COLREG

International Regulations for Preventing Collisions at Sea

Rule 1 – Application

- All vessels
- High sea and all waters connected therewith navigable by seagoing vessels
- Unless any special rules issued by local governments apply (e.g. SeeSchStrO)

Rule 2 – Responsibility

- Master responsible for the consequences of any non-compliance with these rules, neglect of any precautions required by good seamanship or by the special circumstances of the situation
- Due regard to all dangers of navigation and collision, any special circumstances, incl. limitations of vessels involved. Departure from these rules may be necessary to avoid immediate danger in such cases.

Rule 2 – Responsibility

The OOW must be able to estimate how other vessels note and judge his behavior and needs to include this into his own conclusions how to avoid a collision.

He must be extremely alert and planning ahead any actions long time in advance, what may include deviating from the planned route and/or starting the main engine.

Rule 3 – General Definitions

- Vessel → water craft used as a means of transportation on water
- Power-driven vessel → propelled by machinery
- **Sailing vessel → propelled machinery is NOT being used**
- Vessel engaged in fishing → no sport angling boats
- Vessel not under command → exceptional circumstances
- Vessel restricted in her ability to manoeuvre → restricted by the nature of her work
- Vessel constrained by her draught → power-driven vessel which cannot deviate from her course due to water depth AND shows correct day/night signals
- Underway → not at anchor, moored or aground
- In sight of one another → OOWs on the vessels can visually see the other vessel
- Restricted visibility → fog, mist, snow fall, heavy rain storms, sandstorms, etc.

Rule 5 – Look-out

- All times
- By sight and hearing
- All available means to be used

STCW:

Look-out person to be stationed forward unless weather conditions make this impossible, so his attention will not be distracted by conversations and activities on the bridge.

Rule 5 – Look-out

- Visibility ahead severely fouled by parts of the rigging, sea boat, etc.
- Bridge / steering post aft and rather low above the sea surface

→ The Look-outs must be positioned in a way to assure that they can observe those sectors best which are obscured from the bridge.

Rule 6 – Safe Speed

- Able to take proper and effective action to avoid collision
- Can be stopped within a distance appropriate to the prevailing circumstances and conditions

Rule 6 – Safe Speed

- Able to take proper and effective action to avoid collision

→ Not possible if under sails in light winds. Therefore in areas with many fishing vessels (to whom we must give way) the engine is to be kept in stand-by or motor-sailing to be considered.

- Can be stopped within a distance appropriate to the prevailing circumstances and conditions

→ Running downwind or sailing on a broad reach can generate too much speed for safe manoeuvring even under minimum sails! Even under bare poles it might be impossible stop the vessel at all.

Rule 7 – Risk of Collision

- All available means must be used
- Radar equipment, if fitted and operational, must be used
- Standing compass bearing
- If in doubt such risk shall be deemed to exist

Rule 7 – Risk of Collision

Two tall ships approaching one another might cause problems, because:

- Both have a relatively low speed what makes it difficult for the human eye to detect any changes
- One or both may be hand-steering with low accuracy
- One or both are steering after the wind instead of compass courses
- Increase or decrease of wind force will lead to considerable speed changes of both vessels
- Wind shifts might lead to sudden course changes of one or both vessels

→ The safe passing distance between two tall ships (under sails) must be maintained considerably bigger than between two power-driven vessels of the same size.

Rule 8 – Action to Avoid Collision

- Positive, in ample time, with due regard to good seamanship
- Large enough to be easily detected optically or by radar
- Alterations of course most effective
- Must result in a safe passing distance
- Consider reducing speed or stopping altogether

Rule 8 – Action to Avoid Collision

- Positive

→ Increase CPA

- In ample time

→ Minimum 12 min before TCPA

- Due regard to good seamanship

→ Avoid crossing the bow of the other vessel

- Large enough to be detected optically or by radar

→ Minimum 20-30° course change or reduce speed several knots

- Safe passing distance

→ As per Master‘s Standing Orders – PELICAN: 1 nm

Rule 8 – Action to Avoid Collision

If under sails any course alteration also has influence on the speed of the ship:

- Bearing off the wind increases ship speed
- Luffing up reduces ship speed

Both can lead to the effect that the CPA will not change, only the TCPA does. In other words the collision will still happen, only later!

Rule 9 – Narrow Channels

- Proceed as close as practicable to the starboard side of the channel or fairway
- Vessel < 20 m or sailing vessel must not impede safe passage of any vessel which can safely navigate only within the channel
- Fishing vessel must not impede passage of any other vessel navigating within the channel
- Any vessel crossing the channel must not impede passage of any vessel which can safely navigate only within the channel
- Special signals to be used in overtaking situations
- Special alertness in bends or near obstructions
- Anchoring to be avoided

Rule 9 – Narrow Channels

In some places a tall ship can navigate safely only inside a narrow channel or fairway due to her size or draught. If the wind is favourable she may proceed under sails only. However, if doing so the OOW must remember that as a sailing vessel he must not impede the safe passage of any other ship which can safely navigate only within the channel.

If the tall ship herself can only safely navigate within the narrow channel her safe passage must also not be impeded.

Slow sailing in light winds might impede the safe passage of a following power-driven vessel which needs a minimum speed to maintain steerage.

Rule 10 – Traffic Separation Schemes

- Proceed in appropriate traffic lane in the general direction of this lane
- Keep clear of a traffic separation line / zone
- Join / leave at the ends of the traffic lane. When joining / leaving from either side do so in as small an angle as practicable.
- Crossing the traffic lanes with heading in right angle to general direction
- Inshore traffic zone may be used by vessels < 20 m, sailing vessels and any vessel en-route to / from a port withing the inshore traffic zone or to avoid immediate danger
- Seperation zone may be used by fishing vessels or to avoid immediate danger
- Anchoring in the TSS shall be avoided
- Sailing vessels and vessels < 20 m must not impede the safe passage of a power-driven vessel following a traffic lane
- Fishing vessels shall not impede the passage of any vessel following a traffic lane

Rule 10 – Traffic Separation Schemes

- Due to bad windward performance square rigged vessels are often not able to follow the general direction or to cross in a right angle
- Schooners risk an accidental jibe on downwind courses
- Sailing vessels often sail with a lot of leeway → COG against general direction even though heading complies with rules
- Tall ships > 20 m may use inshore traffic zone only if proceeding under sail without using the main engine. Entering the inshore traffic zone under engine with the intention to set sails there should be confirmed with the VTS (vessel traffic service).
- A tall ship must not impede the safe passage of a smaller and much easier manoeuverable power-driven vessel.

Rule 12 – Sailing Vessels

- Vessel with wind on port side keeps out of the way of vessel with wind from starboard side
- When both have the wind from the same side the windward vessel shall keep out of the way of the leeward vessel
- If vessel with wind from port side sees vessel to windward and cannot determine from which side the other has the wind, she shall keep out of the way of the other
- The windward side is the side opposite to which the main sail is set or in square riggers of the largest fore-and-aft sail set.

Rule 12 – Sailing Vessels

These rules derive from racing rules for small manoeuverable sloop rigged boats. They completely disregard the point of sail and the effort which has to be taken by the involved vessel to alter course.

They mean that a square rigger sailing close-hauled on port tack must give way to another sailing vessel sailing on starboard tack on a broad reach.

That means practically that the square rigger would have to tack with all hands to keep clear of another sailing vessel, which might only have to bear off a few degrees to avoid collision.

Rule 12 – Sailing Vessels

For collision avoidance between sailing vessels it is necessary to estimate which course through the water the other ship is steering and from which side she has the wind.

At night time and in restricted visibility this can only be estimated by comparing the sectors of the navigation lights of the other vessel with the values of wind and current measured on the own vessel.

Rule 12 – Sailing vessels

Lights of the other ship (standing bearing)	Probable point of sail of the other ship	Own action as per Rule 12
Situation 1: Own ship sailing close-hauled with wind from starboard		
Red and green dead ahead	Broad reach with wind from p/s	Keep course
Red ahead or s/s	Either broad reach with wind from s/s or if wind from p/s then on almost parallel course	Keep curse and observe further
Green ahead to 4 point p/s	Close-hauled with wind from p/s	Keep course
Green abeam from p/s	Close-hauled with wind from s/s	Give way
Situation 2: Own ship sailing close-hauled with wind from port side		
Red and green dead ahead	Broad reach with wind from s/s	Give way
Green ahead to 4 point p/s	Broad reach with wind from s/s	Give way
Green from p/s more than 4 points	Either wind from p/s or s/s possible, in any case broad reach or downwind	If in doubt, give way
Red ahead to 4 points s/s	Close-hauled with wind from s/s	Give way
Red abeam from s/s	Close-hauled with wind from p/s	Give way
Situation 3: Own ship sailing on beam reach with wind from starboard		
Red and green ahead or sharp on p/s	Beam reach with wind from p/s	Keep course
Red ahead to abeam on s/s	Braod reach with wind from p/s or s/s	Keep course
Green 1-3 points on p/s	Close-hauled with wind from p/s	Keep course
Green 4 points or more on p/s	Close-hauled or beam reach with wind from s/s	Give way
Situation 4: Own ship sailing on braod reach with wind from port side		
Green ahead to 6 points p/s	Close-hauled with wind from s/s	Give way
Green more than 6 points on p/s	Most probably broad reach with wind from s/s	Give way
Red ahead to s/s abeam	Close-hauled with wind from p/s	Give way

Rule 13 – Overtaking

- Any vessel overtaking shall keep out of the way of the vessel being overtaken
- This stays valid until she is finally past and clear
- A vessel is deemed to be overtaking when coming up from a direction of more than 22.5 degrees abaft her beam
- A OOW can regard himself as overtaking when he cannot see the red or green position light of the other vessel.
- This rule also applies for a sailing vessel which is overtaking a power-driven vessel!

Rule 13 – Overtaking

As a tall ship sailing close-hauled there might arise a problem from power-driven vessels overtaking on the leeward side. In case of a wind shift the tall ship might be forced to bear off what would lead her into the track of the overtaking vessel.

→ The OOW should always carefully observe vessels coming up on the leeward side. Contact via VHF to ask for a larger passing distance or overtaking on the windward side can be helpful!

Rule 14 – Head-on Situation

- When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses each shall alter her course to starboard so that they pass port side to port side.

Rule 15 – Crossing Situation

- When two power-driven vessels are crossing the vessel which has the other on her starboard side shall keep out of the way and shall avoid crossing ahead of the vessel.

Rule 16 – Action of Give-way Vessel

- Each vessel which is directed to keep out of the way of another vessel shall, so far as possible, take early and substantial action to keep well clear.

Rule 16 – Action of Give-way Vessel

Every manoeuvre on a square rigged ship which involves bracing or sail handing need to be started so early that the other ship might not even have seen the sailing vessel or has not regarded the situation as dangerous or risk of collision since the distance between the two ships is still very large and the time to moment of the closest appraoch (TCPA) is still very long.

Manoeuvering without bracing or handing sail is strongly limited and not always large enough to be detected optically or by radar.

Rule 17 – Action by Stand-on Vessel

- (a)(i) Where one of two vessels is to keep out of the way the other shall keep her course and speed (stand-on vessel).
- (a)(ii) The stand-on vessel may take action to avoid collision by her manoeuvre alone, if it becomes appearant that the other vessel is not taking action.
- (b) When the stand-on vessel is coming so close to the other vessel that collision cannot avoided by action of the give-way vessel alone she shall take such action as will best aid to avoid collision.
- (c) A power-driven vessel manoeuvring in accordance with (a)(ii) to avoid collision with another power-driven vessel shall not alter course to port for a vessel on her port side.
- (d) This rule does not relieve the give-way vessel of her obligation to keep out of the way.

Rule 17 (a) – Action by Stand-on Vessel

- It is often difficult to decide if a power-driven vessel or another sailing vessel will keep clear from a tall ship as per rules 12-16 and 18. Passenger ships sometimes come very close to a tall ship to give their passengers the opportunity to take photos.
- Due to the long time which it takes on tall ships that work with trainees until a manoeuvre is carried out a stand-by for manoeuvring (e.g. bracing stantions) should already be ordered when a risk of collision starts to develop – even if it not yet clear if the other vessel will give way or not.
- It should be considered to prepare the engine for starting if the situation develops further.
- In practice it has prooved best to call the other vessel via VHF to ask for her intentions.

Rule 17 (c) – Action by Stand-on Vessel

The rule not to alter to port side is only for power-driven vessels, not for sailing vessels. However, if a power-driven vessel fails to give way to a sailing vessel as per rule 18, one can assume that the OOW has not identified the sailing vessel as privileged vessel and is acting as if she were a power-driven vessel. An alteration to port should therefore be assessed carefully. Especially on a square rigged ship the following assessments should be made in accordance to the point of sail:

Rule 17 (c) – Action by Stand-on Vessel

Tall ship close-hauled with wind from port side, power-driven vessel from starboard side on standing bearing up to 4 points off the bow

The tallship can alter course to starboard easily by bearing away from the wind. How big the course change needs to be to pass astern of the other vessel is difficult to estimate. It might happen that she gains a lot of speed what could counteract the course change and lead to a „critical manoeuvre“. The alternative would be a crash stop by turning into the wind. Here it might happen that the tall ship ends up drifting towards the other ship with all sails aback and unable to manoeuvre quickly.

Tall ship close-hauled with wind from port side, power-driven vessel from starboard side on standing bearing bigger than 4 points off the bow

Altering to starboard must be avoided as it leads directly towards the other vessel.

Rule 17 (c) – Action by Stand-on Vessel

Tall ship close-hauled with wind from starboard, power-driven vessel from port side

Bearing away from the wind would lead to an alteration to port with increasing speed and towards the other vessel. A course change to starboard would lead to a crash stop. If there are enough hands available on deck the OOW can try to tack. To avoid getting caught in irons and drift towards the other ship the engine should be started.

Tall ship close-hauled with wind from starboard, power-driven vessel head-on

Bearing away should be avoided as this would mean to cross the bow of the other ship and might lead to disaster if the other ship suddenly reacts and alters to starboard. Altering to starboard means to stop in the way of the other ship possibly drifting towards her. A tack must be tried, if necessary with aid of the main engine.

Rule 17 (c) – Action by Stand-on Vessel

Suggestions

Standing bearing to power-driven ship	Wind from port side	Wind from starboard side
Ahead	Bear away	Tacking over stbd with engine assistance
Port side	Bear away until parallel course, possibly wearing ship over stbd	Crash stop over stbd, start engine
Starboard < 4 Points off the bow	Bear away with careful checking if critical manoeuvre	Wearing ship over port
Starboard > 4 points off the bow	Crash stop over port side, start engine	Bear away until parallel course, possibly wearing ship over port side

Rule 18 – Responsibilities between vessels

Except where rules 9, 10 and 13 require otherwise:

- A power-driven vessel underway shall keep out of the way of: a vessel not under command, a vessel restricted in her ability to manoeuvre, a vessel engaged in fishing, a sailing vessel
- A sailing vessel underway shall keep out of the way of: a vessel not under command, a vessel restricted in her ability to manoeuvre, a vessel engaged in fishing
- A vessel engaged in fishing underway shall, so far as possible, keep out of the way of: a vessel not under command, a vessel restricted in her ability to manoeuvre
- Any vessel other than a vessel not under command or a vessel restricted in their ability to manoeuvre shall avoid impeding the safe passage of a vessel restricted in her draught, exhibing the signals in rule 28
- A vessel constrained in her draught shall navigate with particular caution having full regard to her special condition

Rule 18 – Responsibilities between vessels

The privilege of a sailing vessel towards a power-driven vessel is only valid as long as the sailing vessel – as far as practicable – keeps course and speed.

If the sailing vessel commits a significant course change, e.g. by tacking or wearing ship, she did not keep course and speed in the means of rule 17 (a)(i). The OOW on the sailing vessel can now not expect the power-driven vessel to act as give-way vessel any more.

Therefore, before every sail manoeuvre the OOW needs to assess carefully if it would lead to conflicts with other vessels. It might be necessary to contact the other vessel via VHF or to delay the manoeuvre until the other vessel is past and clear.

In case of a wind shift a tall ship might have to follow the wind to avoid sails coming aback. This can mean a significant course change. Also here it is very possible that the OOW of the power-driven vessel who sits inside an enclosed bridge and does not even notice the wind shift, sees this as course change and does not see himself as burdened vessel any more. In such case the OOW should try to contact the other ship via VHF and ask for more sea room.

Rule 19 – Conduct of Vessels in Restricted Visibility

This rule applies for vessels not in sight of one another when navigating in or near an area of restricted visibility:

- Every vessel shall proceed at a safe speed adapted to the prevailing circumstances and conditions of restricted visibility.
- A power-driven vessel shall have her engines ready for immediate manoeuvre.
- A vessel which detects another vessel by radar alone shall determine if a close-quarters situation is developing and/or a risk of collision exists.
- If so she shall take avoiding action in ample time, avoiding an alteration to port for a vessel fwd of the beam other than a vessel being overtaken or an alteration of course towards a vessel abeam or abaft the beam.
- Except where it has been determined that a risk of collision does NOT exist, every vessel which hears fwd of her beam the fog signal of another vessel or which cannot avoid a close-quarters situation with another vessel fwd of her beam shall reduce her speed to the minimum at which she can keep her course.
- She shall if necessary take out all her way off and in any event navigate with extreme caution unti the danger of collision is over.

Rule 19 – Conduct of vessels in Restricted Visibility

Due to her slow speed a tall ship generates a lot of leeway, even if she proceeds under engine. If other ships plot the tall ship using radar only the course plotted is significantly different than the actual heading of the tall ship. In the moment when the ships get in sight of each other, rules 12-18 apply and the OOW who thought of himself as being the stand-on vessel is now suddenly a give-way vessel.

Rule 19 says that a power-driven vessel shall have her engines ready for immediate manoeuvring. On a tall ship which is fitted with propelled machinery this should be understood in the way that when she is proceeding under sails in fog she should her engines ready for starting if necessary. As a rule it is regarded as good seamanship to be motor-sailing or keep the engines on idle revolutions if navigating in restricted visibility.