

Signals and Aids to Navigation- Rules of the Road

Introduction

- **Rules of the Road.** Internationally agreed-on traffic regulations for ocean waters A set of customary practices, especially for the operation of a motor vehicle, boat, or aircraft, established to promote efficiency and safety.
- International Regulations for Preventing Collisions at Sea, was framed in 1972 and they came to practice only from 1977.
- In total, there are about 38 rules, of which few are important as far as fishing vessels are concerned.
- These rules are framed by Inter-Governmental Maritime Consultative Organization (IMCO).

Part A – General

- **Rule 1**
- **Rule 2 – Responsibility**
- **Rule 3 – General definitions**
- **Vessel** – includes every description of water craft, including non-displacement craft and seaplanes, used or capable of being used as a means of transportation on water.
- **b) Power driven vessel** – means any vessel propelled by machinery.
- **c) Sailing vessel** – means any vessel under sail provided that propelling machinery, if fitted is not being used.
- **d) Vessel engaged in fishing** – means any vessel fishing with nets, lines, trawls or other fishing apparatus which restrict maneuverability, but does not include a vessel fishing with trolling lines or other fishing apparatus which does not restrict maneuverability.

- **e) Seaplanes** – includes any aircraft designed to maneuver on the water.
- **f) Vessel not under command** – means a vessel which through some exceptional circumstances is unable to manoeuvre as required by these rules and is therefore unable to keep out of the way of another vessel.
- **g) Vessel restricted in her ability to manoeuvre** – means a vessel which from the nature of her work is restricted in her ability to manoeuvre as required by these rules and is therefore unable to keep out of the way of another vessel

- The term vessel restricted in their ability to manoeuvre shall include but not be limited to:
- i. a vessel engaged in laying, servicing or picking up a navigation mark, submarine cable or pipe line
- ii. a vessel engaged in dredging, surveying or under water operations
- iii. a vessel engaged in replenishment or transferring persons, provisions or cargo while underway
- iv. a vessel engaged in the launching or recovery of aircraft.
- v. A vessel engaged in mine clearance operations
- vi. A vessel engaged in a towing operation such as severely restricts the towing vessel and her tow in their ability to deviate from their course.

- **h) Vessel constrained by her draught** – means a power – driven vessel which, because of her draught in relation to the available depth and width of navigable water, is severely restricted in her ability to deviate from the course she is following.
- **i) Under way** – means that a vessel is not at anchor, or made fast to the shore or aground.
- **j) Length and breadth** – of a vessel means her length overall and greatest breadth.
- **k) Restricted visibility** – means any condition in which visibility is restricted by fog mist, falling snow heavy rains fogs and storms or any other similar cause.

Part B – Steering and sailing rules

- **Section I – Conduct of vessels in any condition of visibility**
- **Rule 4 – Application** – Rules in this section apply to any condition of visibility
- **Rule 5 – Look out** – Maintain proper lookout by sight and hearing.
- **Rule 6 – Safe speed** – Every vessel shall maintain safe speed to avoid collision and to effective action on the sea.

In determining safe speed the following factors shall be among those taken into account.

- i. the state of visibility
- ii. the traffic density including concentrations of fishing vessels or any other vessels

- **iii.** at night the presence of background light such as from shore lights or from back scatter of her own lights.
- **iv.** the state of wind, sea and current and the proximity of navigational hazards
- **v.** the draught in relation to the available depth of water
- **Rules 7 – Risk of collision**
- **Rule 8 – Action to avoid collision**
- **Rule 9 – Narrow channels**
- **Rule 10 – Traffic separation schemes- Traffic lanes**
- **Section II – Conduct of vessels in sight of one another**
- **Rule 11 – Application**
- **Rule 12 – Sailing vessel – Rules when two sailing vessels approaching one other**
- **Rule 13 – Overtaking**
- **Rule 14 – Head – on situation**

- **Rule 15 – Crossing situation**
- **Rule 16 – Action by give way vessel**
- **Rule 17 – Action by stand – on vessel**
- **Rule 18 – Responsibilities between vessels.**
- **Section III – Conduct of vessels in restricted visibility**
- **Rule 19 – conduct of vessels in restricted visibility**
- **Part C – Lights and shapes**

- **Rule 20 – Application**
- **Rule 21 - Definitions**
- **Masthead light** -white light fore and aft centerline unbroken light arc of the horizon of 225 degrees right ahead to 22.5 degrees abaft the beam
- **Side lights** -green light on the star board side and a red light on the port side unbroken light arc of the horizon of 112.5 degrees from right ahead to 22.5 degrees abaft
- **Stern light**-white light an arc of the horizon of 135 degrees light 67.5 degrees from right aft.
- **Towing light** -yellow light
- **All round light** -unbroken light arc of the horizon of 360 degrees.
- **Flashing light** -light flashing at regular intervals ,frequency of 120 flashes or more per minute.

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- **Rule 23 – Power driven vessels underway**
- **Rule 24 – Towing and pushing**
- **Rule 25 – Sailing vessels underway and vessels under oars**
- **Rule 26 – Fishing vessels**
 - A vessel engaged in fishing, whether underway or at anchor, shall exhibit only the lights and shapes prescribed in this rule.
 - A vessel when engaged in trawling by which is meant the dragging through the water of a dredge net or other apparatus used as a fishing appliance, shall exhibit.
- i. Two all – round lights in a vertical line the upper being green and the lower white or a shape consisting of two cones with their apexes together in a vertical line one above the other.

- a masthead light abaft of and higher than the all-round green light, a vessel of less than 50 mts in length shall not be obliged to exhibit such a light but may do so.
- lli. When making way through the water in addition to the lights prescribed in this paragraph sidelights and a stern light.

A vessel engaged in fishing, other than trawling shall exhibit.

- i. two all round lights in a vertical line, the upper light being red and lower white, or a shape consisting of two cones with apexes together in a vertical line one above the other.
- ii. when there is outlying gear extending more than 150mts horizontally from the vessel, an all round white light or a cone apex upwards in the direction of the gear.
- iii. when making way through the water, in addition to the lights prescribed in this paragraph side lights and a stern light.

Additional signals

i. Signals for trawlers

a. vessels of 20mts or more in length when engaged in trawling whether using demersal or pelagic gear shall exhibit.

i. **When shooting their nets** – two white lights in a vertical line

ii. **When hauling their nets** – one white light over one red light in a vertical line.

b. each vessel of 20mts or more in length engaged in pair trawling shall exhibit

(i) by night, a searchlight directed forward and in the direction of the other vessel of the pair;

(ii) when shooting or hauling their nets or when their nets have come fast upon an obstruction, the lights prescribed in Rule 26(a) above.

- **c- Signals for purse seiners** – may exhibit two yellow lights in a vertical line. These lights shall flash alternately every second and with equal light and occultation duration. These lights may be exhibited only when the vessel is hampered by its fishing gear.
- **Rule 27 – Vessels not under command or restricted in their ability to manoeuvre.**
- **Rule 28 – Vessels constrained by their draught**
- **Rule 29 - Pilot vessels**
- **Rule 30 – Anchored vessels and vessels aground**
- **Rule 31 – Seaplanes**
- **Part D – Sound and light signals**

- **Rule 32 – Definitions**
- The word “**whistle**” means any sound signalling appliance capable of producing the prescribed blasts and which complies with the specification – frequency lic within the range of 70-700 Hz.
- **Short blast** – means a blast of about one second’s duration
- **Prolonged blast** – blast of from four to six seconds duration
- **Rule 33 – Equipments for sound signals**
- **Rule 34 – Manoeuvring and warning signals**
- **Rule 35 – Sound signals in restricted visibility**
- **Rule 36 – Signals to attract attention**
- **Rule 37 – Distress signals**

Signals

- Signals are means of communication of a piece of information by an action, gesture, or sign.
- Signals are used to convey or transmit a message to others.

International Code of Signals (ICS)

- First international code was introduced in 1855 by a committee set up by the British Board of Trade.
- It contained 70,000 signals. These code of signals were revised during 1887 and 1927 for two times.
- In January 1959, the first assembly of International Maritime Organization (IMO) decided that the organization should assume all the functions being performed by the standing committee of International Code of Signals.
- The code was adopted by the 4th Assembly of IMO in 1965.

Purpose of ICS

- -To provide ways and measures of communication in situations related essentially to safety of navigation and persons especially when language difficulties arise.
- In the case of radio telephony and radio telegraphy, which provide simple and effective means of communication in plain language, where there is no language difficulties.

- Single-letter signals allocated to significations which are very urgent, important, or of very common use.
- Two-letter signals for the General Section.
- Three-letter signals beginning with “M” for the Medical Section to exchange message between ships carrying a doctor and one not carrying on the treatment, condition, diagnosis of a sick or injured person.

Methods of signalling

- Flag signalling
- Flashing light signals using the Morse symbols
- Sound signalling using Morse symbols
- Voice over a loud hailer
- Radio telegraphy
- Radio telephony
- Morse signalling by hand – flags or arms

Flag signaling

- A set of signal flags consists of twenty six alphabetical flags, ten numerical pennants, three substitutes and an answering pennant. There is also a signaling system called **Semaphore** which uses the position of the flags relative to a person to denote the letter.
- One hoist should be shown at a time.
- Each hoist or group of hoists should be kept flying until it has been answered by the receiving station.

- **How to call**
- **How to answer signals**
- **How to complete a signal**
- **How to act when signals are not understood**
- **The use of substitutes**

- *Example:*
- The signal “**NN**” would be made as follows:
- **N**
- **first substitute**
- The number “**3300**” would be made by numeral pennants as follows:
- **3**
- **first substitute**
- **0**
- **third substitute**
- **The use of substitutes**
- The use of substitutes is to enable the same signal flag – either alphabetical flag or numerical pennant to be repeated one or more times in the same group in case only one set of flags are carried on board.
- The first substitute always repeats the upper most signal flag of that class of flags which immediately precedes the substitute.
- The second substitute always repeats the second and the third substitute repeats the third signal flag, counting from the top of that class of flags which immediately precedes them.

Signalling by hand flags or arms (Semaphore)

- There is also a signaling system called **Semaphore** which uses the position of the flags relative to a person to denote the letter.
- 1. Raising both hand flags or arms – Dot
- 2. Spreading out both hand –flags or arms at shoulder level – Dash
- 3. Hand flags or arms brought before the chest – Separation of dot and/or dash
- 4. Hand flags or arms kept at 45° away from the body down wards – Separation of letters groups or word
- 5. Circular motion of hand – flags or arms over the head – Erase signals or request for repetition

Flash light signaling

- Flashing lights are used for the signals at sea.
- During night hours
- Flashing light is to be regarded as forty letters per minute
- Morse codes are used

Sound signaling

- Sound producing apparatus such as whistle, siren, fog horn are used for sound signalling at sea. Sound signalling is required at the time of restricted visibility.
- The signals should be made slowly and clearly.
- The Morse symbols representing letters, numerals, etc., are expressed by dots and dashes which are signalled either singly or in combination.

Radiotelephony

- Radiotelephone is used only when there are no language difficulties. When radiotelegraphy or radiotelephony is used for the transmission of signals, operators should comply with the Radio Regulations of the International Telecommunication Union .Plain language should be used for easy understanding. Letters and figures are to be spelt in accordance with spelling table.
- Eg:
- DE – Delta Echo
- AA - Alfa Alfa
- BN – Bravo November
- WB – Whiskey Bravo

- DISTRESS TRANSMITTING PROCEDURES
- We can send the distress message through radiotelephone when we are looking for
- immediate assistance. 2182 khz and 500 khz are the general calling and reply to call frequencies in the MF R/T marine band and MF telegraphy band respectively. Following is the standard format for sending distress message through radiotelephone

- Tune the radiotelephone to frequency 2182khz .
- 2. If possible, transmit the ALARM SIGNAL (i.e. two-tone signal) for 30 seconds to one minute, but do not delay the message if there is insufficient time in which to transmit the Alarm signal.
- 3. Send the following DISTRESS CALL.
- May day May day May day. This is(name or call sign of ship spoken three times).
- 4. Then send the DISTRESS MESSAGE composed of:
 - Mayday followed by the name or call sign of ship;
 - Position of ship;
 - Nature of distress;

- And, if necessary, transmit the nature of the aid required and any other information which will help the rescue.
- Wait for any reply message , if there is no reply repeat the procedure once again and till you get any response from port or any vessel.
- **USE PLAIN LANGUAGE WHENEVER POSSIBLE.**

Distress signals

- Extreme pain or great danger or difficulty, with a need for immediate assistance.
- A **distress signal** is an internationally recognized means for obtaining help .
- Distress signals take the form of or are commonly made by using radio signals, displaying a visually detected item or illumination, or making an audible sound, from a distance.
- A distress signal indicates that a person or group of people, ship , aircraft , or other vehicle is threatened by grave and imminent danger and requests immediate assistance.

- Following signals are to be used or displayed, either together or separately, by a vessel (or seaplane on the water) in distress requiring assistance from other vessels or from the shore.
- 1. A gun or other explosive signal fire at intervals of about a minute.
- 2. A continuous sounding with any fog-signaling apparatus.
- 3. Rockets or shells, throwing red stars fired one at a time at short intervals.
- 4. A signal made by radiotelegraphy or by any other signaling method consisting of the group
- ● ● ● — — — ● ● ●
- **SOS** in the Morse Code.

- A signal sent by radiotelephony consisting of the spoken word “**MAYDAY**”.
- 6. The International Code Signal of distress indicated by **NC(November Charle)**.
- 7. A signal consisting of a square flag having above or below it a ball or anything resembling a ball.
- 8. Flames on the vessel (as from a burning tar barrel, oil barrel, etc.).
- 9. A rocket parachute flare or a hand flares showing a red light.
- 10. A smoke signal giving off a volume of orange-colour smoke.

- Slowly and repeatedly raising and lowering arms outstretched to each side.
- 12. The radiotelegraph alarm signal.(A series of twelve four second dashes at intervals of one second.)
- 13. The radiotelephone alarm signal(Two audio tones transmitted alternately at frequency of 2200 Hz and 1300 Hz for a duration of 30 seconds to one minute).
- 14. Signals transmitted by emergency position-indicating beacons (Either the signal described in the above or a series of single tones at a frequency of 1300 Hz)
- *NOTES: (a)* Vessels in distress may use the radiotelegraph alarm signal

- Attention is drawn to the relevant sections of the Merchant Ship Search and Rescue Manual and the following signals:
- (i.) a piece of orange-colored canvas with either a black square and circle or other appropriate symbol (for identification from the air);
- (ii.) a dye marker.

- Any message which you hear prefixed by one of the following words concerns SAFETY
- MAYDAY Indicates that a ship, aircraft or other vehicle is threatened by grave and Imminent danger and requests immediate assistance
- (Distress)
- PAN PAN Indicates that the calling station has a very urgent message to transmit concerning the safety of a ship, aircraft or other vehicle, or the safety of a person
- (Urgency)
- SECURITE Indicates that the station is about to transmit a message concerning the safety of navigation or giving important meteorological warnings.
- (safety)
- If you hear any of these words, pay particular attention to the message and call the master of the officer on watch.