the electronic charts, but also the systems also has to be updated.

ECDIS anomaly[67]

This is an unexpected or unintended behaviour of an ECDIS unit which may affect the use of the equipment or navigational decisions made by the user. Examples include, but are not limited to:

- failure to display navigational features correctly, such as:
  - symbols recently recognized by IMO such as PSSA and ASL (Archipelagic Sea Lanes)

[67] MSC.1/Circ.1503/Rev.1, IMO

- navigational lights with complex characteristics; and
- underwater features and isolated dangers.

- failure to detect objects by "route checking" in voyage planning mode;
- failure to alarm correctly; and
- failure to manage number of alarms correctly.

In accordance with the above circular, Administrations may request the masters and companies to report anomalies, with sufficient details on the ECDIS equipment and ENCs, to the Administration.

Certificates and records

The details of the navigational systems and the equipment are recorded in the "Record of Equipment" attached to the following safety certificates:

- Passenger Ship Safety Certificate - Form P
- Cargo Ship Safety Equipment Certificate - Form E
- Cargo Ship Safety Certificate - Form C

If a ship uses ECDIS for navigation, the "Record of Equipment" will indicate it as "ECDIS fitted" and must also clearly state the back-up arrangement in place as well.

In areas where there are no Electronic Navigational Charts (ENCs), Raster Chart Display System (RCDS) mode, with Raster Navigational Charts (RNCs) can be used but need to have paper charts as back up arrangement.

12) Digital publications onboard

IMO MSC-MEPC.2/Circ.2 1 June 2006, allows the carriage of digital publications onboard ships provided the media is treated in accordance with the document control procedures in the ship's SMS including procedures for timely update.

Such electronic publications may include documents issued by IMO or an Administration or a body authorized by an Administration so that it ensures correctness of their contents and will be safeguarded against illegal copying.

But, the publications for emergency use, such as the International Code of Signals and the IAMSAR Manual should always be available in the form of hard copies.

The master shall ensure to comply with the flag state regulations regarding the carriage of digital publications.

13) Legislations on crew strike action[68]

The relevant current legislation on strike action by seamen in UK ships is mentioned in section 59 of the Merchant Shipping Act 1995, which makes it illegal for seamen onboard sea-going UK ships to combine with other seamen employed in that ship to;

- disobey lawful commands which are required to be obeyed at a time while the ship is at sea;
- neglect any duty which is required to be discharged at such a time;
- impede, at such a time, the progress of a voyage or the navigation of the ship

For the purposes of section 59 of MSA 1995, "at sea", means at any time when the ship is not securely moored in a safe berth (in the UK or elsewhere).

14) Actions to be taken in the case of cargo damages

If cargo is found damaged during loading:

- Stop loading immediately
- Call the P & I club
- Inform owners and charterers
- Inform the shipper / charterer that the bill of lading will be claused appropriately if damaged cargo is loaded
- If the shipper / charterer insists on loading the same cargo, issue a letter of protest stating that the vessel is at liberty to refuse damaged goods.
- Take photo graphic evidences of the cargo and how they are being stowed.
- If the carrier agrees to carry cargo in the damage condition, the mate's receipts and bill of lading may have to be claused accordingly. Carrier to be indemnified against possible future claims. A cargo surveyor may have to be appointed to quantify the cargo damage. The damage cargo may have to be segregate from the cargo which are in good condition to avoid further damage during the voyage. The carrier may be liable if it happens. Ensure even the damage cargo also well stowed and secured to avoid damages to the vessel and further damages to that cargo.
- If the cargoes are loaded from open storage locations or barges there is a possibility of damaging the cargo due to water. In that case, it is better to clause the bills of lading to avoid future claims (example – 'loaded from opened storage', 'loaded from barges').

If cargo is found damaged during discharging:

- Stop discharging until the damage is ascertained.
- Inform owners & charterers.

[68] Merchant Shipping Act 1995, UK

- Call P & I club and arrange a cargo survey.
- Restrict access to cargo owners and their surveyors without proper instructions from P & I club and owners. If access to cargo interests is allowed after consultation with the P & I club, ensure:
  - Such surveys to be carried out at the presents of P & I surveyor and the P & I surveyor has to accompany them
  - Such surveys to be restricted to survey of damage cargo only. They should not be allowed to identify the extent of the damage and the cause of the damage.
  - Such surveyors shall not be allowed to enter into non-cargo carrying areas, ship's equipment or structure, communication with ship's staff without prior approval.
  - If such surveyors require samples of cargo, the P & I surveyors also has to take similar samples.

- Need to carry out an investigation to identify the cause of the damage.
- Collect the following information and records as they may be important to protect the carrier depending upon the type of damage:
  - Quantity, serial numbers, name of port of loading, name of the port to be discharged of the damaged cargo.
  - Test certificates & shipper's declarations of the damage cargo.
  - If the cargo is damaged due to weather, copies of deck logbook indicating times and the conditions of heavy weather, ship's positions with courses steered and the weather records.
  - Ballasting / de-ballasting plans
  - Cargo manifest
  - Stowage plans
  - Stability calculations
  - Cargo securing plans
  - Sounding records of hold bilges
  - Cargo monitoring records such as temperature cards, humidity records, ventilation record, lashing check records etc.
  - Communication records with shipowners, charterers, shippers, cargo owners etc.
  - Maintenance records of the equipment that is used for the safe carriage of goods, such as heating units, ventilations hatch covers etc.
  - Records on hold preparations prior to loading.
  - Test records of hold bilges, ventilators, hatch covers, pumps etc.
  - Details of cargo samples taken
  - Records of tank cleaning before loading and pre-loading tank inspection records

- Depending upon the type of the damage, may have to arrange special discharging arrangements to discharge the cargo.
- If any protests are received from cargo owners, do not sign them and consult the P & I club immediately to seek the best possible action. If the master cannot avoid signing it, one of the

following statements to be entered on the protest prior signing (or use any statements as provided in the ship's SMS):

- Signed without prejudice, without any admission and for receipt only
- Received without prejudice and without admission of liability
- Received without prejudice and for receipt only

If the cargo damaged is known or suspect during the voyage:

- Inform owners, charterers, cargo owners and P & I club.
- If the damage likely to caused due to heavy weather, consider of altering the speed or course to reduce rolling and pitching.
- May require arranging further lashing.
- Depending upon the type of the damage, may have to check the seaworthiness of the vessel to continue the voyage.
- May request advices from charterers or cargo owners with regards to reducing further damage to cargo.
- If possible, take actions immediately to stop or reduce further damage.
- Make sure to record the actions taken to stop or further damage to cargo.
- Make a sea protest depending upon the circumstances.
- Take photographic evidences of the damage if possible.
- Depending upon the type of the damage, may have to arrange special discharging arrangements to discharge the cargo.
- Through the P & I club, may have to call a cargo surveyor to quantify the damage at the port of discharge.
- At the port of discharge, note protest.

15) Actions to be taken in case of vessel damage by stevedores

- The duty officer must inform the person who is in-charge of the stevedores, inform the chief officer, complete a damage report and get damage report sign by the person in-charge.
- Make an entry on the deck logbook.
- If the damage is serious inform owners, charterers, P & I, classification society and other responsible persons.
- If the damage is serious which may affect the cargo worthiness or the seaworthiness of the vessel, make a report holding the stevedores/charterers responsible for the damage and it may include:
  - Date, time & the name of the port
  - Statements of facts about the incident
  - Details of the damage to the vessel

- Names and positions of the persons who made the damage and names of persons who witnessed the incident.
- Weather condition at the time of the occurrence.
- Photographs of the incident.
- A request to repair the damage at the port where the incident took place immediately and to the satisfaction of the surveyors appointed by the Class or vessel's Administration.

- The above report to be sent to owners, local agent, stevedoring company and charterers.
- If the damage is serious:
  - Check whether people are injured and if so, take actions to treat/hospitalize them.
  - Along with the chief engineer assess the damage. If it is not possible, may have to call for a surveyor.
  - Carryout out an investigation to identify the cause of the damage.
  - Note protest.
  - Check the cargo worthiness & the seaworthiness of the vessel.
  - Take necessary actions immediately to ensure the safety of the vessel, people and marine environment.
  - May have to inform the Flag State depending upon the situation.
  - Check whether repairs can be carried out while the part of the cargo onboard. If not, will have to arrange warehousing for the cargo.
  - May have to carry out repairs at the presence of a class surveyor.

16) Discharge of marine pollutants identified under MARPOL

MARPOL states that the garbage or other material may be discharged so many miles away "from the nearest land". The term "from the nearest land" means from the **baseline** from which the **territorial sea** of the territory in question is established in accordance with international law except in the case of north-east coasts of Australia which is measured from a line drawn from a point on the coast of Australia as provided in Annex V.

Remember, it says nearest land is measured from the **baseline.** Baselines are calculated by referring to following methodology[69]:

Normal baseline

This is the low-water line along the coast as marked on large-scale charts officially recognized by the coastal State.

[69] http://www.un.org/depts/los/convention_agreements/texts/unclos/part2.htm

Straight baseline

In localities where the coastline is deeply indented and cut into, or if there is a fringe of islands along the coast in its immediate vicinity, the method of straight baselines joining appropriate points may be employed in drawing the baseline.

Mouths of rivers

If a river flows directly into the sea, the baseline shall be a straight line across the mouth of the river between points on the low-water line of its banks.

Bays

If the distance between the low-water marks of the natural entrance points of a bay does not exceed 24 nautical miles, a closing line may be drawn between these two low-water marks, and the waters enclosed thereby shall be considered as internal waters.

Where the distance between the low-water marks of the natural entrance points of a bay exceeds 24 nautical miles, a straight baseline of 24 nautical miles shall be drawn within the bay in such a manner as to enclose the maximum area of water that is possible with a line of that length.

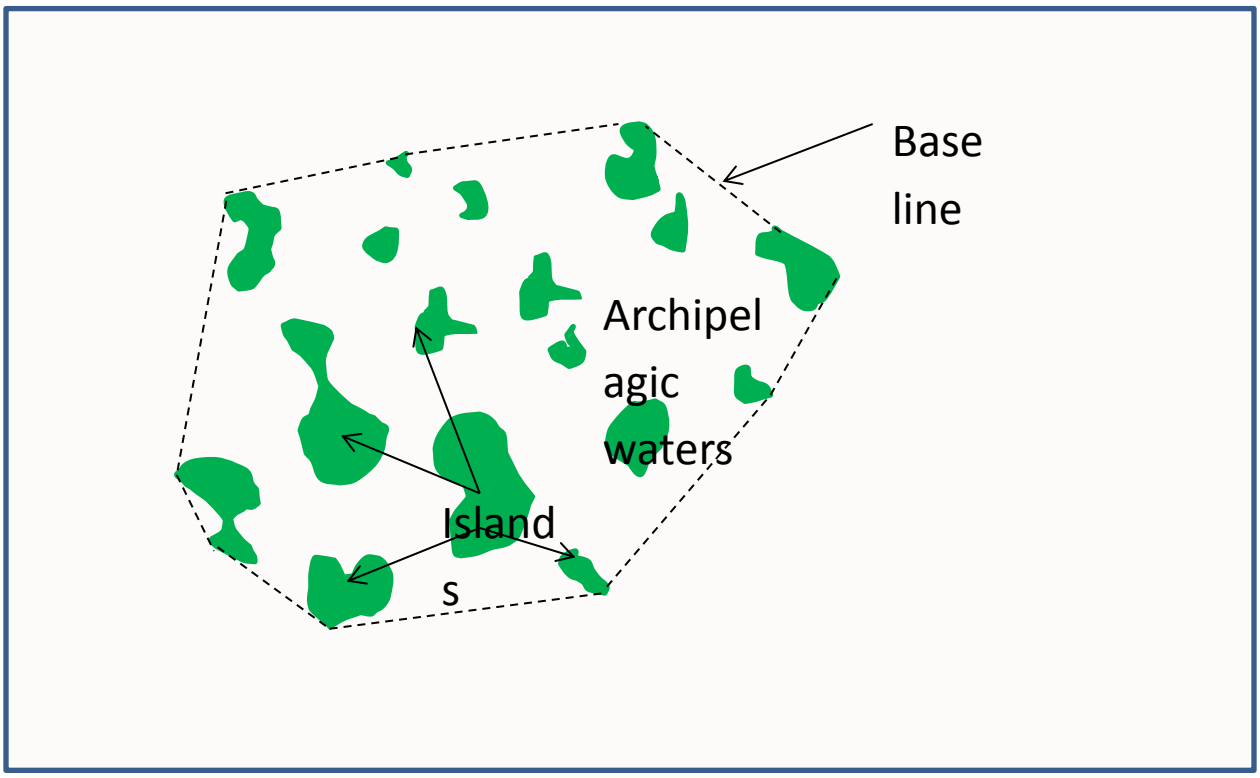
Archipelagic baselines[70]

An archipelagic State may draw straight archipelagic baselines joining the outermost points of the outermost islands and drying reefs of the archipelago provided that within such baselines, the main islands and an area in which the ratio of the area of the water to the area of the land, including atolls are included.

Refer the below examples for a better knowledge:

Your vessel is closer (not inside) to an archipelagic state, you may be well away from the charted coast, but may not be away from the "baseline". Because, in case of archipelagic waters, the baseline is measured joining the outermost islands in the archipelagic state. Refer the figure below:

[70] http://www.un.org/depts/los/convention_agreements/texts/unclos/part4.htm



Therefore, in case of measuring the distance off from the nearest land, need to use the baseline instead of the land.

A similar situation may exist, if your vessel is close to a bay as well. In case of a bay, a straight base line is drawn joining the low-water marks of the natural entrance points to the bay. Refer the figure below[71]:

[71] http://www.gard.no/web/updates/content/20894781/gard-alert-bohai-sea-china-fines-for-discharge-of-pollutants

Bohai Sea is considered as inland waters of China, therefore, the base line is drawn between Longkou and Lushun. A vessel may be well away from the land but, not from the baseline. All the distances are to be measured from the 'baseline'.

Identification of baselines is little complicated by referring to the nautical charts alone. This can be clarified by referring to the Admiralty Annual Summary of Notices to Mariners Part I.

18) Bunkering operations

Ship's SMS contains all the information with regards to bunkering operation, which includes:

- Identification of responsible people onboard.
- Safe bunkering procedures.
- Safety check lists.
- Actions to take when there are disputes between the vessel and the bunker barge.
- Actions to take if there is a bunker spillage.
- Instructions to be followed before signing any documents such as bunker delivery note.

Documents used

- Bunkering procedures and other relevant documents in the SMS,
- Bunker requisition form,
- Safety checklist,
- Customs declaration,

- MSDS and
- Bunker delivery note.

Signing of documents

Before signing a bunker delivery note (BDN), must have a good knowledge of the company bunkering procedures. it may contain instructions with regards to any statements that is to be included in the BDN, remarks to be made on the BDN and the acceptable differences between quantity on the BDN and the received quantity.

Bunker disputes

If there are any disputes with regards to quantity or quality or any other matter of the bunkers received, the master/chief engineer shall make a letter of protest and make a remark on the BDN referencing the letter of protest or detail complain may be made on the BDN. But, it is always better to make a letter of protest.

If there is a difference between the quantity in the BDN and the quantity received, get the chief engineer to check all the soundings and calculations again. Still the difference is there, the chief engineer must make sure to enter the lowest quantity measured on the BDN. The disputes are to be reported to the company as instructed in the bunkering procedures and the charterers if the vessel is chartered.

Spillages, losses, damages or delays

If any spillage occurs during bunkering operations, the bunker barge and the vessel both have to take necessary actions jointly to stop the spillage and to clean the spilled oil taking into account the rules and the regulations of the national authorities irrespective of whose fault[72].

The bunker barge or the vessel may not be liable if the damage or loss or delay was caused due to[73];

- act of God or
- the port of delivery being affected by war, civil commotion, riot, quarantine, strike, stoppage, lock-out, arrest, restraint of princes, rulers and people, or
- any other event whatsoever which cannot be avoided or guarded against by the exercise of due diligence.

[72] BIMCO Standard bunker contract
[73] Ibid

19) In Water Survey (IWS)[74]

Under normal conditions the outside bottom of a cargo vessel is to be inspected twice every five years, at intervals of not exceeding 36 months. One of these inspections may be replaced by an IWS. But, if the IWS is not carried out for the satisfaction of the attending surveyor, the outside bottom must be inspected in a dry dock.

Ships of less than 15 years of age are allowed for IWS, but, ships above 15 years of age also be allowed provided, agreed by the Flag and the ship's classification after special considerations. IWS is not allowed for tankers and bulk carriers of more than 15 years of age undergoing the Enhanced Survey Programme.

If a ship owner is expecting to comply with the IWS programme, he must take necessary steps to prepare his vessel for IWS, from her last dry dock itself. There are lot of areas to be considered in the dry dock, but only few are listed below to give you an idea:

- The cathodic protection system must be enough.
- Hull is properly de-rusted and good quality paint is applied.
- The colour of the underwater paint matters as well since a successful underwater inspection may not be possible with some colours.
- The hull should be permanently marked externally to indicate the position of transverse primary members, transverse and longitudinal bulkheads or frame numbers.
- Special consideration is required for areas where the divers do not have accesses.
- Need to have arrangements to:
  - inspect sea chests (require having hinged gratings).
  - access to rudder bearings and determine the condition and clearance of the rudder bearings.
  - access the seal assembly of the stern bearings of oil lubricated bearings to make sure they are intact and determine the clearance of wear down.

After the dry dock (if expecting for an IWS nest time), following records are required to be maintained onboard:

- A record of all suspected or actual hull damage and all contacts occurred between the last dry dock and the IWS.
- Oil usage for propeller shaft seals, thrusters to indicate the condition of the seals.
- Records of regular oil analysis and temperature of bearings.

[74] MGN 546 (M), MCA, UK, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/867042/MGN_546_IWS_-_Final_March_2017.pdf

Before the IWS:

- The ship owner is required to make an application to the classification society of the vessel indicating the date and place of the expected IWS. This application must include the following as well:
  - Master's declaration of all suspected or actual hull damage and all contacts occurred between the last dry dock and the IWS,
  - Records of oil usage for propeller shaft seals and thrusters and
  - Records of regular oil analysis and temperature of bearings.
- If required, the hull should be cleaned before the IWS so that the actual condition of the hull can be inspected.

The place of the IWS:

- Weather has to be calm.
- No currents or less currents.
- Good under water visibility.
- Less traffic as this may disturb the sedimentation reducing the underwater visibility.
- Preferably, at anchor during day time.

At the time of the IWS, the vessel shall be;

- at a suitable draught and trim;
- in ballast condition specially, for large vessels; and
- with a fully submerged propeller, so that the diver will have full access to it.

Procedure of IWS

- A meeting to be arranged between all the parties to make a plan for the IWS.
- All safety precautions to be observed, such as locking of propellers, rudders & thrusters, stopping of all pumps etc.
- Appropriate signals are displayed (flag – A).
- Ensure proper communications are established.
- A permit to work system is to be used for the safety of the diver.
- Following areas will be inspected:
  - The above water part of the hull.
  - The actual and suspected contacted areas (as per the master's records) will be inspected from outside as well as from inside if it is accessible.
  - Propeller (cracks, pitting etc.) and "propeller stern shaft clearance" or "propeller wear down" or "stern bush clearance". Measured by using a poker gauge.
  - Under water shell coating.
  - Rudder, rudder "pintle clearance", rudder bearings and bearing clearances (jumping clearance).
  - Sea chests and their arrangements.

20) Extended Dry Docking (EDD)

The "Extended dry-dock interval" presents the possibility for a vessel to be dry-docked every 7.5 years. This arrangement can only be applied to Container ships, General Cargo and Multi-Purpose Dry Cargo ships excluding single-skin construction up until the age of 15 years[75] provided complying with certain criteria.

The applicable vessels are required to be dry docked only twice till 15 years of age and after that, she has to comply with the normal dry-docking intervals. EDD interval can be applied on new buildings as well as existing vessels. Existing vessels may implement EDD any time until the age of 10 years.

When complying with EDD, the bottom surveys required during periodical surveys will be performed in the scope of In-Water Surveys. That means there will be two IWS between each dry docking at intervals of 2.5 years. If the IWS results are not satisfactory, vessel must be drydocked.

The eligible criteria includes, among other things,

- Need to comply with the IWS requirements.
- A Planned Maintenance Scheme for hull and machinery shall be implemented.
- Ballast water tanks are required to have a corrosion prevention system with "good" coating condition.
- Vessel's Flag State has to approve the EDD interval.
- For new buildings following requirements to be fulfilled:
  - Dry film thickness of coating for 7.5 years with an average thickness of 300 μm
  - Anodes sufficient for 7.5 years or impressed current systems to be installed
- Existing vessels are required to be complied with the following requirements:
  - Dry film thickness of coating has to be a minimum of 250 μm
  - Anodes sufficient for 7.5 years or impressed current systems to be installed and documented in PMS

The Extended Dry-docking Scheme will be terminated in cases of;

- change of the ship's owner, or
- change of the ship's management or
- Flag.

21) Types of ship registries

The UNLOS III 1982 requires every State to have arrangements to grant its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of

[75] http://rules.dnvgl.com/docs/pdf/gl/maritimerules/gl_vi-11-5_e.pdf

the State whose flag they are entitled to fly, and further it states that there must be a genuine link between the State and the ship[76]. This is where the requirements for the registration of the vessels were originated.

Various states have developed different types of mechanisms to register ships as it is a good income to a country. Over the years, industry has categorized these registries depending upon the mechanisms used by those countries to register ships under their flag. Now, we shall briefly discuss about the types of ship registers in the world.

National registry

National registry means a flag state that allows only it's citizens to register ships and these are also known as **closed registries** or **traditional registries** or **first registry** as well. At the same time, registries who allows to register ships for their own permanent residents or persons having a similar status may also consider as national registers. UK registry does not call themselves as a national registry, but, most of the articles in the internet and other publications argues that the UK ship registry is a national registry.

The following are qualified to be the owners/charterers of ships to be registered on the UK Ship Register[77]:

- a British Citizen;
- a British Dependent Territories Citizen;
- A British Overseas Citizen;
- Companies incorporated in one of the EEA countries;
- Citizens of an EU member state exercising their rights under articles 48 or 52 of the EU Treaty in the UK;
- Companies incorporated in any British overseas possession which have their principal place of business in the UK or those possessions;
- or European Economic Interest Groupings.

Flag of Convenience (FOC)

A flag of convenience ship is one that flies the flag of a country other than the country of ownership[78]. As an example, a Sri Lankan registering his vessel in the Panamanian ship registry

[76] Article 91, UNCLOS III 1982

[77] https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/701034/2018_April_A_Guide_to_Registration_V3.pdf

[78] https://www.itfseafarers.org/what_are_focs.cfm

(Vessel owner is Sri Lankan and the vessel's flag is Panama). Ship owners uses FOC countries to register their ships since;

- the registration fees are less;
- the taxes are low;
- there are no restrictions on the employment of foreign nationals onboard. Therefore, the crewing expenses are less and
- the expenses on the vessel's maintenance can be reduced as the FOC countries do not monitor the vessel's compliance with the international rules and regulations.

Sri Lanka is considered as a FOC country[79] by the International Transport Workers' Federation (ITF). But, in accordance with the Merchant Shipping Secretariat (MSS) of Sri Lanka, Sri Lanka is a **Flag of Opportunity**[80].

These are also known as **open registries** as well. Some argues that there is a difference between an open register and a FOC (Open registers allows registration of ships belongs to foreign nationals and FOC allows foreign nationals to register ships with no restrictions for crewing onboard, less taxes, less regulations etc.), but, no reputed organization or country or administration has defined the meaning of 'open registry', whereas the meaning of the FOC is clearly defined by ITF. Similarly, no proper definition for 'Flag of Opportunity' as well. The compilers feeling is that, there is no much difference between FOC, open register and flag of opportunity.

Second registry

Historically, ship owners used to register ships in their own country and used to man the vessel with the same countrymen (National registries). But, this became very costly, especially for ship owners of developed countries as the crew wages are high in accordance with the national requirements in those countries. Therefore, they started flagging out their vessels into other countries so that, they can employ foreign nationals (for less wages) onboard. To stop this and to attract foreign ship owners some countries have created more than one registry.

As an example, Norway has two registries. NIS (Norwegian International Ship register and NOR. While NIS is open for ship owners of all nationalities, NOR is open only for Norwegians or EU companies or individuals[81]. Similarly, Germany has two registries know as 'First Registry' and 'Second Registry' (The second registry is also known as GIS – German International Ship Registry). The ITF considers that the German second registry is a FOC registry[82].

[79] www.itfseafarers.org/defining-focs.cfm
[80] http://www.dgshipping.gov.lk/web/images/pdf/handbook_for_shipowners.pdf
[81] https://www.sdir.no/en/shipping/registration-of-commercial-vessels-in-nisnor/what-distinguishes-nis-from-nor/
[82] www.itfseafarers.org/defining-focs.cfm

This is also may call as international registries or offshore registries as well. But, finally remember, other than for the national registries, FOC and second registers, there are no clear clarifications available for open registry, flag of opportunity, international registry, and offshore registry.

22) Ice navigation

General precautions to take when preparing a vessel for winter areas

- To avoid risk of damage to ballast & freshwater tanks due to freezing, the usual practise is to keep the tanks not more than 90% full to allow for expansion. Usually when the temperature of a liquid is increased, the volume will be increased to a certain extent. But the water acts differently when the temperature is increased. If the temperature of a sample of water (which is at 0º C) is increased, the volume will be reduced from 0º C to 4º C, there after the volume will be increased like other liquids. Due to this reason, if the temperature of water which is at 30º C is reduced, from 30º C to 4º C the volume will be decreased and from 4º C to 0º C, the volume will increase. If the tanks are kept full, this increase of volume may create structural damages.
- Fresh water tanks in the lifeboats should be kept no more than 75% full. Keep additional fresh water ready inside the accommodation and assigned crew to carry them into the lifeboats in an emergency.
- Additional fuel, stores and fresh water may require due to delays that may encounter during ice navigation.
- Ensure the search lights are working in order.
- Ensure the crew are supplied with warm clothing.
- Add anti-freeze to lifeboat engine cooling systems.
- Ensure a sufficient trim is available, but, excessive trim by the stern is not recommended, as it cuts down manoeuvrability.
- Make sure the hot water system for the bridge windscreen is working in order or keep ready de-icing liquids or spray cans.
- Additional shovels, scrappers and crow bars may be required to remove ice on deck.
- Keep the fire lines running or drain it completely.
- Do not keep the cargo lashings and wires of cargo gears too tight as they may break due to contraction.
- Ensure the heaters inside the accommodation are working in order.
- May require keep running the hydraulically operated equipment such as mooring equipment to avoid freezing.
- Add anti-freeze for PV on tankers.
- Make sure to keep the water seals of the scrubber and deck water seal warm on tankers.
- If the anchor is housed, it may not be able to let go the anchor due to ice accretion on the anchor handling equipment and in the hawse pipe. Therefore, it is a good practice to leave

anchors slightly lowered in the hawse pipe in order to free them from ice accretion. It is also advisable to maintain securing claws in place in case of slippery brakes, so that the anchors can be readily released in the event of a blackout.

- If ice accretion on deck occurs, check the rolling period frequently and calculate the GM. This is important to ensure that she is not coming to a negative stability condition.

Preparations with regards to safety of navigation

- Watch keeping personnel should be aware of the dangers, problems that may encounter and safety precautions to be observed during ice navigation.
- When navigating through ice, speed should be reduced to minimum but not too slow & not too fast.
- Keep engines ready for manoeuvring all the time (at berth, anchorage and at sea).
- Keep additional personnel to keep visual lookouts and may need to engage hand steering at short notice.
- Keep ready the search lights.
- Try to collect more information with regards to ice.
- Give a wide berth to ice bergs.
- Enter ice at right angles.
- Protruding log tubes must be taken in before entering ice.
- If possible, move with the movement of ice, without moving against it.

Reports to be made on encountering ice

On encountering air temperatures below freezing point, that are associated with gale force winds and causing severe ice accumulation on ships, the master is obliged under SOLAS to send a report to the ships in the vicinity and to the nearest coast station covering;

- Air and sea temperatures;
- Force and direction of wind;
- Position of the ship; and
- UTC time and date of observation.

The masters of every ship which meets with dangerous ice, are required to report the following information,

- The kind of ice
- Position of ice
- The time and date in UTC of the last observation

Pre-warnings of the presence of ice

- Sea and swell lower than expected for the wind speed may indicate the presence of significant ice to windward.
- Animals and or birds far from land may indicate the presence of large ice sheets.
- When steaming up wind, small pieces of ice may forewarn of larger formations to windward.
- When steaming down the wind large ice formations may be approached directly without forewarning.

The navigational errors that you may encounter

- Charts might be based on surveys which are old and unreliable. Electronic charts which can be based upon old paper charts.
- GPS is reliable, provided the correct datum is applied. But, may encounter errors due to tropospheric delays and ionospheric refraction in the auroral zone.
- Radar should be used with caution as ice may significantly change the effective coastline and on the other hand, ice is not a good reflector.
- Radar scanner may become frozen.
- Ice particles on the radar scanner will reduce the transmitting & receiving pulse energy.
- Visual fixes with identified objects are the best.
- Light colours of navigational aids may be affected by ice.
- Light sectors & ranges may be affected by ice. Sometimes it may be totally obscured.
- Gyro compass errors may occur due to large course & speed alterations.
- Ice on the compass will make taking bearings difficult.
- After 70º latitude, gyro is not reliable. Above 70° latitude, the magnetic compass will not settle unless the ship remains on the same heading for a prolonged period. These problems can be eliminated by referring to the ‘course over ground’ on the GPS.
- Echo sounder may not give correct reading due to false echoes.
- Protruding logs are not usable as they are withdrawn but flush mounted electro-magnetic logs and Doppler logs are least vulnerable.
- Radio communications may be difficult due to ice formation on the aerials.
- Buoys may be moved or removed in the ice seasons.
- Stars of below 10º of altitude are the best for celestial navigation.

The actions to be taken by vessels beset

- Hoist NUC signals
- Try to free by:

- going ahead and astern at full power while alternating the helm from port to starboard, which has the effect of levering the ice aside, or
- by listing / trimming the vessel by means of transferring oil/ballast water or ballasting and de-ballasting. Calculate the maximum lists and the trims that may encounter before attempting this since she may capsize after freeing from ice if it is excessive.

- Engines should be kept running slowly to keep the propeller clear.
- Seek the assistance of an ice breaker immediately.

Anchoring in ice areas

It is not advisable to anchor in ice areas except in emergencies. If, anchoring is extremely necessary, use minimum amount of cable and ensure the windless power is available, to heave up the cable. Keep the engines running slowly to avoid freezing.

Reversing engines in ice areas

This is also dangerous and should be done only when it is extremely required as it expose the rudder and the propeller towards ice. If happen to do so, engines to be used only on dead slow stern while keeping the rudder at amidships. The rudder could be damaged easily, if the rudder is hit against ice while in an angular position.

23) Biofouling

Biofouling means the accumulation of aquatic organisms such as micro-organisms, plants, and animals on surfaces and structures immersed in or exposed to the aquatic environment. Biofouling can include microfouling and macrofouling[83]. Biofouling also known as hull fouling. Macrofouling means fouling is visible to naked eye, refer the figure below:

[83] IMO, Resolution MEPC. 207(62), 15 July 2011

Microfouling is not visible to naked eye, but, still possible for the invasive specifies to transfer from one place to another.

Invasive species could be transferred to a new environment through biofouling as well like transferring of invasive species through ship's ballast water.

Through the above resolution, IMO encourages all the ships to have biofouling management plan and a biofouling record book to ensure biofouling is eliminated or reduced from ships.

Biofouling management plan is a ship specific document, **no approvals** required and can be updated when required. It should contain at least;

a) details of the anti-fouling systems used in various areas of the vessel
b) typical operating speeds, trading routes, planned dry docking periods
c) description of hull locations susceptible to biofouling including;
    - schedule of planned inspections,
    - repairs, maintenance and
    - renewal of anti-fouling systems
d) details of the recommended operating conditions suitable for the chosen anti-fouling systems and operational practices (which includes in water cleaning & maintenance procedures, schedule of planned inspections, repairs etc.)
e) details relevant for the safety of the crew,
f) details of the documentation required to verify any treatments recorded in the Biofouling Record Book

The record book should contain details of all inspections and biofouling management measures carried out on the vessel. The record book shall be retained onboard for the entire life of the vessel. it should contain at least;

a) details of the anti-fouling systems and operational practices used (where appropriate as recorded in the Anti-fouling System Certificate), where and when installed, areas of the ship coated, its maintenance and, where applicable, its operation;
b) dates & location of dry dockings (including the date of re-floated);
c) measures taken to remove biofouling or repair the antifouling system;
d) the date and location of in-water inspections, the results of that inspection and any corrective action taken to deal with observed biofouling;
e) the dates and details of inspection and maintenance of internal seawater cooling systems, the results of these inspections, and any corrective action taken to deal with observed biofouling and any reported blockages; and
f) details of when the ship has been operating outside its normal operating profile including any details of when the ship was laid-up or inactive for extended periods of time.

Such management practices can also improve a ship's hydrodynamic performance, as hull fouling leads to significant increases in ship resistance, which in turn has a severe impact both on fuel costs

and on emissions of air pollutants and greenhouse gases. Therefore, biofouling management can be an effective tool in enhancing energy efficiency and reducing air emissions from ships[84].

Ship maintenance procedures to eliminate biofouling

a) Ship owners to select proper anti fouling system depending upon the planned periods of dry docking, ship speed, trade route etc.
b) When installing, or repairing anti-fouling systems make sure proper surface preparation is done, especially in niche areas (area that are more suspectable for bio fouling) such as sea chests, bow / stern thruster areas, edges & weld joints etc.
c) During dry docking;
    - ensure that areas under blocks are painted with anti-fouling, at least at alternate dry dockings;
    - Inspections & proper maintenance of bow / stern thruster areas to be done;
    - Recesses within rudder hinges and behind stabilizer fins need to be carefully and effectively cleaned and re-coated;
    - If anodes are flush fitted to the hull, a rubber backing pad should be inserted between the anode and the hull or the gap should be caulked.

d) Periodical in water inspections, cleaning and maintenance recommended.

24) Change of Metacentre with angle of heel

Consider a situation where the vessel is heeling to port side as illustrated in the figure below. When she heels to port side, the COB will start to move towards the port side since the underwater volume on the port side is increasing. Remember, the COB is the centre on the underwater volume of a vessel. When the vessel continues to heel the metacentre will start moving up.

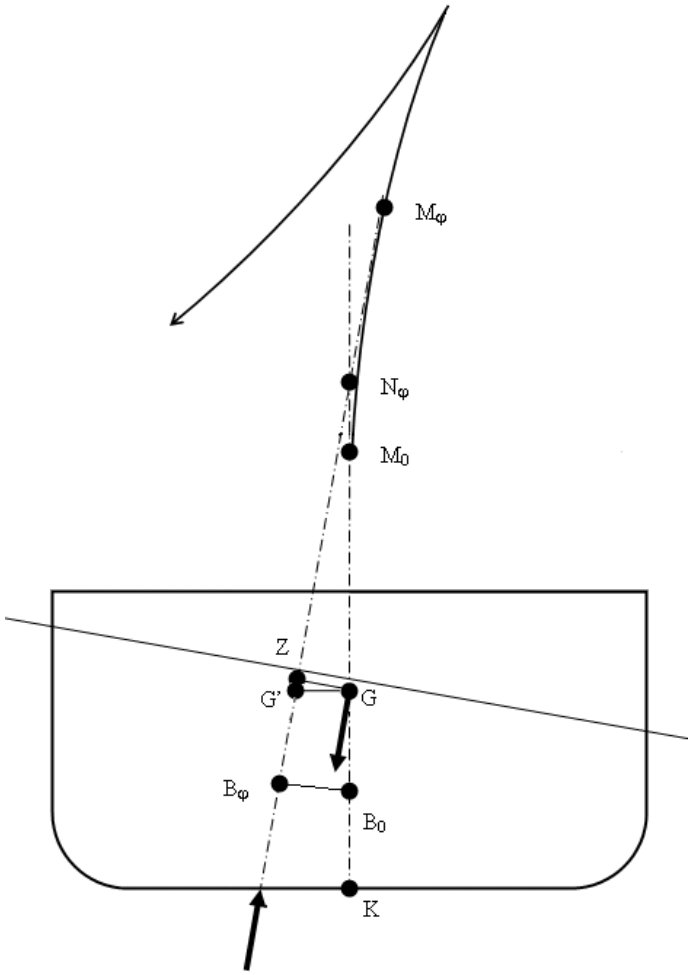
At the same time, the waterplane area will increase when vessel heels. When the water plane area increases, ship's inertia will be increased. Since;
BM = I / V
Where, I = second moment of inertia
V = underwater volume of the vessel

Because of this, BM will increase. Since;
KM = KB + BM

KM will increase along with the heel, which also causes the metacentre to move up.

[84] http://www.imo.org/en/OurWork/Environment/Biofouling/Pages/default.aspx

Since the metacentre is the intersecting point of two buoyancy forces, when a vessel is heeling the metacentre will start moving little away from the transverse centre line to the opposite side of the heel, in this case to starboard side.



Source : https://www.wikiwand.com/en/Metacentric_height

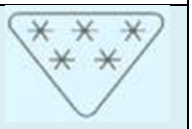
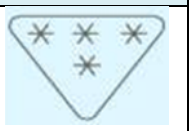
25) Category Zone of Confidence (CATZOC)

On old charts there was a diagram called as 'Source data diagram' which could be used to gain an idea about the accuracy of the information on the chart, specially, the depth information. This was very informative specially going into remote areas of the world. But, the problem with the Source data diagram' is that, no information with regards to the accuracies could be obtained. This problem is solved by CATZOC.

Category Zone of Confidence (CATZOC) values can be used to highlight the accuracy of data presented on charts. The following table outlines the **postion accuracy** (of charted objects), **depth**

accuracy and **seafloor coverage** for each ZOC (Zone of Confidence) value to help you manage the level of risk when navigating in a particular geographical area[85].

Refer the orginal document which can be found in the above web address for further details and information regarding the footnotes.

ZOC[1]	Posiion accuracy[2] (m)	Depth accuracy[3] (m)	Seafloor coverage	Typical survey characteristics[5]	Symbol
A1	+/- 5 m + 5% depth	= 0.50 + 1%d	Full area search undertaken. Significant seafloor features detected[4] and depths measured.	Controlled, systematic survey[6] high position and depth accuracy achieved using DGPS or a minimum three high quality lines of position (LOP) and a multibeam, channel or mechanical sweep system.	
A2	+/- 20 m	= 1.00 + 2%d	Full area search undertaken. Significant seafloor features detected[4] and depths measured.	Controlled, systematic survey[6] achieving position and depth accuracy less than ZOC A1 and using a modern survey echosounder[7] and a sonar or mechanical sweep system.	
B	+/- 50 m	= 1.00 + 2%d	Full area search not achieved; uncharted features, hazardous to surface navigation are not expected but may exist.	Controlled, systematic survey achieving similar depth but lesser position accuracies than ZOC A2, using a modern survey echosounder[5], but no sonar or mechanical sweep system.	
C	+/- 500 m	= 2.00 + 5%d	Full area search not achieved, depth anomalies may be expected.	Low accuracy survey or data collected on an opportunity basis such as soundings on passage.	
D	Worse than ZOC C	Worse than ZOC C	Full search not achieved, large depth anomalies expected.	Poor quality data or data that cannot be quality assessed due to lack of information.	
U	Unassessed - The quality of the bathymetric data has yet to be assessed				

CATZOC Symbols

The symbols used on ENC charts to indicate the ZOC are as below;

The greater the number of stars that appear in the symbol, the greater the level of accuracy for that area.

[85] Zones of Confidence (ZOC) Table, Hydrographic Office, UK, https://www.admiralty.co.uk/AdmiraltyDownloadMedia/Blog/CATZOC%20Table.pdf

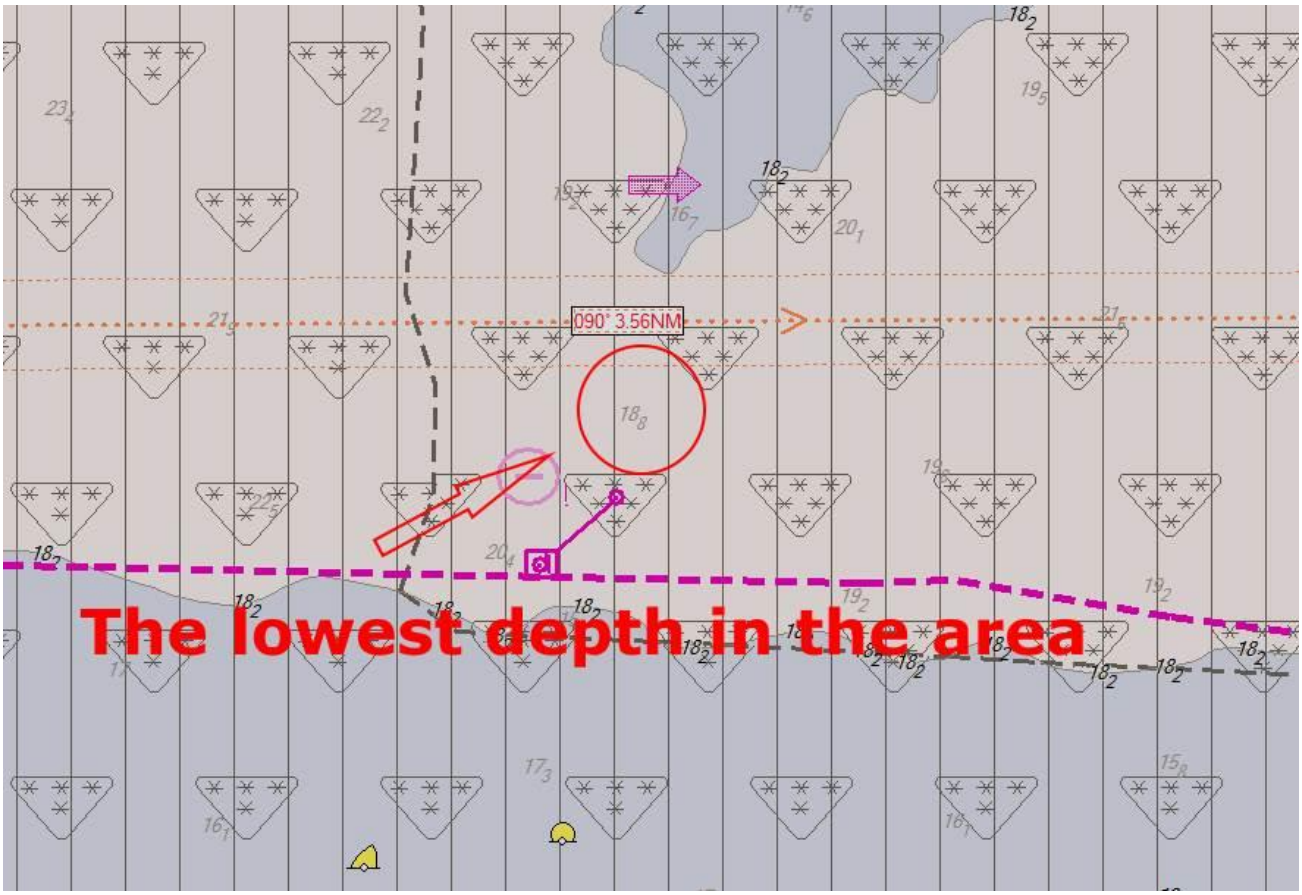
Five or Six stars show a good level of accuracy in the source data. Four stars shows only medium accuracy, this means that the positional accuracy or seafloor coverage is not guaranteed.

Two and Three stars signify low accuracy survey data. This can mean that the original survey data is very old or was collected from an unreliable data source such as non-survey vessels, or maybe soundings that where collected on passage, indicating the seafloor coverage was low. Poor data for seafloor coverage would mean that seafloor features not shown on the ENC may reduce the indicated sounding by up to 10%[86].

Application of CATZOC information to your passage plan[87]

First find the minimum depth in the area close to the passage. In the case of chart below, it is 18.8 m. this is a ZOC A1, therefore,
ZOC allowance (A1) = 0.5 + 1% depth = 0.5 + 0.01 x 18.8 = 0.688 = 0.7 m

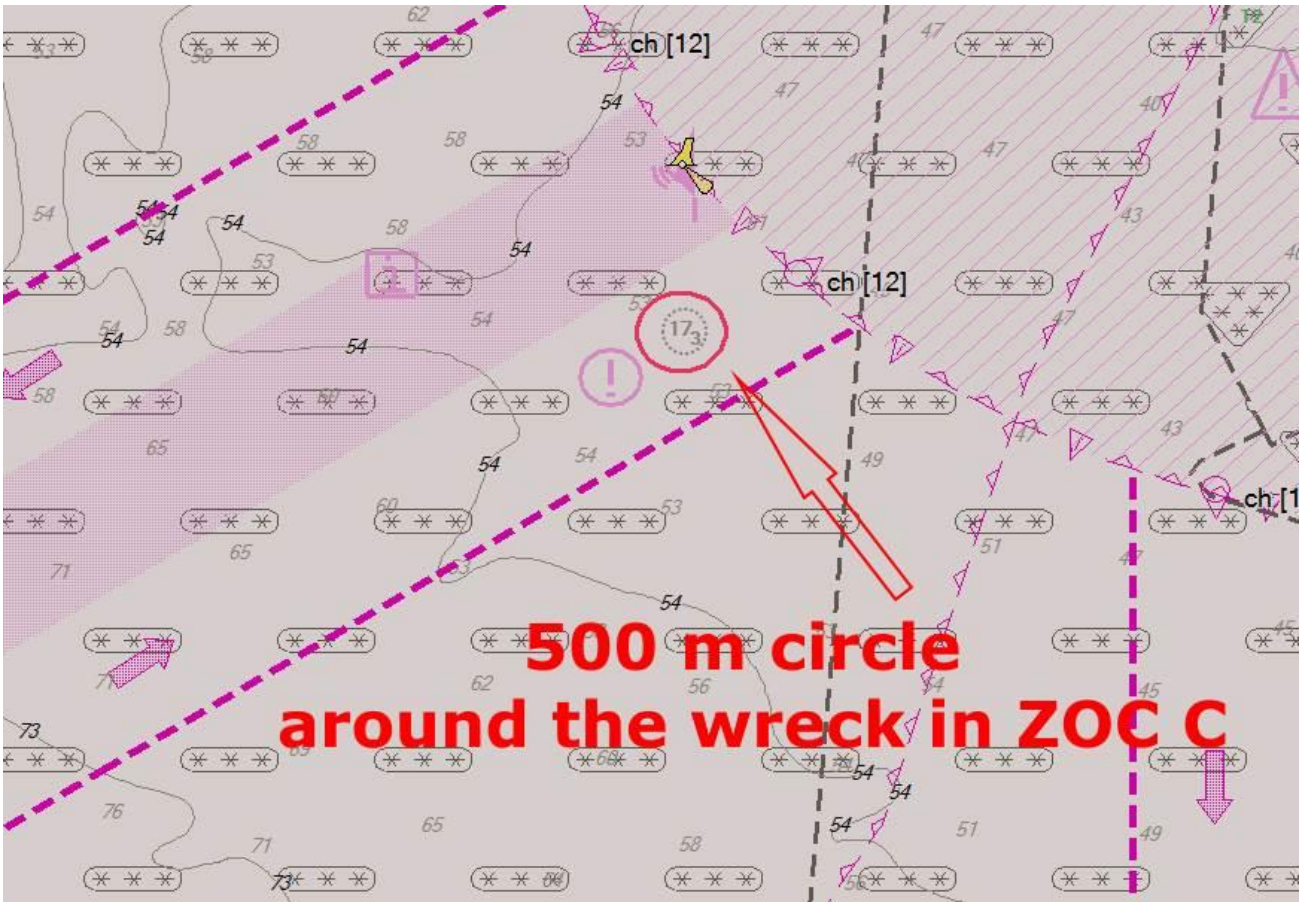
Therefore, the charted depths in the area of ZOC A1 on the chart will vary between +0.7m and -0.7m



[86] ECDIS – ENC Accuracy, North P & I Club, https://www.nepia.com/media/869535/ECDIS-ENC-Accuracy-LP-Briefing.PDF
[87] https://learnmarine.com/blog/How-to-apply-ECDIS-CATZOC-to-UKC-calculation

If for ZOC A1, A2 and B, **sounding position accuracy is relatively high** (position error is less than 50 m for ZOC B), therefore, in the case of above, on larger vessels no need to worry about the position accuracy of soundings. Calculation of sounding accuracy alone will be sufficient.

But, for ZOC C and D this value is 500 m and bigger. In the case of ZOC C and D, need to assess not only the ZOC allowance for UKC but also the positions accuracy of soundings when you are plotting tracks on the chart. Refer the wreck on the chart below;



ZOC allowance (C) = 2 + 5% d = 2 + 0.05 x 17.3 = 2.865 = 2.9m

Therefore, the depth will vary between 17.3 +/- 2.9 which is equal to 20.2m to 14.4m

Which means that the real depth may be between 14.4 to 20.2 m anywhere in 500 m radius from the charted position. Dynamic UKC may be even less if the vessel experiences motion dur to waves.

26) Port State's and coastal State's responsibilities in accordance with UNCLOS III, 1982

Internal waters

Port state has full sovereignty over it's internal waters. When a foreign vessel is in internal waters of another country, she will be under the civil and criminal jurisdiction of that country. As regards civil jurisdiction, matters which do not affect the coastal state are usually left to the flag state.

With regards to criminal matters, a concurrent jurisdiction is exercised over all foreign merchant ships in the internal waters, although as a matter of courtesy or comity such jurisdiction is seldom exercised unless the consequences of the crime extend beyond the ship[88].

Territorial waters[89]

Ships are entitled to proceed in an innocent passage (not prejudicial to the peace, good order or security of the coastal State), which means, she shall not;

- threat or use of force against the sovereignty, territorial integrity or political independence of the coastal State;
- exercise or practice with weapons of any kind;
- collecting information to the prejudice of the defence or security of the coastal State;
- make propaganda aimed at affecting the defence or security of the coastal State;
- launch, land or take on board of any aircraft;
- launch, land or take on board of any military device;
- load or unload any commodity, currency or person contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal State;
- carryout wilful and serious pollution contrary to this UNCLOS III;
- carryout fishing activities;
- carry out research or survey activities;
- make act aimed at interfering with any systems of communication or any other facilities or installations of the coastal State;
- do other activity not having a direct bearing on passage.

Criminal jurisdiction over a foreign ship[90]

Coastal state may arrest a person or investigate incidents on board foreign ships while passing **through territorial sea**, if;

- the consequences of the crime extend to the coastal State;

[88] International law of the shipmaster, By John A. C. Cartner, Richard Fiske, Tara Leiter
[89] Article 19, UNCLOS III, 1982
[90] Article 27, UNCLOS III, 1982

- the crime is of a kind to disturb the peace of the country or the good order of the territorial sea;
- the assistance of the local authorities has been requested by the master of the ship or by a diplomatic agent or consular officer of the flag State; or
- such measures are necessary for the suppression of illicit traffic in narcotic drugs or psychotropic substances.

If a foreign ship has left the internal waters, and a criminal matter is arising the criminal jurisdiction extends up to the territorial waters. That means the coastal state may arrest or carryout investigations onboard while the vessel is in territorial waters.

However, the coastal State is not permitted to take actions if the vessel is only passing through the territorial sea without entering internal waters and the crime was committed before the vessel entered its territorial sea.

Unless in an emergency, if the master requests, the coastal state may notify a diplomatic agent or consular officer of the flag state and facilitate contact between such agent or officer and the ship's crew before taking any steps,

Civil jurisdiction over a foreign vessel[91]

The coastal State should not stop or divert a foreign ship passing through the territorial sea for the purpose of exercising civil jurisdiction in relation to a person on board the ship.

Contiguous zone[92]

While a vessel is in a contiguous zone, the coastal state may exercise the control necessary to:

- prevent infringement of its customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea;
- punish infringement of the above laws and regulations committed within its territory or territorial sea.

Exclusive Economic Zone

Coastal states may[93];

[91] Article 28, UNCLOS III 1982
[92] Article 33, UNCLOS III 1982
[93] Article 56, UNCLOS III 1982

- explore and exploit, conserve and manage the natural resources in the area including the seabed;
- establish and use artificial islands, installations and structures
- carryout marine scientific research;
- protect and preserve the marine environment;
- have other rights and duties provided for in this Convention.

All ships have freedom of navigation in the EEZ[94].

High seas

High seas mean the sea areas excluding internal water, territorial sea and EEZ. All the vessels have the freedom of navigation in high seas. Apart from it, all the states have the freedom to[95];

- lay submarine cables and pipelines;
- construct artificial islands and other installations;
- do fishing;
- do scientific research.

Penal jurisdiction in matters of collision or any other incident of navigation[96]

In case of a collision or other incident in navigation **in high seas**, only the flag state or national state of the people (national state of seafarers involved) who are responsible for the incident may take judicial actions against them.

Irrespective of the nationality of the master, the certificate issuing state can withdraw such certificates after due legal process.

No arrest or detention of the ship, even as a measure of investigation, shall be ordered by any authorities other than those of the flag State.

Illicit traffic in narcotic drugs or psychotropic substances[97]

All States shall cooperate in the suppression of illicit traffic in narcotic drugs and psychotropic substances engaged in by ships on the high seas contrary to international conventions.

[94] Article 86, UNCLOS III 1982
[95] Article 87, UNCLOS III, 1982
[96] Article 97, UNCLOS III, 1982
[97] Article 108, UNCLOS III, 1982

Pollution from vessels[98]

States, acting through the competent international organization or general diplomatic conference, shall establish international rules and standards to prevent, reduce and control pollution of the marine environment from vessels. (Compiler's comment – This is the provision to adopt pollution prevention regulations like MARPOL, Antifouling Convention etc.)

Enforcement by coastal States[99]

Vessels navigating in the EEZ or the territorial sea of a State has, in the EEZ, committed a violation of applicable international rules and standards for the prevention, reduction and control of pollution from vessels which that state is a party, resulting in a substantial discharge causing or threatening significant pollution of the marine environment, that State may undertake physical inspection of the vessel for matters relating to the violation if the vessel has refused to give information or if the information supplied by the vessel is manifestly at variance with the evident factual situation and if the circumstances of the case justify such inspection.

Measures to avoid pollution arising from maritime casualties[100]

Coastal states may take and enforce measures **beyond the territorial sea** proportionate to the actual or threatened damage to protect their coastline from pollution or threat of pollution following upon a maritime casualty or acts relating to such a casualty, which may reasonably be expected to result in major harmful consequences.

27) Fatigue and fatigue management[101]

As managers onboard ships, masters are required to have a good idea about fatigue and fatigue management. Therefore, following summery is taken from MSC.1/Circ.1598 on "Guidance on fatigue", to give you a basic understanding on the subject.

Fatigue means is a condition of physical and/or mental impairment due to;

- inadequate sleep,
- extended wakefulness,
- work/rest requirements out of synchronized with circadian rhythms and

[98] Article 211, UNCLOS III, 1982
[99] Article 220, UNCLOS III, 1982
[100] Article 221, UNCLOS III, 1982
[101] MSC.1/Circ.1598, IMO

- physical, mental or emotional exertion that can impair alertness and the ability to safely operate a ship or perform safety-related duties.

Fatigue is a problem for all 24-hour-a-day transportation modes and industries, including the maritime industry. Nature of shipping may require;

- the seafarers to work long and irregular hours;
- to work extended hours/contracts periods onboard with varying environmental conditions
- the seafarers to stay and work at the same place
- to work without clear separation between work and recreation

A person may encounter fatigue due to various reasons which includes;

- lack of sleep;
- poor quality of sleep and rest;
- Work/sleep does not match with human circadian rhythm (refer next slide);
- staying awake for long periods;
- stress; and
- excessive workload (prolonged mental and/or physical exertion).

This a very dangerous phenomena specially in the transport sector. Because a fatigued person may encounter one or couple of the below mentioned problems which may lead to catastrophic situations.

- Inability to concentrate
- Diminished decision-making ability
- Poor memory
- Slowing of cognitive processes
- Involuntary need to sleep
- Loss of control of bodily movements
- Health Issues
- Mood change
- Change of attitude

There are many ways to categorize the causes of fatigue. To ensure thoroughness and to provide good coverage of most causes, they have been categorized into five general factors:

- seafarer-specific factors;
- management factors (ashore and aboard ship);
- ship-specific factors;
- environmental factors; and
- operational factors.

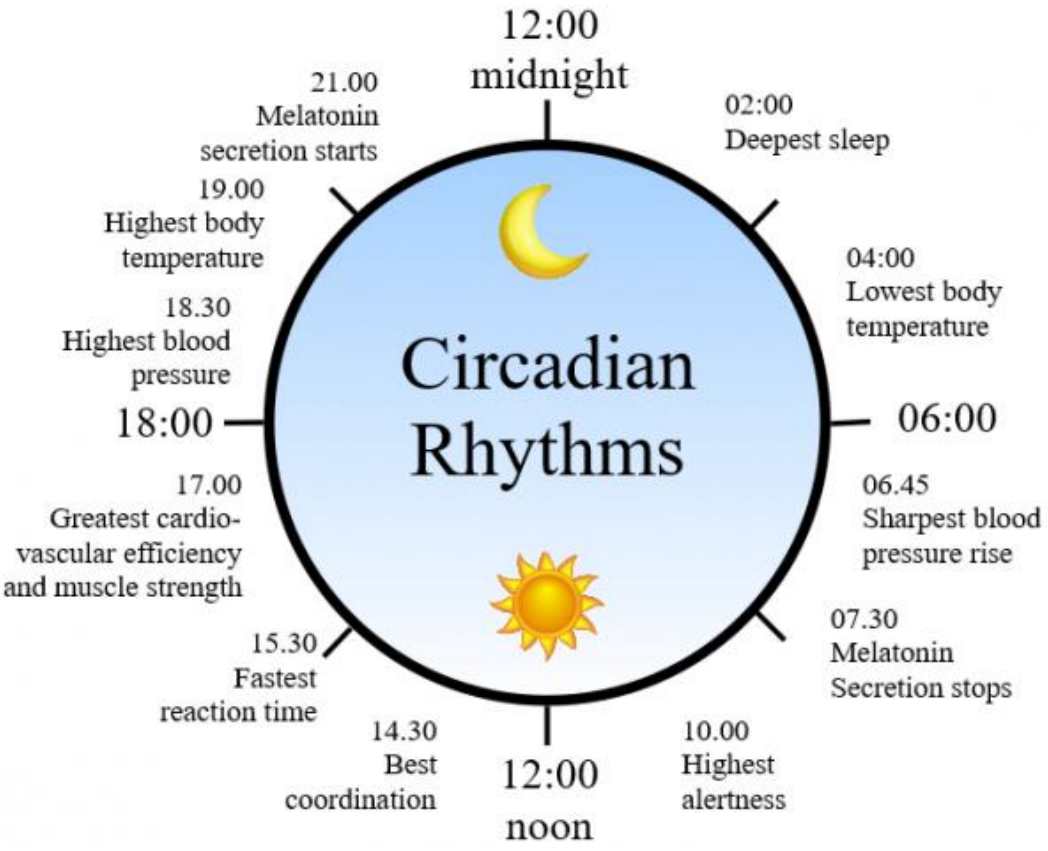
Now we will discuss the above categorized factors in little detail.

Seafarer-specific factors

The seafarer-specific factors are related to lifestyle, behaviour, personal habits and individual attributes. Fatigue varies from one person to another and its effects are often dependent on the particular activity being performed. Following to be considered when it comes to seafarer specific factors.

- Problems with sleep and rest;
  - quantity, quality and continuity of sleep;
  - sleep disorders/disturbances; and
  - recovery rest/breaks;

- How the body clock/Circadian rhythms affect;
  For millions of years, we humans are used to work during day time and sleep during night time. Therefore, we have a biological clock set in our brain. This is also known as circadian rhythm. Refer the below illustration[102].



Melatonin is a hormone which makes sleepiness. Therefore, in accordance with the above diagram, from 2100 hrs to 0730 hrs, mind is not working properly as it wants to sleep.

[102] https://www.luxreview.com/2016/05/10/two-minute-explainer-circadian-rhythms/

- Effects of psychological and emotional factors;
    - fear;
    - monotony and boredom;
    - loneliness;

- How does the health and well-being is infected;
    - diet/nutrition/hydration;
    - exercise and fitness; and
    - illness and onset of illness;

- Tolerance of Stress may depend upon;
    - skill, knowledge and training as it relates to the job;
    - personal issues of concern in personal life; and
    - interpersonal relationships at work or at home;

- Medication and substance use;
    - alcohol;
    - drugs (prescription and non-prescription);
    - supplements; and
    - caffeine and other stimulants;

- Age;
- Shift work and work schedules;
- Workload (mental/physical); and
- Jet lag
  Jet lag is the change of time when going from country to country. As an example, if you happen to go to Singapore from Sri Lanka and if you are used to sleep at 2200 hrs (SL time), you may not feel sleepy till mid night in Singapore. You need one or two days to get use to the new time.

Management factors (ashore and aboard ship)

Management factors relate to how ships are managed and operated. These factors can potentially cause stress and an increased workload, ultimately resulting in fatigue. These factors include:

- Organizational factors;
    - manning levels and retention
    - administrative work/reporting/inspection requirements;
    - shore-based support;
    - maintenance and repair of the ship;
    - drill schedules and training of crew etc.

- Voyage and scheduling factors;
    - Frequency of port calls
    - weather and sea condition on route;
    - traffic density on route;
    - availability of shore leave etc.

Ship-specific factors

These factors include some ship features that can affect and contribute to fatigue. Some ship design features affect workload (i.e. automation, equipment design and reliability), some affect the crew's ability to sleep, and others affect the level of physical stress on the crew (i.e. noise, vibration, accommodation spaces, etc.). The following list details some influential ship-specific factors:

- Ship design;
- Level of redundancy;
- Equipment design and reliability;
- Inspection and maintenance;
- Condition of the ship;
- Location of quarters;
- Physical comfort of accommodation spaces
- Ship motion etc.

Environmental factors

Environmental factors within areas in which seafarers live and work may contribute to the onset of fatigue, and impact both sleep quantity and quality. Environmental factors to consider include noise and vibration, light, ship motion, temperature and humidity, and ventilation/air exchange. Long-term exposure to some of the following may impact a person's health:

- Noise;
- Vibration;
- Light;
- Ship motion;
- Temperature & humidity (Best temperature for sleeping is between 18^0 C to 24^0 C);
- Ventilation & air exchange etc.

Operational factors

While seafarers, companies, Administrations and port State authorities are the primary actors, many other stakeholders may also have an impact on shipboard operations and workload. Aspects to consider include;

- Inspections;
- Surveys;
- Audits;
- Visits;
- Reporting;
- security measures and
- any other additional tasks to be performed on board.

How to identify when fatigued

A fatigued person may show one or couple of symptoms listed below.

- Neglecting important areas when decision making
- Slow or no response even in emergencies
- Lapses of attention
- Poor judgement of distance, speed, time, etc.
- Difficulty in concentrating
- Inability to stay awake
- Difficulty with hand-eye coordination skills
- Speech difficulties
- Increased frequency of dropping objects
- Digestion problems
- Anti-social behaviour
- Mood changes
- Ignores normal checks and/or procedures
- Increasing omissions, mistakes

Company responsibilities

Companies shall ensure to take reasonable measures to mitigate fatigue onboard. As the shipowner's representative onboard, the master has to consider of complying with them which are mentioned below;

- Clear, concise guidance on operational procedures on board;

- Adequate resources, including manning levels;
- Promote a safety reporting culture;
- New joiners to be adequately rested;
- Proper time schedules for handing/taking over;
- Multicultural issues; language barriers, social, cultural and religious isolation;
- Interpersonal relationships, stress, loneliness, boredom etc.;
- Provision for shore leave and onboard recreation, family communication;
- Watchkeeping arrangements; and
- Job rotation, if practicable;

Master's and Chief Officer's duties in mitigating and managing fatigue

Apart from the company responsibilities, the senior officers also have a role to play in mitigating and managing fatigue. These may include:

- Compliance with minimum hours of rest and/or maximum hours of work
- Proper resting of new joiners
- Manage HEAVY and long working hours
- Nutritious food & drinking water is provided
- Provided appropriate meal choices for night shift workers
- Managing of interaction with shore and ship
- Ensure correct people are selected depending upon the type of work to be performed.
- Improving shipboard conditions & proper scheduling of work
- Avoiding potentially hazardous tasks during the circadian lows
- Making awareness of fatigue and conduct fatigue related training
- Report and reduce the impacts of ship design

Training on fatigue and fatigue management

It is also better to give proper training on fatigue and how to manage fatigue to officers and crews as well. This will enhance the safety onboard. Training may include;

- Fatigue, its causes and potential consequences
- Circadian rhythms and body clock
- Importance of proper sleep
- Fatigue countermeasures
- Basic information on sleep disorders
- Understanding of the rules and regulations

- How to identify fatigue
- How to mitigate fatigue
- Importance and responsibility of reporting

How to maintain fitness for duty

Training shall also include how to maintain fitness by;

- taking strategic naps (the most effective - 20 minutes);
- taking advantage of scheduled breaks;
- monitoring and effectively manage sleep
- monitoring fitness for duty including medical fitness;
- reporting any fatigue impairment in themselves and in others
- recording and report actual hours of work and rest
- eating regular, well-balanced meals;
- exercising regularly; and
- limiting the use of medications (if possible)

28) Just-in-time arrival of ships

JIT means maintaining the optimal ship operating speed to arrive at the Pilot Boarding Place with the aim of reducing carbon emission into the marine environment, when the availability is ensured of:

- berth;
- fairway; and
- nautical services (pilots, tugs, linemen).

JIT is not to be confused with slow steaming or average/absolute speed limits.

Advantages

- Emission reduction
- Financial benefits by reducing fuel consumption
- More effective weather routing
- Increased safety in ports which have high traffic density, specially, in anchorages
- Better capacity planning of berths and services to ships
- More transparency for shippers
- Improved rest hours for crew

Disadvantages

- Loss of demurrage due to less waiting time at ports
- Possible lost time for ship maintenance / other in-port activities while waiting for berth

JIT is a concept developed through IMO and the Virtual arrival clause was developed by the shipping industry to achieve the same benefits of JIT.

ANNEX – I (Sri Lankan Crew Agreement)

Note for the candidates

A master is required to have a good idea of the agreement made between the shipowner and the seafarers working onboard which includes such as the holidays, payments etc. A Crew Agreement used onboard Sri Lankan flag vessels are provided below. The same agreement is used by DGMS while signing on Sri Lankans on foreign flag ships.

This agreement is available onboard the Sri Lankan flagged vessels and the information with regards to wages, OT, holidays, monetary fines etc. are included in it. When signing on, a Sri Lankan seafarer on a foreign flagged vessel, the whole agreement will be completed by the shipping office on the information provided by the recruiting agency.

SRI LANKA CREW AGREEMENT

(Under the Merchant Shipping Act, Na. 52 *of 1971)*

1. Agreement made in Colombo on .....":..... day of…… 20..... between the owner/charterer/operator/authorised agent as employer and officers/seamen as employees for employment on the Vessel M.V. …… particulars of which are given below :—

   a) Name of Vessel, Type and Flag :
   b) Year Built :
   c) Official No .
   d) Port of Registry :
   e) Registry No. and Year :
   f) Registered tonnage — Gross :
      Net :
   g) H. P. of Engine :
   h) Certified accommodation for Crew :
   i) Name and Address of Registered Owner/Charterer/Operator
      Telex : Telephone No. :
   j) Name and Address of Authorised Agent
      Telex : Telephone No. :

2. The Owner/Charterer/Operator/Authorised Agent agrees to :

   a) Employ the officer/seamen whose names are given under paragraph 9 for a period of ……. months in the capacities as indicated against each person.
   b) Pay the wages, overtime and other allowances as indicated in paragraph 9 of this agreement.

c) Pay a risk allowance in the event of a voyage to a war zone. The master however shall not insist on the Officers/seamen sailing to a blockaded port in a war zone.
d) Pay tanker allowance if officers/seamen are transferred to a vessel carrying hazardous cargo such as crude oil, liquid chemicals or gas in bulk. The tanker allowance shall be paid also for the period of subsequent ballast voyage after discharge to the next loading port.
e) Pay compensation for extra duties such as scaling boilers, cleaning hatches, tanks, *etc.* at rates provided for in para. 9.
f) Give protective clothing or gear if vessel is carrying chemicals (solid or powdered form) or any radioactive material hazardous to health. Provide adequate winter clothing during the winter season.
g) Pay:
    i. Monthly allotment without undue delay.
    ii. Wages and allowances of each month within 30 days from the last day of the month
    iii. All wages and allowances in US $ or convertible currency as agreed of signing the Agreement.

h) Restrict the number of working hours per week per person to 44 hours and to pay overtime for work done in excess of 44 hours.
i) Grant ... ... days leave per month of service or *pro rata.*
j) Grant 8 days holidays to officers/seamen per calendar year as mutually agreed. Crew to be paid overtime if employed on these days. (8 *Public Holidays*-Thai Pongal, Independence Commemoration Day (Feb. 4th), Sinhala & Tamil New Year Day, May 1st, Wesak Full Moon Day, National Heroes' Day (May 22nd), Hadji Festival Day & Christmas Day.)
k) Grant shore leave to crew at the discretion of the Master when not required for work consistent with the safety of the vessel and cargo and with the operational needs of the vessel.
l) Grant or make available medical treatment to an officer/seamen for injuries received during his service on board or for natural illnesses.
m) Have adequate and proper Protective and Indemnity cover at all times.
n) Pay compensation.—
    i. In case of death arising out of and in the course of employment but not caused by officer's/seamen's wilful act, default or misbehaviour, a lump sum to his legal heirs equivalent to 48 months basic pay or US $ 10,000 or the amount of compensation in terms of the national law of the flag of the vessel, whichever is the highest of the three amounts.
    ii. In case of personal injury resulting in permanent incapacity arising out of and in the course of service for injury not caused by the officer's/Seamen's wilful act, default or misbehaviour, payment of 60 months basic pay or US $ 12,500 or the amount of compensation according to the national law of the flag of the vessel whichever is the highest of the three amounts.
    iii. In case of personal injury resulting in partial incapacity arising out of and in the course of service not caused by the officer's/seaman's wilful act or default or misbehaviour a sum

determined on a proportionate basis to the degree of incapacity as ascertained and certified by a doctor or a medical board appointed for the purpose.

The Schedule below may be followed for guidance for assessing the percentage of disability. In the case of an injury not indicated in this Schedule the percentage of disability shall be ascertained by a doctor or a medical board appointed for this purpose.

Schedule of Injuries deemed to Result in Permanent Partial Disablement

Injury	Percentage of Loss of Earning Capacity
loss of use of right arm above or at the elbow	70
loss of left arm above or at the elbow	60
loss of right arm below the elbow	60
loss of leg at or above the knee	60
loss of left arm below the elbow	50
loss of leg below the knee	50
Permanent total loss of hearing	50
loss of one eye	30
loss of thumb	35
loss of ali toes of one foot	20
loss of one phalanx of thumb	10
loss of index finger	10
loss of great toe	10
loss of any finger other than index finger	05

o) Pay compensation in the event of discharge without fault on the officer's/seaman's part justifying such discharge a sum in addition to the wages earned as the Shipping Officer may fix having, regard to the circumstances relating to the discharge provided that the compensation so payable shall not exceed.

i. in the case of an officer/seaman who has been discharged before the commencement of a voyage one months wages ; and

ii. in the case of an officer/seaman who had been discharged before the completion of the contract, three months wages.

p) 1. Pay all wages allowances due to officers/seamen at the time of their discharge.
Such wages and allowances to be paid upto the time of their arrival in Sri Lanka.

2. Contribute 2 per cent of the basic wages of the officers/seamen employed on this vessel and 3 percent of the basic wages by the Owners to the Sri Lanka Seamen's Welfare Fund or Scheme. Such contribution shall be made directly to the Shipping Officer, Sri Lanka monthly and sent along with a Statement of Contributions.

q) Arrange for the repatriation of officers/Seamen on termination of Agreement or on their being discharged for any reason and to meet the full cost of their travel to Sri Lanka including the cost of hotel accommodation and meals, whilst in transit. A sum of US $ 10 per day for officers and US $ 5 per day for seamen shall also be paid as incidental expenses. The expenses for repatriation shall not be a charge on the officers/seamen if they are left behind by reason of :

i. injury sustained whilst in the service of the vessel,
ii. shipwreck,
iii. illness not due to their own wilful acts or default, or
iv. discharge for any cause for which the crew member cannot be held responsible

r) Provide officers/seamen with food in conformity with internationally accepted standard.

s) Comply with the following procedures in enforcing penalties for offences listed in the **attached schedule.** A statement of the offence immediately after its commission shall be entered in the official log book by the direction of the Master and at the same time shall be attested to be true by the signatures of the Master and another Officer or one of the crew and a copy of such entry shall be furnished or the same shall be read over to the offender, before the vessel reaches any Port or departs from the port at which the vessel is and an entry that the same has been so furnished or read over and of the reply if any of the offender shall be made and signed in the same manner as the entry of the offence. These entries shall upon discharge of the offender be sent or shown to the Shipping Officer before whom the offender is discharged and if the officers/seamen are discharged at a foreign port, the entries shall be sent to the Shipping Officer. If the Shipping Officer is satisfied that the offence is proved and that the entries have been properly made, the fine shall be deducted from the offenders wages, and paid to the Shipping Officer as provided for under the Merchant Shipping Act, No. 52 of 1971.

3. Officers/seamen who have read and signed this Agreement agree to :

(a) serve on the vessel M.V. .....in the capacities indicated against their names in Para. 9.
(b) conduct themselves in an orderly, faithful, honest and sober manner and to be diligent at all times in the performance of their respective duties.
(c) be obedient to the lawful commands of the Master or any superior officer on all matters relating to the said vessel and the stores and cargo thereof whether onboard or on shore.
(d) ensure that all stores and any other items issued for their use and consumption on board and remaining unused at the time of their discharge shall be returned to the Master/Chief Officer or any other officer designated by the Master for that purpose.
(e) observe the following working hours:

(Deck Engine and Catering department)
At sea — 44 hours per week including sailing and arrival dates
In Port — 8 hours per day from Monday to Friday
4 hours on Saturday

f) work overtime on any day of the week including holidays or any time of the day when ordered by the Master or an officer. To work overtime without payment in cases of emergency involving the safety of the vessel, cargo Passengers and crew and in rendering service to other vessels in distress.

g) not to embezzle, wilfully or negligently destroy vessels property, cargo, stores, *etc,* If found guilty of these offences agree to make good from their wages to the owner of the vessel, the full cost of such property, cargo, stores, *etc.*

h) Permit owners to deduct two percent of their basic wages to be remitted to the Seamen's Welfare Fund or Scheme in Sri Lanka.

i) not to bring contraband on board. If any fine be imposed on the vessel by Customs authorities for offences committed by the officers/seamen such fines to be recovered from the wages of the offending officers/seamen.

j) refrain from any illegal activity detrimental to the owner and in particular smuggling, pilferage, stoppage of work.

k) be liable for punishment committed in breach of discipline as indicated in the attached schedule at Para. 2 (s).

l) make representations in the event of any dispute with the owners/master regarding the implementation of the terms and conditions of this Agreement only to the Shipping Officer Government of Sri Lanka or to a Consular Officer of a Sri Lankan Embassy and to no other organisation or institution. However where an officer/seamen has no means of communicating with any of the above mentioned officers, he may seek assistance from the Governmental shipping master or principal officer of that port in order to enforce the terms and conditions of this Agreement.

m) that if the officers/seamen contravene the terms and conditions of this Agreement, the Shipping Officer may after due inquiry impose such punishments as he may deem fit including fines, confiscation, suspension and cancellation of CDC and the removal of officers/ seamen names from the employment register.

n) that if the officers/seamen compel the shipowner/charterer/operator authorised agent to pay them any sums of money in excess in contravention of this Agreement and under compulsion such money obtained shall be refunded to the Shipowner/Charterer/Operator Authorised Agent. If such officers/seamen do not refund such sums of money within 30 days from their date of discharge from the vessel, they are liable to be prosecuted. These officers/seamen shall not be allowed to obtain employment until and unless they have refunded the excess money to the Shipowner/Charterer/Operator/Authorised Agent.

4. It is mutually agreed by both parties that these Articles of Agreement are governed by the provisions of the Laws and Constitution of the Democratic Socialist Republic of Sri Lanka.

5. Any complaint or dispute arising from the interpretation of the terms and conditions of these Articles shall be settled by arbitration by an arbitrator and shall be final and binding on both parties and such arbitration shall be held at the port where the Articles are signed. The parties hereby agree to nominate the Shipping Officer of the Government of Sri Lanka as the arbitrator.

6. Any other contract signed between Shipowner/Master/Charterer/Operator/Authorised Agent and the officers/seamen which is in any way derogatory to the terms and conditions stipulated in this Agreement, shall be null and void.

In witness whereof the said parties have subscribed their names herein, on the dates mentioned against their respective signatures, at Para (9).

IN THIS AGREEMENT:

7. **"Seaman"** means any Sri Lankan possessing a Continuous Discharge Certificate Book issued by the Shipping Officer of Sri Lanka and who is actually engaged to work on the vessel as a member of the crew after signing Articles of Agreement at the Shipping Office.

"Officer "means a member of the crew other than the Master but including the Chief Engineer designated as such by the Sri Lankan Law or Regulation or in the absence of such Regulation by Collective Agreement or Custom and who is engaged to work on the vessel after signing Sri Lankan Articles of Agreement.

''Owner/Charterer/Operator "means the person who actually engages the Sri Lankan and who is responsible for the due performance of this contract and for the operation of the vessel.

"Authorised Agent " means any Licensed Shipping Agent under the Licensing of Shipping Agents Act, Mo. 10 of 1972 who selects and engage the Crew on behalf of his principals namely Owner/Charterer/Operator.

SCHEDULE OF PUNISHMENTS

No.	Offence	Amount of Fine or Punishment	Shipping Officer's Signature or Initials
1	Absence without leave	Seven day's pay	
2	Quarrelling or provoking to quarrel	Seven day's pay	
3	Swearing or using improper language	Seven day's pay	
4	Smoking in unauthorised place	Seven day's pay	
5	(For the Cook) Not having any meal of the crew ready at the appointed time	Seven day's pay	
6	Insolence or contemptuous language or behaviour towards the Master or any Mate	Dismissal	
7	Striking or assaulting any person on board or belonging to the ship	Dismissal	
8	Bringing or having on board spirituous Liquors when prohibited	Dismissal	
9	Secreting contraband goods on board with intent to smuggle	Dismissal	
10	Smuggling or violation of any Customs rules and regulations in Sri Lanka or foreign port	Dismissal	
11	Carrying knife or other offensive weapons or arms or instruments other than a clasp knife	Dismissal	
12	Drunk while on duty	Dismissal	
13	Being under the influence of drugs	Dismissal	
14	Possession of drugs, narcotics on board	Dismissal	
15	Gambling	Dismissal	
16	Disobedience to lawful commands (if not otherwise dealt with according to law)	Dismissal	
17	Sleeping or negligence while on the look out	Dismissal	
18	Wilful neglect of duty or any activity which will hamper the efficient operation of the vessel	Dismissal	
19	Pilferage or stealing	Dismissal	
20	Destroying or defacing or stealing the copy of the Agreement which is made accessible to the crew	Dismissal	

Paragraph 9 **NAME OF VESSEL M. V.** **Agreement No.**

Serial No.	Names & signatures of officers/seamen	Date of birth	CDC No. & date of issue	Nationality & Passport No.	Last ship date of discharge	Date & place of signing agreement	Rank & Cert. no	Wages	O.T.	Other allowances	Allotment	Signature of Shipping Officer	Date	Place	Cause	Balance wages paid	Signature of seaman	Signature of official before whom release signed
1																		
2																		
3																		
4																		
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ANNEX – II (Official logbook on Sri Lankan flag ships)

Note for the candidates

Masters sailing on Sri Lankan flag ships and candidates applying for Sri Lankan CoCs are required to familiar with the Sri Lankan regulations & the contents of Sri Lankan official logbooks. Therefore, abstracts of a Sri Lankan official logbook are provided below.

The page number of the official logbook can be found at the middle, top of each page. Following pages shall be read in parallel;

- Pages 8 (left side) & 9 (right side) AND
- Pages 24 (left side) & 25 (right side)

OFFICIAL LOG-BOOK

A FOREIGN-GOING OR A HOME-TRADE SHIP

Official number :			
Name of Ship	Port of Registry	Registered Tonnage	
		Gross	Net

Port at which and Date when voyage commenced	Nature of the Voyage or Employment	Port at which and Date when voyage terminated
Port : …… Date : ……		Port : …….. Date : …….

Name of Master	No. of Certificate if any

Delivered to the Shipping Officer of the Mercantile Marine Office at the Port of ……
on the …… day of ……..19…..

Counter signed …… Master

……. …… Address

Shipping Officer ……

Note – In the case of a Foreign-going ship, the Official Log-Book is to be delivered to the Shipping officer with Forty-eight hours after the Ship's arrival or upon the discharge of the Crew, whichever first happens. In the case of a Home-trade ship of less than 200 Tons Gross the Official Log-Book for the preceding half year is to be delivered to a Shipping Officer with 21 days after the 30th of June or the 31st of December. The Official Log-Bok for a Home Trade vessel of 200 tons or more Gross Tonnage is to be delivered to the Shipping Officer before whom the Crew is discharged.

List of Crew and Report of Character – *(Continued)*

No.	Name and Surname of each member of the Crew	Capacity In which engaged	Report of Character		If there is any entry in the Official Log relating to a member of the Crew, the page or pages where the entry is to be found should be noted in this column opposite his name
			For Ability	For General Conduct	
31					
32					
33					
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62					
63					

MARRIAGES, BIRTHS, AND DEATHS OF MEMBERS OF THE CREW AND OTHER PERSONS ON BOARD, WHICH HAVE OCCURRED DURING THE VOYAGE

Marriages.—Section 128 of the Merchant Shipping Act, No. 52 of 1971 requires the Master of the Ship to enter in his Official Log the particulars of every Marriage that has taken place on board. Masters are reminded that they have no power to perform the marriage ceremony on board their ships, and that if such ceremony is performed by them the marriage will not be a legal one.

Births and Deaths.—The duties of the Master with regard to the registry of births and deaths on board ship are defined in the following extracts from Sections 129 and 130 of the Merchant Shipping Act, No. 52 of 1971.

(*a*) requiring the master of any such ship to record any such birth or death and to send a return thereof to a Shipping Officer or other officer or authority ;

(*b*) requiring the master of any such ship to notify any such death to such person (if any) as the deceased may have named to him as his next of kin ;

(*c*) requiring the transmission of returns by Shipping Officers and other officers and authorities to such authority as may be prescribed ;

(*d*) the perservation and filing in a register of such information as may be desirable for the purpose of ensuring the completeness and correctness of a register of such births and deaths ;

(*e*) any incidential or supplementary matters for which the Minister may think it expedient to provide for the purposes of the regulations.

In every case of death or disappearance the Master should state full particulars of the circumstance in the narrative section of the log book.

When the death of a person at sea is assumed by the Master to have taken place because the person in question is reported '*Missing*', or where a person is supposed killed or drowned as a result of falling or jumping overboard, falling from a rope ladder attached to the ship, or from the ship's gangway, the death should be regarded as having taken place on board.

A death which occurs otherwise than on board or does not come within the exceptions stated in the previous paragraph should not be recorded in the tabular statement or on appropriate forms ; *appropirate forms should be used for reporting such deaths*. The Master should, however, record in the narrative section of the official log book full particulars of the circumstances relating to the death.

When the death of a 'missing' person is assumed by a Master the entry in the tabular statement should read : "missing at sea supposed killed or drowned".

Expressions such as 'murder' or 'suicide' should not be used to record the cause of death. The Master should, to the best of his ability, record the actual cause of death, e.g. "knife wounds in chest", "gun shot wounds in head", "strangulation".

When reporting the required particulars in appropriative form, the Master should also, if required, give an account of (*a*) any moneys due to the deceased seaman or apprentice, (*b*) any deductions from his wages and (*c*) his clothing and effects, on the relevant Form. The form will be supplied by the Superintendent, Consular Officer or Shipping Officers on request.

(8) **MARRIAGE**

	Date of Marriage	Names of both Parties (Surname first in block letters)	Age	Single, Widow or Widower

Signature of Official Clergyman : ……

Masters are reminded that they have no power to perform the marriage ceremony

BIRTHS

	Date of Birth	Name (if any) of Child	Sex	Father's Name (Surname first in block letters)	Father's Rank, Profession or Occupation	Mother's Name (Surname first in block letter)	Mother's Maiden Surname

DEATHS

	Date of Death	Place of Death (If at sea give Latitude and longitude)	Name of Deceased (Surname first in block letters)	Sex	Age	Rank or Rating Profession or Occupation*	Nationality (Stating Birthplace)
						Members	**Of the Crew (other**
						Asiatic and	**East African Seamen**
						P	**ersons who were not**

* In the case of an Infant or Child, the words 'Son of' or 'Daughter of', followed by the name of the father and his profession.

† "Master" includes every person (except a pilot) having command or charge of any ship.

‡ This note relates to Asiatic and East African seamen who are employed under special Agreement for Natives of Asia or East Africa which open and terminate in Asia.

(*See* Instructions on previous page)

Profession or Occupation	Father's Name (Surname in block letters)	Father's Profession or Occupation

† *Signature of Master : ……*

and that if such ceremony is performed by them the marriage will not be a legal one.

(*See* Instructions on previous page)

Further Particulars of Father		Further Particulars of Mother		Signature of Farther or Mother	Signature of †Master and Mate or other Member of Crew	To be completed by Officer to whom Return is made
Nationality (Stating birthplace)	Last Place of Abode	Nationality (Stating birthplace)	Last Place of Abode			Port at which Report Is made and Signature And Title of Officer to whom reported

(*See* Instructions on previous page)

Last Place of Adobe	Cause of Death (*See* Instructions on previous page)	Signature of † Master	Signature of Mate or other Member of the Crew	Signature of Surgeon or Medical Practitioner (if any)	To be completed by Officer To whom Return is made
					Port at which Report is made and Signature and Title of Officer to whom reported
than Asiatic	**and East African Seam**	**en†) including Ma**	**sters**		
(see footnote	**‡)**				
Members of	**the Crew**				

Should be recorded in the column for "Rank or Rating, Profession, or Occupation", In the case of an illegitimate child the full name of the mother instead of the father should be recorded.

(10)

RECORD OF DRILLS (BOAT DRILLS, FIRE DRILLS, ETC.) AND MUSTERS AND EXAMINATION OF LIFE-SAVING APPLIANCES

Note – The practice of the crew in boat and fire drills should take place at intervals of not more than 7 days in Passenger Vessels and 14 days in The Case of Cargo Ships. If such drills were not held in any week in passenger vessels or at least once in every month in cargo ships, a statement of the reasons should be entered in the first three columns of the table.

Date of Drill Or Muster and Of Examination Of the Life-Salving Appliances	Nature of Drill or Muster*	Nature of the Examination of the Life-Salving Appliances, and the condition in which they were found	Date of Entry	Signature of Master and Mate

* An entry should be made of the type of drill or muster held, i.e., whether boats were swung out and manned, etc. whether the passengers or crew were mustered, whether the crew were practiced in fire drills, etc.

(15)

RECORD OF INSPECTIONS OF CREW ACCOMMODATION

Time and Date of Inspection	Names and Ranks of Persons Making the Inspection	Particulars of any respects in which Crew Accommodating is found not To comply with the Regulations	Date of Entry	Signatures of Master and Mate

(19)

APPLICABLE ONLY TO FOREIGN-GOING SHIPS OF 1,000 GROSS TONS AND OVER WHICH GO TO SEA FROM ANY PORT WITHIN HOME TRADE LIMITS

Record of Inspections carried out in accordance with the Food and Catering Convention 1946 of supplies of Food and Water provided for the Crew

Date of Inspection	Names and Ranks of Persons Making the Inspection	Result of Inspection of Supplies of Food and Water	Date of Entry	Signatures of Master and Mate

EMPLOYMENT OF SEAMEN

When this Official Log-Book is returned to the Shipping Officer or Superintendent, the following Form should be filled up and signed by the Master :—

The following Seamen were employed during the voyage ended this day :—

Voyage	Deck Department	Engine Department	Steward's Department		Total
			Certd. Ship's Cook	Others	
From the Republic of Sri Lanka					
To the Republic of Sri Lanka					

Under Deck Department, include all such Seamen employed in connection with the navigation of the Ship, or in looking after the cargo.

Under Engine Department, include all such Seamen employed in attending on machinery.

Under Steward's Department, include all such Seamen employed in attending on passengers or crew.

Master : ..... *Date :* .....

The following are the FEES chargeable for services rendered by Consular Officers, in connection with the Official Log :—

	Rs.	c.
(i) Examining provisions or water, to be paid by the party who proves to be in default, in addition to the cost of survey	39	0
(ii) Affixing the consular seal or signature to any entry in the official log-book of a ship if such entry is not required by the Merchant Shipping Acts	15	60

Note.—Consular Fee Stamps to the value of the Fees charged must be affixed to this Form, and cancelled. Stamps must on no account be removed.

LOAD LINE, DEPTH OF LOADING, Etc.

POSITIONS OF THE DECK LINE AND LOAD LINES

Freeboard from Deck Line			Load Line
Tropical.....	feet	.....inches.	(T) ..... inches above S.
Summer.....	feet	.....inches.	(S) Upper edge of line through centre of disc.
Winter	feet	..... inches.	(W) .....inches below S.
Winter North Atlantic(if assigned)	feet	..... inches.	(WNA) .....inches below S.

Allowance for fresh water for all freeboards :— .....inches

The upper edge of the deck line from which these freeboards are measured is ..... inches

above the top of the ..... deck at side.

(Above particulars to be taken from Load Line Certificate.)

Maximum draught of water in summer ..... feet ..... inches.

(The maximum draught of water in summer is the draught of water which would be shown on the scale of feet on the stem and stern post of ship if she were so loaded that the upper edge of the summer load line were on the surface of the water and the ship were upright on an even keel.)

NOTES

1. The above particulars, and particulars of depth of loading as detailed on the following pages, are to be recorded before the ship leaves any dock, wharf harbour, or other place for the purpose of proceeding to sea.

2. The actual freeboard amidships on each side of the ship is to be measured from the upper edgeof the deck line to the surface of the water, when the ship is loaded and ready to leave. The actual ' mean ' freeboard is the mean of the actual freeboards, port and starboard, measured as indicated above.

3. No entries are required in columns 8l4 when the actual mean freeboard) Column 7) is not less than the appropriate salt water freeboard.

4. If ,in determining density of water use is made of a hydrometer on which the reading at the top of the scale is 1.000 or 00 meaning ' full fresh water ', the hydrometer reading gives the den ity to be entered, e.g., a reading of 15 on such hydrometers means a density of 1015. If the hydrometer used has the scale reversed, i.e. if the reading 00 is at the bottom of the scale and means ' full salt water ', the density must be obtained by subtracting the hydrometer reading from 1025, eg.., if the reading is at 15, the density t obe entered will be 1010.

5. The Winter North Atlantic load line, if assigned, applies for voyages across the North Atlantic, North of latitude 36° N during the winter months as defined in the Load Line Rules, 1941, and shown on the chart which forms part of these Rules.

The periods during which the other seasonal load lines apply in different parts of the world are as indicated in the said Rules and chart.

6. **Penalty.—Failure to enter the required particulars of load line, depth of loading, etc., in the Official Log-Book at the proper time renders the Master or Owner liable to a fine.**

DATES OF DEPARTURE FROM AND ARRIVAL AT EACH

DRAUGHT OF WATER AND FREEBOARD UPON EVERY

DEPARTURES

Date and Hour of Departure (1)	Dock, Whatf, Harbour or Other Place (2)	Actual Draught of Water *		Actual Freeboard *Amidships			Density of Water (8)	Allowance				
		Forward (3)	Aft (4)	Port (5)	Star-board (6)	Mean (7)		For Density of Water* (9)	For Ashes and Rubbish* (10		For Fuel, etc., to be consumed on Stretch of Inland Water (11)	
		Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.	Ft. Ins.		Ins.	Weight	Ins.	Distance	Ins.

DOCK, WHARF, HARBOUR OR OTHER PLACE WITH THE

OCCASION OF THE SHIPS PROCEEDING TO SEA

				SIGNATURES		ARRIVALS	
Total Allowances (12)	Mean Draught in salt water as calculated after making the appropriate Allowances (13)	Mean Freeboard Amidships in salt water as calculated after making the appropriate Allowances (14)	Date and time of Posting the Notice (Draught of Water and Free board) (15)	Master (16)	Mate (17)	Date and Hour of Arrival (18)	Dock, Wharf, Harbour of Other Place (19)
Ins.	Ft. Ins.	Ft. Ins.					

OFFICIAL LOG OF THE

Date and Hour of the Occurrence	Place of the Occurrence, or situation by Latitude and Longitude at Sea	Date of Entry	Entries required by Merchant Shipping Act, No. 52 of 1971	Amount of Fine or Forfeiture Inflicted

ANNEX – III (Sri Lankan Certificate of registry)

CALL SIGN: 4RDU
IMO NO: 9191577

CERTIFICATE OF SRI LANKA REGISTRY

PARTICULARS OF SHIP

Official Number	Name of Ship	No., Year and Port of Registry	No., Year and Port of previous Registry (if any)
1362	"ALLCARGO SHOBHA" (EX: UNICORN EMERALD)	No. 02 Of 2015, COLOMBO	REPUBLIC OF PANAMA

Whether a sailing. Steam or Motor Ship; if Steam or Motor, how propelled	Where Built	When Built	Name and Address of Builders
MOTOR	JAPAN	1998	SHIN KURUSHIMA JAPAN.

		METER	cm
Number of Decks **ONE**	Length Article 2(8) ITC 1969	107	02
Number of Masts			
Rigged.....	Main Breath Reg 2(3) ...ITC 1969.....	19	40
Stern.....		10	40
Build.....	Depth Regulation 2(2) ...ITC 1969.....		
Framework and description of vessel ***STEEL***	Length of engine-room (if any).....		
Number for bulkheads			

PARTICULARS OF PROPELLING ENGINES, &C, (IF ANY), as supplied by Builders Owners, or Engine Makers.

No. sets of Engines	Descriptions of Engines	When made	Name and Address of Makers	Reciprocating Engines		Rotary Engines	B.H.P. Estimated Speed of Ship
				No. of cylinders in each set	Diameter of cylinders	No. of cylinders in each set	
ONE	MOTOR DIESEL	Engine	Engine	SIX (06)	--	--	3883 KW
No. of Shafts		--	MAKITA B&W 6L35MC Japan.	Length of Stroke			13.6 KNOTS
--	Particulars of Boilers Description -- Loaded pressure --	Boilers --	Boilers --	--			

PARTICULARS OF TONNAGE

GROSS TONNAGE.....**6,079**..... tons (.....cubic meters)
NET TONNAGE.....**3,290**..... tons (.....cubic meters)

THE SHIP HAS BEEN BAREBOAT CHARTERED BY ALLCARGO LOGISTICS LANKA (PVT) LTD NO.108, ALUTHMAWATHA ROAD, COLOMBO 01, SRI LANKA AS PER THE CHARTER PARTY AGREEMENT DATED 20TH MAY 2015 , SIGNED BY THE OWNERS AND THE CHARTERES

The number of seamen and apprentices for whom accommodation is certified.....

I the undersigned, Registrar of Sri Lanka ships at the Port of...***COLOMBO***.....hereby certify that the Ship, the Description of which is prefixed to this my Certificate, has been duly surveyed, and that the above Description is in accordance with the Register Book; that Kalita Babul Chandra whose CoC No. 0062048 is the Master of the said Ship; and that Name , Residence and Description of the Owner ....., and Number of Sixty-fourth Shares held by, are as follows:-

Name, Residence, and Occupation of the Owner		Number of Sixty-fourth Shares
Owner Allcargo Shipping Co. (Pvt) Ltd, Avashya house, 3rd Floor, CST Road, Kalina, Santacruz (E), Mumbai – 400098, India.	Charterer Allcargo Logistic Lanka (Pvt) Ltd, No.27, St. Kildas Lane, Colombo 04, Sri Lanka.	***64 SHARES***

Dated at...***Colombo***...the ***24st*** day of **July** Two thousand **Fifteen**

This certificate is valid until 30.06.2017 .....Registrar of Sri Lanka Ships

NOTICE:- A certificate of Registry is not a document of Title. It does not necessarily contain notice of all changes of ownerships, and in no case does not it contain an official record of any mortgages affecting the ship. In case of any change of ownership it is important for the protection of the interests of all parties that the change should be registered according to law. Changes of ownership, address or other registered particulars should be notified to the Registrar at the Port of Registry. Should the vessel be lost, sold to Foreigners, or broken up, notice thereof, together with the Certificate of Registry, if n existence, should immediately be given to the Registrar of Sri Lanka Ships at the Port of Registry.

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