

Camp Marine Module

13. Safe Pilotage and Collision Prevention

13. Safe Pilotage and Collision Prevention

Regulations for Prevention of Collisions at Sea Application and Content

- Rules to help vessels avoid collision
- Apply to all vessels operating on the high seas and connected waters
- Each country may modify rules
- Rules grouped as follows
 - A General(1-3)
 - B Steering and Sailing (4-19)
 - I Conduct of Vessels in Any Condition of Visibility
 - II Conduct of Vessels in Sight of One Another
 - III Conduct of Vessels in Restricted Visibility
 - C Lights and Shapes (20-31)
 - D Sound and light signals (32-37)
 - E Exemptions 38
 - F Canadian Modifications (39-46)
 - Annexes

13. Safe Pilotage and Collision Prevention

Some useful definitions

- “**vessel**” includes every description of watercraft, including seaplanes, capable of being used as a means of transportation on water.
- “**power-driven vessel**” means any vessel propelled by machinery. For practical purposes this includes “**seaplanes**”
- “**sailing vessel**” means any vessel under sail provided that propelling machinery is not being used.
- “**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 do not restrict maneuverability.
- “**vessel not under command**” means a vessel which through some exceptional circumstance is unable to maneuver as required by these Rules and is therefore unable to keep out of the way of another vessel.

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Some useful definitions

- “**vessel restricted in her ability to maneuver**” means a vessel which from the nature of her work is restricted in her ability to maneuver as required by these Rules and is therefore unable to keep out of the way of another vessel.
(e.g. dredging, surveying, pipe or cable laying, towing, etc.)
- “**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.
- “**underway**” means that a vessel is not at anchor, or made fast to the shore, or aground.
- “**making way**” means that a vessel that is moving through the water as a result of mechanical propulsion, propulsion by sail or human power
- “**restricted visibility**” means any condition, in which visibility is restricted by fog, mist, falling snow, heavy rainstorms, sandstorms or any other similar causes.

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Some common terms explained

- **“Head on”** : reciprocal or nearly reciprocal, able to see both sidelights, +/- 5 degrees
- **“Sailing Vessel Tack”** : side opposite that on which the mainsail is set
- **“Overtaking”** : coming up on a vessel in the arc of the stern light, in an arc around stern 22 ½° abaft of the beam
- **“Vessel Lights”** : colour, arc, relative locations are defined by the collision regulations
- **“Day Shape”** : object of specific shape shown by a vessel during the day
- **“Stand-on vessel”** : when two vessels are approaching one another, this vessel is expected to hold its course and speed
- **“Give way vessel”** : when two vessels are approaching one another, this vessel is expected to change its course or speed to avoid the other vessel

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Rules and Common Sense

- Country specific amendments to the regulations may impact your vessel. Learn about specific requirements that may effect you.
- Keep to the right side of a channel
- Keep out of the way of larger vessels
 - They can't see you
 - They can't change course
- The rules apply to everyone on the water, however not everyone else knows or follows the rules
- When in doubt about the other vessel actions slow down so that things happen more slowly
- When you can't see (at night, reduced visibility) slow down

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Lookout and Safe Speed

Lookout requirements

- At all times by sight, hearing and all available means appropriate in the prevailing circumstances (includes AIS, Radar if available)
- Able to make full appraisal of the situation and of the risk of collision

Safe Speed is determined by

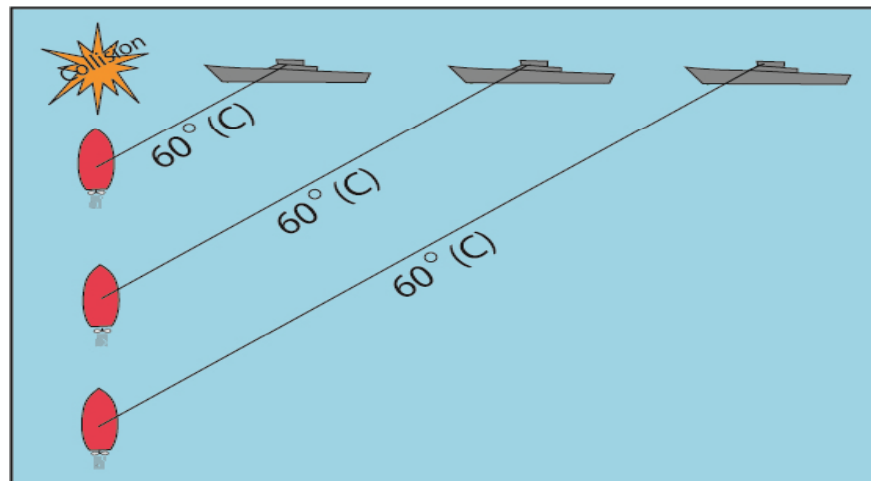
- i. the state of **visibility**,
- ii. the **traffic density** including concentrations of vessels,
- iii. the **manoeuvrability** of the vessel
 - especially stopping distance and turning ability in the prevailing conditions,
- iv. the **state of wind, sea and current**, and the **proximity of navigational hazards**
- v. the **draught in relation to** the available **depth** of water.
- vi. at night the presence of **background light**
 - such as from shore lights or from back scatter of her own lights

Speed limits may also be imposed by the Vessel Operation Restriction Regulations or by harbour commissions

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Risk Of Collision - Determination of Risk

- The compass bearing of an approaching vessel does not appreciably change,



- Appreciable bearing change may be evident
 - when approaching a very large vessel or a tow
 - when approaching a vessel at close range

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Avoiding Collision - Determination of Action

Action to Take

- Determine if you are **Stand-On** or **Give Way** vessel
- **If Give Way**, take early and obvious action. Course and speed changes must be large enough to be easily observed by the other vessel.
- **If Stand-On**, hold course and speed until must take action to avoid other vessel
- Both vessels responsible for collision avoidance
- **Stand-On** or **Give Way** responsibility determined by vessel type
 - If same type, use power or sail rules
 - If differing types, apply hierarchy rule

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Avoiding Collision Narrow Channels

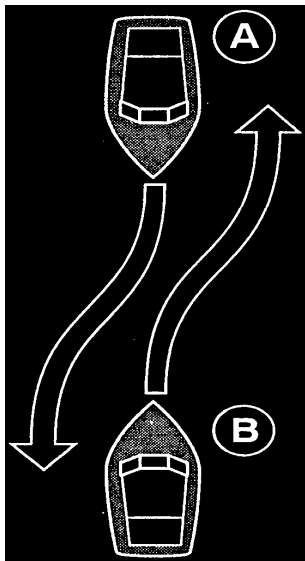
- Keep to the right hand side
- Do not impede large vessels that must remain in the channel centre
- Don't cross ahead of another vessel in a narrow channel
- When passing another vessel you may need to agree on the appropriate side to pass – use signals or radio
- Do not anchor in narrow channels
- When there is a current in a channel, the vessel proceeding with the current is stand-on and may choose the side to pass an oncoming vessel - use signals or radio



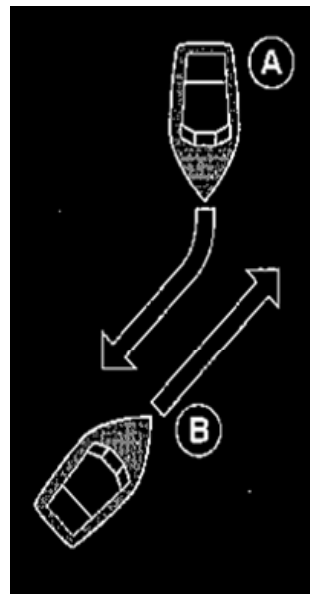
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Avoiding Collision – Rules for Power Vessels

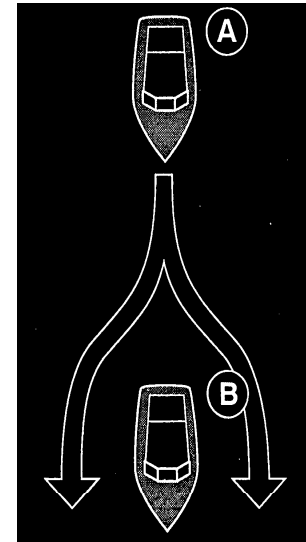
Head on approach



Crossing



Overtaking



Crossing memory aid:

If you see red, stop (give way)

If you see green, go (stand on)

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Avoiding Collision - Vessel Hierarchy

Vessel Hierarchy : Stand On / Give Way

HIGHER PRIORITY (STAND ON)

Being overtaken

Not Under Command (mechanical failure prevents compliance with rules)

Restricted in their ability to maneuver (length relative to channel, tug with tow)

Constrained by draft (draft versus depth in the area)

Fishing (with nets or trawls deployed that restrict maneuverability)

Sailing (when powered only by sails)

Power (including float planes on the water)

Wing in Ground (uses aerodynamics between wings and water for lift)

Overtaking (approaching another vessel in the arc of the stern light)

LOWER PRIORITY (GIVE WAY)



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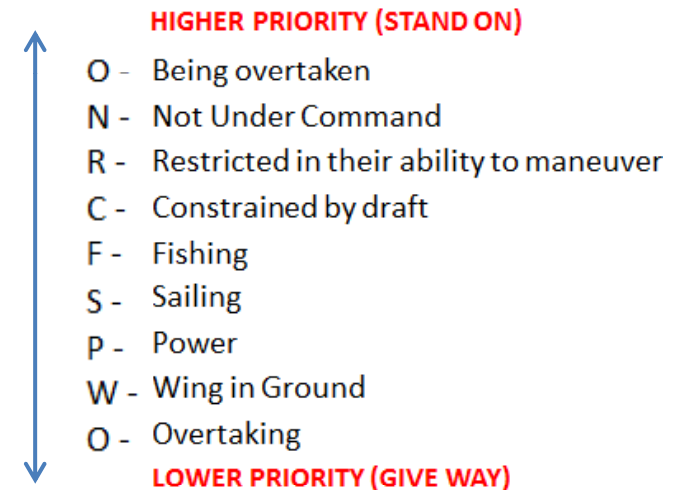
Avoiding Collision - Vessel Hierarchy

Hierarchy explained

- When differing types of vessels in the hierarchy meet the higher in the list is stand on
- When similar types of vessels in the hierarchy meet then the rules for power or sail apply as appropriate

Memory Aid

Only New Racers Can Fear Spinnaker Poles When Overtaking



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Conduct in Restricted Visibility

- Reduce speed to a safe minimum adapted for the conditions
 - Slow enough to see and react to approaching vessels
 - Possibly to speed just maintaining steerage
- Make yourself visible
 - Sound signals, Vessel Lights
- Post additional lookout (sight and hearing)
- Use Radar, AIS if available, use Radar Reflector
- Avoid shipping lanes and high traffic areas
- Fix position, Navigate with extra caution and be prepared to stop
- Listen for other vessels
- If you hear a vessel astern do not turn towards it

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Conduct in Restricted Visibility

Reduce speed to a safe minimum

- Slow enough to see and react to approaching vessels
- Possibly to speed just maintaining steerage

Make yourself visible

- Sound signals
- Vessel Lights

Post additional lookout (sight and hearing)

Use Radar, AIS if available

Avoid shipping lanes and high traffic areas

Fix position, Navigate with extra caution



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Avoiding Collision – Determining Vessel Type

Collision Regulations define:

- Types of lights

 - (Colour, Arc of Visibility, Placement)

- Visibility ranges for various size vessels

- When to show lights and shapes

Dayshapes or Light combinations and light positions indicate:

- Vessel Size

- Vessel Direction of Motion

- Vessel Propulsion

- Vessel Type and characteristics

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Lights used in identifying vessel types

- Sidelights
 - Red to port, green to starboard
 - Each light covers arc of $112\frac{1}{2}^{\circ}$ from dead ahead to $22\frac{1}{2}^{\circ}$ abaft of beam
- Masthead light
 - White light covering arc of 225° , same arc as combined sidelights
- Stern light
 - White light covering arc of 135° around stern of vessel, arc not covered by masthead/sidelights
- Towing light
 - Yellow light, same arc / area of coverage as stern light
- All Round light, may be Flashing
 - Red, Green, White, Yellow, Blue

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Lights used in identifying vessel types

For vessels of less than 12 metres in length:

- a masthead light, 2 miles
- a sidelight, 1 mile
- a sternlight, 2 miles
- a towing light, 2 miles
- a white, red, green or yellow all-round light, 2 miles

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Identifying Vessels by Lights, Sail

Sail, Any Length

- Sidelights and stern light
- Maybe combined with all round red over all round green at vessel masthead



Sidelights and stern light of vessel underway

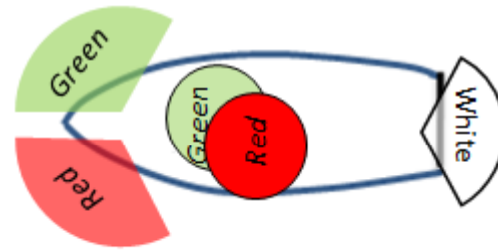


13. Safe Pilotage and Collision Prevention

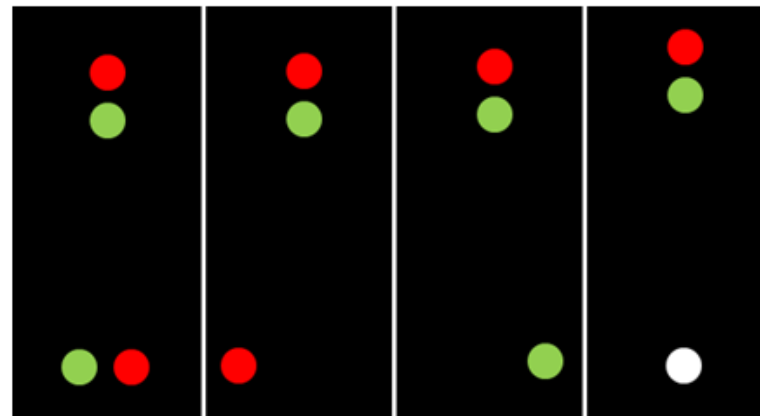
Identifying Vessels by Lights, Sail

Sail, any length

- Sidelights, stern light, all round red over all round green in a vertical line at vessel masthead



Sidelights, stern light and red over green all round lights of vessel underway



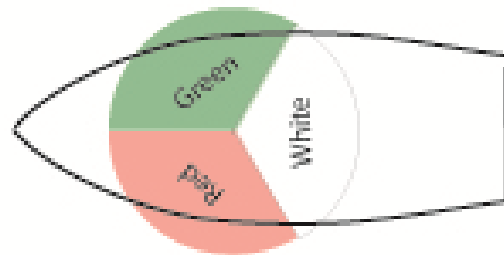
Seen From: Ahead Port Starboard Astern

13. Safe Pilotage and Collision Prevention

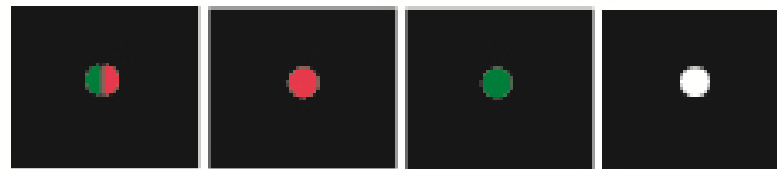
Identifying Vessels by Lights, Sail

Sail, less than 20 metres

- Sidelights and stern light combined in tricolour, shown at top of mast
- Maybe NOT combined with all round red over all round



Sailing vessels less than 20 meters may use a combined side and stern light



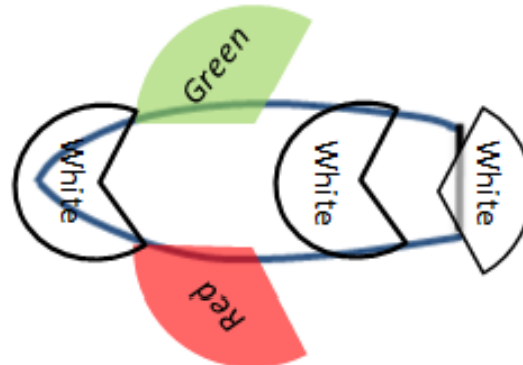
Seen From: Ahead Port Starboard Astern

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Identifying Vessels by Lights, Power

Power, Any length

- Sidelights and stern light
- 2 white masthead lights, aft masthead light higher than the forward masthead



*Power driven vessel underway,
Any length, typically 50 metres or more length*

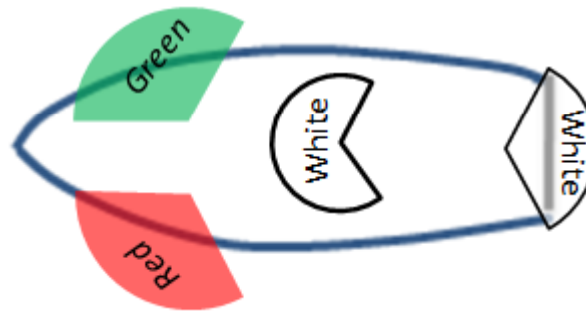


13. Safe Pilotage and Collision Prevention

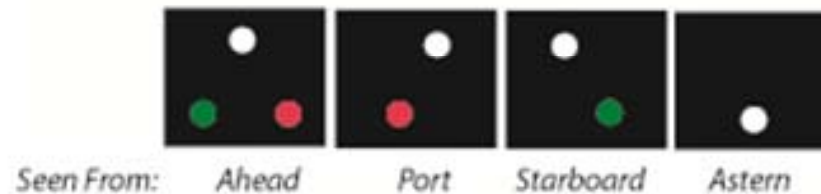
Identifying Vessels by Lights, Power

Power, less than 50 metres

- Sidelights and stern light, one masthead light (may show 2 masthead lights)



Power driven vessel underway, less than 50 meters in length



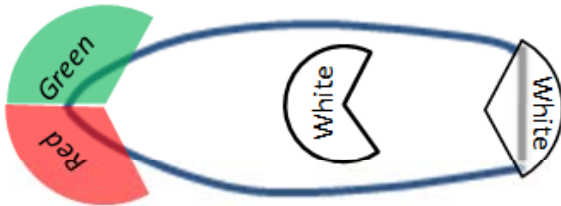
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Identifying Vessels by Lights, Power

Options:

Power, less than 50 metres

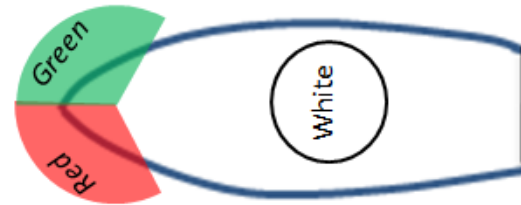
- Sidelights and stern light, one masthead light (may show 2 masthead lights)



Power driven vessel underway, less than 50 metres in length

Power less than 12 metres

Sidelights and all-round white



Power driven vessel underway, less than 12 metres in length

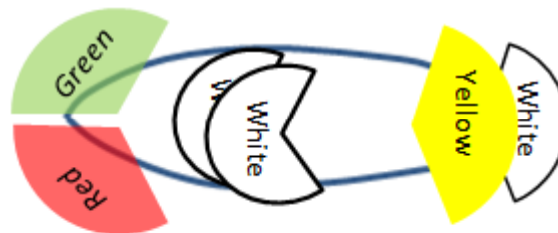


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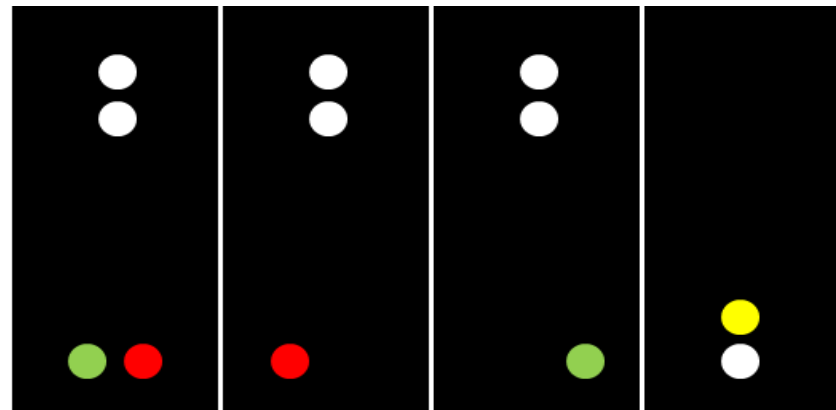
Identifying Vessels by Lights, Towing

Towing vessel, tow less than 200 metres

- Sidelights, stern light, towing light, two masthead lights in a vertical line
- Additional masthead light required if vessel is 50 metres or more



- *Sidelights, stern light, towing light and two masthead lights of towing vessel underway*



Seen From: *Ahead*

Port

Starboard

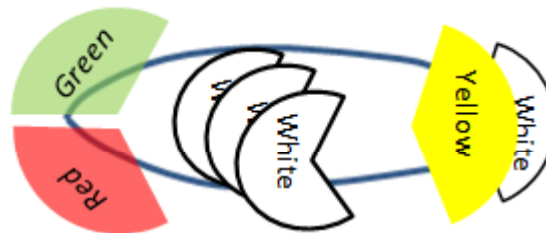
Astern

13. Safe Pilotage and Collision Prevention

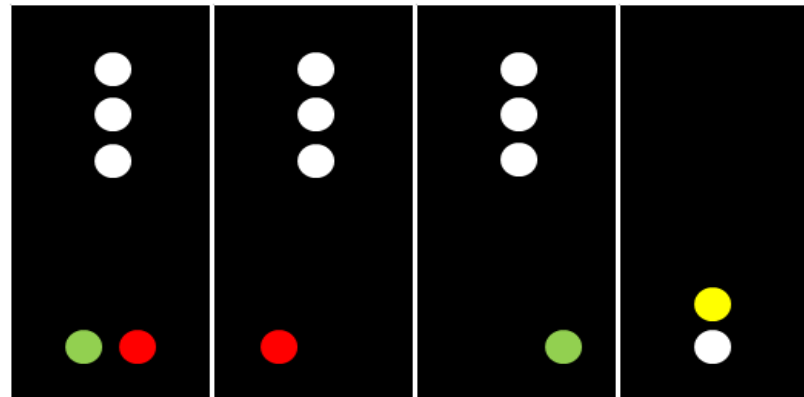
Identifying Vessels by Lights, Towing

Towing vessel, long tow, tow 200 metres or more

- Sidelights, stern light, towing light, three masthead lights in a vertical line
- Additional masthead light required if vessel is more than 50 metres



- *Sidelights, stern light, towing light and three masthead lights of towing vessel underway*



Seen From: *Ahead*

Port

Starboard

Astern

13. Safe Pilotage and Collision Prevention

Identifying Vessels by Lights, Towing

Towed vessel, towed astern or alongside

if alongside multiple vessels are light as one

- Towed astern or alongside show sidelights and stern light.
- If pushed ahead, only sidelights



- *Vessel being towed astern or alongside showing sidelights, stern light,*

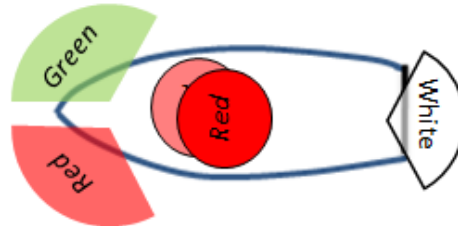


13. Safe Pilotage and Collision Prevention

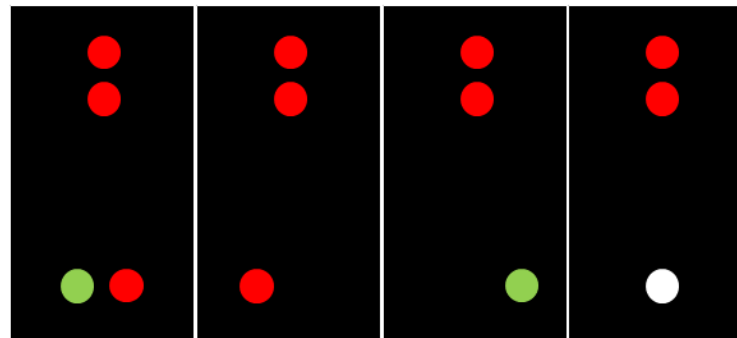
Identifying Vessels by Lights, Not Under Command

Vessel not under command

- When underway, vessel shows two all round red lights in a vertical line
- When underway and making way, sidelights, sternlight and two all round red lights in a vertical line



Sidelights, stern light, 2 all round red lights in a vertical line



Seen from Ahead Port Starboard Astern

13. Safe Pilotage and Collision

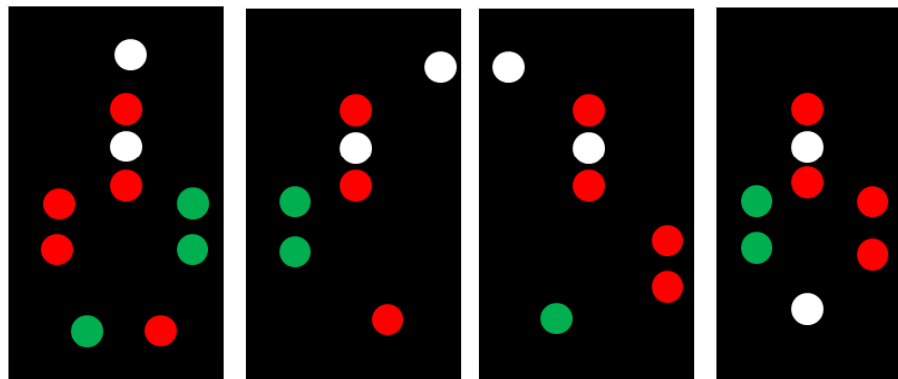
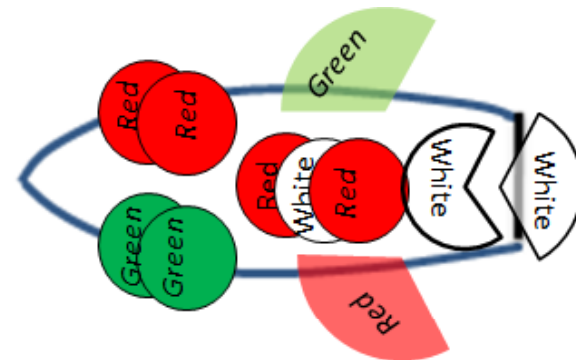
Prevention

Identifying Vessels by Lights, Restricted Ability to Manoeuvre

Vessel Restricted in ability to manoeuvre

- Vessel underway shows three all round lights (red/white/red) in a vertical line in addition to sidelights, sternlight and masthead light(s). Two all round green lights in vertical line mark safe side to pass, two all round red lights in vertical line mark foul side.

Restricted Ability to Manoeuvre < 50 meters, underway making way showing sidelights, stern light, masthead light, All round red/white/red, all round greens mark safe passage to starboard. All round reds indicate foul waters to port.



Seen from Ahead

Port

Starboard

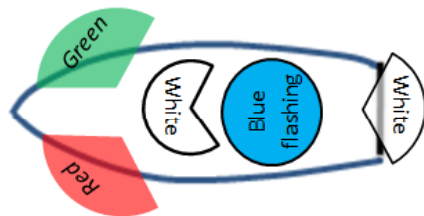
Astern

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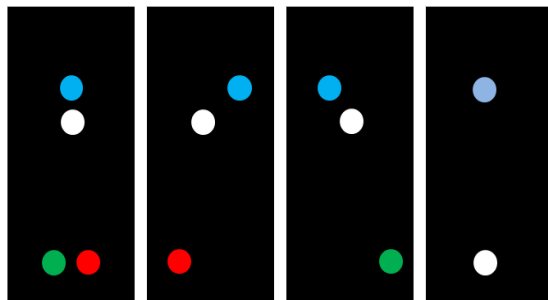
Identifying Vessels by Lights, Flashing Lights

Government Business, Hovercraft, WIG

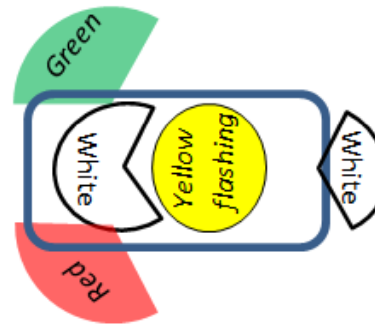
- Sidelights, Sternlight, Blue flashing light – vessel on official government business
- Sidelights, Sternlight, Yellow flashing light – hovercraft in non-displacement mode
- Sidelights, Sternlight, Red flashing light – WIG in flight mode (not shown)



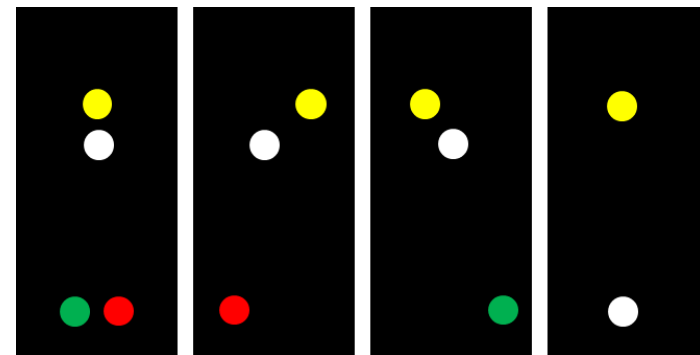
Official business underway making way, less than 50 meters, showing masthead, sidelights, stern light, blue flashing



Seen from Ahead Port Starboard Astern



Hovercraft underway making way, less than 50 meters, showing masthead, sidelights, stern light, yellow flashing



Seen from Ahead Port Starboard Astern

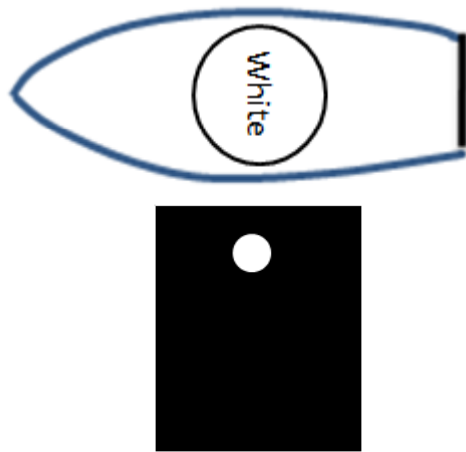
13. Safe Pilotage and Collision Prevention

Identifying Vessels by Lights, At Anchor

Vessels at anchor, any length

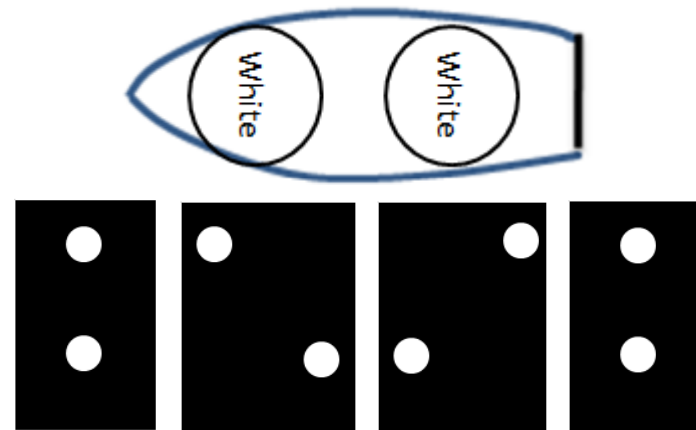
- Vessels less than 50 metres show one white allround light.
- Vessels less than 100 metres show 2 white allround lights, aft light lower.
- Vessels larger than 100 metres show two allround white lights, aft lower and illuminate their decks.

Vessel at anchor less than 50 metres



Seen from all aspects

Vessel at anchor length from 50 to less than 100 metres



Seen from Ahead Port Starboard Astern

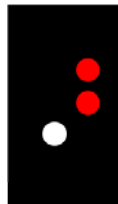
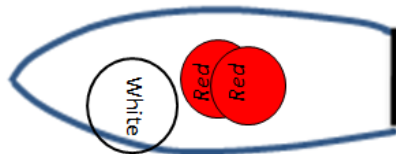
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Identifying Vessels by Lights, Aground

Vessels aground, All Lengths

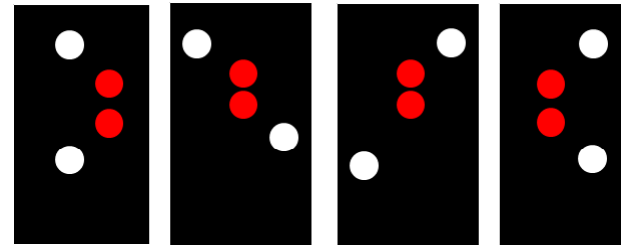
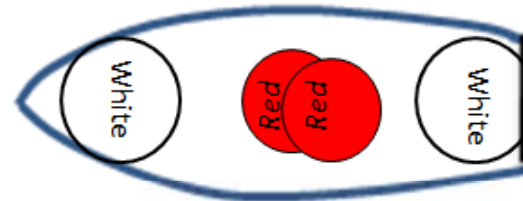
- Vessels show lights for vessels at anchor plus two all round reds lights in vertical line

Vessel aground length less than 50 metres showing anchor light plus two all round red lights



Seen from any aspect

Vessel aground length from 50 to less than 100 metres showing anchor light plus two all round red lights



Seen from Ahead Port Starboard Astern

13. Safe Pilotage and Collision Prevention

Identifying vessels – Communication by Sound Signal

Sound Signals and equipment

Long is 4-6 seconds,

Short is about 1 second

Vessels < 12 metres need to carry some way of making a signal

Vessels > 12 metres carry a whistle

Vessels > 20 metres add a bell

13. Safe Pilotage and Collision Prevention

Identifying vessels – Communication by Sound Signal

Sound Signals in Restricted Visibility

Signals repeated at intervals of not more than 2 minutes

Power – making way



Power – not making way



Not Under Command, Sail, Restricted in ability to maneuver, constrained by draft, fishing, towing or pushing



Signals repeated at intervals of not more than 1 minutes

At Anchor < 100 metres










ring bell 5 seconds

Aground < 100 metres

3 strokes, ring bell 5 seconds, 3 strokes

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Manoeuvring – Communication by Sound or Light Signal

Approaching bend in channel	
Reply from vessel - other side of bend	
I am altering course to starboard	
I am altering course to port	
I am operating astern propulsion	
I do not understand your intentions , or, I doubt you are taking sufficient or appropriate action to avoid collision	
I intend to overtake on your starboard	
I intend to overtake on your port	
I agree with your passing proposal	

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Manoeuvring – Interacting with Traffic

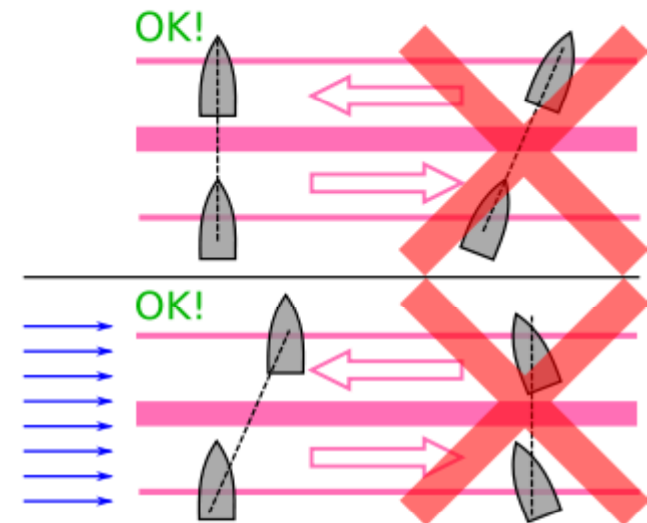
Operation in Narrow Channels, and Traffic Separation Schemes

Narrow Channels

- Keep to starboard side of channel
- Use manoeuvring signals
- Do not impede large vessels operating in the channel that are limited by draft or ability to manoeuvre

Traffic Separation Schemes

- Travel with traffic, avoid edges
- Enter and leave at lane termination or at shallow angle
- Cross at right angles (vessel heading)
- Do not anchor



13. Safe Pilotage and Collision Prevention

Required Safety Equipment

Radar reflector

- Required if vessel < 20 metres and made of non-metallic materials
- Not required if vessel is operated away from radar or in low traffic conditions



14. Emergency Situations

Equipment and Actions to deal with emergencies



14. Emergency Situations

Required Safety Equipment

Rocket Parachute Flare (Type A)

- Parachute flare is single red star
- Flare reaches height of 300 M and burns at least 40 seconds



14. Emergency Situations

Required Safety Equipment

Multi-star Flares (Type B)

- Reaches height of 100 M and burns for 4 – 5 seconds
- *If single star cartridge must fire second single star within 15 seconds. Means you need double the number of cartridges to meet the requirements*



14. Emergency Situations

Required Safety Equipment

Hand Held Flares (Type C)

- Red flame
- Provides limited visibility from the ground
- Best used to help air searchers locate you
- Burns at least 1 minute
- When using take care not to drop hot residue on your boat



14. Emergency Situations

Required Safety Equipment

Smoke Flares (type D)

- Creates dense orange smoke
- Buoyant or hand held
- Buoyant lasts at least 3 minutes, hand held about 50 seconds
- Only effective in daylight



14. Emergency Situations

Safety Equipment for Communications

VHF Radio

- Use radio to communicate with other vessels and shore stations
- Uses include weather and coastguard information as well as routine ship to ship traffic and can be used to transmit “Mayday”, “Pan Pan” and “Securite” information.
- Should know :
 - protocol for issuing mayday
 - action to take if you hear mayday call
 - Operation of DSC radio
- Should have ROCM operator certificate
- VHF channel 16 is for calling and distress/emergency communications



14. Emergency Situations

VHF Radio - Distress

The spoken distress call should comprise the following:

- The distress signal MAYDAY spoken three times.
- The words THIS IS.
- The name of the vessel in distress spoken three times.
- Particulars of vessel's position; (Position: Latitude 49 52 North, Longitude 064 35 West- or a description such as "two miles west of Snug Island")
- Nature of distress and kind of assistance required (that is, what has happened).
- The number of persons on board and injuries (if applicable).
- Any other information that might facilitate rescue.
- The word OVER

DSC (Digital Selective Calling) Issues a Mayday Call at a button press

Cellphone - *16 will connect you to the nearest Marine Emergency Centre

14. Emergency Situations

Required Safety Equipment

Types of Fires



A Solids – Paper, wood, Cloth, Rubber, Some Plastics

- Extinguish with Water or Dry Chemical



B Flammable liquids or gasses – Gas, Paint Thinner, Propane, Grease

- Extinguish with CO₂ or Dry Chemical
- Water usually not effective



C Energized electrical equipment or wiring – Wiring, Motors

- Extinguish with CO₂ or Dry Chemical
- Never water or foam



D Exotic Metals – Magnesium, sodium, titanium

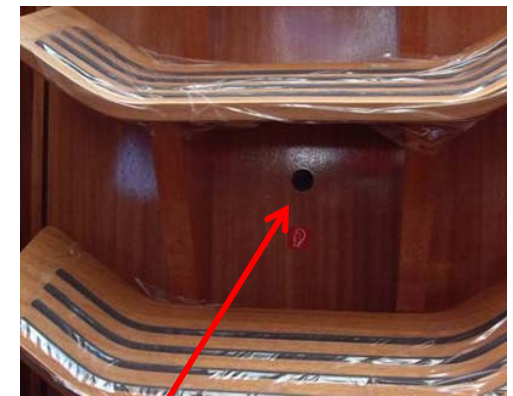
- Smother with Dry Chemical

14. Emergency Situations

Required Safety Equipment

Dealing With Fire

- Check your fire extinguishers often for correct operating pressure and make sure you know how to use them
- About once a month take dry chemical devices out of their bracket and give them a few hard shakes in an upside down position to keep the contents loose.
- Fire extinguishers must be kept in convenient and accessible locations
- Engine fires may be extinguished by automated systems or through fire access ports. Use a CO₂ extinguisher for this purpose



Fire Port

	Paper, Ordinary Combustibles	Flammable Gases and Liquids	Electrical
Water	✓	✗	✗
Foam	✓	✓	✗
Dry Chemical (ABC)	✓	✓	✓
CO ₂	✗	✓	✓

14. Emergency Situations

Required Safety Equipment

Dealing With Fire

Fire Triangle

Fire requires heat, oxygen and fuel

Extinguish fires by limiting access to one or more of these



Action

1. Raise Alarm
2. Attempt to extinguish
 1. Do not pass fire to get to extinguisher
 2. If electrical fire, turn off power
 3. Aim low at the base of the flame
 4. Keep low
 5. Keep watch on fire site after extinguishing



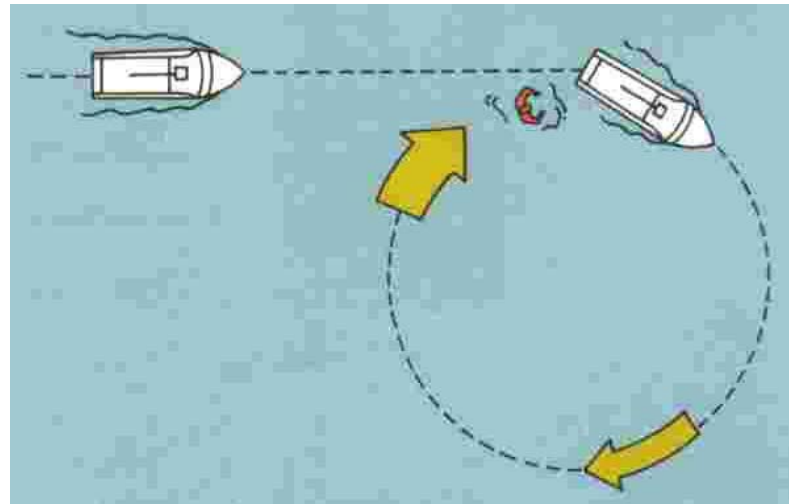
Note that fiberglass is flammable and the fumes are toxic

14. Emergency Situations

Dealing with Emergencies – Person Overboard

Crew Overboard - Return under Power

- Anyone can shout “MAN OVERBOARD Port Side” or “MAN OVERBOARD Starboard Side”
- The operator should immediately reduce speed, and put the rudder over to turn the boat toward the side where the person fell overboard.
- Throw the person a life ring if you have one, or a fender or other buoyant object, or lifejacket if they are not wearing one.
- Have another crewmember, or passenger if you are the only crewmember, point and keep pointing to the person in the water as you turn the vessel.



14. Emergency Situations

Dealing with Emergencies – Person Overboard

Position for Recovery

- The Operator will approach the person from downwind or into the waves, to keep the boat from drifting over the person when stopped.
- When alongside, the Operator will stop the engine and other crewmembers or passengers can assist the person aboard.
- To retrieve a crewmember from the water use buoyant heaving lines, life buoys and a re-boarding device- an example is shown to the right.



14. Emergency Situations

Some Common Emergencies

Discuss and present solutions

Collision

- Check that crew and vessel OK
- Address health and safety issues
- Provide aid to other vessel if it is in peril
- Write a record of events

Respond to hull leaks or flooding

Capsizing a small vessel

Swamping, sinking and grounding

Pollution

Towing

15. Survival and Rescue

Distress Signalling (to call for help)

You are required to provide assistance (respond to a distress signal) so long as you do not endanger your vessel

MARINE RADIO

DISTRESS CALL
 Use: 2182 kHz (MF) or channel 16, 156.8 MHz (VHF)
 DSC alert, channel 70 (only for DSC type radios and where the service is offered)



CALLING PROCEDURES

Mayday	Immediate danger for persons or ship
Mayday	
Mayday	
Pan Pan	Urgent message about the safety of a person or ship
Pan Pan	
Pan Pan	

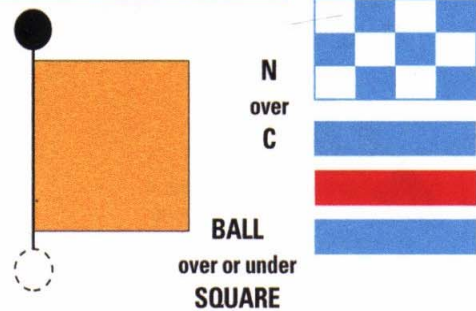
- Give vessel name and call sign
- State position of vessel
- Describe the emergency

EMERGENCY POSITION INDICATING RADIOBEACONS (EPIRBs)

Use alarm signal



CODE FLAGS



DISTRESS CLOTH

To attract attention: spread on cabin or deck top, or fly from mast.



ARM SIGNAL

Keep raising and lowering outstretched arms.



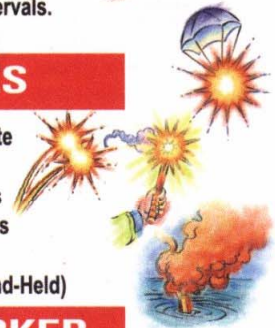
SOUND SIGNALS

Make continuous sound with any fog-signalling apparatus. Fire a signal gun or other explosive signal at one-minute intervals.



FLARES

- Type A: Rocket Parachute Flares
- Type B: Multi-Star Flares
- Type C: Hand-Held Flares
- Type D: Smoke Signals (Buoyant or Hand-Held)



DYE MARKER



FLASHLIGHT

Or other light source

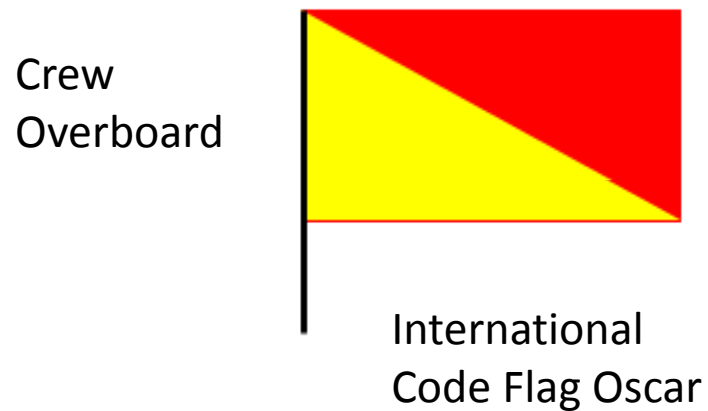


15. Survival and Rescue

Distress Signalling – Person Overboard

Signal Flags

This flag is shown when there is a crew overboard situation



15. Survival and Rescue

Safety Equipment for Communications

VHF Radio

- Use radio to communicate with other vessels and shore stations
- Uses include weather and coastguard information as well as routine ship to ship traffic and can be used to transmit “Mayday”, “Pan Pan” and “Securite” information.
- Should know :
 - protocol for issuing mayday
 - action to take if you hear mayday call
 - Operation of DSC radio
- Should have ROCM operator certificate
- VHF channel 16 is for calling and distress/emergency communications



14. Emergency Situations

VHF Radio – Distress Message

The spoken distress call should comprise the following:

- The distress signal MAYDAY spoken three times.
- The words THIS IS.
- The name of the vessel in distress spoken three times.
- Particulars of vessel's position; (Position: Latitude 49 52 North, Longitude 064 35 West- or a description such as "two miles west of Snug Island")
- Nature of distress and kind of assistance required (that is, what has happened).
- The number of persons on board and injuries (if applicable).
- Any other information that might facilitate rescue.
- The word OVER

DSC (Digital Selective Calling) Issues a Mayday Call at a button press

Cellphone - *16 will connect you to the nearest Marine Emergency Centre

15. Survival and Rescue

Dealing with emergencies – When in the water

Four critical periods:

1. Cold shock (kills within 3-5 minutes after immersion).
2. Swimming failure (kills within 30 minutes after immersion).
3. Hypothermia (kills after 30 minutes of immersion). Death due to Heart Attack or Swimming Failure
4. Post rescue collapse (kills at the point of rescue or up to several hours afterward).

15. Survival and Rescue

Dealing with emergencies – When in the water

What to do in the water

- When in the water this is what you can do to help stay alive and increase your chance of being rescued.
- H.E.L.P. position (one person)
 - Knees up, legs crossed
 - Hug yourself
 - Head out of water
- Huddle position (group of people)
 - Group Hug
- Get out of the water (on a boat) to reduce rate of heat loss



15. Survival and Rescue

Dealing with emergencies – When in the water

1 : 10 : 1 concept (Cold Water Boot Camp)

1 minute - Cold Shock

- An initial deep and sudden Gasp followed by hyperventilation that can be as much as 600-1000% greater than normal breathing.
- You must keep your airway clear or run the risk of drowning. Cold Shock will pass in about 1 minute.
- During that time concentrate on avoiding panic and getting control of your breathing.
- Wearing a lifejacket during this phase is critically important to keep you afloat and breathing.



15. Survival and Rescue

Dealing with emergencies – When in the water

1 : 10 : 1 concept

10 minutes - Cold Incapacitation.

- Over approximately the next 10 minutes you will lose the effective use of your fingers, arms and legs for any meaningful movement.
- Concentrate on self rescue initially, and if that isn't possible, prepare to have a way to keep your airway clear to wait for rescue.
- Swim failure will occur within these critical minutes and if you are in the water without a lifejacket, drowning will likely occur.



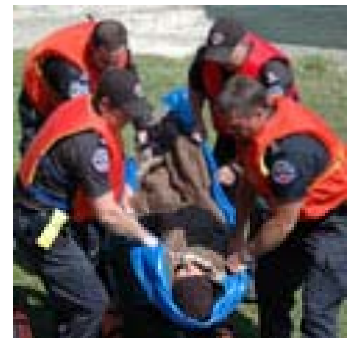
15. Survival and Rescue

Dealing with emergencies – When in the water

1 : 10 : 1 concept

1 hour - HYPOTHERMIA.

- Even in ice water it could take approximately 1 hour before becoming unconscious due to Hypothermia.
- If you understand the aspects of hypothermia, techniques of how to delay it, self rescue and calling for help, your chances of survival and rescue will be dramatically increase



15. Survival and Rescue

Dealing with emergencies – When in the water

What to do in the water

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15. Survival and Rescue

Passenger Control

Remain Calm

- Appear confident, communicate slowly and clearly

- Provide available information

Practice dealing with emergencies

- Discussion and role-plays

Manage the situation

- Keep families together
- Calm panicky individuals, get them active and involved
- Use available special skills
- Address individual special needs

