



CANADIAN COAST GUARD AUXILIARY

CENTRAL AND ARCTIC REGION



PHASE 01

- FORWARD & PURPOSE -

This manual is yours to keep and use for future reference and is to be used with the power point presentations as well. The names listed under the acknowledgements and contributions devoted a tremendous amount of time and commitment to the concept and completion of this manual and the current training program.

Reproduction of this manual requires approval from the Canadian Coast Guard Auxiliary Central and Arctic region Inc. Application for copyright is pending.

ACKNOWLEDGEMENTS & CONTRIBUTIONS

This manual would not have been possible without the invaluable efforts and support of several Canadian Coast Guard Auxiliary Central & Arctic Inc. volunteer members (past and present), Canadian Coast Guard Auxiliary Central & Arctic Region staff, and the support of the Canadian Coast Guard Central & Arctic Region, many of whom are mentioned in the following list.

CANADIAN COAST GUARD AUXILIARY CENTRAL & ARCTIC REGION INC.

- Carole Aitken
- Jim Aitken
- Jan Barnewall
- George Bush
- Phil Carlson
- Marcel Dorey
- Ralph Fitzgerald
- Paul Hebbel
- Jack Kruger
- Brian McShane
- Tim Stezik
- Peter Windfeld
- Glynis Withyman
- Hugh Wyatt

CANADIAN COAST GUARD AUXILIARY CENTRAL & ARCTIC REGION INC. STAFF

- Juanita Armstrong
- Shannon Laird
- Rebecca McNamara

CANADIAN COAST GUARD CENTRAL & ARCTIC REGION

- Mark Gagnon

PREVIOUS EDITION CONTRIBUTIONS

- Richard (Butch) Dompierre (CCGA C&A)
- Duff Dwyer (CCGA C&A)
- Peter Graham (CCGA C&A)
- Captain John Hanbidge (CCGA C&A)
- Don Limoges (CCGA C&A)
- Murray Miner (CCGA C&A)
- Scott Miller (CCG - JRCC Trenton)
- Ted Phillips (CPS) (CCGA)
- Gerry Reed (CCGA C&A)
- Ferg Reid (CCGA C&A)

OTHER CONTRIBUTIONS

The IDP Group Inc.

- Derek Stone & Brandon Serbec

TABLE OF CONTENTS

7	CHAPTER 1 - PPE 1.1 LIFESAVING APPLIANCES AND ABANDONMENT
21	CHAPTER 2 - VESSEL TERMINOLOGY 2.1 BASIC 2.2 LOCATION, POSITION AND DIRECTION 2.3 HULLS
25	CHAPTER 3 - HAZARDS AND EMERGENCIES 3.1 EMERGENCY RESPONSE 3.2 DISTRESS CALLS/SIGNALS 3.3 TYPES OF EMERGENCIES 3.4 HEAT RELATED DISORDERS 3.5 CAPSIZE / SWAMP / GROUNDING 3.6 TAKING ON WATER 3.7 FIRE ON BOARD 3.8 CARBON MONOXIDE POISONING
45	CHAPTER 4 - VESSEL INSPECTIONS 4.1 DAILY INSPECTION CHECKLISTS 4.2 WEEKLY INSPECTION CHECKLIST
51	CHAPTER 5 - COLLISION REGULATIONS 5.1 CONSTANT LOOKOUT 5.2 NAVIGATION 5.3 AIDS TO NAVIGATION 5.4 SOUND SIGNALS
73	CHAPTER 6 - LIGHTS – BASIC 6.1 NAVIGATION LIGHTS
77	CHAPTER 7 - BASIC VESSEL OPERATION 7.1 VESSEL HANDLING 7.2 THE AFFECTS NATURAL FORCES HAVE ON A VESSEL 7.3 MANOEUVERING TO OR FROM A DOCK 7.4 CLOSED LOOP COMMUNICATIONS
85	CHAPTER 8 - BASIC SAR 8.1 SAR INCIDENT 8.2 DEGREES OF URGENCY 8.3 FACTORS WHEN CONSIDERING DECLINING A TASKING 8.4 SEARCH PATTERNS 8.5 SPOTTERS
105	CHAPTER 9 - COMMUNICATIONS AND SIGNALLING 9.1 ELECTRONIC COMMUNICATIONS 9.2 LOCATING DEVICES 9.3 VISUAL SIGNALS

- CHAPTER 1 -

PPE

1.1 LIFESAVING APPLIANCES AND ABANDONMENT

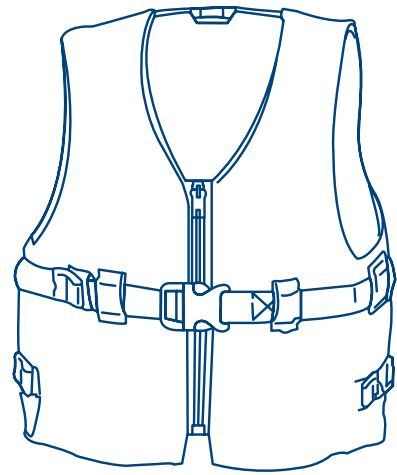
Life-saving appliances provide support if you fall overboard or in case you have to abandon ship.

1.1.1 LIFE JACKETS AND FLOTATION DEVICES

LIFEJACKETS

Lif jackets are designed to keep a person's head above water and to help them remain in a proper breathing position. You must have a Transport Canada approved lifejacket or PFD of the right size to fit each person you have on board.

In June 2007, a new lifejacket standard was adopted. The new standard adds three new types of lifejackets to the familiar inherently buoyant jacket. These inflatable, hybrid (a combination of inherently buoyant and inflatable) and thermal protection jackets provide more options. As these products become available, you will be able to choose the lifejacket that best suits your needs. It is your responsibility to make sure that your lifejackets provide the required protection for your passengers.



NOTE: IF YOUR VESSEL IS ENCLOSED OR FITTED WITH A CANOPY, WARN PASSENGERS BEFORE LEAVING SHORE ABOUT THE DANGER OF BEING TRAPPED IF THEY PUT LIFEJACKETS ON WHILE INSIDE. (REPEAT POINT FROM PRE DEPARTURE BRIEFING)

CCGA requires the wearing of an approved personal flotation device or lifejacket at all times during SAR operations. CGA members are advised to choose a flotation device that is comfortable, offers hypothermic protection, and is durable enough to withstand the rigors of SAR operations. Auxiliarists should test the performance of their flotation devices under controlled conditions (i.e. pool). It is recommended that all lifejackets and PFDs have a pealless whistle attached for safety sake.

LIFE JACKET MAINTENANCE AND TESTING

For lifejackets to work, you must keep them in good condition. You should inspect them often for:

- Outer skin and stitching damage
- Mildew
- Leaks
- Insecure straps
- Hardened stuffing

Clean them only with a mild soapy solution. Since using oil based solvents such as gasoline or strong detergents to remove stains can cause lifejackets to deteriorate and lose buoyancy, you should always keep them away from gasoline, oil and grease.

Inflatable and hybrid jackets need special care to make sure that their cartridges remain effective. Read and follow the manufacturer's instructions and replace cartridges before their expiry dates.

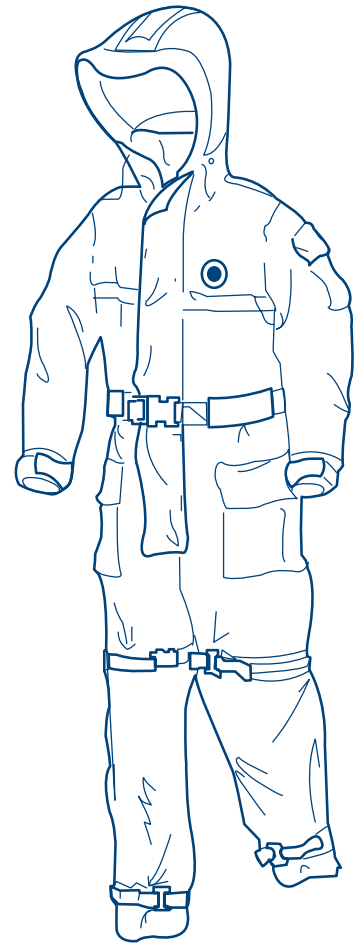
LIFEJACKET HANDLING AND STORAGE

Air-drying lifejackets before putting them away prevents mildew. Never dry them on a heater or any other direct heat source, or stow them away when they are damp.

When they are not in use, stow dry lifejackets out of the sunlight in a place that is dry, well ventilated and easy to reach when needed. Do not step on lifejackets or use them as kneeling or seating pads, as placing heavy weight on a lifejacket can damage its internal buoyancy material.

LIFEJACKETS AND PFDS — WHAT'S THE DIFFERENCE?

To comply with the law, as well as make an informed decision about safety, it helps to know the differences between lifejackets and personal flotation devices (PFDs).



LIFEJACKET



PFD



Only lifejackets satisfy the requirements for life-saving equipment on commercial vessels (except for human-powered vessels). This is because lifejackets, which are intended to be put on when you evacuate the vessel or there is a clear risk of going in the water, have two big advantages over most PFDs: they are usually more buoyant and do a better job of keeping your mouth out of the water. To do this, lifejackets can be bulky, making them less likely to be worn at all times, although newer models do provide increased wearability.

PFDs, are generally more comfortable and can often be worn at all times — even while working, which provides added protection in case a person falls overboard accidentally. This is particularly important if you operate alone or in cold water as the effects of cold water immersion will reduce the time you are able to keep your head above water without a flotation device.

For first-hand accounts of people in cold water and the difficulties they had staying afloat without a lifejacket, go to www.coldwaterbootcamp.com.

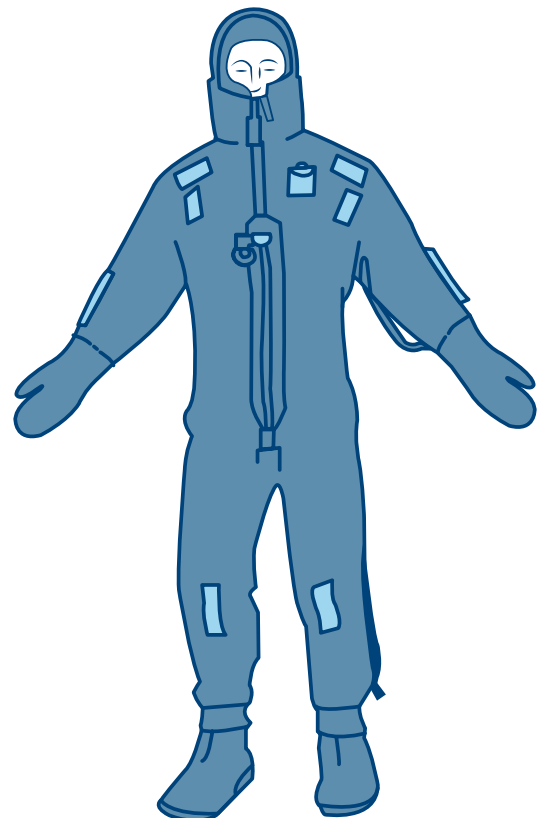
For an extra level of safety, consider carrying both lifejackets and PFDs and making it a habit to wear your PFD at all times for extra protection. Be aware, however, that inherently buoyant PFDs are designed for the average person and may not be enough to keep a fully dressed worker afloat, especially if carrying a tool belt or other equipment. You may want to consider using an inflatable PFD instead, as they often have buoyancy equivalent to a Small Vessel Lifejacket (100 newtons).

1.1.2 IMMERSION SUITS AND WORK SUITS

An immersion suit is designed to save your life if you are forced to abandon ship because of a fire, flood, or other vessel emergency. Without protection, you can drown within a few minutes from the shock of entering cold water unexpectedly. Even if you survive the initial shock, you soon lose the ability to swim and keep your head above water. An approved immersion suit acts like your own personal life raft, keeping you afloat and keeping your body heat inside the suit and cold water out.

It also provides a large bright target for rescuers.

- Know where your immersion suit is kept and how to wear it
- Conduct emergency drills that include practicing putting on your immersion suit at least annually



INSPECTING IMMERSION SUITS

Regularly inspect your immersion suit to make sure it fits properly and is in good working condition.

- Examine the suit for leaks, rips, tears, deterioration, and inspect the seals. Repairs should be made by the manufacturer or someone competent in immersion suit repairs
- Make sure the zipper works smoothly. Check that the teeth are aligned. Wax the front and back of the zipper with beeswax or paraffin wax. Do not use a petroleum-based product, which can break down the fabric, allowing water to enter
- If your suit has a head support, at least once a year blow up the head support to make sure it inflates fully and remains inflated for 24 hours. This head support will keep your shoulders and head out of water
- Check that the reflective tape is in place
- Check that the whistle works

IMMERSION SUIT STORAGE

- Hang, roll, or fold it up according to the manufacturer's instructions
- Store your suit in a cool, dry place, where it is out of direct sunlight and easy to get if you must abandon ship

1.1.3 LIFERAFTS, EMERGENCY BOATS AND EQUIPMENT

LIFERAFTS

No operator wants to abandon ship, but it is best to be prepared. Because a liferaft can be launched in almost all weather and is designed to keep you out of the water when you abandon ship and while you wait for rescue, it is the preferred rescue system for any small vessel that operates in water with a temperature below 15°C if it can carry a raft safely.

If your vessel is more than 8.5 metres long and carries passengers on voyages that are not Sheltered Waters Voyages or more than 2 nautical miles from the shore of rivers or lakes, you must have one or more liferafts. Workboats more than 12 metres long must carry one or more liferafts. On workboats, a buoyant apparatus may be used instead of a liferaft if the water temperature is more than 15°C. The combined capacity of the rafts or buoyant apparatus must be enough to carry everyone on board. Inflatable liferafts must be marked with the maximum capacity of the raft and the date it was last serviced.

Coastal liferafts are designed for near shore waters. A vessel operating beyond a Near Coastal Voyage, Class 2 must carry a SOLAS liferaft.

Crews must be trained and ready to launch liferafts and other life-saving equipment on a moment's notice. Carry out regular drills with the crew up to the point where the liferaft would be inflated. If your liferaft is due for servicing, consider carrying out a drill that includes inflating the raft so that you and your crew know what it's like.

This may increase the cost of servicing, so check with your service depot and then decide. Conduct regular inspections to make sure that each survival craft holds all required equipment, is in place and is properly stowed.

Inflatable liferafts must be serviced at a service station accredited by the raft's manufacturer at the frequency set out in the Life Saving Equipment Regulations.

Servicing helps to identify problems caused by your vessel's pitching-and-rolling movements and from exposure to humidity and water spray, which can find their way into the liferaft container.

Any hydrostatic release (float-free device) that requires yearly or other regular service should be serviced at the same time as the liferaft. A disposable release should be replaced before its expiry date. Failure to service liferafts and release devices may result in an operating failure when it is needed, and could cost lives.

Make sure that your equipment works and your crew is prepared.

LIFERAFT STOWAGE

Every liferaft or buoyant apparatus must be stowed so it can float free if the vessel sinks or capsizes. You can either place the liferaft in deep chocks without lashings, so it can float free if the vessel sinks, or secure it with lashings fitted with a hydrostatic release. The liferaft must be stowed well away from any fittings, rigging or any other thing that may prevent it from floating free and inflating. The liferaft must also be easy to access for manual release (consult Ship Safety Bulletin 07/2007: Inflatable Liferafts and Rescue Platforms: Stowage and Proper Access for more information).

To prevent a liferaft from being damaged or lost because of weather, it must be properly secured (if not in deep chocks). Be careful to secure the liferaft in a way that allows the hydrostatic release to work properly when needed. You must also make sure that the painter is properly secured to the vessel.



1.1.4 LIFEBOUYS AND BUOYANT HEAVING LINES

LIFEBOUYS

When buying a lifebuoy, check to make sure it is approved by Transport Canada. It should bear an “Approved by the Department of Transport” marking and an approval number like this: “T.C.xxx.xxx.xxx.”

Lifebuoys approved for use on small commercial vessels must be at least 600 millimetres in diameter and be made of inherently buoyant material. If it doesn't already have one, you must attach the lifebuoy to a buoyant line of good quality that will not kink and is at least 9.5 millimetres in diameter and 15 metres long.



Approved lifebuoys have colours that are easy to see. Don't paint them or do anything else that may make them less visible. The name of your vessel should be marked on your lifebuoys. Horseshoe lifebuoys are not approved for use on commercial vessels.

BUOYANT HEAVING LINE

A fancy name for a floating rope, a buoyant heaving line has a soft buoyant mass on one end. You throw the line toward a person in the water for them to hold on to while you pull them alongside. It can be packed into a rescue throw bag to keep it from getting knotted and make it easy to throw.

1.1.5 SAR VEST (SURVIVAL VEST)

Safety vests allow you to carry required safety items without having to duplicate them for each type of clothing worn. The safety vest is worn over all of your other gear. It is used over your PFD alone, over your dry suit and PFD together, or over your floater suit. A safety vest should contain the following:

- Several pocket sized flares
- A whistle
- Strobe light
- Heliograph (signal mirror)
- Small flashlight
- Illuminating sticks
- Dull point knife (dive knife)



All items should be secured to the vest with a long enough lanyard to permit easy access and use. The pocket snaps require frequent lubricating with Vaseline.

- All crew should wear one
- It is a good idea to carry some compact high energy foods in your pockets to sustain your blood sugar level during extended SAR operations
- Open fast vessels require eye protection; sunglasses for day use, and goggles or clear glasses for night operations

1.1.6 KIT BAG

At home, have a KIT BAG ready for quick response to a call out. The kit bag should contain:

- Extra warm clothing
- Eye protection
- Communications device and extra batteries
- Watertight flashlight
- Water and high energy food
- Any additional equipment your unit requires you to bring for a search



1.1.7 FIT FOR DUTY

- Crew members on SRU vessels should know where all emergency equipment is stored on board and be versed in its use
- Dress warmly, preferably with layers of natural fiber clothing (wool). Toques, balaclavas, gloves, mitts and extra socks are often essential items even in seemingly mild conditions
- Keep dry. Water conducts body heat at twenty-five times the rate of air and heat loss leads to hypothermia. Dry suits and rain gear are important supplements to your floatation device
- Use safety lines when conditions dictate to minimize the chance of a person falling overboard
- Alcohol impairs judgment and increases the risk of hypothermia. If you have consumed alcohol within a minimum of 8 hours of being called out, reconsider your role

1.1.8 PRE-DEPARTURE BRIEFINGS

Holding safety briefings before the voyage begins — similar to those given on an aircraft — is a legal requirement. Show and tell your passengers how to react in an emergency. Give the briefing in English, French or both, as needed.

Passengers must be informed of the following in a Predeparture Briefing:

- Where to find PFD/lifejackets closest to their position on the boat, including children's lifejackets
- How to properly put on, secure, and, if you have inflatable and hybrid lifejackets, how to operate, each type of PFD/ lifejacket on board
- Techniques for putting on PFDs/lifejackets when in water
- Not to put lifejackets on until they are outside the cabins and out from under canopies
- The importance of wearing a PFD/lifejacket at all times
- Where the liferafts are, if you have any, and where they are to gather to get on board the liferaft (muster stations)
- How to reduce the effect of their movement on vessel stability and how to avoid potential hazards, such as ropes and docking lines
- Location of flares and how to use them
- Location of the emergency kit, which may include flashlight; whistle; knife; a first aid kit; emergency rations; fire extinguisher; paddles; drinking water; and dry clothing
- The importance of keeping oneself low, on the center line, and holding onto a rigid part of the vessel while moving around on board, and securing oneself when the vessel is ready to go
- The importance of keeping one's hands, arms and legs inside the vessel when approaching or leaving a dock
- Remind passengers of the physical effects that they will experience as a result of vessel motion, sunlight, waves, wind and sound
- Each crewmember/ passenger's role in case of an emergency

Whether you talk, distribute handouts with pictograms, use a recording or show a video to give the briefing, you must show your passengers how to put on each type of lifejacket on board. Keep your passengers safe by keeping them informed.

1.1.9 MINIMUM SAFETY EQUIPMENT REQUIREMENTS

The chart below outlines the minimum safety equipment that pleasure boater are required to carry on board and is based on the type and length of your boat. It must be on board, in good working order and always easy to reach so that it can be used in an emergency.

BOAT TYPE AND LENGTH	PERSONAL LIFESAVING APPLIANCES	VISUAL SIGNALS	VESSEL SAFETY EQUIPMENT	NAVIGATION EQUIPMENT	FIRE-FIGHTING EQUIPMENT
PADDLEBOATS, WATERCYCLES, SEALED-HULL AND SIT-ON-TOP KAYAKS <i>Equipment listed in 2, 3, 4, 5 and 6 is not required if everyone on board is wearing a lifejacket or PFD.</i>	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long *One (1) reboarding device 	If boat is over 6 m: <ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C 	<ol style="list-style-type: none"> One (1) bailer or manual bilge pump OR Bilge-pumping arrangements 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	None
CANOEES, KAYAKS, ROWBOATS, ROWING SHELLS AND OTHER HUMAN-POWERED BOATS	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long *One (1) reboarding device 	If boat is over 6 m: <ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C 	<ol style="list-style-type: none"> One (1) bailer or manual bilge pump OR Bilge-pumping arrangements 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	None
SAILBOARDS AND KITEBOARDS <i>Equipment listed in 2, 3, 4 and 5 is not required if operator is wearing a lifejacket or PFD.</i>	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long *One (1) reboarding device 	None	<ol style="list-style-type: none"> One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination One (1) bailer or manual bilge pump 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	None
PERSONAL WATERCRAFT (PWC) <i>Equipment listed in 2, 3, 4, 5, 6 and 11 is not required if everyone on board is wearing a lifejacket or PFD. Lifejacket or PFD must be inherently buoyant.</i>	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long *One (1) reboarding device 	<ol style="list-style-type: none"> One (1) watertight flashlight OR Three (3) flares of Type A, B or C 	<ol style="list-style-type: none"> One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination One (1) bailer or manual bilge pump 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	11. One (1) 5B: C fire extinguisher
SAIL AND POWER BOATS UP TO 6 M (19'8")	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long *One (1) reboarding device 	If boat is equipped with a motor: <ol style="list-style-type: none"> One (1) watertight flashlight OR Three (3) flares of Type A, B or C 	<ol style="list-style-type: none"> One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination One (1) bailer or manual bilge pump 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	11. One (1) 5B: C fire extinguisher if equipped with an inboard engine, a fixed fuel tank of any size, or a fuel-burning cooking, heating or refrigerating appliance
SAIL AND POWER BOATS OVER 6 M AND UP TO 9 M (19'8" – 29'6")	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long OR One (1) lifebuoy attached to a buoyant line at least 15 m (49'3") long *One (1) reboarding device 	<ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C 	<ol style="list-style-type: none"> One (1) manual propelling device OR One (1) anchor and at least 15 m (49'3") of cable, rope or chain in any combination One (1) bailer or manual bilge pump 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance **Navigation lights ***One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	<ol style="list-style-type: none"> One (1) 5B: C fire extinguisher if equipped with a motor One (1) 5B: C fire extinguisher if equipped with a fuel-burning cooking, heating or refrigerating appliance
SAIL AND POWER BOATS OVER 9 M AND UP TO 12 M (29'6" – 39'4")	<ol style="list-style-type: none"> One (1) lifejacket or PFD for each person on board One (1) buoyant heaving line at least 15 m (49'3") long One (1) lifebuoy attached to a buoyant line at least 15 m (49'3") long *One (1) reboarding device 	<ol style="list-style-type: none"> One (1) watertight flashlight Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D 	<ol style="list-style-type: none"> One (1) anchor and at least 30 m (98'5") of cable, rope or chain in any combination One (1) manual bilge pump OR Bilge-pumping arrangements 	<ol style="list-style-type: none"> One (1) sound-signalling device or appliance Navigation lights One (1) magnetic compass One (1) radar reflector (See Note 3, p. 28) 	<ol style="list-style-type: none"> One (1) 10B: C fire extinguisher if equipped with a motor One (1) 10B: C fire extinguisher if equipped with a fuel-burning cooking, heating or refrigerating appliance

SAIL AND POWER BOATS OVER 12 M AND UP TO 24 M (39'4" – 78'9")	<ol style="list-style-type: none"> 1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 15 m (49'3") long 3. One (1) lifebuoy equipped with a self-igniting light or attached to a buoyant line at least 15 m (49'3") long 4. *One (1) reboarding device 	<ol style="list-style-type: none"> 5. One (1) watertight flashlight 6. Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D 	<ol style="list-style-type: none"> 7. One (1) anchor and at least 50 m (164'1") of cable, rope or chain in any combination 8. Bilge-pumping arrangements 	<ol style="list-style-type: none"> 9. One (1) sound-signalling appliance Two (2) required if the boat is 20 m and over that meets the applicable standards set out in the <i>Collision Regulations</i> 10. Navigation lights 11. One (1) magnetic compass that meets the requirements set out in the <i>Navigation Safety Regulations</i> 12. One (1) radar reflector (See Note 3, p.28) 	<ol style="list-style-type: none"> 13. One (1) 10B: C fire extinguisher at all of the following locations: <ul style="list-style-type: none"> – at each access to any space where a fuel-burning cooking, heating or refrigerating appliance is fitted; – at the entrance to any accommodation space; and – at the entrance to the machinery space 14. One (1) axe 15. Two (2) buckets of at least 10 L each
SAIL AND POWER BOATS OVER 24 M (78'9")	<ol style="list-style-type: none"> 1. One (1) lifejacket or PFD for each person on board 2. One (1) buoyant heaving line at least 30 m (98'5") long 3. Two (2) SOLAS lifebuoys, of which: <ul style="list-style-type: none"> – one (1) is attached to a buoyant line at least 30 m (98'5") long; and – one (1) is equipped with a self-igniting light 4. Lifting harness with appropriate rigging 5. *One (1) reboarding device 	<ol style="list-style-type: none"> 6. One (1) watertight flashlight 7. Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D 	<ol style="list-style-type: none"> 8. One (1) anchor and at least 50 m (164'1") of cable, rope or chain in any combination 9. Bilge-pumping arrangements 	<ol style="list-style-type: none"> 10. Two (2) sound-signalling appliances that meet the applicable standards set out in the <i>Collision Regulations</i> 11. Navigation lights 12. One (1) magnetic compass that meets the requirements set out in the <i>Navigation Safety Regulations</i> 13. One (1) radar reflector (See Note 3, p.28) 	<ol style="list-style-type: none"> 14. One (1) 10B: C fire extinguisher at all of the following locations: <ul style="list-style-type: none"> – at each access to any space where a fuel-burning cooking, heating or refrigerating appliance is fitted; – at the entrance to any accommodation space; and – at the entrance to the machinery space 15. One (1) power-driven fire pump located outside the machinery space, with one fire hose and nozzle that can direct water into any part of the boat 16. Two (2) axes 17. Four (4) buckets of at least 10 L each

* Only required if the vertical height that must be climbed to reboard the boat from the water is over 0.5 m (1'8").

** Only required if the boat is operated after sunset, before sunrise or in periods of restricted visibility (fog, falling snow, etc.).

*** Not required if the boat is 8 m (26'3") or less and operated within sight of navigation marks.

Note 1 — Exception for Bailers and Manual Bilge Pumps

A bailer or manual bilge pump is not required for a boat that cannot hold enough water to make it capsize or a boat that has watertight compartments that are sealed and not readily accessible.

Note 2 — Exception for Flares

Flares are not required for a boat that:

- is operating on a river, canal or lake in which it can never be more than one (1) nautical mile (1.852 km) from shore; or
- has no sleeping quarters and is engaged in an official competition or in final preparation for an official competition.

Note 3 — Radar Reflectors

Radar reflectors are required for boats under 20 m (65'7") and boats that are built of mostly non-metallic materials. A radar reflector is not required if:

- the boat operates in limited traffic conditions, daylight and favourable environmental conditions, and where having a radar reflector is not essential to the boat's safety; or
- the small size of the boat or its operation away from radar navigation makes having a radar reflector impractical.

ON WATER & PRACTICAL COMPETENCIES

PPE – INSPECTION/SIZING			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the knowledge and demonstrate correct sizing of PPE and inspection of PPE. The following must be done at all times .	The Student must accomplish the following tasks at all times : Identify the appropriate Floatation gear for the weather of the day	_____	_____
	Size the Flotation Gear appropriately (Not too tight and not too loose)	_____	_____
	Inspect Flotation Gear (Zipper, Buckles, Etc.)	_____	_____

PPE – CLEANING/STORAGE			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully Demonstrate the ability to Maintain & Care for the PPE.	Rinse Gear with Water (If Applicable)	_____	_____
	Hang Wet Gear	_____	_____
	Inspect Gear after use for damage	_____	_____
	Stow dry gear in applicable locations	_____	_____

PERSONAL SAFETY

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
<p>The student must successfully identify and demonstrate the following continually throughout the course.</p>	<p>Student will Wear the minimum Flotation Gear required by CCGA at all times as required (“Zip & Clip”)</p>	<p>_____</p>	<p>_____</p>
	<p>Demonstrate the ability to choose and wear the appropriate protective gear for the weather, mission and or training demands</p>	<p>_____</p>	<p>_____</p>
	<p>Student will explain the need for Head Protection (If Applicable)</p>	<p>_____</p>	<p>_____</p>
	<p>Student will explain the need for eye protection (If Applicable)</p>	<p>_____</p>	<p>_____</p>
	<p>Student will wear eye protection if required on vessel (Open Cabin Vessel & if applicable)</p>	<p>_____</p>	<p>_____</p>
	<p>Student will wear Head Protection (If applicable)</p>	<p>_____</p>	<p>_____</p>
	<p>Describe Difference between PFD & Life Jacket</p>	<p>_____</p>	<p>_____</p>
	<p>Know and understand the hazards of working in a marine environment</p>	<p>_____</p>	<p>_____</p>
	<p>Understand the necessity for keeping the vessel “Ship Shape”</p>	<p>_____</p>	<p>_____</p>

PRE DEPARTURE BRIEFING

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand and provide a Pre Departure briefing. The pre departure briefing must be demonstrated a minimum of once .	The Student must accomplish the following tasks a minimum of once : Where to find Emergency Exits	_____	_____
	Ensure guests and crew are wearing an appropriately sized PFD or Life Jacket	_____	_____
	Ensure guests and crew are familiar with the location of the Fire Safety System (Fire Extinguishers, Etc)	_____	_____
	Location of the Life Raft and How to use the Life Raft	_____	_____
	How to reduce the effect of movement on vessel so as to affect the stability of the vessel	_____	_____
	Location of the first aid kit	_____	_____
	Location of Flares and other signaling devices	_____	_____
	Location of Life Saving devices (Life Rings, Throw Bags, Etc)	_____	_____
	Muster Location (If applicable)	_____	_____
	Ensure guests and crew are familiar with hazards on board the vessel (Slippery and Wet Deck, Ropes & Lines, Pinch Points)	_____	_____
	Proper Clothing for weather and appropriate footwear (Crew and Guests)	_____	_____

- CHAPTER 2 -

VESSEL TERMINOLOGY

2.1 BASIC

Knowing and using correct nautical terminology is important to give an impression of professionalism to people you are trying to help. It is also important because, as a member of a SAR crew, you need to express yourself clearly to avoid confusion.

2.2 LOCATION, POSITION AND DIRECTION

- BOW is the pointed end of the boat
- FORWARD is going towards the bow
- STARBOARD is the right side when facing the bow
- PORT is the left side when facing the bow
- AMIDSHIP is the centre or middle area of the boat
- BEAM is the point where the width of a vessel is at its maximum
- STERN is the blunt end of the boat
- ABAFT is toward stern
- AFT is at or toward stern
- ALOFT is above deck
- FREEBOARD is the vertical distance between the waterline and the top of the deck
- DRAFT is the water line to lowest part of vessel/motor
- KEEL is the backbone of the ship, usually a flat plate running longitudinally, which is stiffened by a vertical plate being welded to its centerline inside the hull

2.3 HULLS

- FLAT BOTTOM: Inexpensive but makes for a rough ride as there is no cushion
- ROUND BOTTOM: Soft Ride at displacement speed
- DEEP V HULL: High speed
- CATHEDRAL HULL: Good Stability

DISPLACEMENT HULLS

A “displacement vessel” is a boat that displaces a weight of water equal to its own weight. Underway, a displacement vessel constantly displaces, or shoves aside, the water in its path, while water from either side closes in behind it. At any given moment, the weight of the displaced water is equal to the weight of the vessel.



PLANNING HULLS

A hull of such a shape as to be capable of skidding or skimming over the water.



CATAMARAN AND TRIMARAN

Catamarans - have two parallel hulls joined by a truss or solid deck and may be sloop rigged.



Trimarans - have three parallel hulls. The centre hull is larger than the two outboard hulls.



ON WATER & PRACTICAL COMPETENCIES

DEMONSTRATION OF VESSEL TERMINOLOGY			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand and demonstrate the ability to identify the listed components of Vessel Terminology a minimum of once .	<p>The Student must accomplish the following tasks a minimum of once:</p> <p>Identify the following items: Forward, Aft, Port, Starboard, Beam, Amidships, Inboard, Outboard</p>	_____	_____
	<p>Identify the following (if applicable): Draft, Freeboard, Transom, Stringers, Skeg, Keel</p>	_____	_____
	<p>Identify the bow and stern of the vessel</p>	_____	_____

- CHAPTER 3 -

HAZARDS AND EMERGENCIES

3.1 EMERGENCY RESPONSE

The Canada Shipping Act (CSA) section 384(1) requires “The master of a Canadian ship at sea, on receiving a signal from any source that a ship or aircraft or survival craft thereof is in distress, shall proceed with all speed to the assistance of the persons in distress informing them if possible that he is doing so, but if he is unable or, in the special circumstance of the case, considers it is unreasonable or unnecessary to proceed to their assistance, he shall enter in the official logbook the reason for failing to proceed to the assistance of those persons.”

The CSA (384(3)) states: “The master of a ship shall be released from the obligation imposed by subsection (1) when he learns that one or more ships other than his own have been requisitioned and are complying with the requisition.”

The CSA (384(4)) states: “The master of a ship shall be released from the obligation imposed by subsection (1), and, if his ship has been requisitioned, from the obligation imposed by subsection (2), if he is informed by the persons in the ship in distress or by the master of another ship that he has reached those persons and that assistance is no longer necessary.”

If the rescuing vessel for her own safety is forced to depart the scene before all danger to persons has ceased, the rescuer has responsibility to inform JRCC of his action and broadcast either a MAYDAY RELAY or an urgency Communication (PAN PAN), or a Safety Communication (SECURITE) as the situation warrants.

3.2 DISTRESS CALLS/SIGNALS

Knowing the distress signals and knowing how to respond to them is of paramount importance for anyone involved in maritime search and rescue.

- Signal sent by VHF radio consisting of the spoken word “MAYDAY”
- A gun fired at intervals of approximately 1 minute
- A continuous sounding with any fog-signalling method, consisting of the group ...---... (SOS) in Morse Code with light or sound
- Rockets or shells, throwing red stars, fired one at a time at short intervals (Type B)
- The International Code Signal of Distress, indicated by the flags “N” over “C”
- Orange canvas with either a black square and circle or other symbol appropriate for identification from the air

- Slowly and repeatedly raising and lowering arms outstretched to each side
- A smoke signal giving off orange smoke (Type D)
- A rocket parachute flare or hand flare showing a red light (Type A)
- A hand held flare (Type C)
- Dye marker (any colour)
- Signals transmitted by Emergency Position Indicating Radio Beacons (EPIRBs)
- Smoke or flames on a vessel (As from a burning tar barrel, oil barrel, etc.)
- A signal consisting of a square flag, having above or below it a ball or anything resembling a ball
- A square shape or anything resembling a square shape
- A high-intensity white light, flashing at regular intervals of 50-70 times per minute. Not to be mistaken for a North Cardinal Buoy flashing 60 times per minute

3.3 TYPES OF EMERGENCIES

- Injuries
- Crew Overboard
- Hypothermia
- Heat Disorders/ Hyperthermia
- Capsize / Swamp / Grounding
- Taking on Water
- Navigator Disoriented
- Fire on Board

3.3.1 INJURIES

The type of injuries that usually occur on small boats can run the gamut from minor bumps, bruises, scrapes and burns, through to major fractures, lacerations, head and spinal injuries.

DEALING WITH INJURIES

Part of your risk management routine should be to always first identify any potential safety hazards on your vessel (damaged safety lines, slippery decks, sharp metal edges, etc.), and correct them. If the problem cannot be corrected immediately, make all crewmembers aware of the hazard.

STOP, ASSESS, PLAN, AND PROCEED (SAPP)

If a person has been injured, the scene should be assessed to address whatever hazard may have caused the accident. The equipment or activity that caused the injury will tell a great deal about the kind of injuries to expect.

Make sure to assess the scene fully before beginning the rescue effort. Any safety hazards should be dealt with before approaching the victim, otherwise the safety of your other crewmembers may be at risk.

Form a general impression of the injury, and take care not to aggravate a potential spinal injury by unnecessary or aggressive movement.

Have the crewmember with the best first aid skills assess the injury. Advise JRCC/MRSC of the injury through the MCTS and request medical assistance if deemed appropriate. Give the necessary first aid treatment using the best advice available, obtained through MCTS if necessary. Take the patient to the base or to a rendezvous with an ambulance or doctor by the most appropriate route.

If the injured person is non-responsive, call for assistance immediately – an unconscious person is a medical emergency. After help has been called, assess the airway, breathing and circulation (ABC), and make sure any necessary interventions (artificial respiration, CPR).

Be familiar with your local emergency medical response systems.

THE SAPP METHOD	
Stop	STOP outside of the event zone (approximately 100 feet away from the incident scene, depending on the event type and visibility). Person in the water = 100'; Vessel Afire = Greater than 100'.
Assess	Crew members observe the scene, reporting their findings to the unit leader.
Plan & Proceed	Crew provides planning input to the leader, who determines the plan of action and then proceeds with the plan.

3.3.2 CREW OVERBOARD/ PEOPLE IN WATER (PIW)

If a crew member falls over the side, he or she is facing two immediate dangers:

- Hypothermia and drowning; and
- Not being found

Take the Stop, Assess, Plan and Proceed (SAPP) approach. Maintain verbal contact with the person in the water. This will enable you to assess the person's level of consciousness as well as reassure them. Develop a safe and efficient method for bringing a person in water into your boat and practice with crew.

- Shout "Man Overboard" and appoint one crew member to keep watch of the PIW
- Throw buoyant aid and make sure light is attached at night
- Contact MCTS on VHF 16. Issue MAYDAY if the PIW is not recovered immediately
- If GPS is available push the man overboard button
- Keep bow into the wind when PIW in front of you
- SAPP the scene
- Approach the scene slowly
- Be careful in retrieval. Keep your centre of gravity inside the boat

3.3.3 RECOVERING PEOPLE FROM THE WATER

When approaching a person in the water consider the following:

- Wind
- Current
- The vessel's configuration
- The style of lift that you're going to use

Approach into the prevailing environmental effect – wind or current, i.e. from downwind or into the current, whichever affects your vessel the most. This gives you optimal control over your vessel and makes it possible to drift away from the person in the water in the event that you are forced to abort your approach. Wind has a greater effect on the boat than it does on a person in the water. If you must abort an approach in a current situation, the positions remain static.

Go slow. Have a crewmember bending their arm and moving it in a wave like motion while pointing to the survivor at all times, calling out distances. The crew member pointing should keep his/her arm moving at all times. If they stop, there is a good chance that they will lose sight of the person.

When approaching overturned sailing vessels and/or fishing vessels, watch for lines in the water. Approach from downwind, as lines drag upwind. The final approach should start 10-20 metres downwind from the victim (further away if wind and sea conditions dictate) to ensure that the bow is kept up into the wind. Again, go slow. The cardinal rule is if the coxswain can't see the victim, the engines go into neutral. If the approach is aborted, the wind will blow the boat off and the approach can be restarted.

The coxswain must have enough way on the boat so that when the victim disappears from sight, the engines can be put into neutral and the boat turned to STARBOARD.

The wind will assist the turn, once the coxswain has initiated the turn to starboard. Most unpowered boats will want to lie across the wind and this helps the turn. The ideal rescue position for the victim is directly abeam the coxswain's seat on the UPWIND.

The crew member responsible for sighting and calling distances must remember to continue indicating position. This keeps the coxswain informed of the status of the rescue. Get a hold on the victim as quickly as possible because the vessel will drift downwind rapidly. The person pointing must keep his/her eyes on the victim, even if it's necessary for the vessel to make another approach.

3.3.4 RECOVERING A CASUALTY

- When recovering the casualty, move him/her gently, as severe hypothermia can quickly become cardiac arrest with rough handling
- Support the victim's head at all times
- Talk to the person and reassure him/her. Always assume that the victim can hear you
- Keep the victim on the upwind side of the boat. This will allow the victim's feet to act as a drogue, reducing the friction and effort required to drag him/her up over the side of the vessel. If the victim is on the downwind side, the feet are pushed under the side of the vessel, greatly increasing the effort required to lift
- Place the victim in the position of most comfort and as protected from the elements as possible
- Treat for hypothermia and administer first aid as necessary





3.3.5 ONE PERSON LIFT

- Once you have control of the person, place a short piece of line under his/her arms
- Reassure the person
- Protect your own back
- Check to make sure that the coxswain's seat is directly behind you
- Hold the line with both hands, as close to the person's chest as possible
- Bob him/her a few times and then pull straight up until the person's hips are at the top of the vessel, then continue the dragging motion as you sit down in the coxswain's seat
- The person will be face down in your lap, across the side of the vessel, with his/her feet in the water
- Together with another crew member, pivot the person so that he/she is for'n'aft
- With a controlled lift and roll, place the person gently onto the deck



3.3.6 TWO PERSON LIFT

Two person lifts are the same as a one person lift, except you have a crew member helping you with the lift process itself. The crew member gains control of the person, then the coxswain or another crew member assists. The person forward, who will eventually have the head of the victim, controls the lift.

- The forward crew member gains control of the person, and places a short piece of line under his/her arms
- The forward crew member talks to the aft crew member as well as the victim and reassures the person throughout the process. Communication is key
- The forward crew member must be abeam of the coxswain's seat, and should check to ensure there are no hazards behind
- Both crew members hold the line with both hands, as close to the person's chest as possible
- Bob him/her a few times and then pull straight up until the person's hips are at the top of the vessel, then continue the dragging motion as the forward crew member sits down in the coxswain's seat. The aft crew member lets go of the line as the forward crew member sits down in the coxswain's seat
- The person will be face down in the forward crew member's lap, with his/her feet in the water
- Together with the aft crew member, pivot the person so that he/she is for'n'aft
- With a controlled lift and roll, place the victim gently onto the deck

3.3.7 PARBUCKLING

Parbuckling is the easiest way to remove someone from the water. But it's somewhat more time consuming to set up. The orientation of the person is also different.

- Start with the person floating on his/her back
- Attach two lines to the lifelines, one opposite the person's knees, and one opposite the midpoint between the person's shoulder and elbow. If you have to make a choice, attach closer to the elbow to prevent the line slipping up around the person's neck
- The aft crew member controls the victim alongside, while the forward crew member passes his/her line under the victim at the aforementioned midpoint and back up the outboard side
- The forward crew member controls the person, while the aft crew member passes his/her line under the knees and back up the outboard side
- The crew member at the head controls the lift. The crew member at the head is not necessarily the coxswain, but should be the person with the best first aid qualification
- Reassure the person and continually communicate with the other crew member if you are the person controlling the lift
- Give a three count, then start pulling
- The person will be carried through one complete rotation, and end up face-up
- Crew members involved in the lift should keep their knees and lower legs against the vessel to help stop the victim's progress



This lift method gives the crew a 2:1 mechanical advantage. Parbuckling is particularly useful for extracting large people from the water, and it's easier than it looks.

When recovering a victim from the water remember the following:

- Move the victim gently and protect the head
- Grab by the clothing, not the PFD
- Whenever possible place a short piece of line under the arms and around the back of the person
- Keep your centre of mass in the vessel
- Bob the person to gain momentum before the lift
- With the exception of parbuckling, the victim is always brought up facing the side of the vessel, to avoid hyperextending the back
- Reassure the person at all times and communicate with other crew members. Assume the victim can hear you
- The parbuckling lines may be pre-set prior to arrival on-scene to speed up the rescue process
- The engines must go to neutral when the coxswain can't see the person any longer

3.3.8 HYPOTHERMIA

Cold waters can claim a life very quickly. Research done by the University of Victoria shows that most people who are not wearing thermal protection will die of hypothermia within the first few hours of exposure to 10°C water, even if they are wearing floatation. Hypothermia is a drop in body “core” temperature caused by cold water immersion, exposure to cool/cold air in water- soaked clothing and prolonged exposure to low environmental temperatures.

When the body core starts to cool off rapidly, the brain takes action to prevent the vital organs from becoming too cold. The warm blood is shunted away from the extremities, and restricted to the torso and head; circulation is reduced to a minimum.

The following signs and symptoms represent the impact on the mental and muscle functions of the person(s) exposed to hypothermia as it progresses.

- Shivering and slurred speech, skin colour will appear pale and blue, conscious but withdrawn at the early stage;
- Slow and weak pulse, slow respiration, lacks coordination, irrational, confused and sleepy at intermediate stage;
- Weak, irregular or absent pulse or respiration, loss of consciousness at final stage

TREATING HYPOTHERMIA

- Remove the person from the source of cold exposure, handling the victim gently and keeping the person horizontal. Severely hypothermic casualties must be considered stretcher patients, even if they appear to be able to walk
- Provide shelter. Once you get the person into a warm environment, remove the victim's wet clothes
- Insulate against further heat loss. Cover the victim with blankets or other insulating materials and vapour barrier
- Apply warmth to the body core only. Use heat pads or dry, warmed blankets and apply them to the torso, head and neck. Do not give the victim anything by mouth, especially caffeine or alcohol
- Get medical assistance immediately, using or exhibiting distress signals as necessary. Hypothermia is a medical emergency that can present a number of potentially fatal complications
- Be careful of the limbs. A hypothermia victim's arms and legs are full of very cold blood. If the limbs are over-stimulated (e.g. the person is required to move on their own, or the limbs are rubbed or warmed aggressively), this icy blood will be sent to the heart like a bullet
- Cardiac arrest will result if the victim's core temperature is low when the cold blood is received from the limbs. Focus re-warming efforts on the body core
- Provide basic life-support as required. If the victim appears to have succumbed to the cold, do not give up. Continue to provide life-support (CPR) until emergency personnel arrive

PREVENTING HYPOTHERMIA

The best way of dealing with hypothermia is to prevent it. Being aware of the risks is a good place to start. The following may provide additional protection from hypothermia:

- Dry suit
- Wet suit
- Immersion suit
- Survival suit
- Exposure coverall
- Multiple light layers of dry clothing
- Water or wind-proof outer lay

3.4 HEAT RELATED DISORDERS

Be aware that the very young, the elderly and those with pre-existing illnesses are especially vulnerable to these conditions.

3.4.1 HEAT CRAMPS

Muscular pains and spasms (usually in leg or abdominal muscles) that occur when the body loses too much electrolyte (salt) during profuse sweating or when inadequate salt is taken into the body.

GENERAL CARE FOR HEAT CRAMPS

- Remove from hot environment and put in resting position
- Replace fluids by mouth (e.g. water or diluted sports drink)

3.4.2 HEAT EXHAUSTION

Typically occurs in an otherwise fit person who is involved in extreme physical exertion in a hot environment, resulting in excessive loss of fluids and/or salts. The resulting disturbance of the blood flow presents as a mild form of shock.

SIGNS AND SYMPTOMS

Signs and Symptoms of heat exhaustion typically include:

- Skin that is pale, cool, moist or clammy, and normal or near normal body temperature
- Often a rapid pulse
- Weak, dizzy or faint
- Headache or cramps
- Dry mouth and thirsty

GENERAL CARE FOR HEAT EXHAUSTION

- Remove the patient from the source of heat and cool them carefully
- Treat as for mild form of shock
- Put at rest (supine with legs elevated is advised), handle gently and transport if condition appears serious
- If responsive and not nauseated, have patient drink cool water. As a guideline, 1/2 glass each 15 minutes for an hour
- If decreased level of responsiveness or if vomiting, do not give fluids

3.4.3 HEAT STROKE

Results when the heat regulating mechanism of the body breaks down and fails to cool the body sufficiently. This is a life-threatening emergency.

SIGNS AND SYMPTOMS

Heat stroke may present as CLASSIC (has lost ability to sweat) or EXHERTIONAL (may sweat profusely). Signs and symptoms include:

- Hot, flushed, reddish skin
- Unequal and/or dilated pupils
- Very high body temperature
- Decreased level of consciousness
- Seizures
- Pulse that may be strong (Exhertional) or weak (Classic) and rapid

GENERAL CARE FOR HEAT STROKE

- Remove from the source of heat stress and use available means to aggressively cool the patient. (Slow cooling if patient starts to shiver, as shivering produces heat)
- Get medical assistance immediately, using or exhibiting signals as necessary. Heat stroke is a medical emergency
- Administer oxygen and maintain the airway. Be aware that convulsions and vomiting may occur during cooling
- Help the conscious patient to re-hydrate with cool fluids
- All heat stroke victims need hospital care. Monitor vital signs and continue cooling during transport to medical aid

3.5 CAPSIZE / SWAMP / GROUNDING

The best way to avoid having your vessel capsized is to understand the dangers of your operational environment and know the factors that can cause a vessel to capsize.

Factors that can cause a vessel to become capsized swapped or grounded:

- Shift in load
- Mishandling at high speed
- Surf
- Heavy steep seas
- Sudden stops at high speed
- Overloading
- High wind
- Current and tide rips

If a vessel has capsized the crew will be very disoriented and possibly injured. Account for all persons on board and stay with the boat.

If people are trapped under the vessel and are still conscious, have them swim out under their own power. They may have to loosen or remove floatation devices to escape an enclosed space. In this case have them hold onto the PFD to use as an aid in the rescue.

3.6 TAKING ON WATER

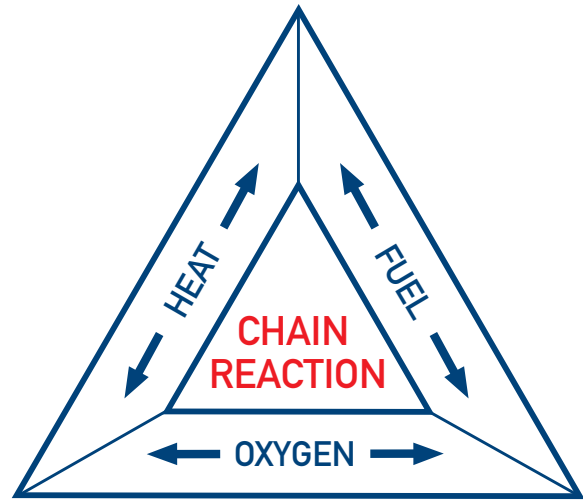
When taking on water the following actions may be taken:

- Find the source of the leak
- Stop the leakage. A leak can be plugged with a number of different items such as; wooden plugs, plastic sheet or cloth jammed into the hole
- Remove the water using a bailer, hand pump or electronic bilge pumps
- If the vessel is taking on a substantial amount of water, do not hesitate to issue a MAYDAY and use the appropriate distress signals
- Take the vessel ashore

3.7 FIRE ON BOARD

For a fire to occur, four factors must be present:

- Fuel
- Heat
- Air (O₂)
- A chain reaction (the chemical reactions between fuel, O₂ and heat)



BY REMOVING ANY ONE OF THESE FOUR FACTORS THE FIRE IS EXTINGUISHED.

3.7.1 FIRE ON BOARD THE SRU

In this situation it is important for the Coxswain to determine as quickly as possible the cause of the fire and the strength of the fire. A rapid decision is required to determine if the fire can be fought successfully.

If it is determined that there is a fire on board the SRU the coxswain and crew need to SAPP the situation and follow the acronym FIRE as outlined below. If the fire is too intense and you are not comfortable in attempting to extinguish the fire, call a MAYDAY and Abandon Ship immediately.

Find – Find the fire, the location, and it's size

Inform – Inform the coxswain immediately and gather all crew and notify all hands on deck

- Make a distress call to any nearby vessels and call MAYDAY on CH16 VHF.
- Activate the emergency fire fighting equipment.
- Prepare Life Raft if applicable and Abandon Ship protocol and equipment.

Restrict – Attempt to restrict the fire by closing doors, hatches, windows, ports, etc.

- If possible manoeuvre the vessel to restrict the wind direction.

Extinguish – Determine the class of fire and use the appropriate fire extinguishing method and/or extinguisher.

- Extinguish Fire with portable fire extinguishers or by using the portable dewatering pump on board the Vessel (if equipped)

NOTE: IF THE FIRE IS NOT READILY EXTINGUISHABLE, THE CREW IS IN DANGER, NOT COMFORTABLE EXTINGUISHING THE FIRE OR IF THE FIRE ON BOARD THE SRU IS TOO LARGE - ABANDON SHIP!

DISTRESS VESSEL ON FIRE

When attending a fire at sea your first priority is to extricate, stabilize, and where necessary, evacuate any victims.

NOTE: THE CCGA DOES NOT FIGHT FIRES! THE DEWATERING PUMP MAY BE USED TO EVACUATE PERSONS FROM A VESSEL ON FIRE. FIRE FIGHTING IS NOT A FUNCTION OF THE CCGA.

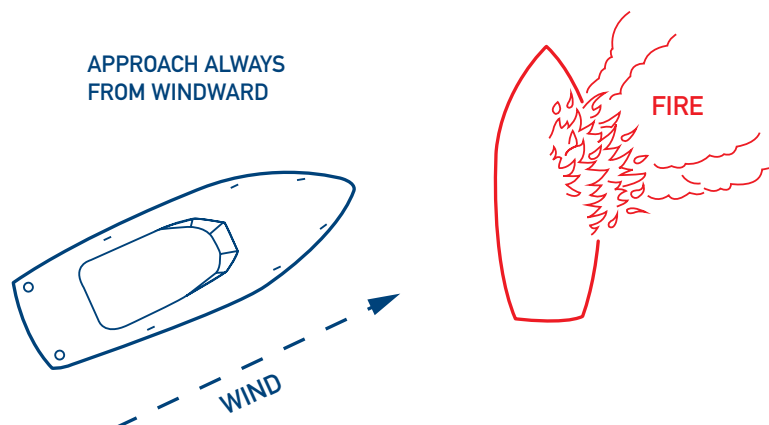
If you spot or are advised of a fire at sea you should:

- Contact JRCC
- Make preparations to extricate and stabilize survivors
- Remove from the deck area of the SRU any readily flammable materials such as portable/spare fuel tanks, convertible tops and tarps
- Prepare the Portable Dewatering pump and set stream to a fog/mist pattern if it is safe to do so. Remember we do not fight fires, the SRU is simply providing a water fog pattern to disperse heat and smoke to safely allow victim recovery
- Once victims are recovered the SRU should provide communication to JRCC via MCTS, victim(s) stabilization and treatment and also transport to nearest safe haven. Do not engage in fire fighting!

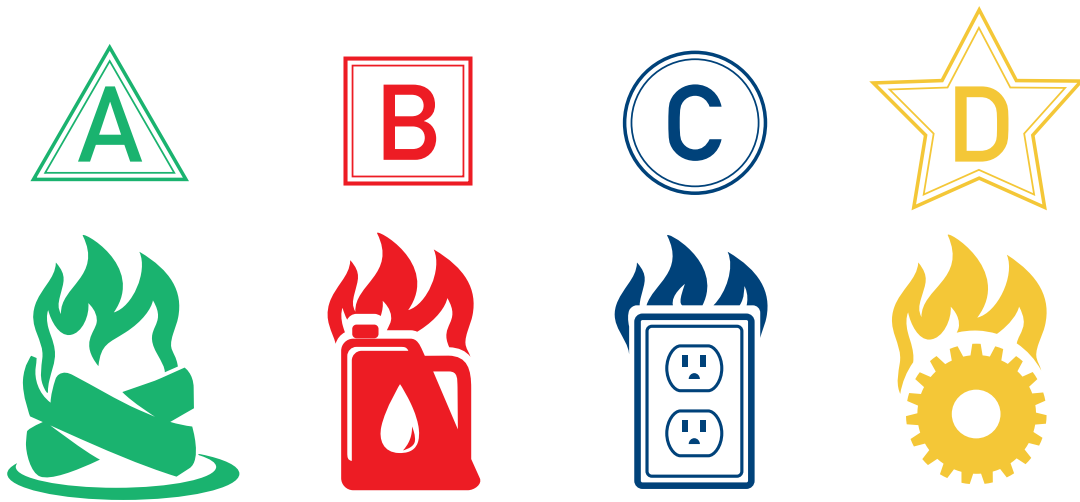
When approaching the scene of a fire:

- Reduce speed.
- Take a position upwind.
- If there appears to be no possibility of survivors remaining onboard, then you should stop, shut down engines and listen for survivors. If survivors are not immediately located, begin a suitable search pattern bearing in mind that if there is any significant wind, survivors will generally be found upwind of the burning vessel.

APPROACHING A BOAT ON FIRE



NOTE: DO NOT ATTEMPT TO TOW A BURNING VESSEL!



There are 3 types of extinguishing agents commonly found aboard vessels:

- Water
- Dry chemical powder
- Carbon dioxide



3.7.2 WATER

When using water to extinguish a fire aboard a vessel, you must keep the following in mind:

- Sporadic dousing by bucket will not be effective against major fires
- Water will turn into steam when placed on a fire, thus further hampering visibility already obscured by smoke
- Once the flames have been extinguished, burnt combustible solids should be examined for 'hot spots' and, if possible, removed from the vessel
- Large quantities of water used to fight a fire may affect the stability of the vessel, and thus dictate limited use
- Valuable time is often consumed by crews trying to prime or start pumps where a rapid response with extinguishers may be a more timely solution

3.7.3 DRY CHEMICAL POWDER

Dry Chemical extinguishers are given either:

- A 'BC' rating for use on combustible liquids (gas, oil, etc.), and on energized electrical fires
- An 'ABC' rating to include all of the above, as well as combustible solid

Before attacking a fire with a dry chemical extinguisher, the seal should be broken, the safety pin removed, and a short burst triggered to ensure the device is functioning (a good shake may dislodge any compacted powder).

When using a dry chemical extinguisher against a fire, the powder should be directed at the base or source of the flames, using a repeated lateral sweeping motion. Try to avoid breathing the powder if possible. It is not toxic, but can cause breathing difficulty.

The user must always read the directions on the fire extinguisher to ensure its proper use.

3.7.4 CARBON DIOXIDE

Carbon Dioxide (CO₂) gas is another common extinguishing agent found around small craft.

Carbon dioxide extinguishers are usually either:

- The BI type, which contains a minimum of 5lbs of gas, or
- The BII type, which contains a minimum of 10lbs of gas

Carbon dioxide extinguishers are given a 'BC' rating for use on combustible liquids and on energized low-voltage, low-amperage electrical fires. (Carbon dioxide gas discharge results in a fog of highly conductive frozen water vapour.) Do not use on high-voltage or high-amperage electrical fires.

Carbon dioxide suppresses fire by displacing oxygen. When deployed in an enclosed space, CO₂ can cause suffocation. Do not remain in any area where CO₂ has been deployed. The user must be familiar with the instructions on the device.

Never hold the nozzle assembly of a CO₂ fire extinguisher after it has been deployed. Severe frost burn will result.

When using a carbon dioxide extinguisher, the gas should be directed at the base of the fire using the same lateral sweeping motion as with a dry chemical extinguisher.

Carbon dioxide gas is preferable for use in enclosed spaces where it can be concentrated. It is not effective in exposed situations, particularly if there is a wind blowing.

3.7.5 FIRE EXTINGUISHER USE

As soon as a fire is discovered:

- Sound the alarm
- Issue a MAYDAY if the fire is too large and you are not able to attempt to extinguish it with a portable fire extinguisher, and give your location

Tips for safe extinguisher use:

- Test that the extinguisher works before you approach the fire.
- Protect yourself at all times.
- Take care. Speed is essential but it is more important to be cautious.
- Keep your back to your exit at all times and stand 2 to 2.4m (6 to 8 ft.) away from the fire. Never turn your back on the fire!

Follow the 4-step P-A-S-S procedure:



Pull the pin



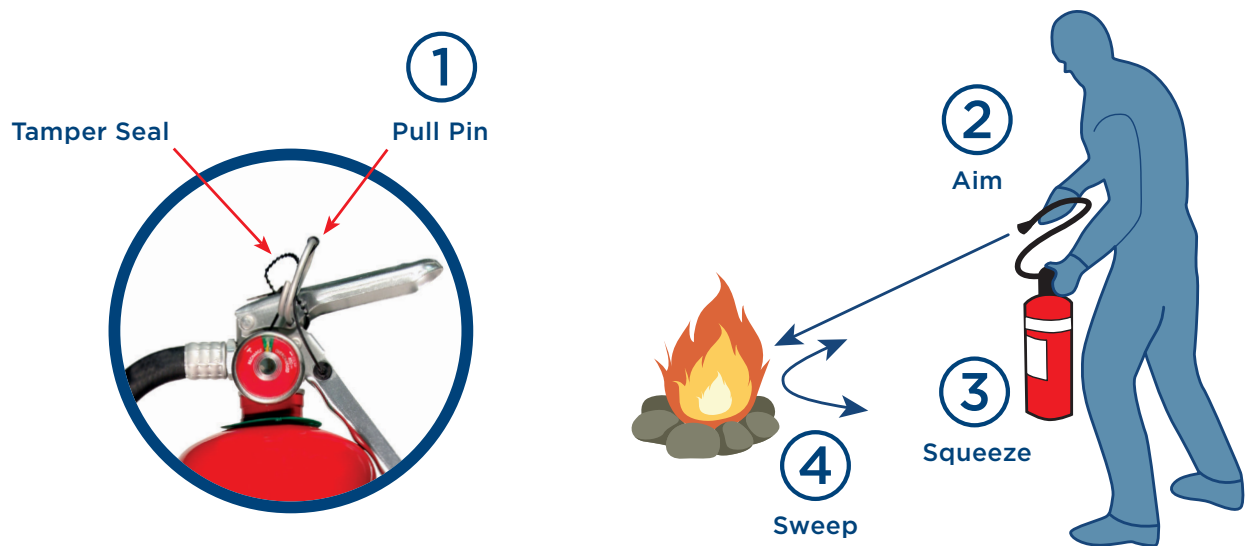
Aim the extinguisher or nozzle at the base of the fire



Squeeze the handle and release the extinguishing agent



Sweep the extinguisher from side to side across the base of the fire until it appears to be out



IF THE FIRE DOES NOT GO OUT IMMEDIATELY OR THE EXTINGUISHER APPEARS TO BE GETTING EMPTY, LEAVE THE AREA AT ONCE. BACK OUT WITH THE LEVER SQUEEZED AND THE NOZZLE POINTED AT YOUR FEET. THIS WILL HELP PROTECT YOU UNTIL YOU ARE OUT OF THE AREA.

3.8 CARBON MONOXIDE POISONING

Carbon monoxide (CO) is an invisible, silent and deadly danger. It is a colourless, odourless gas produced during the incomplete combustion of fossil fuels. It cuts off the oxygen supply to the body, causing death in minutes. Symptoms of CO poisoning such as headaches, nausea and fatigue can be mistaken for seasickness or the flu because you can't tell the deadly gas is in the air without a CO detector.

The risk of poisoning by carbon monoxide is also increased in the case of divers because any CO present in the blood will have its effect magnified by the pressure divers are exposed to at depth.

Be aware of the warning signs and get anyone who complains of these symptoms to fresh air immediately. Install a marine grade CO detector according to the manufacturer's instructions so that you'll be alerted if CO is present.

Become familiar with and avoid situations that cause CO to build up:

- Do not heat cabins or cook unless the cabins are well-ventilated
- Be especially careful in areas such as the stern, cabin extensions and areas fitted with canvas tops
- Be aware that engines left idling in poorly ventilated areas can create dangerous concentrations of CO; a tail wind can easily carry CO back on board
- Be aware of other vessels. Exhaust from a nearby vessel may cause a build-up of carbon monoxide even when your engine is not running

ON WATER & PRACTICAL COMPETENCIES

HAZARD & EMERGENCIES - MOB			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand and demonstrate the actions and steps involved of MOB and recovery operations a minimum of once .	The Student must accomplish the following tasks a minimum of once : Identify Man Over Board	_____	_____
	Locate Person in water and continue to spot the person	_____	_____
	Operate the vessel in recovery	_____	_____
	Recover the Man Overboard	_____	_____

RECOVERY OF PIW – SINGLE PERSON LIFT			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully lift a minimum of one person or rescue dummy from the water a minimum of once .	The Student must accomplish the following tasks a minimum of once : Reassure the patient	_____	_____
	Maintains a secure spot on the vessel	_____	_____
	Effective control of the person	_____	_____
	Place patient gently into the vessel	_____	_____
	Effective communication skills at all times	_____	_____

HYPOTHERMIA – HELP, HUDDLE, BODY OUT OF WATER			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand and identify the primary heat loss areas, demonstrate the HELP position on land, demonstrate the huddle position on land. The students must accomplish the tasks a minimum of once .	The Student must accomplish the following tasks a minimum of once : Identify the primary areas of heat loss	_____	_____
	Demonstrate HELP Position on land	_____	_____
	Demonstrate the Huddle position on land	_____	_____
	Identify the importance of getting body out of water	_____	_____

- CHAPTER 4 - VESSEL INSPECTIONS

4.1 DAILY INSPECTION CHECKLISTS

To ensure that a workboat is in shipshape it should be checked and maintained daily. A daily inspection should be part of the crew's regular daily routine.

Below is an example of a daily inspection checklist.

DAILY INSPECTION CHECKLIST					
VESSEL NAME/ LICENSE					
FLOATATION DEVICE PER PERSON					
TUBE PRESSURE					
BATTERIES					
ELECTRICAL CONNECTIONS					
OIL LEVELS					
FUEL LEVELS					
TOW ASSEMBLY					
CAGE					
ANTENNAS					
CAPSIZE REVERSAL SYSTEM					
PERSONAL RECOVERY LINE					
KNIFE					
RADIO TEST					
GPS					
RADAR					
SOUNDER					
NAVIGATION LIGHTS					
STROBE					
INSTRUMENT / GAUGE LIGHTS					
BILGE PUMP					
HORN					
STEERING					
SEARCH LIGHTS					
TOOLKIT AND ESSENTIAL SPARES					
EPIRB					

DAILY INSPECTION CHECKLIST - CONTINUED

DE - WATER VOID SPACES / CONSOLES						
SEA ANCHOR						
ANCHOR AND RODE						
BAILER / MANUAL BILGE PUMP						
DMB						
DEWATERING PUMP						
BUOYANT HEAVING LINE						
PADDLES						
FLARES						
FIRST AID KIT						
TIGHTEN BOLTS						
TILT / TRIM	PORT / STARBOARD	/	/	/	/	/
PROPS / SKEGS	PORT / STARBOARD	/	/	/	/	/
ENGINE HRS	PORT / STARBOARD	/	/	/	/	/
RPM AT IDLE	PORT / STARBOARD	/	/	/	/	/
TELL TALE	PORT / STARBOARD	/	/	/	/	/
KILL SWITCHES						

NOTES:

*** THE SHADED ITEMS IN THE INSPECTION CHECKLIST ABOVE ARE REQUIRED ABOARD ALL POWERED PLEASURE CRAFTS BY TRANSPORT CANADA.

4.2 WEEKLY INSPECTION CHECKLIST

There are also a number of areas that should be checked and maintained on the SRU vessel on a weekly basis to ensure the vessel is in good working condition.

VESSEL NAME/ LICENSE	
ITEM	INSPECTION POINTS
RESCUE EQUIPMENT	<ul style="list-style-type: none"> • Check equipment listed in daily inspection. • Ensure equipment is operable, dry and secure.
FIRE PUMPS	<ul style="list-style-type: none"> • Run up and flushed with fresh water. • Pressure test hose. • Inspect nozzles and threaded fittings.
HULL AND TUBE CONNECTIONS	<ul style="list-style-type: none"> • Check for chafing and wear. • Inspect all hull attachments. • Lifelines, handles, transom joints.
BATTERIES AND CONNECTIONS	<ul style="list-style-type: none"> • Check Fluid level. • Specific gravity, record data, low specific gravity over 1 cell indicates deterioration of battery. • Inspect all connections, coat with Vaseline or dielectric grease. • Inspect battery hold downs.
ALL WIRING	<ul style="list-style-type: none"> • Inspect all terminals and wires. • Look for corrosion, loose nuts, chafing, breaks and cracks in the insulation jacket.
ANTENNAS	<ul style="list-style-type: none"> • Inspect all coaxial cable connections. • Inspect for chafing and exposed wires. • Check antenna mounts.
RADIO MOUNTS	<ul style="list-style-type: none"> • Check all mounting hardware for tightness and cracking.
ENGINE TRANSOM BOLTS	<ul style="list-style-type: none"> • Look for loose nuts, tighten and seal accordingly.
BILGE PUMP	<ul style="list-style-type: none"> • Manually test and inspect screens and hose. • Through hull fittings and wiring.
STEERING SYSTEM	<ul style="list-style-type: none"> • Fluid level, rams, hoses. • All hardware.
HULL	<ul style="list-style-type: none"> • Inspect for cracks, gouges and delamination, clean hull at this time.
CONSOLE	<ul style="list-style-type: none"> • All bolts and nuts.
SEAT	<ul style="list-style-type: none"> • Seat hinges, tight and seal tears and cuts.
TOWING ASSEMBLY	<ul style="list-style-type: none"> • Check welds and fasteners for cracking and tightness. • Metals all subject to cracking and corrosion. • Hammer test for buzzing sound and indicating cracks and loose fasteners. • Remove corrosion deposits and repair paint blisters.
FUEL SYSTEM	<ul style="list-style-type: none"> • Lines, filters, water separators, connections.
ZINCS	<ul style="list-style-type: none"> • Must have a good bond. • Change when at 50%.
ALL GROUNDS	<ul style="list-style-type: none"> • Corrosion, loose nuts, deteriorated condition of wires. • Good clean grounds are essential for the proper operation of engine components and functioning of sacrificial zincs.
ALL GREASE POINTS	<ul style="list-style-type: none"> • Refer to manual.
LUBRICATE ALL LINKAGES	<ul style="list-style-type: none"> • Steering and throttle with dielectric grease.

ON WATER & PRACTICAL COMPETENCIES

DAILY INSPECTION OF VESSEL			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the importance of a daily inspection of the vessel and demonstrate the ability to conduct a daily inspection of the Vessel. The use of a checklist is acceptable.	The Student must accomplish the following tasks a minimum of once : Identify the items on a daily inspection checklist	_____	_____
	Demonstrate the inspection of those checklist items	_____	_____
	Identify defects or discrepancies on the vessel	_____	_____
	Identify those items that are critical for vessel safety and operation	_____	_____

DAILY INSPECTION OF EQUIPMENT			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the importance of a daily inspection of equipment and demonstrate the ability to conduct an inspection of all emergency equipment on the vessel. Ex: First Aid, Blankets, Backboard, Etc. The use of a checklist is acceptable.	The Student must accomplish the following tasks a minimum of once : Identify the emergency equipment items located on the vessel	_____	_____
	Demonstrate the inspection of those emergency items located on the vessel	_____	_____
	Identify defects or discrepancies of items on the vessel	_____	_____
	If found in defect indicate how to remedy the equipment and gain a replacement if required	_____	_____

DAILY INSPECTION OF VESSEL NAVIGATION EQUIPMENT/LIGHTS

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the importance of a daily inspection of the vessels navigation equipment and lights and demonstrate the ability to conduct a daily inspection of the Vessels Navigation Equipment and Navigation Lights. The use of a checklist is acceptable.	The Student must accomplish the following tasks a minimum of once : Identify the vessels navigation equipment. Ex: GPS, radar, chart plotter, charts, spreaders and dividers	_____	_____
	Demonstrate the inspection of the navigation equipment	_____	_____
	Identify the navigation lights on the vessel	_____	_____
	Demonstrate the inspection of the Navigation Lights on the vessel	_____	_____

DEPARTURE PREPARATION

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand and demonstrate the skills of a departure checklist. The use of a checklist is acceptable. The students must accomplish the tasks a minimum of once .	The Student must accomplish the following tasks a minimum of once : Importance of Running the Bilge Blower	_____	_____
	Activate and Run the bilge Blower (If applicable)	_____	_____
	Understand the necessity of planning for fuel consumption and the current amount of fuel on board the vessel	_____	_____
	Understand the Benefit of the "Departure Checklist"	_____	_____
	Understand the benefit of how to file a "Sail or Trip Plan" also know as a Status Report	_____	_____
	Understand the requirement to be aware of local hazards within the operational area	_____	_____

CARE & INSPECTION OF DEWATERING PUMP

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the importance of the dewatering pump and demonstrate the care and inspection of the dewatering pump, and setup the dewatering pump. The students must accomplish the tasks a minimum of once .	The Student must accomplish the following tasks a minimum of once :		
	Inspection of dewatering pump - oil Reservoir/gauge	_____	_____
	Inspection of fuel system and turn fuel "on"	_____	_____
	Inspection of hoses (intake and output)	_____	_____
	Inspection of couplers on hoses - connect hoses to pump	_____	_____
	Prime pump (If applicable)	_____	_____
	Start dewatering pump with use of "choke" and throttle	_____	_____
	Shut down the pump and stow in safe location with fuel turned "off"	_____	_____
Knowledge of the operating manual for the dewatering pump onboard the vessel	_____	_____	

CARE & INSPECTION OF FIRE DETECTION & FIRE FIGHTING EQUIPMENT

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully understand the knowledge of fire and its characteristics and demonstrate the Care and Inspection of the fire detection and firefighting equipment on board the vessel. The student must accomplish the tasks a minimum of once .	The Student must accomplish the following tasks a minimum of once :		
	Identify the location of the fire detection equipment on the vessel (If applicable)	_____	_____
	Identify the location of the firefighting equipment on board the vessel	_____	_____
	Demonstrate the inspection and care of the firefighting equipment on board the vessel	_____	_____
	Basic knowledge of fire and the fire triangle	_____	_____
Identify and fire hazards on the vessel and demonstrate preventative measures to prevent fire on board the vessel	_____	_____	

- CHAPTER 5 -

COLLISION REGULATIONS

COLLISION REGULATIONS

The Collision Regulations govern marine traffic behavior and patterns to reduce the risk of collisions at sea. These regulations are the “rules of road.” They set out the rules between vessels underway and for vessels meeting head-on, crossing and overtaking when in sight of one another and when visibility is restricted.

The Collision Regulations apply to all vessels, from small boats up to large freighters, on all navigable waters in Canada and, with some modifications, are the same as international requirements.

5.1 CONSTANT LOOKOUT

Operators must maintain a constant all-around lookout by sight and hearing. You must use every available means, including radar and radio (if equipped), to determine whether there is any risk of collision with another vessel.

RULE 2

Responsibility

- (a) Nothing in these Rules shall exonerate any vessel, or the owner, master or crew thereof, from the consequences of any neglect to comply with these Rules or of the neglect of any precaution which may be required by the ordinary practice of seamen, or by the special circumstances of the case.
- (b) In construing and complying with these Rules due regard shall be had to all dangers of navigation and collision and to any special circumstances, including the limitations of the vessels involved, which may make a departure from these Rules necessary to avoid immediate danger.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

RULE 5

Look-out

Every vessel shall at all times maintain a proper look-out by sight and hearing as well as by all available means appropriate in the prevailing circumstances and conditions so as to make a full appraisal of the situation and of the risk of collision.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

5.2 NAVIGATION

5.2.1 SAFE SPEED

You must always operate your vessel at a safe speed so that you can take proper and effective action to avoid collision and stop within a proper distance for the circumstances and conditions.

In the Canadian waters of a roadstead (a partly sheltered anchorage), harbour, river, lake or inland waterway, every vessel passing another vessel or work that includes a dredge, tow, grounded vessel or wreck must proceed with caution at a speed that will not adversely affect the vessel or work being passed and comply with relevant content of any Notice to Mariners or Notice to Shipping.

A general speed limit of 10 km/h within 30 metres of shore is in force for all power driven vessels on:

- the waters of Ontario, Manitoba, Saskatchewan and Alberta;
- the lakes and rivers of Nova Scotia and British Columbia;
- Bras d'Or Lake in Nova Scotia, inland of a line drawn from Coffin Head and Red Head in Great Bras d'Or Channel and the inland end of St. Peters Canal; and
- Nitinat Lake and Nitinat River, upstream of Nitinat Bar, in British Columbia unless the river is less than 100 metres wide, or the vessel is travelling in canals or buoyed channels, or another speed limit is in effect

RULE 6

Safe Speed – International

Every vessel shall at all times proceed at a safe speed so that she can take proper and effective action to avoid collision and be stopped within a distance appropriate to the prevailing circumstances and conditions. In determining a safe speed the following factors shall be among those taken into account:

- (a) By all vessels:
 - (i) the state of visibility,
 - (ii) the traffic density including concentrations of fishing vessels or any other vessels,
 - (iii) the manoeuvrability of the vessel with special reference to stopping distance and turning ability in the prevailing conditions,
 - (iv) at night the presence of background light such as from shore lights or from back scatter of her own lights,
 - (v) the state of wind, sea and current, and the proximity of navigational hazards,
 - (vi) the draught in relation to the available depth of water.

- (b) Additionally, by vessels with operational radar:
 - (i) the characteristics, efficiency and limitations of the radar equipment,
 - (ii) any constraints imposed by the radar range scale in use,
 - (iii) the effect on radar detection of the sea state, weather and other sources of interference,
 - (iv) the possibility that small vessels, ice and other floating objects may not be detected by radar at an adequate range,
 - (v) the number, location and movement of vessels detected by radar,
 - (vi) the more exact assessment of the visibility that may be possible when radar is used to determine the range of vessels or other objects in the vicinity.

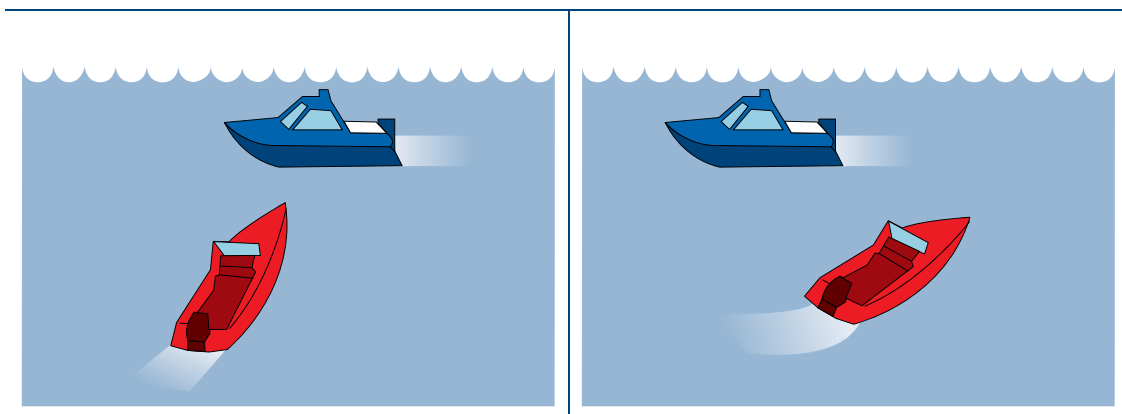
Safe Speed – Canadian Modifications

- (c) In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, every vessel passing another vessel or work that includes a dredge, tow, grounded vessel or wreck shall proceed with caution at a speed that will not adversely affect the vessel or work being passed, and shall comply with any relevant instruction or direction contained in any Notice to Mariners or Notice to Shipping.
- (d) For the purpose of paragraph (c), where it cannot be determined with certainty that a passing vessel will not adversely affect another vessel or work described in that paragraph, the passing vessel shall proceed with caution at the minimum speed at which she can be kept on her course.
- (e) [Repealed, SOR/2008-272, s. 10]

Collision Regulations C.R.C.,c 1416 / June 10, 2012

5.2.2 CROSSING SITUATION IN SIGHT OF ONE ANOTHER

If a power-driven vessel approaches your power-driven vessel from your port side and poses a risk of collision, you are the “stand-on” vessel. Maintain your course and speed unless you see that the “give-way” vessel is not taking appropriate action. The other vessel is the “give-way” vessel and is required to keep out of your way.



If a power-driven vessel approaches your power-driven vessel from your starboard side and poses a risk of collision, you are the “give-way” vessel. You must keep out of the way and avoid crossing ahead of the other vessel. The other vessel is the “stand-on” vessel and will maintain its course and speed.

RULE 7

Risk of Collision

- (a) Every vessel shall use all available means appropriate to the prevailing circumstances and conditions to determine if risk of collision exists. If there is any doubt such risk shall be deemed to exist.
- (b) Proper use shall be made of radar equipment if fitted and operational, including long-range scanning to obtain early warning of risk of collision and radar plotting or equivalent systematic observation of detected objects.
- (c) Assumptions shall not be made on the basis of scanty information, especially scanty radar information.
- (d) In determining if risk of collision exists the following considerations shall be among those taken into account:
 - (i) such risk shall be deemed to exist if the compass bearing of an approaching vessel does not appreciably change,
 - (ii) such risk may sometimes exist even when an appreciable bearing change is evident, particularly when approaching a very large vessel or a tow or when approaching a vessel at close range.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

RULE 8

Action to avoid Collision

- (a) Any action to avoid collision shall be taken in accordance with the Rules of this Part and shall, if the circumstances of the case admit, be positive, made in ample time and with due regard to the observance of good seamanship.
- (b) Any alteration of course and/or speed to avoid collision shall, if the circumstances of the case admit, be large enough to be readily apparent to another vessel observing visually or by radar; a succession of small alterations of course and/or speed should be avoided.
- (c) If there is sufficient sea room, alteration of course alone may be the most effective action to avoid a close-quarters situation provided that it is made in good time, is substantial and does not result in another close-quarters situation.
- (d) Action taken to avoid collision with another vessel shall be such as to result in passing at a safe distance. The effectiveness of the action shall be carefully checked until the other vessel is finally past and clear.
- (e) If necessary to avoid collision or allow more time to assess the situation, a vessel shall slacken her speed or take all way off by stopping or reversing her means of propulsion.

(f)

- (i) A vessel which, by any of these Rules, is required not to impede the passage or safe passage of another vessel shall, when required by the circumstances of the case, take early action to allow sufficient sea room for the safe passage of the other vessel.
- (ii) A vessel required not to impede the passage or the safe passage of another vessel is not relieved of this latter obligation if approaching the other vessel so as to involve risk of collision and shall, when taking action, have full regard to the action which may be required by the rules of this Part.
- (iii) A vessel the passage of which is not to be impeded remains fully obliged to comply with the rules of this Part when the two vessels are approaching one another so as to involve risk of collision

Collision Regulations C.R.C.,c 1416 / June 10, 2012

RULE 15

Crossing Situation — International

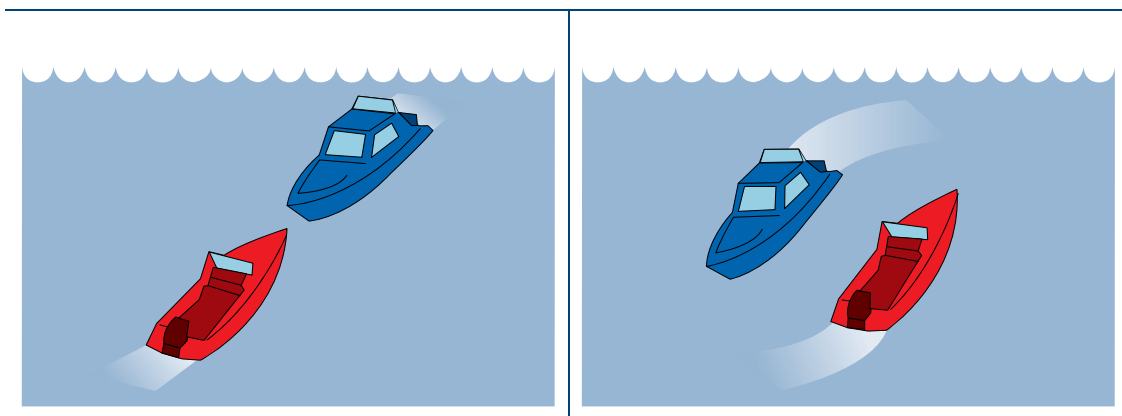
- (a) When two power-driven vessels are crossing so as to involve risk of collision, the vessel which has the other on her own starboard side shall keep out of the way and shall, if the circumstances of the case admit, avoid crossing ahead of the other vessel.

Crossing Situation — Canadian Modification

- (b) Notwithstanding paragraph (a), in Canadian waters, a vessel crossing a river shall keep out of the way of a power-driven vessel ascending or descending the river, except on the St. Lawrence River seaward of Île Rouge.

5.2.3 MEETING OR HEAD-ON SITUATION IN SIGHT OF ONE ANOTHER

If a power-driven vessel approaches your power-driven vessel head-on or nearly head-on, where there is a possible risk of collision, you should alter your course to starboard so that the other vessel will pass on your port side. The other vessel must take the same action, so that you will pass on its port side.



RULE 14

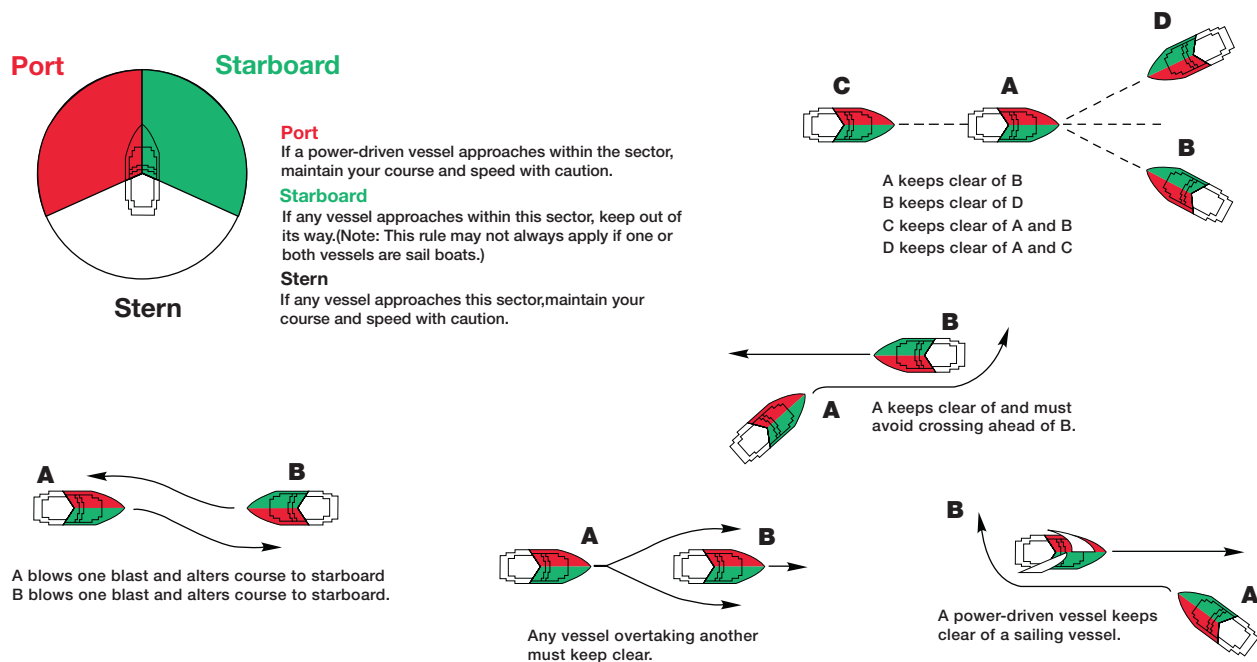
Head-on Situation

- (a) When two power-driven vessels are meeting on reciprocal or nearly reciprocal courses so as to involve risk of collision, each shall alter her course to starboard so that each shall pass on the port side of the other.
- (b) Such a situation shall be deemed to exist when a vessel sees the other ahead or nearly ahead and by night she could see the masthead lights of the other in a line or nearly in a line and/or both sidelights and by day she observes the corresponding aspect of the other vessel.
- (c) When a vessel is in any doubt as to whether such a situation exists she shall assume that it does exist and act accordingly.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

5.2.4 PASSING OR OVERTAKING

If you are approaching another vessel to pass, you must keep out of its way. A vessel is considered to be overtaking another vessel if it approaches from a direction within the stern sector.



RULE 13

Overtaking – International

- (a) Notwithstanding anything contained in the Rules of Part B, Sections I and II, any vessel overtaking any other vessel shall keep out of the way of the vessel being overtaken.
- (b) A vessel shall be deemed to be overtaking when coming up with another vessel from a direction more than 22.5 degrees abaft her beam, that is, in such a position with reference to the vessel she is overtaking, that at night she would be able to see only the sternlight of that vessel but neither of her sidelights.
- (c) When a vessel is in any doubt as to whether she is overtaking another, she shall assume that this is the case and act accordingly.
- (d) Any subsequent alteration of the bearing between the two vessels shall not make the overtaking vessel a crossing vessel within the meaning of these Rules or relieve her of the duty of keeping clear of the overtaken vessel until she is finally past and clear.

Overtaking – Canadian Modification

- (e) Notwithstanding paragraph (b), in the waters of the Great Lakes Basin, a vessel shall be deemed to be overtaking if approaching another vessel from a direction more than 22.5° abaft her beam, that is, in such a position with reference to the vessel she is overtaking that at night she would not be able to see either of the sidelights of the other vessel but would be able to see
 - (i) the sternlight of the other vessel, or
 - (ii) in the case of a power-driven vessel lighted in accordance with Rule 23(d) or (f), the all-round white light or lights of the other vessel.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

5.2.6 KEEPING OUT OF THE WAY

Power-driven vessels must keep out of the way of sailing vessels, vessels engaged in fishing, vessels that are not able to manoeuvre, as well as rowing boats and other craft with restricted handling. You must take early action to keep clear of these vessels unless being overtaken by one of them.

Vessels less than 20 metres long and fishing vessels must not get in the way of larger vessels within a narrow channel.

When changing course or speed to keep out of the way of another vessel, make it clearly visible to the stand-on vessel that you have taken appropriate action.

If you are not sure what another vessel is going to do, give 5 short blasts on your whistle. If the vessel doesn't make a clear change in course, change your course to get out of its way.

RULE 16

Action by Give-way Vessel

Every 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.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

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.

(ii) The latter vessel may however take action to avoid collision by her manoeuvre alone, as soon as it becomes apparent to her that the vessel required to keep out of the way is not taking appropriate action in compliance with these Rules.

(b) When, from any cause, the vessel required to keep her course and speed finds herself so close that collision cannot be avoided by the action of the give-way vessel alone, she shall take such action as will best aid to avoid collision.

(c) A power-driven vessel which takes action in a crossing situation in accordance with subparagraph (a)(ii) of this Rule to avoid collision with another power-driven vessel shall, if the circumstances of the case admit, not alter course to port for a vessel on her own port side.

(d) This Rule does not relieve the give-way vessel of her obligation to keep out of the way.

Collision Regulations C.R.C.,c 1416 / June 10, 2012

RULE 18

Responsibilities between Vessels Except where Rules 9, 10 and 13 otherwise require:

(a) A power-driven vessel underway shall keep out of the way of:

(i) a vessel not under command,

(ii) a vessel restricted in her ability to manoeuvre,

(iii) a vessel engaged in fishing,

(iv) a sailing vessel.

- (b) A sailing vessel underway shall keep out of the way of:
- (i) a vessel not under command,
 - (ii) a vessel restricted in her ability to manoeuvre,
 - (iii) a vessel engaged in fishing.
- (c) A vessel engaged in fishing when underway shall, so far as possible, keep out of the way of:
- (i) a vessel not under command,
 - (ii) a vessel restricted in her ability to manoeuvre.
- (d)
- (i) Any vessel other than a vessel not under command or a vessel restricted in her ability to manoeuvre shall, if the circumstances of the case admit, avoid impeding the safe passage of a vessel constrained by her draught, exhibiting the signals in Rule 28.
 - (ii) A vessel constrained by her draught shall navigate with particular caution having full regard to her special condition.
- (e) A seaplane on the water shall, in general, keep well clear of all vessels and avoid impeding their navigation. In circumstances, however, where risk of collision exists, she shall comply with the Rules of this Part.
- (f)
- (i) A WIG craft shall, when taking off, landing and in flight near the surface, keep well clear of all other vessels and avoid impeding their navigation.
 - (ii) A WIG craft operating on the water surface shall comply with the Rules of this Part as a power-driven vessel.

5.3 AIDS TO NAVIGATION

5.3.1 GENERAL KNOWLEDGE

AIDS TO NAVIGATION

“Aids to Navigation” are the system of buoys and markers that assist a boater in determining his or her position and identifying potential dangers and waterway obstructions. External to pleasure craft, aids to navigation can be used to plot position and course on nautical charts and other nautical publications. Aids to navigation also assist the pleasure craft operator in choosing the most preferred and safest route.

It is prohibited under the Criminal Code of Canada to interfere with any aid to navigation. Operators should never tie up to a marker, buoy or any other aid to navigation. In addition, no person may willfully alter, remove or conceal a signal, buoy or other type of navigation marker.

Two main systems of navigation are used on Canadian Waterways: The Lateral System and The Cardinal System. All aids to navigation have identifying marks such as colours, lights and numbers.

WHAT IS A BUOY?

A buoy is a floating marker or signal which is affixed to the bottom of the waterway or mounted on a feature (such as an island) of the waterway.

Buoys serve four main functions:

- Provide Warnings
- Provide Information
- Mark underwater hazards
- Provide a system for navigation



FLOATING BUOYS

There are three styles of floating buoys used on Canadian waterways:

1. Light Buoys

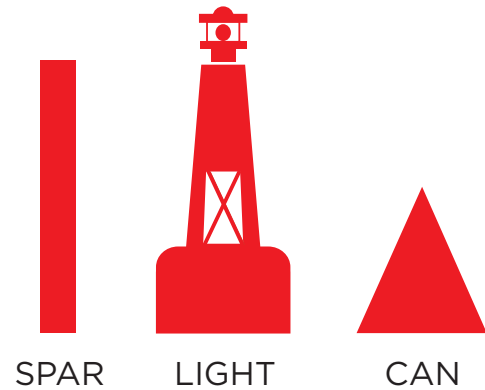
Light buoys are typically the largest of all floating buoys and have a light fixture affixed to the top of the buoy.

2. Spar Buoys

Spar buoys are also called “pillars” and are common on smaller waterways. They have a cylinder shape and are typically smaller than light buoys.

3. Cans

Cans are wider than spar buoys and are typically used as lateral system and bifurcation buoys.



All floating buoys are affixed to the bottom of the waterway using a structure of underwater cables and anchors.

SYSTEMS OF BUOYS IN CANADA

There are several systems of buoys and markers used on Canadian waterways to aid in navigation:

1. The Lateral System is a system of red and green buoys used to mark preferred safe routes. The Lateral System also includes fairway buoys, isolated danger buoys and day beacons.
2. The Cardinal System consists of yellow and black buoys that indicate safe routes by the cardinal compass points.
3. A Range is a series of two buoys that, when aligned along a sight path, indicate the safest route for navigation.
4. Special Purpose Buoys may be yellow or white in colour and are used to mark dangers such as (but not limited to) racecourses, underwater structures, pipelines, etc.

5.3.2 LATERAL SYSTEM

The lateral system is used to mark the most preferred and safest routes. Consisting of red and green buoys, this system marks the course of deepest water and indicates on which side of the buoy boaters should safely pass.

In the Lateral System, buoys and beacons indicate the sides of the channel or route relative to a conventional direction of buoyage (usually upstream). They also mark junctions (a point where two channels meet) or bifurcations (the point where a channel divides). They can also mark a place where two tributaries meet.

There are two main types of Lateral System buoys which are most familiar to boaters:

- Green Port-hand buoys
- Red Starboard-hand buoys

In total, there are six types of lateral buoys including: port hand buoys, starboard hand buoys, port bifurcation buoys, starboard bifurcation buoys, fairway buoys, and isolated danger buoys. The Lateral System is standardized for international waterways.

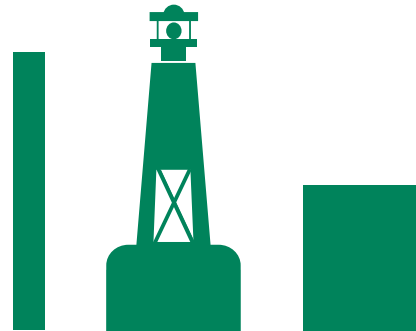
PORT-HAND BUOYS

Port-hand buoys are green in colour and mark the left side of a channel or the location of a specific danger. Port-hand buoys must be kept on the left-hand side of your boat when heading upstream.

Port-hand buoys are identified by letter(s) and odd-digit number(s), and in standard configuration, are flat on the top. In some instances, a port-hand buoy may be fitted with a top-mark consisting of a single green cylinder.

Port-hand buoys may also be fitted with a green light that flashes in either a:

- F1 pattern (single flashes in 4 second intervals); or
- Q pattern (quick single flashes one second apart)



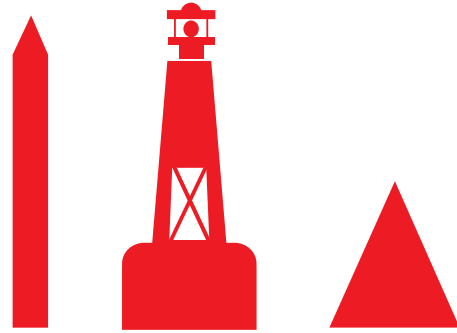
STARBOARD-HAND BUOYS

Starboard-hand buoys are red in colour and mark the right side of a channel or the location of a specific danger. Starboard-hand buoys must be kept on the right-hand side of your boat when heading upstream.

Starboard-hand buoys are identified by letter(s) and even-digit number(s) and in standard configuration, are pointed on the top. If they do not have a red light they will be conical on the top.

Starboard-hand buoys may also be fitted with a red light that flashes in either a:

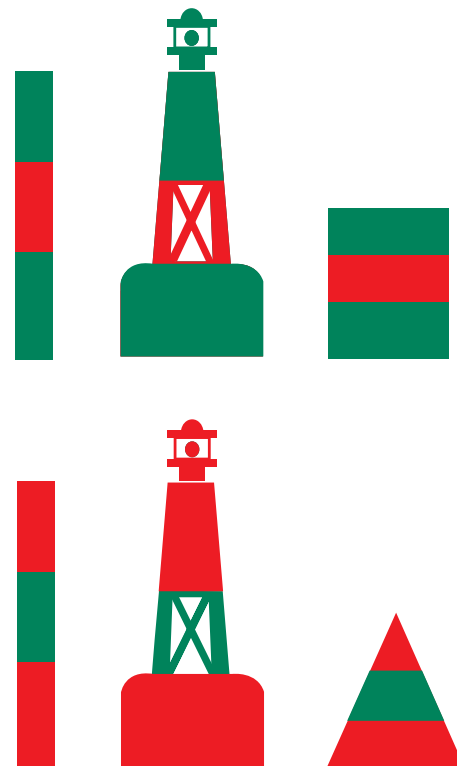
- F1 pattern (single flashes in 4 second intervals); or
- Q pattern (quick single flashes one second apart)



BIFURCATION BUOYS

Part of the lateral system, bifurcation buoys indicate the junction of channels:

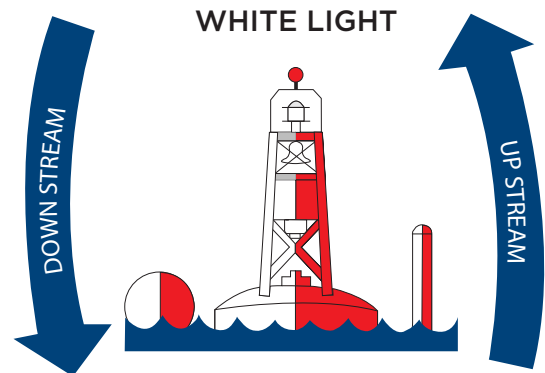
- Port-Junction bifurcation buoys are green in colour with a red horizontal band at the midsection. Port-junction buoys mark the junction of two channels and should be kept on the port (left) side of the vessel when navigating upstream.
- Starboard-Junction bifurcation buoys are red in colour with a green horizontal band at the midsection. Starboard-junction buoys mark the junction of two channels and should be kept on the starboard (right) side of the vessel when navigating upstream.



FAIRWAY BUOYS

Fairway buoys are used to mark the entrance to a channel, the centre of a shipping channel, or a safe approach to land. Vessels should keep the fairway buoy on the left (port) side whether proceeding upstream or downstream. Fairway buoys are identified by the following:

- Red and white in colour, divided vertically with one side red and the other side white
- Will have a ball shaped top-mark
- May be equipped with a white light that flashes in a Mo(A) sequence - One short flash, followed by one long flash repeated 10 times per minute

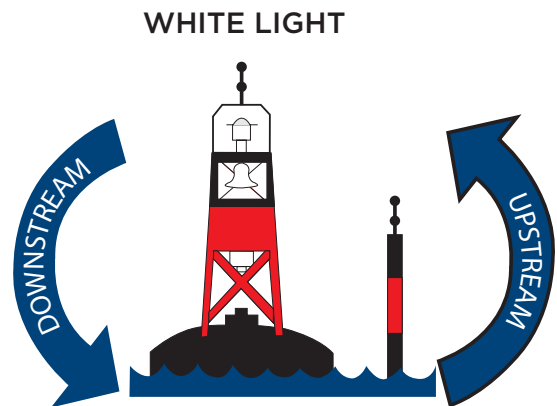


ISOLATED DANGER BUOYS

An isolated danger buoy is used to mark an isolated hazard or obstruction such as a rock, shoal, or sunken island. The buoy will be moored on, or above, an isolated danger that has navigable (i.e. safe) water all around it. You should refer to a marine chart to determine the features of the isolated danger (i.e. size, depth, exact location etc.) and should navigate well clear of the marked danger.

Isolated danger buoys are identified by the following:

- Black in colour with a wide red band at the midpoint
- A top-mark consisting of two black balls
- May be equipped with a white light that flashes in a FL(2) sequence - a two flash sequence repeated every 4 seconds



“RED RIGHT RETURNING”

What side of a red starboard-hand buoy should you pass on? What about a green port-hand buoy? Doesn't it depend on which direction you're travelling? If you encounter a red or green buoy on an open body of water, which way do you go? These are some of the most common questions that boaters have. In fact, many boaters are not certain on which side of a marker buoy they should pass. A simple way to remember is to use the Red Right Returning memory aid:

Red Right Returning refers to keeping the Red starboard-hand buoy on the Right side of your vessel when:

- Heading upstream
- When entering a channel from seaward
- When returning upstream to headwaters or to harbour

When traveling upstream:

- Always keep the red starboard-hand buoy on the right side of your vessel
- Always keep the green port-hand buoy on the left side of your vessel

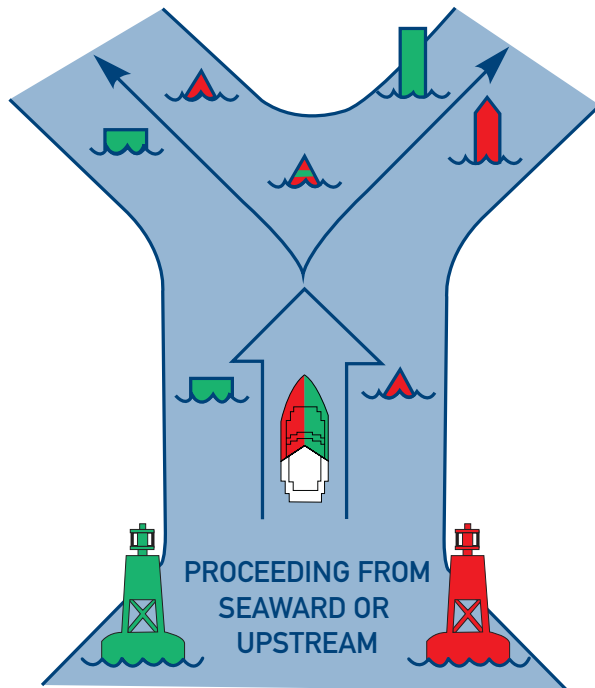
When traveling downstream:

- Always keep the red starboard-hand buoy on the left side of your vessel
- Always keep the green port-hand buoy on the right side of your vessel

How Do I Determine Which Way Is Upstream?

In order to apply the Red Right Returning Rule you will need to determine which direction is “Upstream” and which direction is “Downstream” - “Upstream” and “Downstream” refers to the direction of the current (i.e. the direction of water flow). Unfortunately, there is no one way to determine the direction of the current. For example, on “land-locked” lakes

(i.e. lakes that are not connected by a river, canal system or other waterway) it can be very difficult to determine which direction is upstream and which is downstream. In many places, the direction of the current is determined by consensus or by the tide. On canal systems (such as Ontario's Trent Severn Canal and Rideau Canal) the current changes direction at specific “high” points on the canal system. For example, from Ottawa, you rise with each lock going “upstream”. However, when you reach the Newboro Locks, you begin heading back “downstream” (even though you are still heading in the same direction). The direction of current can also change where lakes connect to on another. To help you determine the direction of water flow there are several tips to remember:



- If you're entering a channel from seaward (i.e. from the sea) you are considered to be travelling "upstream"
- If you're travelling on a sea channel that runs parallel to the coast, you should consider the "clockwise" direction as if it were "upstream" (i.e. in a Southerly direction along the Atlantic Coast and in a Northerly direction along the Pacific Coast)
- Marine charts identify the upstream direction of travel. If you're operating on a "land-locked" lake or a body of water on which you are unable to determine the direction of waterflow, you can refer to a marine chart to identify the upstream direction of travel and the location of waterway hazards

5.3.3 DAY BEACONS

PORT-HAND DAY BEACON

Day beacons are signs posted on land or water. They are not lighted and intended for daytime use only. Day beacons utilize the same colours as the lateral system and are typically used as channel or hazard markers. They may be marked with reflective lettering for identification on marine charts.

A port-hand day beacon consists of a black or green square on a white background framed by a reflective green border. A port-hand day beacon identifies the port (left) side of a channel or hazard and must be kept on the left side when proceeding upstream. Port-hand day beacons may display an odd number marked with reflective white lettering for reference on marine charts.

A port-junction day beacon marks the junction of two channels and may be passed on either side. If the preferred channel is desired, the port-junction day beacon should be kept on the vessel's port (left) side when travelling upstream.



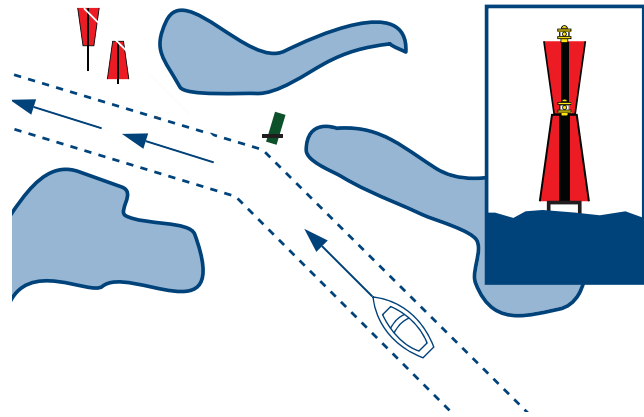
STARBOARD-HAND DAY BEACON

A starboard-hand day beacon consists of a red triangle on white background framed by a reflective red border. A starboard-hand day beacon identifies the starboard (right) side of the channel or hazard and must be kept on the right side when proceeding upstream. Starboard-hand day beacons may display an even number marked with reflective white lettering for reference on marine charts

A starboard-junction day beacon marks the junction of two channels and may be passed on either side. If the preferred channel is desired, the starboard-junction day beacon should be kept on the vessel's starboard (right) side when travelling upstream.

RANGE DAY BEACONS

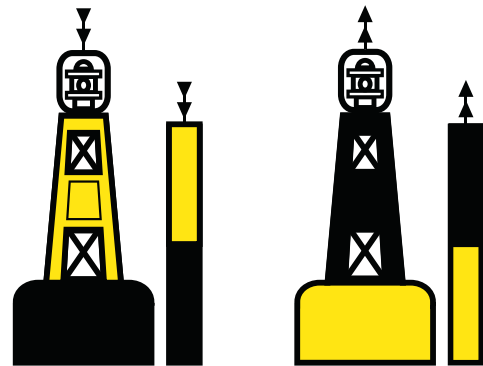
Ranges are typically used to guide larger vessels through a channel. Ranges consist of two or more markers, permanently affixed at a significant distance from each other. Ranges are constructed so that there is an upper marker and a lower marker. The lower marker is constructed near ground level at the shore while the upper marker is attached to a tower, located behind the lower marker.



One navigates through the channel by maintaining a course that keeps one marker aligned top and bottom with the other. When the two markers are lined up vertically, the boater is on the recommended course.

5.3.4 CARDINAL SYSTEM

The cardinal buoy system consists of yellow and black buoys that are used to assist boaters in identifying the location of safe water. Safe water lies on the North, South, East or West side of the buoys. For example, a North Cardinal Buoy indicates that safe water lies to the North of the buoy. Cardinal buoys may be equipped with a light and/or letters for identification on a marine chart. Remember: With cardinal buoys, safest water lies in the direction indicated by the buoy. Water in the opposite direction should be considered unsafe and avoided.



Cardinal markers are spar or pillar shaped (with a flat top). The position of the yellow and black colour bands indicates the cardinal compass point of North, South, East or West and therefore the direction of the safest water. If so equipped, top-marks consisting of two cones indicate the direction of safe water.

Specific details on each type of Cardinal Buoy can be found in the “Chart of Buoy” on page 69.

CARDINAL BUOYS AND TIER SIGNAL LIGHTS

Cardinal buoys may be equipped with a flashing white light for reference when navigating at night. North flashes once; South flashes in a group six times followed by one long flash; East flashes in a group three times; and West flashes in a group nine times. The chart below depicts the pattern of flashing white light for each type of buoy:

5.3.5 SPECIAL BUOYS & FLAGS

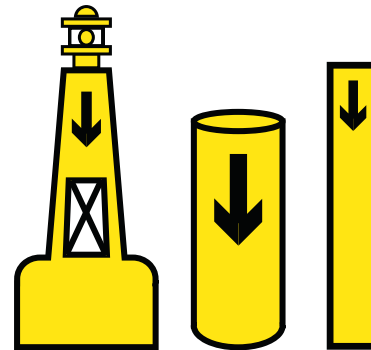
BOATING RESTRICTION SIGNS

There are five shapes associated with boating restriction signs. Each boating restriction sign is framed in orange. The symbol on the sign indicates the type of restriction that applies. If the sign is arrow shaped, the restriction applies in the direction pointed by the arrow. Signs with a green border indicate that a special condition applies to the restriction.



SPECIAL BUOYS AND FLAGS

There are a variety of special buoys and flags that mark specific hazards and provide information to the operator. These markers may be equipped with lights and may be marked with letters or numbers for chart identification. Operators must learn and be able to identify each special buoy and flag (refer to Appendix C at the beginning of the next page for a description of special buoys and flags).











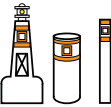
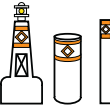
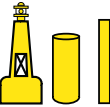
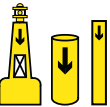
POSTED COMMAND SIGNS

Operators may encounter additional aids to navigation including command signs and warning signs. These signs may be posted either on land or in the water and may signify:

- No-wake zones
- No-anchorage areas
- Speed-limit zones
- Low-head dam hazards
- Pipeline hazards
- Power line hazards

5.3.6 CHART OF BUOYS AND FLAGS

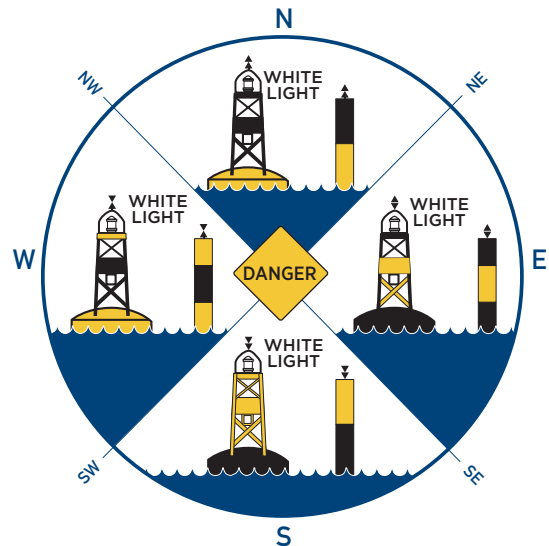
	NORTH CARDINAL BUOY	SOUTH CARDINAL BUOY	EAST CARDINAL BUOY	WEST CARDINAL BUOY	DIVING BUOY	SWIMMING BUOY
						
Purpose	A North Cardinal Buoy is positioned so that the safest water lies to the North of the buoy	A South Cardinal Buoy is positioned so that the safest water lies to the South of the buoy	An East Cardinal Buoy is positioned so that the safest water lies to the East of the buoy	A West Cardinal Buoy is positioned so that the safest water lies to the West of the buoy	Diving buoys mark an area where scuba diving (or other such diving activities) are taking place	Swimming buoys mark the perimeter of swimming areas
Colour	Of the portion above the waterline, the buoy is black on the top and yellow on the bottom	Of the portion above the waterline, the buoy is yellow on the top and black on the bottom	Of the portion above the waterline, the buoy is colored black with a wide yellow band around the midsection.	Of the portion above the waterline, the buoy is colored yellow with a wide black band around the midsection	White	White
Shape	If the buoy is not equipped with a light, it will be normally spar shaped	If the buoy is not equipped with a light, it will be normally spar shaped	If the buoy is not equipped with a light, it will be normally spar shaped	If the buoy is not equipped with a light, it will be normally spar shaped	Various	Various
Identification	Letters only	Letters only	Letters only	Letters only	None	None
Topmark	Two black cones, stacked on top of each other, pointing upwards	Two black cones, stacked on top of each other, pointing downwards	Two black cones, stacked on top of each other, with the bottom one pointing down and the top one pointing up	Two black cones, stacked on top of each other, with the bottom one pointing up and the top one pointing down	Carries a red flag not less than 50 cm square with a white diagonal stripe	None
Light	A white light flashing in a Quick (Q) sequence every 1 second or in a Very Quick (VQ) sequence every 0.5 seconds	A white light flashing in a (Q)(6) + LF1)15s sequence consisting of a group six quick single flashes followed by one long flash repeated every 15 seconds, or in a (VQ)(6) + LF1)10s sequence consisting of a group of six very quick single flashes followed by one long flash repeated every 10 seconds	A white light flashing in a Q(3)10s sequence consisting of a group of three quick single flashes repeated every 10 seconds, or in a VQ(3)5s sequence consisting of a group of three very quick single flashes repeated every 5 seconds	A white light flashing in a Q(9)15s sequence consisting of a group of nine quick single flashes repeated every 15 seconds, or in a VQ(9)5s sequence consisting of a group of nine very quick single flashes repeated every 5 seconds	None	May carry a yellow light that flashes in a (F1) 4s sequence

	KEEP OUT BUOY	CONTROL BUOY	INFORMATION BUOY	HAZARD BUOY	CAUTIONARY BUOY	ANCHORAGE BUOY
						
Purpose	Keep out buoys mark an area of water where boats are prohibited	Control buoys mark an area of water where boating is restricted	Information buoys provide information of interest to boaters using words or symbols	Hazard buoys mark random hazards such as rocks or shoals	Marks dangers such as underwater structures or areas where no safe channel exists. Can also mark traffic separations	Identifies areas where it is safe to anchor
Colour	White with an orange diamond containing an orange cross on two opposite sides and two orange horizontal bands, one above and one below the diamond symbols	White with an orange open faced circle on two opposite sides and two horizontal orange bands, one above and below the circles A black figure or symbol inside the orange circles indicates the type of restriction in effect	White and have an orange, open-faced square symbol on two opposite sides and two orange horizontal bands, one above and one below the square symbol	White and have an orange diamond on two opposite sides and two orange horizontal bands one above and one below the other	Yellow	Yellow with a symbol representing an anchor
Shape	Various including: Light buoys, spar-shaped, and cans	Various including: Light buoys, spar-shaped, and cans	Various including: Light buoys, spar-shaped, and cans	Various including: Light buoys, spar-shaped, and cans	Various including: Light buoys, spar-shaped, and cans	Various including: Light buoys, spar-shaped, and cans
Identification	None	None	None	Letters	Letters only	Letters
Topmark	None	None	None	None	May carry a topmark that is a single yellow "X" shape	None
Light	May carry a yellow light that flashes in a (F1) 4s sequence	May carry a yellow light that flashes in a (F1) 4s sequence	May carry a yellow light that flashes in a (F1) 4s sequence	May carry a yellow light that flashes in a (F1) 4s sequence	May carry a yellow light that flashes in a (F1) 4s sequence	May carry a yellow light that flashes in a (F1) 4s sequence

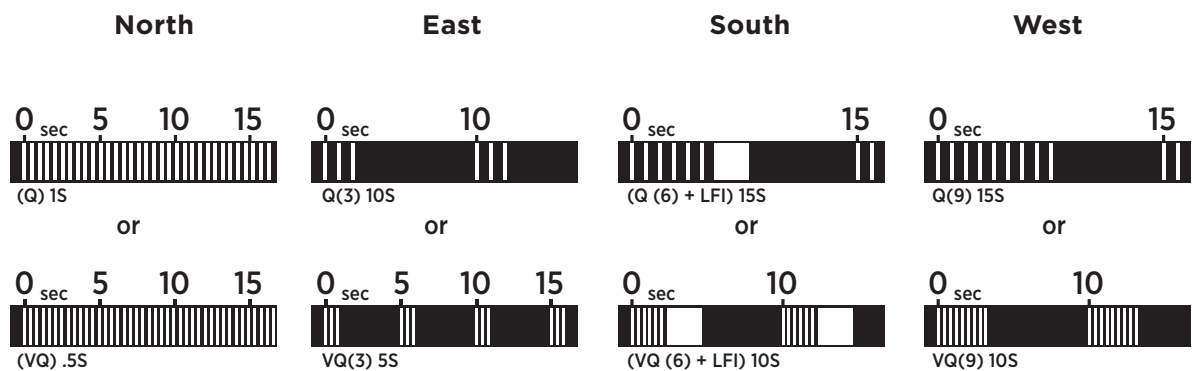
A cardinal buoy indicates the direction to safe water (for example, a north cardinal buoy indicates that the safest water exists to the north).

Description:






- Yellow and black
- White lights - flash characters indicated below (if equipped)
- The points of the 2 topmark cones tell you where to find safe water
- Topmark cones show where the black bands are placed on the buoy
- Letterhead no numbers
- White retroreflective material












Topmarks				Flash Groups





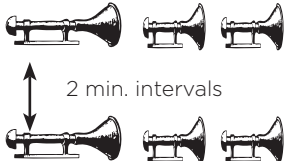
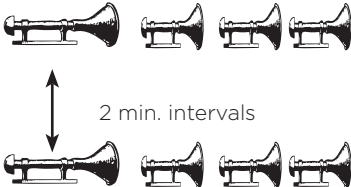








5.4 SOUND SIGNALS

LEGEND OF SOUND SIGNALS		
Whistle	Any sound signaling device capable of producing loud blasts as specified in Annex III of Collision Regulations.	
Short Blast	A blast approximately 1 second long.	
Prolonged Blast	A blast approximately 4 to 6 seconds long.	
Rapid Ringing of Bell	Ringling the bell rapidly for approximately 5 seconds in the forward part of the vessel.	
Rapid Sounding of Gong	Banging the gong rapidly for approximately 5 seconds in the aft part of the vessel.	

MANEUVERING AND WARNING SIGNALS		
Rule	Vessel	Signal
34a	Power-driven vessels in sight of one another: "I am altering course of starboard."	
34a	Power-driven vessels in sight of one another: "I am altering course to port."	
34a	Power-driven vessels in sight of one another: "I am operating astern propulsion."	
34c	When vessel are in sight of one another in a channel or fairway, a vessel intending to overtake another: "I intend to overtake you on your starboard side."	 Canadian Modifications
34c	When vessel are in sight of one another in a channel or fairway, a vessel intending to overtake another: "I intend to overtake you on your port side."	 Canadian Modifications
34c	When vessel are in sight of one another in a channel or fairway, the vessel about to be overtaken shall indicate agreement with the following signal:	
34d	Vessels in sight of one another are approaching each other, and from any cause either vessel fails to understand the intention or actions of the other, or is in doubt as to whether sufficient action is being taken by the other to avoid collision, the vessel in doubt shall make the following signal:	
34e	A vessel nearing a bend or area of a channel or fairway where other vessels may be obscured by an obstruction, shall sound the following signal:	
34e	A vessel nearing a bend or area of a channel or fairway where other vessels may be obscured by an obstruction, shall upon hearing a prolonged blast, answer with the following signal:	

RESTRICTED VISIBILITY SIGNALS

In or near an area of restricted visibility, whether by day or night, the signals outlined below shall be used as follows:

Rule	Vessel	Signal
35a	Power-driven vessel making way through the water.	 2 min. intervals or less
35b	Power-driven vessel underway, but stopped and making no way through the water.	 2 min. intervals or less
35c	A vessel not under command; a vessel restricted to her ability to maneuver; a vessel strained by her draught; a sailing vessel; a vessel engaged in fishing; a vessel engaged in towing or pushing another vessel; or a vessel restricted in her ability to maneuver while carrying out her work.	 2 min. intervals
35e	A vessel being towed, or the last vessel of a tow, if manned.	 2 min. intervals
35g	A vessel of under 100 meters in length at anchor.	 1 min. intervals
35g	A vessel of greater 100 meters in length at anchor.	 Forward  Aft 1 min. intervals
35g	Vessels at anchor may also choose to use an additional warning sign.	
35h	A vessel aground.	 Three (3) distinct strokes on the bell, rapid ringing of the bell followed by three (3) distinct strokes on the bell. 1 min. intervals
35h	A vessel aground may also choose to utilize the optional whistle signal	
35i	A vessel of less than 12 meters in length that has run aground shall not be required to issue the above signals, but if she does not, shall make some other efficient sound signal.	 2 min. intervals
35j	Pilot vessel - optional in addition to 35(a), (b) or (g).	

- CHAPTER 6 - LIGHTS – BASIC

6.1 NAVIGATION LIGHTS

Navigation lights help prevent collisions by making a vessel and its direction of travel more visible to others. The navigation lights on other vessels can help you tell the direction they are moving or whether they are at anchor or engaged in some other activity.

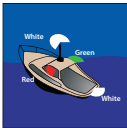
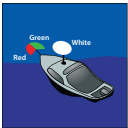
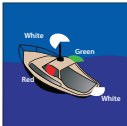
Navigation lights must meet Collision Regulations requirements.

For example, you must:

- Show navigation lights from sunset to sunrise and during periods of reduced visibility
- Make sure your vessel is equipped with the proper lights for its size and purpose
- Verify that the lights are correctly mounted

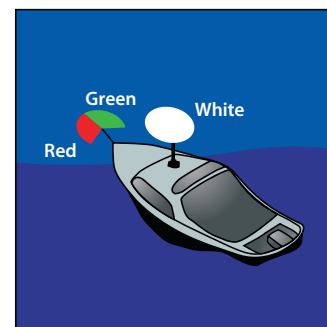
6.1.1 POWER DRIVEN VESSELS

Power-driven vessels up to 50 metres long must exhibit a masthead light forward, sidelights and a sternlight when underway. A second masthead light may also be exhibited abaft of (behind) and higher than the forward one. Power-driven vessels less than 20 metres long may have the sidelights placed in front of the forward masthead light.

BOAT TYPE AND LENGTH	REQUIREMENTS	OPTIONS			
		1	2	3	4
POWER BOATS UNDER 12 M (39'4") — RULE 23	<ul style="list-style-type: none"> • One (1) masthead light; • OPTIONAL — Another masthead light; • Sidelights; and • One (1) sternlight OR <ul style="list-style-type: none"> • One (1) all-round white light; and • Sidelights 				
POWER BOATS FROM 12 M TO UNDER 50 M (39'4" – 164'1") — RULE 23	<ul style="list-style-type: none"> • One (1) masthead light; • OPTIONAL — Another masthead light; • Sidelights; and • One (1) sternlight 				

Power-driven vessels less than 12 metres long may, in addition to sidelights, exhibit an all-round white light instead of the masthead light and the sternlight.

Power-driven vessels less than 7 metres long that can travel no faster than 7 knots may exhibit an all-round white light, and sidelights if practicable, instead of the lights required for power-driven vessels.

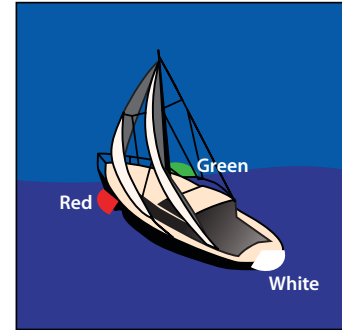


6.1.2 SAILING VESSELS

A sailing vessel is any vessel under sail provided that if propelling machinery is fitted, it is not being used.

A sailing vessel under way must exhibit sidelights and a sternlight or, if less than 20 metres long, a combined lantern carried at or near the top of the mast.

A sailing vessel may exhibit at or near the top of the mast, two all-round lights in a vertical line; the upper one red and the lower one green. These lights are shown along with the sidelights and sternlight, but not with the combined lantern.



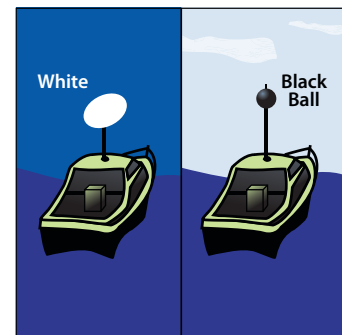
6.1.3 SAILING VESSELS PROPELLED BY MOTOR

A vessel under sail is considered to be a power-driven vessel if it is also being propelled by a motor, and must display the lights required by the Collision Regulations for power-driven vessels, and must also display a day shape that is cone-shaped with its point downwards.

6.1.4 ANCHORED VESSELS

Vessels that are at anchor and are less than 50 metres long must exhibit, depending on the time of day and visibility, an all-round white light or one ball where it can best be seen.

Vessels less than 7 metres long are not required to exhibit anchor lights or shapes when anchored unless in or near a narrow channel, fairway or anchorage, or where other vessels normally pass.



6.1.5 VESSELS TOWING AND UNDER TOW

Tugs may be towing barges or other vessels on a long towline astern. Often, the length of the tow is so great the towline hangs below the surface of the water and is nearly invisible. If a small craft were to strike the submerged towline, it could capsize and be run down by the barge.

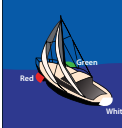
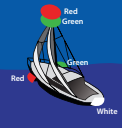


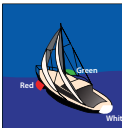
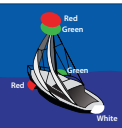

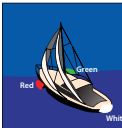
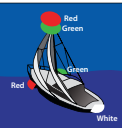

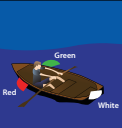
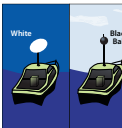
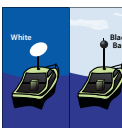
Never pass between a tug and its tow. To avoid this and to keep from getting caught on the towline (or worse), you must be alert for the special shapes and lights displayed by vessels towing barges, other vessels or objects. The towing vessel is usually more visible than its tow. The tow's navigation lights do not include masthead lights and are often much dimmer than those of the towing vessel.

In the case of a power-driven vessel towing another vessel from its stern, the towing vessel must exhibit the following:

- Sidelights and sternlight
- Towing light (yellow light with the same characteristics as the sternlight)
- Two masthead lights in a vertical line — three of these lights if the tow (length of tow cable plus object being towed) exceeds 200 metres
- A diamond shape where it can best be seen, if the tow exceeds 200 metres — day signal

In the case of the vessel being towed, it must exhibit the following:

- Sidelights and sternlight
- A diamond shape where it can best be seen, if the tow exceeds 200 metres
- If it is impractical for the vessel being towed to exhibit the lights stated above, it must have one all-around white light at each of the fore and aft ends

BOAT TYPE AND LENGTH	REQUIREMENTS	OPTIONS			
		1	2	3	4
SAIL BOATS UNDER 7 M (23') — RULE 25	<ul style="list-style-type: none"> Sidelights; One (1) sternlight; and OPTIONAL — Two (2) all-round lights in a vertical line, the upper being red and the lower green <p>OR</p> <ul style="list-style-type: none"> One (1) lantern, combining the sidelights and sternlight above <p>OR (if requirements above are not practical)</p> <ul style="list-style-type: none"> Have ready at hand an electric torch or lighted lantern showing a white light that you must use far enough in advance to prevent a collision. <p>NOTE: OPTIONAL — In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, a sail boat that is also being propelled by a motor may exhibit forward where it can best be seen a conical shape, apex downwards.</p>				
SAIL BOATS FROM 7 M TO UNDER 20 M (23' – 65'7") — RULE 25	<ul style="list-style-type: none"> Sidelights; One (1) sternlight; and OPTIONAL — Two (2) all-round lights in a vertical line, the upper being red and the lower green <p>OR</p> <ul style="list-style-type: none"> One (1) lantern, combining the sidelights and sternlight above <p>NOTE: OPTIONAL IF < 12 m — In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, a sail boat that is also being propelled by a motor may exhibit forward where it can best be seen a conical shape, apex downwards.</p>				
SAIL BOATS 20 M (65'7") AND OVER — RULE 25	<ul style="list-style-type: none"> Sidelights; One (1) sternlight; and OPTIONAL — Two (2) all-round lights in a vertical line, the upper being red and the lower green <p>NOTE: In the Canadian waters of a roadstead, harbour, river, lake or inland waterway, a sail boat that is also being propelled by a motor shall exhibit forward where it can best be seen a conical shape, apex downwards.</p>				
HUMAN-POWERED BOATS — RULE 25	<ul style="list-style-type: none"> Have ready at hand an electric torch or lighted lantern showing a white light that you must use far enough in advance to prevent a collision. <p>OR</p> <ul style="list-style-type: none"> Same lights as listed above for sail boats, according to length 				
BOATS AT ANCHOR UNDER 7 M (23') — RULE 30	<p>If the boat is in or near a narrow channel, fairway or anchorage, or where other boats normally navigate:</p> <ul style="list-style-type: none"> One (1) all-round white light (at night) or one (1) ball (during the day); and Another all-round white light <p>OR</p> <ul style="list-style-type: none"> One (1) all-round white light <p>NOTE: OPTIONAL — Any available lights to illuminate decks may be used.</p>				
BOATS AT ANCHOR FROM 7 M TO UNDER 50 M (23' – 164'1") — RULE 30	<ul style="list-style-type: none"> One (1) all-round white light (at night) or one (1) ball (during the day); and Another all-round white light <p>OR</p> <ul style="list-style-type: none"> One (1) all-round white light <p>NOTE: OPTIONAL — Any available lights to illuminate decks may be used.</p>				

- CHAPTER 7 -

BASIC VESSEL OPERATION

7.1 VESSEL HANDLING

Vessel handling requires an understanding of many variables and complex problems. It is important to plan your manoeuvres ahead of time. Think of what you will need to do, what you should have at hand to accomplish the task. Brief your crew on both the hoped-for result and the steps to achieve it.

Do things slowly – unless it is obvious that power is needed in a particular situation. Vessels have momentum; every action has a reaction. As you try out different actions at different speeds, carefully observe the effect that the manoeuvres have on your vessel. Always practice in a safe location away from other vessels.

7.2 THE EFFECTS NATURAL FORCES HAVE ON A VESSEL

7.2.1 WINDS

The wind acts as on the hull topsides, superstructure, and on smaller boats, the crew. The amount of surface upon which the wind acts is called “sail area”. The vessel will make “leeway” (drift down-wind) at a speed proportional to the wind velocity and the amount of sail area. The “aspect”, or angle the vessel takes due to the wind, will depend on where the sail area is centered compared to the underwater hull’s centre of lateral resistance. A vessel with a high cabin near the bow and low freeboard aft would tend to ride stern to the wind. If a vessel’s draft is shallower forward than aft, the wind would affect the bow more than the stern. A sudden gust of wind from abeam when mooring a vessel like this might quickly set the bow down on a pier.

Knowledge of how the wind affects a vessel is very important in all close quarters situations, such as docking, recovery of an object in the water, or manoeuvring close aboard another vessel. If manoeuvring from downwind or leeward side of a vessel or pier, look for any wind shadow the vessel or pier makes by blocking the wind. Account for the change in wind by planning manoeuvres with this wind shadow in mind.

7.2.2 SEAS

Seas are a product of the wind acting on the surface of the water. Seas affect vessel handling in various ways, depending on their height and direction, and the particular vessel’s characteristics. Vessels that readily react to wave motion, particularly pitching, will often expose part of the underwater hull to the wind. In situations such as this, the bow or stern may tend to “fall off” the wind when cresting a wave, as less underwater hull is available to prevent this downwind movement.

Relatively large seas have the effect of making a temporary wind shadow for smaller vessels. In the trough between the two crests, the wind may be substantially less than the wind at the wave crest. Very small vessels may need to make corrective manoeuvres in trough before approaching the next crest.

7.2.3 CURRENT

Current will act on a vessel's underwater hull. Though wind will cause a vessel to make leeway through the water, current will cause drift over the ground. A one-knot current may affect a vessel to the same degree as 30 knots of wind. Strong current will easily move a vessel upwind.

Learn to look for the signs of current flow so that you are prepared when current affects the vessel. Be particularly aware of instances where current shear is present. As with wind, a large stationary object like a breakwater or jetty will cause major changes in the amount and direction of current. Note the amount of current around floating piers or those with open pile supports. Use caution when manoeuvring in close quarters to buoys and anchored vessels. Observe the effect of current by looking for current wake flow patterns around buoys or piers. Watch how currents affect other vessels.

7.2.4 COMBINED NATURAL FORCES

Environmental conditions can range from perfectly calm and absolutely no current, to a howling gale at spring tides. Chances are that even if you do not operate at either extreme, some degree of environmental forces will be in action.

Know how your vessel responds to combinations of wind and current and determine which one has the greatest effect on your vessel. It may be that up to a certain wind speed, current has more control over a given vessel, but above that certain wind speed the vessel sails like a kite. Know what will happen if you encounter a sudden gust of wind; will your vessel immediately veer, or will it take a sustained wind to start turning?

When current goes against the wind, the wave patterns will be steeper and closer together. Be cautious where current or wind is funneled against each other. Tide rips, breaking bars, or conditions frequently occur in these types of areas and may present a challenge to even the most proficient coxswain.

On the other hand making leeway while downstream (down current) requires a change in approach to prevent overshooting your landing.

Name a wind for how it blows. Name a current for where it goes.

7.3 MANOEUVERING TO OR FROM A DOCK

The most challenging and probably the most frequent manoeuvring you will encounter is that associated with getting in and out of slips, dock areas, piers, boat basins or marinas.

When manoeuvring to or from a dock develop a plan ahead and be sure to brief the crew on the procedures to be used. Remember to check the conditions before manoeuvring. Rig

and lead mooring lines and fenders well before the approach. Give specific line-handling instructions in a loud, clear voice, and ensure they are understood.

Operating the vessel is the coxswain's role. However all crew should be informed and understand these factors and step in the event of an emergency and if the coxswain is unable to perform them.

7.3.1 UNDOCKING

When the wind current is pushing the vessel away from the dock the procedure is simple. Cast off lines and pull in fenders as the wind blows you away, When clear and safely away from the dock and other vessels, shift forward and depart at idle speed. Make sure you have been safely pushed away and that the stern will not hit the dock as you motor forward and turn.

(Remember: A vessel does not steer like a car, it pivots on its axis)

If the wind or current is pushing the vessel toward the dock extra planning is required. Cast off all lines except an after bow spring line. This line will keep you from moving forward and allow the stern to pivot away from the dock. You may want to use a fender forward to cushion the bow of the vessel against the dock. Turn the motor or rudder to the direction necessary to push the stern away from the dock. Shift into forward at idle speed. The stern will swing away from the dock. When it is clear of all obstacles and traffic, cast off the spring line and back away from the dock. When you are safely away, shift to forward and idle away from the dock.

Once you are clear of the dock, stow lines and fenders so they will not be in the way or pose a tripping hazard. Be sure to control speed when leaving the dock and check for other boats, swimmers or other obstacles.



7.3.2 DOCKING

Before approaching the dock, one end of the docking lines should be secured onboard. Have the fenders ready and speed reduced.

If the wind is onshore (blowing toward the dock), the boat is brought to a position parallel to the dock and about two feet off. The wind will blow the vessel in. It can then be secured by bow, stern and spring lines.

If the wind is offshore (blowing away from the dock), you should approach the dock at a 20 to 30 degree angle. A bow line is passed ashore and secured. In vessels with an outboard or inboard/outboard engine, the engine is turned towards the dock and put in reverse. This will bring the stern into the dock. The boat can then be secured with the stern line.

The procedure is different for boats with inboard engines. The rudder will be used to bring the stern in. To push the stern in using the rudder, attach an after bow spring to keep the vessel from moving forward. With the engine idling forward, turn the wheel away from the dock. Since the vessel cannot move forward and the rudder is pushing the stern in, the boat will pin itself against the dock while you secure the other lines. All maneuvers are more easily accomplished if the boat has twin engines, rather than a single engine.



7.4 CLOSED LOOP COMMUNICATIONS

Wind, engine noise and motion can make communicating with the crew difficult. Clear, effective communications are essential. Crew members must have all the information required to work as a team.

A “closed loop communications” system is safe and efficient. It gives the crew a systematic approach to communication, enabling them to work effectively as a team. This form of communication should be used for all operational communications both ashore and underway. Closed loop communication is achieved when you “get the SAC” - or when:

- **SEND** - the sender gives the information or command
- **ACKNOWLEDGE** - the receiver acknowledges by repeating key words or part of the message
- **CONFIRM** - the sender confirms the acknowledgement

ON WATER & PRACTICAL COMPETENCIES

BASIC VESSEL OPERATION			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
<p>The student must successfully demonstrate the ability to start and shut down the vessel. The student must successfully identify all gauges and meters and the importance of all gauges and meters. The student must accomplish all tasks a minimum of once.</p>	<p>The Student must accomplish the following tasks a minimum of once:</p> <p>Identify the starting procedure for the vessel</p>	_____	_____
	Run Blower (if applicable)	_____	_____
	Turn on Power	_____	_____
	Prime Engine (if applicable)	_____	_____
	Demonstrate Starting procedure for the vessel	_____	_____
	Idle Engine (warm up) for appropriate time	_____	_____
	Identify the shut down procedure and emergency shutdown procedure if applicable	_____	_____
	Demonstrate the shut down procedure and emergency shutdown procedure if applicable Demonstrate the shut down procedure and emergency shutdown procedure if applicable	_____	_____
Identify and explain all gauges, meters and switches on vessel	_____	_____	

DOCKING

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully approach and come alongside the dock a minimum of three times.	The Student must accomplish the following tasks a minimum of three times: SAPP, vocalized and demonstrated on approach	_____	_____
	Keep speed to steerage	_____	_____
	One hand on wheel, one hand on throttles at all times (If applicable)	_____	_____
	Compensate for wind and current as required	_____	_____
	Use pivot points and turning levers effectively	_____	_____
	Utilize momentum to successfully drift to the dock without either sliding along or bouncing	_____	_____

UN - DOCKING

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully approach and come alongside the dock a minimum of three times.	The Student must accomplish the following tasks a minimum of three times: SAPP, vocalized and demonstrated on approach	_____	_____
	Keep speed to steerage	_____	_____
	One hand on wheel, one hand on throttles at all times (If applicable)	_____	_____
	Compensate for wind and current as required	_____	_____
	Use pivot points and turning levers effectively	_____	_____
	Utilize momentum to successfully drift to the dock without either sliding along or bouncing	_____	_____

- CHAPTER 8 -

BASIC SAR

8.1 SAR INCIDENT

A Search and Rescue (SAR) Incident is a reported air or maritime incident which requires a response by the SAR System.

The order of events in a SAR incident are as follows:

1. JRCC is made aware of a marine distress. This could be by telephone from any source, by marine radio from a distress vessel to an MCTS, or by a radio call by another vessel.
2. JRCC gathers information on the incident and uses its authority to task vessels.
3. The vessel, or vessels, to be tasked are alerted by a variety of means including radio, telephone, pager, 911 System, or other emergency alert system.
4. If alerted by telephone, a SRU is normally given available information and a tasking (incident) number at that time.
5. If alerted by other means, vessels normally contact the JRCC by telephone for further information and a tasking authorization.
6. When ready to launch, or ready to depart, the vessel informs JRCC with a SITREP of their readiness and situation through MCTS. The MCTS may have further information and instructions from JRCC and will direct if the task is to go forward.
7. If a vessel is already on the water when they are alerted, they will be given instructions about the task and directed on how they are to proceed.
8. Tasked vessels proceed with the task and transmit SITREPS as necessary or as requested by JRCC via MCTS.
9. It is normal and highly recommended, that communications with "JRCC" be conducted by VHF communications to the MCTS. The MCTS is in constant and immediate contact with JRCC and will transmit information and instructions between the SRU and the Controller at JRCC.
10. The MCTS will direct which radio channel is to be used.
11. In emergency or special circumstances, you may request MCTS to connect you directly to JRCC (a Controller) through a duplex channel.

If your vessel responds to an incident without a tasking authorization from JRCC there is no insurance coverage for vessel and crew for that response. Nor is there any reimbursement

to the vessel for the task. Also, if contact is not made with JRCC your vessel will not be part of the coordinated response, one that may already be underway.

The only situation in which a vessel may self-task is when an incident is visually apparent and it is a matter of life and death. In these rare situations JRCC must be contacted as soon as possible.

8.1.1 SITREP AND STATUS REPORT

- SITREP reports activities and plans during a task
- STATUS REPORT indicates state of readiness for SAR operations and state of availability
- Marine Communication Traffic Services (MCTS) is the focal point for communications

SITREP

When on a SAR tasking SITREPS should be passed on to JRCC via the MCTS at regular intervals. In good search conditions, that interval would be approximately two (2) hours. JRCC may request more frequent SITREPS in more adverse conditions.

The following information should be included in SITREPS to JRCC:

1. To:
2. From:
3. Case description : (sitrep # 1 only)
4. Number of the Situation Report (i.e. first, second, eighth etc.)
5. Present Status
 - all case details that JRCC does not have including weather conditions;
6. Action Taken
 - include all search patterns and movements since departing wharf;
7. Future Action
 - include all items that will impact on future;
 - include in this section any request for air support;
8. Signature
 - Coxswain / master - and DTG

Example:

To:	Joint Rescue Coordination Centre / Trenton
From:	SRU Name
Case Description:	30 ft. Sailboat Overdue;
SITREP Number:	SITREP #1
Present Status:	<p>First Report should list the case details. Subsequent reports only have to list new information</p> <p>On scene weather detailing wind direction and speed, wave height and visibility. Future weather is also advisable i.e. thunderstorms approaching (or building) from NE</p>
Action Taken:	This section will detail what action has been performed by the SAR vessel since the last report.
Future Action:	The SAR vessel master should give some indication of what future plans are for the search vessel. Requests for air support may be placed in this section.
Signature and DTG	Signature of Auxiliary facility Coxswain / Master. 051945

**** ALL SITREPS SHOULD BE WRITTEN PRIOR TO TRANSMISSION.**

STATUS REPORT

This format is used when a coxswain wishes to advise JRCC that he is, for example, on board his vessel, cruising or not available for SAR etc. This report relates to the serviceability and availability of the unit.

Format:

Alpha :	CCGA Vessel Name and Call sign
Bravo:	Location, Date and Time Group.
Charlie:	From: (Date & Time) to (Date & Time)
Delta:	Remarks and Weather

8.2 DEGREES OF URGENCY

8.2.1 UNCERTAINTY

An Uncertainty phase exists when there is doubt regarding the safety of a ship or other craft or persons on board, and when:

- The vessel has been reported overdue at destination; or
- The vessel has failed to make an expected position or safety report

8.2.2 ALERT

An Alert phase exists when there is apprehension regarding the safety of the ship or other craft or the persons on board and when following the uncertainty phase, attempts to establish contact with the ship or other craft have failed and inquiries addressed to other appropriate sources have been unsuccessful; or information has been received indicating that the operational efficiency of a ship or other craft is impaired but not to the extent that a distress situation is likely.

8.2.3 DISTRESS

A Distress phase exists when:

- Positive information has been received that a ship or other craft or a person on board is in grave and imminent danger and in need of immediate assistance
- Following the alert phase, further unsuccessful attempts to establish contact with the ship or other craft and more widespread unsuccessful inquiries point to the probability that the ship or other craft is in distress
- Information is received which indicates that the operating efficiency of the ship or other craft has been impaired to the extent that a distress situation is likely

8.2.4 M.A.R.B

The mandate of the Canadian Coast Guard (CCG) is one of maritime safety and environmental protection. The CCG must ensure that its resources – vessels and personnel – are available to fulfill this mandate. In other words, using CCG vessels to respond to non-distress missions may impact on the CCG's ability to respond to more serious cases.

It is recognized that the timely provision of towing or other technical assistance to disabled vessels in distress or non-distress incidents can be an effective way of meeting the national SAR objective of preventing loss of life and injury.

This statement is not, however, intended to convey to the public that the Federal Government or its agents are prepared to assist disabled vessels merely on request. The Federal Government or its agents will not compete with commercial or private interests to provide assistance. Some incidents involving the use of the SAR system are clearly preventable or unreasonable. The response to these incidents occupies resources that may be needed for more serious incidents and may place responders in unnecessary danger.

The essential elements of the procedures are as such:

1. It is the responsibility of the mariner to make their own arrangements for towing and salvage when they require such services.
2. The CCG does not tow vessels on request and does not compete with commercial towing companies.
3. However, for disabled vessels in distress, the CCG will provide towing assistance if it is deemed by the Commanding Officer of the CCG Vessel to be the best way of saving lives. In other situations, the CCG will only tow after all efforts to arrange private or commercial assistance have failed. For safety reasons, the CCG will monitor the situation until it is resolved.
4. If a disabled vessel requesting assistance in a non-distress situation refuses commercial or private assistance when available, then the provision of a tow by the CCG will be denied.
5. The procedures have also clarified that when a CCG vessel is tasked to assist a disabled vessel in a non-emergency situation, that this vessel will normally complete any other critical mission in which it is currently engaged, such as a fisheries law enforcement operation, before proceeding to the disabled vessel assistance, meaning that mariners may have to wait many hours if there is no immediate danger.

Reference Transport Canada Website May 5, 2004.

8.2.5 JRCC TRENTON PROCEDURES FOR VESSELS REQUIRING ASSISTANCE IN NON-DISTRESS SITUATIONS

- When a SAR/CGA unit / base becomes aware of a vessel requiring assistance that is not equipped with a VHF radio, the unit / base shall call the JRCC via landline or pass information through the MCTS. The JRCC will determine and task the most suitable resource to assist the vessel
- When a SAR/CGA unit / base becomes aware of a vessel requiring assistance that is VHF radio equipped, the unit / base shall advise JRCC via land line and direct the vessel to contact the nearest MCTS on channel 16. The unit / base should monitor the situation and assist the vessel in obtaining communications with the radio station
- The MCTS will contact the JRCC with all particulars about the vessel. The JRCC will (if the vessel is in no immediate danger) issue a Marine Assistance Request Broadcast (MARB) alerting all private and commercial vessels in the area of the vessel requiring assistance. Following the broadcast there is a waiting period (not to exceed fifteen (15) minutes) for vessels of opportunity or commercial operators to offer assistance to the vessel
- Following the waiting period and if no suitable answer to the MARB is received, the JRCC will task the most suitable resource to assist the vessel
- The SAR unit tasked to assist the vessel shall assist as deemed necessary. Should this assistance involve towing the vessel, the vessel shall be towed to the nearest safe haven

CCGA SRU should not self task to these non-distress situations. Vessels responding to a non-distress situation prior to JRCC determining the requirement for and the issuing of a MARB do so as vessels of opportunity.

Incident numbers will only be issued by the JRCC to SRU that are tasked by the JRCC to respond to an incident or responding to a distress. Vessels responding to non-distress situations without being tasked will not be given an incident number.

CCGA SRU units upon hearing a MARB are encouraged to advise JRCC of their availability for tasking.

JRCC TOWING POLICY – EFFECTIVE IMMEDIATELY

As a result of a closer review of CG's current towing policy please be advised of the following changes to operational procedures for vessels **not in distress or potential distress**:

1. When JRCC is notified from an MCTS of a disabled vessel the co-ordinator shall ensure that the MCTS operator has asked if there is anyone that can be contacted on the operator's behalf for assistance be it private or commercial. If the MCTS operator advises that the operator of the vessel is unwilling or unable to secure arrangements for assistance the following shall apply:

2. If the disabled vessel has means of communications, either by cell phone or VHF radio, regardless of time of day (darkness no longer a factor) and is able to make contact with an MCTS (i.e. VHF channels or *16) then a MARB is to be issued. If a response to the MARB is received then the MCTS operator will arrange for the two parties to communicate with each other. At no time should the MARB include the disabled vessel's cell phone number.

3. If a CG resource or a CCGA resource happens to come across a disabled vessel, or is tasked out to investigate a potential disabled vessel, without any means of communications and is along side, the resource shall ask the operator if there is anyone that can be contacted that may assist them (para. 2.1.2 of towing policy). If not, a MARB is to be issued. If a commercial resource responds and if the eta is greater than 30 minutes the commercial resource shall be notified that the resource will commence towing operations and the tow transferred once the commercial resource arrives.

As per article 4.5: "If a disabled vessel requesting assistance refuses commercial or private assistance when available, this shall be considered a cancellation of the initial request for assistance. CCGC will notify the master of the disabled vessel accordingly." The only remaining options to the vessel's operator and occupants is: A- remain aboard the vessel and try and make some other arrangements for assistance or B- come off the vessel and be transported ashore so as to make arrangements for assistance. Where possible the vessel shall be left at anchor in a safe location. If the vessel has no anchor then it may be left to drift and a Notship issued. If in the case of a vessel left at anchor it is night time and vessel is unable to display appropriate anchor lights then a Notship shall also be issued.

All other current SOPs shall remain in effect:

- A MARB is not to be issued if there is bad weather conditions or restricted visibility
- 504 5a-f

8.3 FACTORS WHEN CONSIDERING DECLINING A TASKING

The vessel master or SRU coxswain may unexpectedly find him/herself faced with decisions directly related to saving the life or property of fellow mariners, beyond the reach of his/her help.

At no time shall a vessel master or SRU coxswain endanger or jeopardize the safety of crew and or vessel if any or all of the following factors are present:

- Weather Factors are beyond capabilities - eg., Wind, waves, icing
- Lack of crew - Do not operate a SRU single handed
- Fatigue - eg., Just finished a 12 hour shift
- Impairment - Alcohol - Medication
- SRU Malfunction
- Navigation - Unfamiliar waters/no charts for area

8.4 SEARCH PATTERNS

In many SAR incidents, the search phase of the operation is much longer than the actual rescue phase. A systematic approach to searching is necessary to ensure the area is uniformly searched and to calculate probable search effectiveness. Selecting the most appropriate Search Pattern will also save time, effort, fuel and money. There are seven basic patterns which are used by Search Units worldwide. Three patterns are based on rectangular Search Areas. Other patterns have unique shapes.

In general, patterns ought to be selected which require fewer turns and longer search legs, reducing turning errors and making navigation easier and more accurate.

Weather and lighting factors will affect the search. Often, the conditions in the search area are not accurately known until the search unit arrives on scene. The Search Rescue Unit (SRU) will be well advised to have an alternate pattern in mind so that time is not wasted while the search unit waits for new instructions.

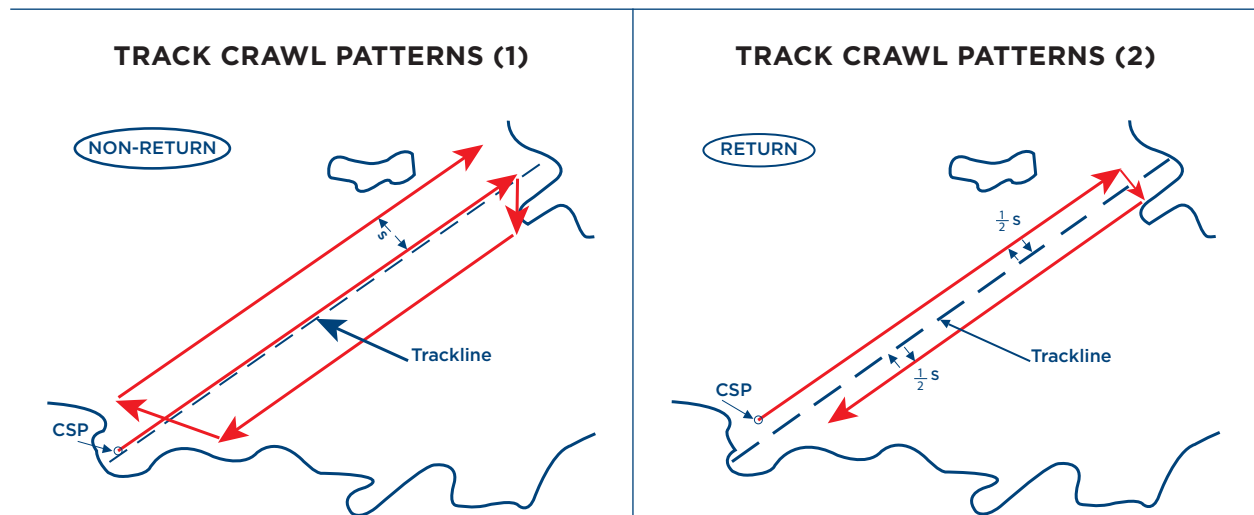
The International Maritime Organization (IMO) recognizes a number of search patterns as standards accepted by all signatory countries and these include:

- Track Crawl
- Expanding Square
- Creeping Line
- Parallel Pattern
- Sector Search
- Shore Line Search (Equivalent to the Air Contour Search)
- Coordinated Pattern

8.4.1 TRACK CRAWL PATTERNS

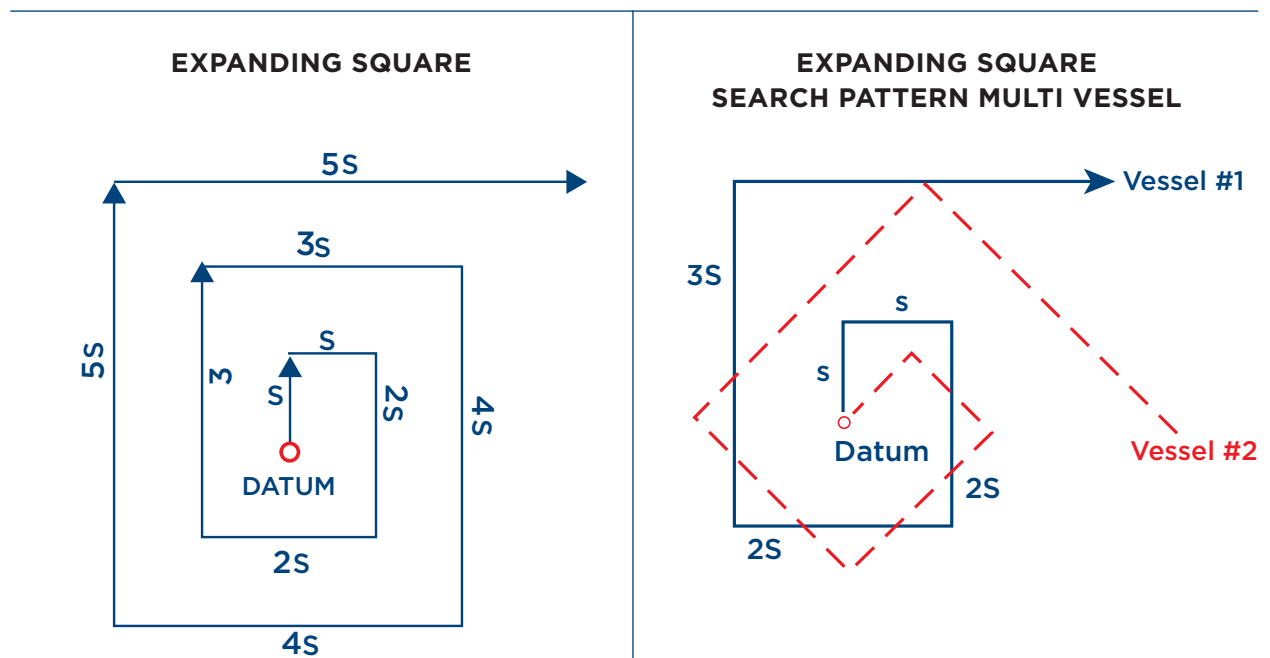
Track Line/Crawl patterns are used when the intended route of the search object is known. A route search is usually the first search action.

This pattern is usually employed as the initial search action, and is based on the assumption that the search object will be close to its intended track, or that there will be survivors capable of signaling when they hear or see the search unit. Some common track crawl patterns are shown. Track crawl patterns can be used on electronic or visual searches.



8.4.2 EXPANDING SQUARE PATTERN

Square patterns are used to search a small area when little doubt exists about the distress position. They provide a more uniform coverage than a sector search and may be expanded. Square searches are referred to as expanding square searches beginning at datum and expanding outward. In the expanding square, the commence search point (CSP) is at datum.



This pattern is considered to be a fair weather pattern because it searches equally in all directions from datum. It is also inadvisable to use this pattern where islands or land forms would interrupt the pattern. When possible, it is advisable for the pattern to be laid off using the cardinal points of the compass, i.e. North, South, East and West, for ease of steering and simplicity of calculation. The first Track Leg would be $1 \times S$ --where $S = \text{Track Spacing}$ --as would the second Leg after the vessel has turned 90 degrees to Starboard. If the Track Spacing was 3, the first Leg would be 1×3 or 3 nautical miles and the second leg would also be $1 \times 3 \text{ NM} = 3 \text{ NM}$. The third Leg would be $2 \times 3 \text{ NM} = 6 \text{ NM}$. The formula would be followed for all the other legs.

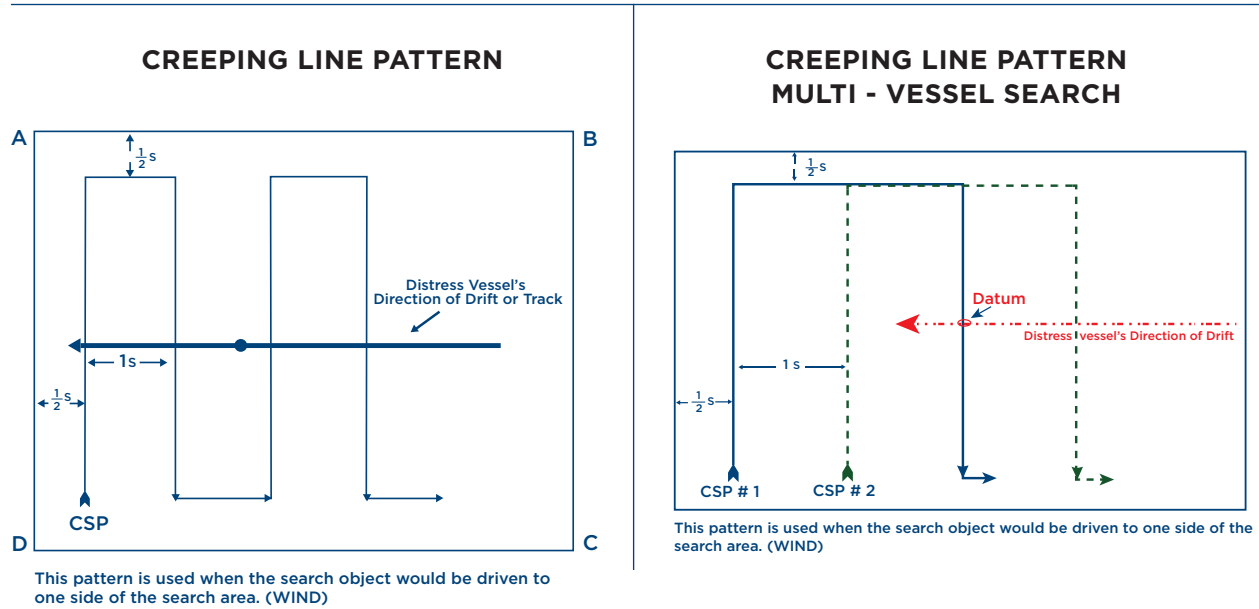
The number of legs and the time to complete an Expanding Square pattern will depend upon:

- The search speed of the SRU
- The track spacing (S)
- The size of the search area.

SEARCH VESSEL SPEED										
		1kt.	2kts	4 kts.	6 kts.	8 kts.	10 kts.	12 kts.	14 kts.	16 kts.
	0.5	30:00	15:00	07:00	05:00	03:45	03:00	02:30	02:09	01:52
	1.0	60:00	30:00	15:00	10:00	07:30	06:00	05:00	04:17	03:45
	1.5	90:00	45:00	22:30	15:00	11:45	09:00	07:30	06:26	05:38
	2.0		60:00	30:00	20:00	15:00	12:00	10:00	08:34	07:30
TRACKING	2.5		75:00	37:00	25:00	18:45	15:00	12:30	10:43	09:22
	3.0		90:00	45:00	30:00	22:30	18:00	15:00	12:51	11:15
	3.5			52:30	35:00	26:15	21:00	17:30	15:00	13:08
	4.0			60:00	40:00	30:00	24:00	20:00	17:09	15:00
	4.5			67:30	45:00	33:45	27:00	22:30	19:17	16:52
	5.0			75:00	50:00	37:30	30:00	25:00	21:26	18:45
	5.5			82:30	55:00	41:15	33:00	27:00	23:34	20:38
	6.0			90:00	60:00	45:00	36:00	30:00	25:43	22:30
	6.5				66:00	48:45	39:00	32:00	27:51	24:22
	7.0				70:00	52:30	42:00	35:00	30:00	26:15
	7.5				75:00	56:15	45:00	37:00	32:09	28:08
	8.0				80:00	60:00	48:00	40:00	34:17	30:00

8.4.3 CREEPING LINE SEARCH PATTERN

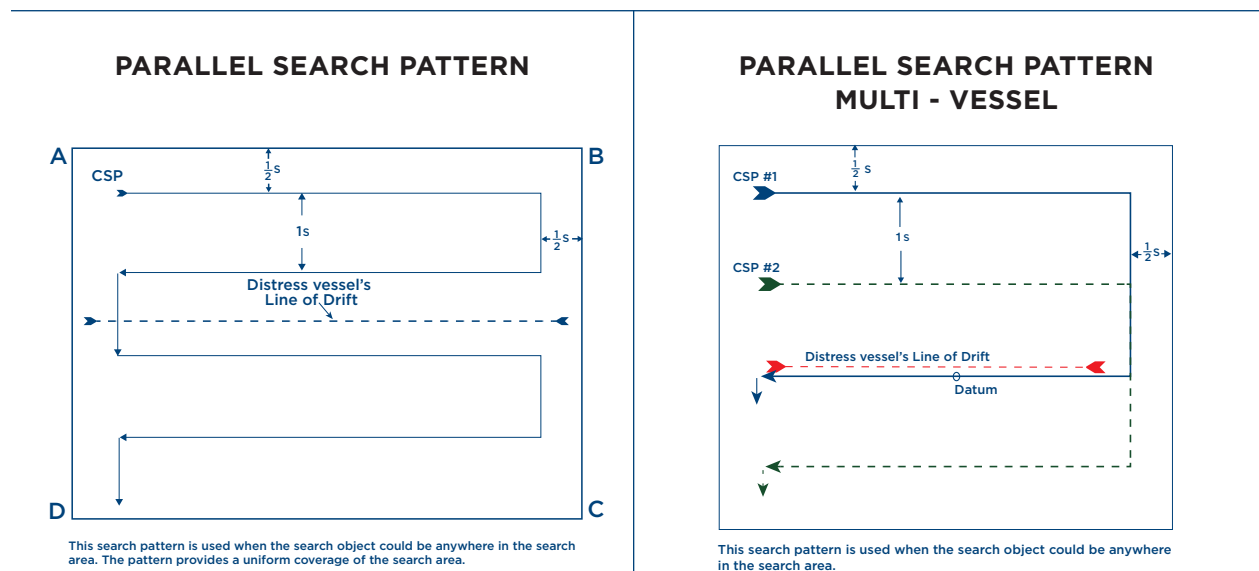
Creeping Line Search Patterns require successive search legs advancing across a search area. They are employed to provide uniform coverage over areas where only the approximate position of the target can be estimated. The legs are parallel to the shorter side of the search area.



Creeping Line Patterns are more suitable with track legs perpendicular to the drift line of the distress vessel when there is strong effects of wind or current.

8.4.4 PARALLEL SEARCH PATTERN

Like the Creeping Line Search Pattern the Parallel Search Pattern requires successive search legs advancing across a search area. They are also employed to provide uniform coverage over areas where only the approximate position of the target can be estimated. It differs from a Creeping Line in that the legs are parallel to the longest side of the search area.



Parallel Search Patterns are more suitable for large areas since there are fewer turns and navigation is normally more accurate.

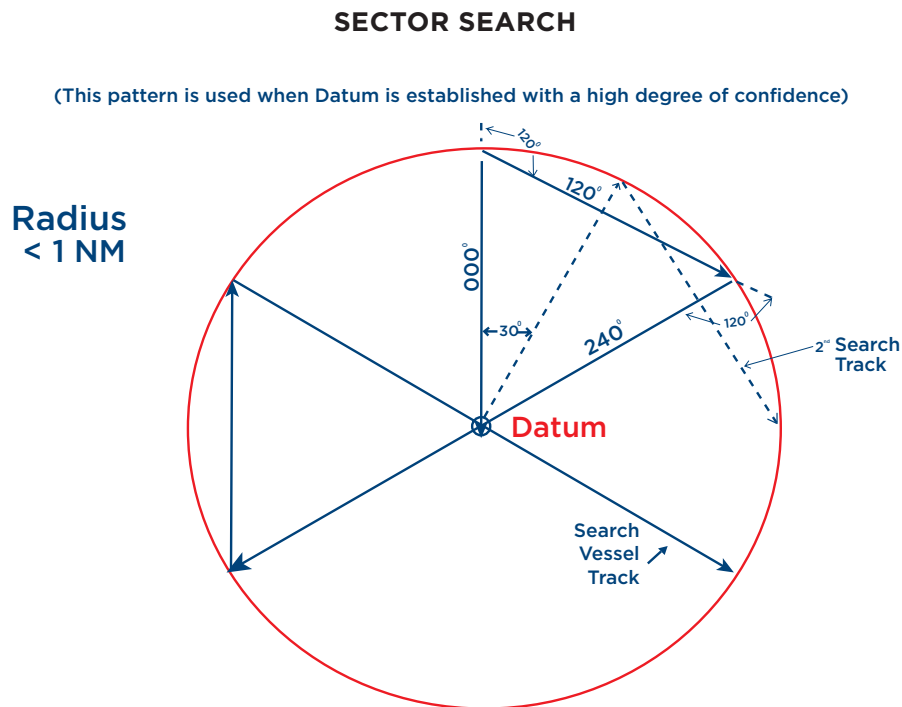
Parallel Search Patterns are usually used when there is little wind or current influence on the distressed vessel.

8.4.5 SECTOR SEARCH PATTERN

A Sector Search Pattern is used when the position of a distress vessel is reliable or the area searched is not extensive and a concentration of effort is required at datum. A Sector Search requires an accurate Datum. The position should be marked with a floating datum marker which will serve as the search vessel's centre point reference. The floating datum marker is not to be anchored but allowed to drift at the same rate as anything else caught in the same current.

The Sector Search begins with a Track Leg proceeding in a cardinal direction. The length of the Track Leg will depend entirely on the accuracy of the Datum. If the Datum is very accurate, a Track Leg of 0.5 NM to 1 NM would be sufficient. As the accuracy of the Datum diminishes, the length of the Track Leg would increase. At the end of the first Track Leg, the search vessel turns 120 degrees to Starboard and executes a Track Leg of the same length as the first. This will continue until the Sector Search has been completed. If the search does not have a positive conclusion, the search vessel should begin the second Sector Search 30 degrees to Starboard of the first Track Leg performed.

The radius used in a Sector Search should not exceed 5 NM. In practice, a radius of 1 or 2 NM is most common.



SECTOR SEARCH COMPUTATION TABLE
(TIMES LISTED IN MINUTES AND SECONDS)

VESSEL SPEED IN KNOTS							
Radius in miles	3 kts	5 kts.	8 kts.	10 kts.	12 kts.	15 kts.	18 kts.
0.5	10:00	06:00	03:45	03:00	02:30	02:00	01:40
1.0	20:00	12:00	07:30	06:00	05:00	04:00	03:20
1.5	30:00	18:00	11:15	09:00	07:30	06:00	05:00
2.0	40:00	24:00	15:00	12:00	10:00	08:00	06:40
2.5	50:00	30:00	18:45	15:00	12:30	10:00	08:20
3.0	60:00	36:00	22:30	18:00	15:00	12:00	10:00
3.5		42:00	26:30	21:00	17:30	14:00	11:40
4.0		48:00	30:00	24:00	20:00	16:00	13:20
4.5		54:00	33:45	27:00	22:30	18:00	15:00
5.0		60:00	37:30	30:00	25:00	20:00	16:40

8.4.6 SHORELINE SEARCH PATTERN

Is sometimes referred to as a Shore Crawl and is frequently used when a SRU is assigned to look for survivors of a maritime incident or a vessel which may have drifted ashore.

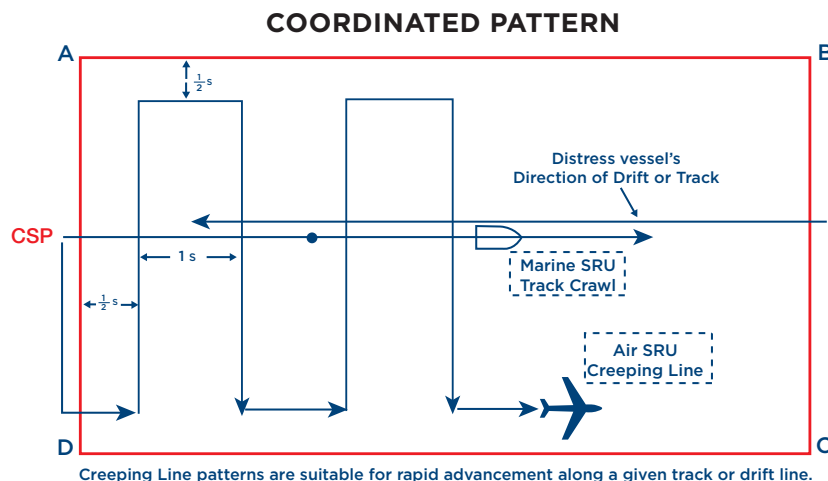
The coxswain and crew must maintain an awareness of water depths in general, and in particular, the nature of the sea floor. For example, a continuous sandy bottom is far less hazardous than one which is strewn with boulders.

Shore crawls at night require added attention because of the difficulties determining and maintaining off shore distances.

8.4.7 COORDINATED SEARCH PATTERN

Commonly used when an aircraft and a vessel are combined in a search.

The vessel follows a track line, while the aircraft completes a creeping line pattern. While the vessel is searching, it is also serving as a reference point for the aircraft. This method is effective when the search area is a large and open area.

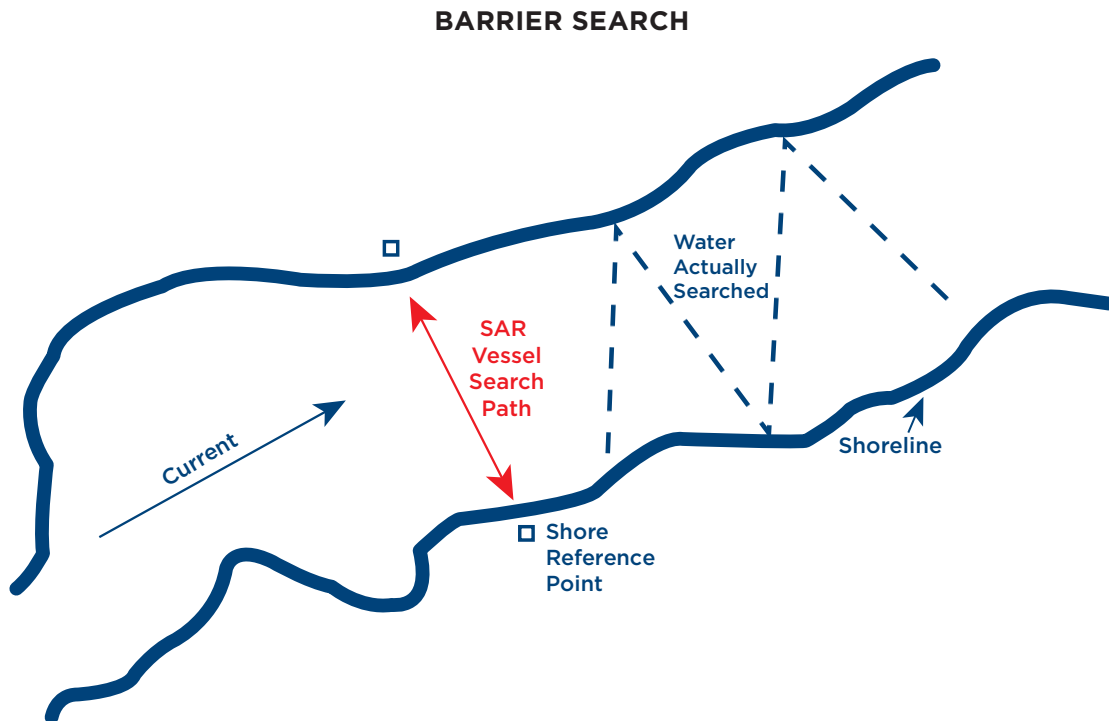


8.4.8 BARRIER SEARCH PATTERN

The Barrier Search is used in areas where there is a persistent strong current. The search area lies perpendicular to the path of the current. The search unit travels back and forth over the same path across the current. The path along which the search craft travels is termed the 'barrier'.

As the vessel searches, the current moves the water through the barrier along which the search craft is moving. The unique thing about this search pattern is that the area moves past the search craft rather than the boat moving through the area. The track length is constant being the width of the search area. Track spacing is not a consideration because the craft is maintaining a constant track over the bottom.

Should the distance between the two shore reference points be greater than 0.5 miles and the search object is small, then two or more vessels should be used.

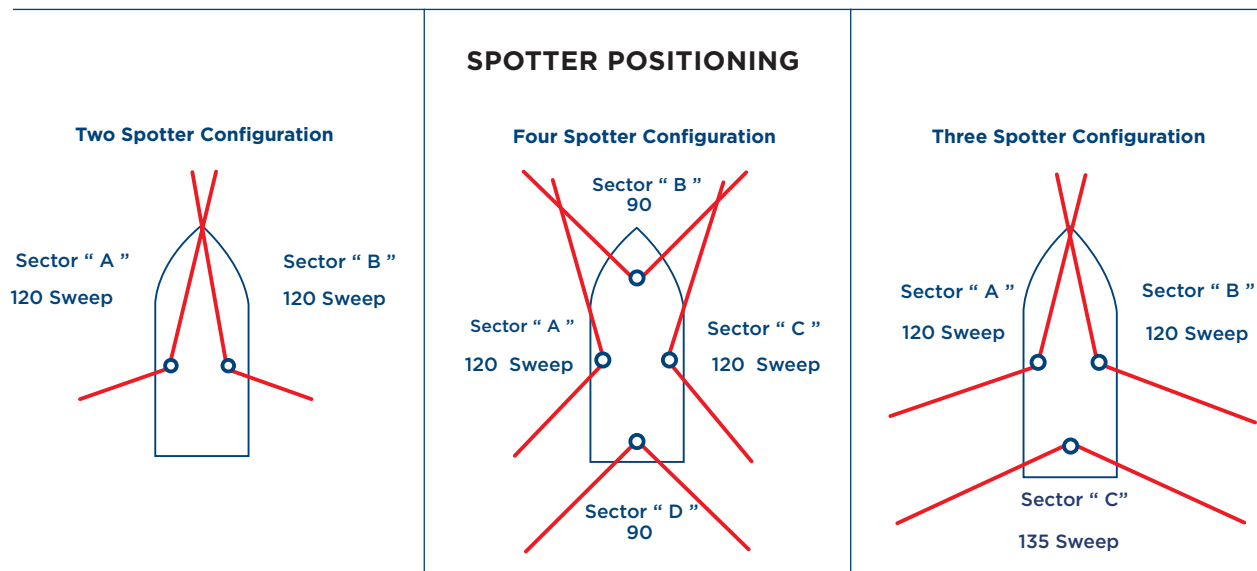


THE BARRIER SEARCH IS NOT AN INTERNATIONAL SEARCH PATTERN.

8.5 SPOTTERS

The assignment of spotters will depend entirely upon the number of crew the vessel master has available. The vessel master requires a minimum of two spotters to be an effective search vessel. Insufficient spotters would jeopardize the search effort. The following should be kept in mind when assigning a position:

- Spotters should be posted as high as safely possible given weather and sea conditions. This increases the visible horizon and enables the spotters to look down upon the search area
- If the vessel has radar and there are sufficient observers, a person should be assigned to the unit to report echoes on the screen. The master would direct the information to the person performing the duties of the spotter in that sector
- Spotters will suffer from fatigue and should be rotated at least every 30 minutes from the sector assigned. A new area will increase the effectiveness of the observer. A rest break should be scheduled in the rotations and should include some refreshments, such as sandwiches, hot liquids (hot chocolate- not coffee), or cold water on a hot day
- The sectors assigned will depend on the number of spotters. The vessel master should have more than one spotter than is required to perform the type of sector assignment organized. This person would be resting and would be rotated into the system after the first half hour



8.5.1 SEARCH OBJECT BRIEFING

Spotters must be briefed with all the information available to the vessel master. Spotters should be informed of the nature of the distress and the possibilities that may have evolved from the situation. The items a spotter should be aware of are as follows:

Surface Craft Afloat:

- Size
- Colour
- Name
- Distinctive markings (superstructure, radar)
- Number of antennas
- License numbers.

Other Items of Distress:

- Life rafts or lifeboats
- Flotsam from the distress craft i.e. cushions, seats
- Possible oil slick
- People in the water.

8.5.2 SPOTTER DUTIES

The spotter should at all times be conscious of the fact that there is no one else scanning the search sector assigned to them. A methodical approach is needed so that the object is not missed due to haphazard searching.

- The spotter should keep the eyes focused straight ahead and move the entire head to reduce eye fatigue
- The spotter should focus the eyes on a spot in the water every 10-15 degrees. This is about one fist width of the horizon if the arm is extended straight out in front of the body
- If the spotter spots an object in the water, sight contact must be maintained with the object. An easy way to maintain eye contact is to point to the object. This method will also help the spotter direct the vessel master to the object's location
- The observer must inform the vessel master of the sighted object and direct the master to the area. An easy method of informing the master is by using the "clock method" of reporting. The spotter must imagine the vessel in the centre of a clock face. The bow will be at 12 o'clock and the stern at 6 o'clock. Sightings would be reported as an "object at 9 o'clock". This would inform the vessel master to turn 90 degrees to port. The spotter would continue reporting the position until the vessel master has the object in sight

- Methodical approach is suggested and could be used as a guideline for observers. The spotter should search out and back a few times and then should give the eyes a rest by focusing on something on board for a short period, preferably not more than 15 seconds
- Sunglasses should be used when scanning up-sun and are recommended for continuous use during days of bright sun or high glare conditions. Infra-red and ultra violet impervious sunglasses provide the best protection to the lookout
- Binoculars should not be used for scanning. They should be kept available for immediate use so the observer may use them to identify an object spotted
- The faster the vessel is proceeding, the faster the spotter must scan to complete the assigned area. The speed a vessel should operate at during a search depends upon the characteristics of the search object and the search conditions. Generally, a search speed of 6 to 8 knots is acceptable and should not exceed ten (10) knots unless the search object is very large. The smaller the search object, the slower the search speed
- At night cabin lights and personal flashlights should have red lenses on them in order to preserve night vision. It takes about 30 minutes to recover night vision after being exposed to white light
- Remember to also stop and listen for horns, voices (yelling) and whistles

HEIGHT OF EYE VS HORIZON RANGE	
HEIGHT IN FEET	NAUTICAL MILES
5	2.6
6	2.8
7	3.0
8	3.2
9	3.4
10	3.6
11	3.8
12	4.0

NOTE: IF A SPOTTER IS POSTED AT A HEIGHT OF 10 FEET AND THE SEARCH OBJECT HAS A HEIGHT OF FIVE FEET, THEN THE THEORETICAL MAXIMUM DISTANCE THAT THE SEARCH OBJECT MIGHT BE DETECTED IS $3.6 + 2.6 = 6.2$ NM.

QUICK FACTS & CAUTIONS FOR SPOTTERS

- SCAN - STOP - FOCUS - SCAN
- Use sunglasses in sunshine
- Use red lamps in darkness
- Use binoculars sparingly
- Change places regularly
- Report all suspicious objects
- Know that you are important

*** KNOW YOUR LIMITATIONS AND MAKE YOUR COXSWAIN AWARE OF YOUR LIMITATIONS DURING SPOTTER DUTIES.**

SRU COMMUNICATIONS & USE OF VHF RADIO			
STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully demonstrate the ability to use the VHF Radio and communicate a status report and a sit rep.	The Student must accomplish the following tasks a minimum of once : Recognize the distress signals	_____	_____
	Demonstrate acknowledging a radio call and communicate appropriate on an appropriate channel	_____	_____
	Demonstrate the ability to operate the radios functions IE: Power, Squelch, Channel Select, Scan, Hi/Low Weather, Transmit button.	_____	_____
	Send a formatted Status report	_____	_____
	Send a formatted Sit Rep	_____	_____
	Understand and keep a radio log/record of all relevant information during the course/ on water evaluations	_____	_____

OPERATIONAL SAFETY

STANDARD	CRITICAL ACTIONS	INSTRUCTOR INITIALS	SIGN OFF DATE
The student must successfully demonstrate the following practices and safe habits throughout the entire course.	Maintain proper hand positions at all times when on the helm and making way	_____	_____
	Post lookouts as appropriate	_____	_____
	Act in a responsible manner and make collision avoidances as required	_____	_____
	Activate navigation lights at appropriate and required times	_____	_____
	Remains cognizant of the personal safety of others, including reduction and control of wake where appropriate	_____	_____
	Demonstrates due care and attention by operating vessels in a safe and controlled manner, including the maintaining of reserve power	_____	_____
	Demonstrates due care and attention when maintaining vessels by conducting thorough Daily Inspections and making minor repairs where appropriate	_____	_____
	Effective communication skills at all times	_____	_____
	Wears/carries appropriate personal equipment	_____	_____
	Understand the need for accurate and complete "ships logs"	_____	_____

- CHAPTER 9 -

COMMUNICATIONS AND SIGNALLING

9.1 ELECTRONIC COMMUNICATIONS

9.1.1 TWO-WAY COMMUNICATION

Two-way communications are invaluable in emergency situations. You must equip your vessel with a non-portable VHF radiotelephone if it:

- Is more than 8 metres long and of closed construction
- Carries passengers more than 5 nautical miles from shore or on a voyage that is even partly in a Canadian Coast Guard VHF coverage area
- Is a towboat

If your passenger vessel operates outside a VHF coverage area, you must have a reliable means of communication with a responsible person on shore. To know if you are in a VHF coverage area, check the map showing VHF coverage in Radio Aids to Marine Navigation.

In the Great Lakes Basin, a vessel with more than six passengers must be equipped with two VHF radiotelephones, one of which may be portable.

9.1.2 DIGITAL SELECTIVE CALLING (DSC)

Digital Selective Calling (DSC) radios are based on digital technology and encoded with a unique nine-digit identification number that allows for private calling. This unique number, called your Maritime Mobile Service Identity (MMSI), is much like a cellular telephone number.

DSC lets you make MAYDAY calls by simply pressing its “DISTRESS” button. The MAYDAY message includes your position (when connected to a GPS receiver) and who you are (from the MMSI). The message repeats until acknowledged by another DSC radio. The recipient’s DSC radio sounds an alert tone and displays the distressed vessel’s coordinates and MMSI on the radio display.

9.1.3 COMMUNICATION PRIORITIES

The Order of Priority of Radio Communications

1. Distress communications
2. Urgency communications
3. Safety communications
4. Communications relative to direction finding bearings

5. Communications relative to the navigation, movement and needs of aircraft engaged in search and rescue operations
6. Messages containing exclusively meteorological (weather) observations destined to an official meteorological office
7. Communications related to the application of the United Nations Charter
8. Service messages relative to the working of the radio communications service or to messages that have been previously transmitted
9. All other communications

9.1.4 KEEPING A LOG

The master of a SRU has a responsibility to maintain accurate and complete records, which include a deck/ships log and a radio log.

DECK LOG

Should contain no less than:

- Name of master, name of vessel, registration or license number
- Names of people on board
- Dates, times and places of departure and arrival
- Periodic positions on passage or search
- Major or pertinent sightings
- Major or pertinent events
- Periodic weather and sea conditions
- Master's signature

RADIO LOG

Should record no less than:

- License and call sign (if applicable to vessel type)
- Name of certified operator
- Periods of listening
- A summary of all communications exchanged with other stations
- A summary of all communications transmitted, received or intercepted relating to distress, urgency, and safety traffic
- Reference to important service incidents

9.1.5 RADIO STATION REQUIREMENTS

RADIO INSTALLATION

A VHF-DSC radio must be able to transmit and receive communications using DSC on frequency 156.525 megahertz (MHz) (channel 70), as well as voice communications on frequency 156.3 MHz (channel 6), 156.65 MHz (channel 13), 156.8 MHz (channel 16), and any other frequencies assigned for transmitting maritime safety information in the area you are navigating.

RADIO WATCH

Vessels that must carry VHF equipment must begin radio watch on 156.8 MHz (channel 16) at least 15 minutes before getting under way, and continue until at anchor or moored. If you choose to carry MF (medium frequency) and VHF equipment, you should try to keep watch on both 2182 kHz (MF) and 156.8 MHz (VHF) (channel 16) when at sea, to ensure that distress, urgency or safety communications will be heard and answered by as many stations as possible.

DOCUMENTS AND LOG KEEPING

If you are required to have a VHF radio installation on board, you must also have a certified radio operator, instructions for operating and maintaining the radio, and other documents as set out in the Ship Station (Radio) Regulations, 1999. A card setting out radio distress procedures (available from Transport Canada) must be displayed near the vessel's main controls.

Vessels required to carry VHF equipment must also maintain a radio log of distress, urgency and safety communications specific to the vessel, and a record of radio servicing and testing. While this is not required if you carry VHF equipment by choice, keeping a log, especially of all emergency communications, is a good idea.

9.1.6 MOBILE PHONES

If your vessel is not required to carry marine radio equipment, it is a good idea to carry a cellular phone in areas where coverage is available, or a satellite phone. In some areas, you can get emergency response by dialling a Rescue Coordination Centre or by dialling *16, which routes your call through the nearest Marine Communications Traffic Services (MCTS) Centre.

Remember that cellular and satellite phones cannot replace a marine radio.

Making a cellular or satellite call does not alert other boaters close to you. In most cases, rescuers cannot follow the cellular phone signal back to your location.

***16 = MCTS**

9.2 LOCATING DEVICES

9.2.1 SELF-LOCATING DATUM MARKER BUOY

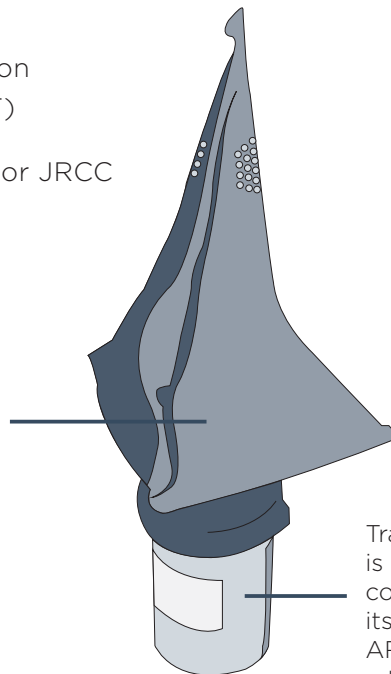
The Self-Locating Datum Marker Buoy (SLDMB TM) is a search and rescue instrument that periodically transmits its location once deployed in fresh or salt water. It has the capability of emulating the drift characteristics of either a person in the water (PIW) with survival suit, or a four-person life raft with drogue. The emulation mode is selected at the time of deployment.

The SLDMB is one component of a complete search and rescue system, which consists of the following:

- Air-deployable, configurable surface buoy
- Satellite monitoring service
- Local satellite receiving station (a local user terminal, or LUT)
- Rescue Coordination Center or JRCC

Parachute deploys and is released from SLDMB upon water contact.

Float inflates and is configured to mimic drift characteristics of life raft or person wearing life jacket.



Transmitter / GPS Package is a standard "A" size sonobuoy configuration that determines its position and transmits to ARGOS satellite. Battery pack rated for five days of continuous use.

9.2.2 EMERGENCY POSITION INDICATING RADIO BEACON (EPIRB)

The EPIRB emergency beacons operating on 406 MHz rely on Doppler shift in the distress signal as the Cospas-Sarsat satellite approach and recede in overhead orbits.

The accuracy depends upon the number of signal bursts received by the polar orbiting satellites. The positioning is most accurate when a satellite passes directly overhead.

The satellites orbit at about 600 miles above the earth, in polar orbit. Each satellite provides an east-west view of about 3000 miles, with an orbit time of 105 minutes. The satellites pass over the poles at about 20-minute intervals, but at the equator, two to three hours may elapse between passes.

Your vessel must be equipped with an Emergency Position Indicating Radio Beacon (EPIRB) if:

- It makes voyages more than 20 nautical miles from shore with a maximum distance between suitable ports of refuge on the route of no more than 100 nautical miles, and
- It carries passengers
- It is 8 metres long or more or
- It is a tug
 - of more than 5 gross tonnage on a voyage other than a Sheltered Waters Voyage; or
 - less than 20 metres in length on a voyage other than a voyage of not more than 50 nautical miles during which the tug remains within either 2 nautical miles of shore or 20 nautical miles of the nearest place of refuge.

Keep your EPIRB within reach so you can activate the alert while you navigate the vessel. It must be installed so that it is easy to pick up and take with you into a survival craft. Tugs, and vessels more than 15 gross tonnage, must install the EPIRB so that it will float free.

Under the Ship Station (Radio) Technical Regulations, 1999, if you have a 406 MHz EPIRB, you must register your emergency contact details in the Canadian Beacon Registry database and keep them current. You can register or update your emergency contact details online at www.canadianbeaconregistry.forces.gc.ca or by phone 1-877-406-SOS1 (7671).

A new Position Indicating Radio Beacon, known as the GPIRB has been developed. These are self-locating beacons using GPS satellites.

9.3 VISUAL SIGNALS

All small commercial vessels must carry a watertight flashlight and flares. The number and type of flares required vary according to the size of the vessel.

To be sure that the flashlight can be used as a signalling device, make sure the batteries are charged. It is a good idea to check the flashlight regularly and to keep spare batteries on hand.

Signalling with a flashlight will be more effective when there is little or no sunlight.

During the day, you may wish to try other visual signals first.

To signal with a flashlight, aim it where you expect that it will be seen and flash it so as to attract attention. Using Morse code for SOS may help others understand that you need help. The pattern for SOS is: short, short, short; long, long, long; short, short, short. Pause and repeat.

9.3.1 PYROTECHNIC DISTRESS SIGNALS (FLARES)

In an emergency, flares can be very effective in letting others know that you need immediate help.

9.3.2 GENERAL INFORMATION

- Flares must be approved by Transport Canada for marine use
- Store them in a cool, dry location, preferably in a watertight container
- Flares should be easy to access in an emergency, but out of reach of children
- Boaters should read the manufacturer's directions before using flares
- Flares expire four years after the date of manufacture
- Disposal of outdated flares - Boaters should contact the manufacturer of the flares, or the local law enforcement agency for information
- If someone fires off a flare when there is no emergency, they can be charged under the Criminal Code of Canada (Section 372)
- If found guilty, individuals can face imprisonment of up to two years

9.3.3 SAFETY MEASURES AND USE

- Store flares in a watertight container to keep them dry
- Store flares in a place that is cool, dry, and easy to reach — away from any heat source
- Check flares regularly and replace them before they reach their expiry date
- Always shoot flares into the wind and away from the vessel at a 45-degree angle so it will drift back over your position
- Never use or store a flare close to flammable liquids or gas (e.g., propane, gas, oil)
- If a flare does not work, dispose of it safely as soon as possible
- Train your crew to use flares
- Never point a flare at another person
- Always treat flares as explosive devices

9.3.4 TYPES OF FLARES

ROCKET PARACHUTE FLARES (TYPE A)

- Ignition and the rocket are contained in a waterproof casing
- Launching rocket ignites flare and projects parachute with flare
- Reaches maximum height of 300 metres
- Flare burns bright red for at least 40 seconds
- Parachute deploys between 200 and 300 metres
- Visibility up to 20 nautical miles
- Used to alert rescuers who may be a long distance away – possibly over the horizon



MULTI-STAR FLARES (TYPE B)

- Produces two or more bright red stars in rapid succession (maximum 15 seconds)
- Reaches maximum height of 100 metres
- Each star burns for at least 4 seconds
- Automatic or cartridge firing device
- If cartridge, the package may instruct users to fire two signals within 15 seconds of each other
- Firing device and the cartridges, if any, should be waterproof and packed in a waterproof container
- Visibility up to 12 nautical miles
- Used to alert rescuers who may be a long distance away



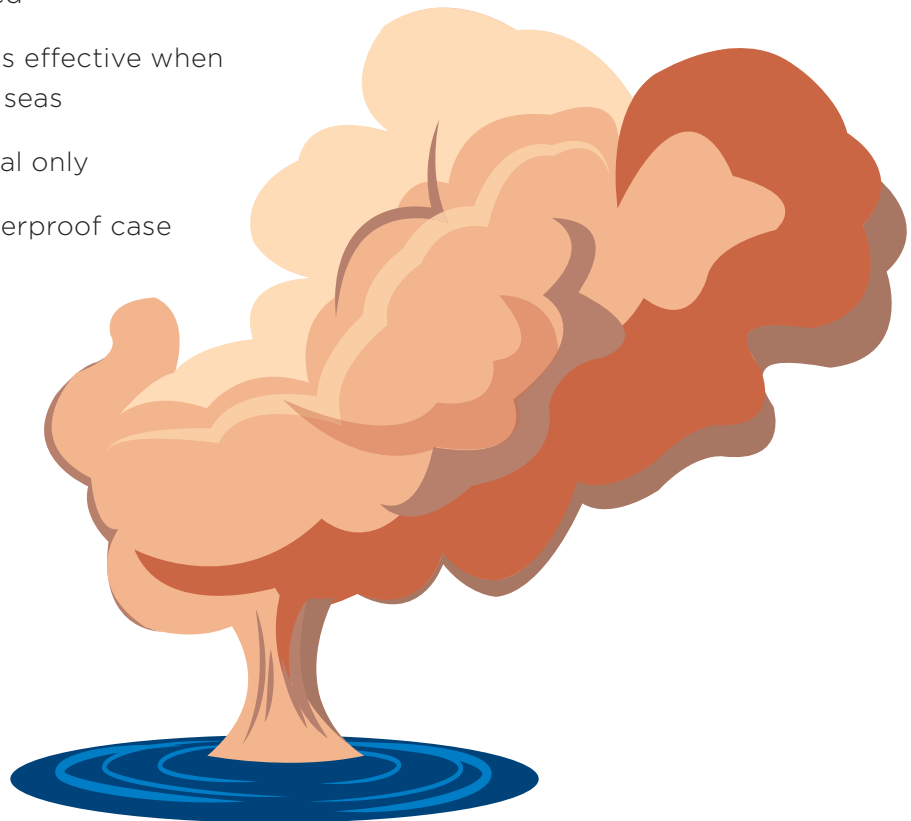
HAND FLARES (TYPE C)

- Hand-held red flare
- Burns for at least 1 minute
- Sheathed to prevent drips of burning material
- Limited surface visibility — used to alert rescuers who are within a few nautical miles
- Contained in a waterproof case



SMOKE SIGNAL (TYPE D)

- Can be either hand-held or buoyant
- Buoyant signal gives off a dense orange-coloured smoke for at least 3 minutes when floating in calm water
- Hand-held gives off a dense orange-coloured smoke for a period of at least 1 minute
- Mechanically ignited
- The buoyant type is effective when afloat in moderate seas
- Used as a day signal only
- Contained in a waterproof case



9.3.5 WHAT YOU NEED

BOAT TYPE AND LENGTH	VISUAL SIGNALS
<p>PADDLEBOATS, WATERCYCLES, SEALED-HULL AND SIT-ON-TOP KAYAKS</p> <p><i>Equipment listed in 2, 3, 4, 5 and 6 is not required if everyone on board is wearing a lifejacket or PFD.</i></p>	<p>If boat is over 6 m:</p> <ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C
<p>CANOES, KAYAKS, ROWBOATS, ROWING SHELLS AND OTHER HUMAN-POWERED BOATS</p>	<p>If boat is over 6 m:</p> <ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C
<p>SAILBOARDS AND KITEBOARDS</p> <p><i>Equipment listed in 2, 3, 4 and 5 is not required if operator is wearing a lifejacket or PFD.</i></p>	None
<p>PERSONAL WATERCRAFT (PWC)</p> <p><i>Equipment listed in 2, 3, 4, 5, 6 and 11 is not required if everyone on board is wearing a lifejacket or PFD.</i></p> <p><i>Lifejacket or PFD must be inherently buoyant.</i></p>	<ol style="list-style-type: none"> One (1) watertight flashlight OR Three (3) flares of Type A, B or C
<p>SAIL AND POWER BOATS UP TO 6 M (19'8")</p>	<p>If boat is equipped with a motor:</p> <ol style="list-style-type: none"> One (1) watertight flashlight OR Three (3) flares of Type A, B or C
<p>SAIL AND POWER BOATS OVER 6 M AND UP TO 9 M (19'8" – 29'6")</p>	<ol style="list-style-type: none"> One (1) watertight flashlight Six (6) flares of Type A, B or C
<p>SAIL AND POWER BOATS OVER 9 M AND UP TO 12 M (29'6" – 39'4")</p>	<ol style="list-style-type: none"> One (1) watertight flashlight Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D
<p>SAIL AND POWER BOATS OVER 12 M AND UP TO 24 M (39'4" – 78'9")</p>	<ol style="list-style-type: none"> One (1) watertight flashlight Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D
<p>SAIL AND POWER BOATS OVER 24 M (78'9")</p>	<ol style="list-style-type: none"> One (1) watertight flashlight Twelve (12) flares of Type A, B, C or D, not more than six (6) of which are of Type D



ABBREVIATIONS

ALPHABETICAL ORDER BY ABBREVIATION

AOR	Area of Responsibility
C	Coverage Factor
CASARA	Civil Air Search and Rescue Association
CCG	Canadian Coast Guard
CCGA	Canadian Coast Guard Auxiliary
CCGC	Canadian Coast Guard Cutter
CFB	Canadian Forces Base
CGRS	Coast Guard Radio Station (also known as MCTS)
CHS	Canadian Hydrographic Service
CMCC	Canadian Mission Control Centre
CO ₂	Carbon Dioxide Gas
CO	Carbon Monoxide Gas
CRP	Casualty Reception Point
CSA	Canada Shipping Act
CSP	Commence Search Point
CSS	Coordinator Surface Search
DFO	Department of Fisheries & Oceans
DMB	Datum Marker Buoy
DND	Department of National Defense
DOT	Department of Transport
DR	Dead Reckoning
DSC	Digital Selective Calling
DTG	Date Time Group
ELT	Electronic Locator Transmitter (used by aircraft)
EPIRB	Emergency Position Indicating Radio Beacon
ETA	Estimated Time of Arrival
FSE	Free Surface Effect
GEOSAR	Geostationary Search & Rescue Satellite
GMDSS	Global Maritime Distress and Safety System
GPS	Global Positioning System
GPIRB	Global Position Indicating Radio Beacon
HF	High Frequency
ICAO	International Civil Aviation Organization
ICS	Incident Command Structure
IMO	International Maritime Organization
IAMSAR	International Aeronautical and Maritime Search & Rescue
IRB	Inshore Rescue Boats
JRCC	Joint Rescue Coordination Centre
KTS	Knots

LF	Low Frequency
LKP	Last Known Position
LOP	Line of Position
MARB	Marine Assistance Request Broadcast
MAJAID	Major Air Disaster
MCTS	Marine Communications and Traffic Services
MED	Marine Emergency Duties
MF	Medium Frequency
MMSI#	Maritime Mobile Service Identity Number (DSC)
NM	Nautical Miles
NSP	National SAR Program
NVG	Night Vision Glasses/Goggles
NWPA	Navigable Waters Protection Act
OSC	On-scene Coordinator
PCOC	Pleasure Craft Operator Card
PFD	Personal Floatation Device
PIW	Person in Water
PLB	Personal Locator Beacon (used by persons on land)
POB	People on Board
RHIOT	Rigid Hull Inflatable Operator Training
RTB	Return to Base
S	Track Spacing
SAPP	Stop, Access, Plan, and Proceed
SAC	Send, Acknowledge, Confirm (closed loop communication)
SAR	Search and Rescue
SAREX	Search and Rescue Exercise
SART	Search & Rescue Transponder
SITREP	Situation Report
SKAD	Survival Kit Air Dropable
SLDMB	Self Locating Datum Marker Buoy
SOG	Speed Over Ground
SOLAS	International Convention for Safety of Life at Sea
SOPP	Standard Operating Policies and Procedure
SOS	International Morse Code Distress Signal (...---...)
SRR	Search & Rescue Region
SRU	Search and Rescue Unit
SVOP	Small Vessel Operator Proficiency
SVR	Small Vessel Regulations
TC	Transport Canada
UTC	Coordinated Universal Time
VHF	Very High Frequency
W	Corrected Sweep Width
Wu	Uncorrected Sweep Width

GENERAL GLOSSARY

AERONAUTICAL INCIDENT

All SAR incidents involving aircraft.

AERONAUTICAL COORDINATOR

A person at JRCC responsible for planning, coordinating and controlling the response to aeronautical incidents.

AIDS TO NAVIGATION

A device or object, external to the vessel, located to assist in safe navigation. It may be natural or a man-made structure or object.

APPARENT WIND

The direction of the wind as it appears on board. It differs from the true wind direction and speed, due to the vessel's motion.

BEACON

A distinctive artificial structure erected as an aid to navigation.

RELATIVE BEARING

The direction in which an object lies with respect to the reference direction of a given vessel.

BIFURCATION BUOY

A buoy that marks a point where a channel divides and may be passed on either side.

BUOYANT HEAVING LINE

A floating rope you throw toward a person in the water for them to hold on to while you pull them alongside. It can be packed into a rescue throw bag to keep it from getting knotted and makes it easy to throw.

CARDINAL BUOY

A buoy that indicates the direction to safe water for example, a north cardinal buoy indicates that the safest water exists to the north.

CARDINAL POINTS

The four main points of the compass; North, South, East, West.

CASUALTY RECEPTION POINT (CRP)

An intermediate forward location where a large number of survivors can be treated prior to evacuation to appropriate medical facilities.

CHART

A nautical chart not only represents a geographical area of the earth's surface, but it provides the navigator with the location of navigation hazards,

aids to navigation, plus other information to assist in safe planning and navigation.

COMMERCIAL VESSEL

A vessel that is not a pleasure craft or used for commercial fishing. A small commercial vessel is no larger than 15 gross tonnage and if used to carry passengers carries no more than 12.

COORDINATED SAR SYSTEM

The facilities, equipment and procedures established in each SRR to coordinate the response to SAR incidents.

COORDINATOR SURFACE SEARCH

When more than one vessel or aircraft has been tasked to an incident JRCC may designate one unit to coordinate the on scene operation.

COXSWAIN

The master of a vessel.

DATUM

1. The most probable location of a search object or person, corrected for total drift at a specific time.
2. A reference level from which depths and heights are measured.

DEAD RECKONING

The process of determining a vessel's position using only knowledge of a departure, vessel's speed, elapsed time and course steered.

DEVIATION

The angular difference between Compass North and Magnetic North.

DISABLED

A term describing a craft that has lost all means of propulsion or steering for any reason, and which is in need of assistance.

DISPLACEMENT HULL

A boat that displaces a weight of water equal to its own weight ;underway it constantly displaces or shoves aside the water in its path, while water from either side closes in behind it.

DISTRESS

A SAR incident wherein there is a reasonable certainty that one or more individuals are threatened by grave and imminent danger and require immediate assistance.

DITCHING

The forced landing of an aircraft on water

ELECTRONIC EMERGENCY LOCATOR TRANSMITTER (ELT)

An emergency radio beacon designated for use by aircraft.

EMERGENCY POSITION INDICATING RADIO BEACON (EPIRB)

An emergency radio beacon designated for use by vessels.

FETCH

The distance over which the wind has blown uninterrupted.

FISHING VESSEL

A vessel used for commercially catching, harvesting or transporting fish or other living resources.

FIX

A position determined without reference to any former position.

FREEBOARD

The distance between the water and watertight deck of your vessel, or the gunwale.

GLOBAL POSITION INDICATING RADIO BEACON (GPIRB)

An emergency radio beacon designated for use by vessels which transmits its actual location.

HUMANITARIAN ASSISTANCE

An incident not directly related to an air or marine incident which requires the provision of assistance by SAR resources to save life or relieve human suffering, including the provision of a medevac, transportation of human organs, relief or medical supplies.

HYPOTHERMIA

The lowering of the body temperature until the victim loses consciousness, drowns or the heart stops.

JOINT RESCUE COORDINATION CENTRE (Also known as JRCC)

A unit responsible for providing efficient organization of search and rescue resources for coordinating the conduct of search and rescue operations within a SAR region.

LEEWAY

Away from the wind.

LIFEBUOY

A lifesaving ring that must be at least 600 mm in diameter and be made of inherently buoyant material; and should have a buoyant line of good quality that does not kink and at least 9.5 mm in diameter and 15 metres long (TC requirements). The name of the vessel should be marked on the buoy.

LIFEJACKET

A lifesaving appliance designed to keep a person's head above the water and to help them remain in a proper breathing position. Transport Canada states that you must have approved lifejacket of the right size to fit each person you have on board.

MAJOR AIR DISASTER (MAJAD)

An aircraft accident occurring in Canada which because of the size of the accident requires augmentation of established SAR resources.

MAJOR MARITIME DISASTER

A marine incident which because of the number of people involved requires augmentation of established SAR resources.

MARITIME COORDINATOR

A person at JRCC responsible for planning, coordinating and controlling the response to maritime incidents.

MAYDAY

A radio distress signal indicating a person or vessel is threatened by grave and imminent danger and requests immediate help.

MEDEVAC

The evacuation of injured or stranded persons from isolated areas or the recovery of sick or critically injured persons from vessels at sea.

MOORING

A permanently anchored buoy to which a vessel can secure without using her anchors.

OFFICE OF BOATING SAFETY (OBS)

A group of CCG employees responsible for providing SAR prevention logistics and organization.

ON SCENE COMMANDER (OSC)

When more than one vessel or aircraft has been tasked to an incident JRCC may designate one unit to coordinate the on scene operation. If the unit is a primary or secondary SAR vessel or aircraft it is known as the on scene commander. If it is a vessel other than a primary or secondary SAR vessel or aircraft it is known as the Coordinator Surface Search.

OPERATOR

The person in command and charge of the vessel and also known as the Master. Terms can be used interchangeably.

OTHER SAR RESOURCES

Resources other than primary or secondary which from time to time participate in SAR activities when required. This includes municipal and provincial resources, civil volunteers and partially funded federal government resources such as the CCGA or CASARA.

PANPAN

A radio signal indicating that a safety problem that does not require immediate assistance.

PASSENGER

Anyone on a vessel except for the master, a member of the crew or a person employed or engaged in any capacity on board the vessel on the business of that vessel, or a guest on board a pleasure craft. A fare does not have to be paid for a person to be considered a passenger.

PLANING HULL

A hull of such a shape as to be capable of skidding or skimming over the water.

PLEASURE CRAFT

A vessel that is used for pleasure and does not carry passengers. If the vessel is used for the daily living needs of the operator ,eg. transportation or subsistence fishing/hunting, it is still considered a pleasure craft.

PLOT

To draw lines on a chart indicating bearings, courses and positions.

PRIMARY SAR RESOURCES

Aircraft, vessels or formations established and equipped specifically for SAR and staffed with trained SAR crews. Primary SAR resources are under the direct operational control of the SRR commander for SAR tasking.

PRE-DEPARTURE BRIEFINGS

A safety briefing before the voyage begins to show and tell your passengers how to react in an emergency. A legal requirement.

PUMPING OR BAILING SYSTEM

Bilge pumps and systems that detect water levels are important safety features, especially for small vessels where water in the bilges can quickly lead to capsizing or sinking. You must have a way to pump or bail each watertight compartment in any operating condition.

PYROTECHNIC DISTRESS SIGNALS (FLARES)

Emergency devices used to help others know that you need immediate help. All flares must be clearly marked as being Transport Canada approved and must not have been expired. The size of your vessel will determine the number required to meet regulatory requirements.

RELATIVE WIND

The direction and velocity of the wind as observed from a moving vessel.

RESCUE COORDINATION

The integration of efforts of SAR facilities and resources to achieve concerted and harmonized resolution of SAR incidents in an effective and efficient manner.

RESCUE SPECIALIST

Specially trained rescue personnel who are a key part of a primary SAR vessel. The military equivalent carried on board SAR aircraft are known as SAR TECH's.

SAIL PLAN

A plan that includes your travel route and basic details about your vessel that is filed at the local marina or with and Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Centre by telephone, radio or in person before heading out.

SEARCH AND RESCUE REGION (SRR)

A specified geographical area in which SAR operations are coordinated and controlled by a designated Rescue Coordination Centre.

SAR INCIDENT

A reported air or maritime incident which requires a response by the SAR system.

SAR MISSION

The task assigned to a SAR resource by JRCC in response to a SAR incident. A SAR mission starts with formal tasking by JRCC and is normally defined in scope and time.

SAR OPERATIONS

When the response to a distress incident requires the utilization of more than one resource and/or numerous SAR missions are anticipated during the resolution of the incident.

SAR RESOURCE

A resource capable of responding to a search and rescue incident.

SAR UNIT

A unit specializing in the provision of search and rescue services.

SAR VEST(Survival vest)

Safety vest that allows you to carry required safety items; worn over all your other gear.

SCOPE

The ratio of the length of anchor rode to the depth of water.

SEARCH INITIATOR BUOY (SIB)

A maritime EPIRB designed to float free from a sinking vessel while remaining attached to it by a reel-out cable. If the depth of the water is greater than the length of the cable, the SIB will break free, and float to the surface.

SECONDARY SAR RESOURCES

Aircraft or vessels established and equipped for other than SAR, but which can be expected to respond (when available) to SAR tasking. They include multi-tasked government resources.

SELF LOCATING DATUM MARKER BUOY

A datum marker buoy launched by either an aircraft or SRU vessel and used to measure the rate of drift of either a POB or a life-raft. The buoy transmits a signal to a satellite, which in turn transmits the data to the appropriate JRCC.

**SRR COMMANDER /
RESCUE COORDINATOR**

The military commander designated by NDHQ as being responsible for SAR operations within a search and rescue region.

SPOTTERS

Personnel aboard a SAR aircraft or vessel to assist in the conduct of a visual search.

STABILITY

The characteristic of a vessel that helps it stay upright; and is able to return to an upright position after being heeled over.

STAND / STOOD DOWN

The order originating from the master of the vessel in distress or JRCC which releases the resource from the incident.

STAND ON

1. To maintain course and speed.
2. The stand on vessel is the one that has the right-of way.

STARBOARD

The right hand side of the vessel when facing forward.

TRUE NORTH

The direction of the geographical pole.

VARIATION

The angular difference between Magnetic North and True North.

WAKE

The disturbed column of water around and behind a moving watercraft which is set into motion by the passage of a watercraft.

WINDWARD

Towards the wind.



**CANADIAN COAST
GUARD AUXILIARY**
CENTRAL AND ARCTIC REGION

