Canadian Coast Guard Auxiliary Search \& Rescue Crew Manual

## Glossary of Nautical Terms \& References

## A

Abaft - In a direction towards the stern.
Abeam - On the beam; a direction at right angles to the keel.

Aboard - In or on board the vessel.
Afloat - A vessel totally supported by water and off the bottom.

Aft - At or towards the stern.
Ahead - In the direction of the vessel's head or bow.

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

Air Accident - A SAR Incident where the original vehicle of transportation of the persons involved was an airborne vehicle, regardless of where the vehicle came to rest.

Amidships - In the middle of the ship, whether longitudinally or laterally.

Anchor - A device designed to hold a ship in any desired location temporarily by attaching it to the sea bed by means of a length of line or chain.

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.

Assistance - Aid provided by the SAR system in response to a non-distress incident.

Astern - In the direction of the stern; opposite to ahead. The movement of a ship going backwards.

Athwartship - From one side of the ship to the other at right angles to the keel.

## B

Ballast - Weight added to the ship's bottom to provide stability and trim.

Batten-down - To close all deck openings.
Beacon - A distinctive artificial structure erected as an aid to navigation.

Beam - The maximum width of a vessel.

Bearing - The direction in which an object lies with respect to the reference direction.

Bearing, Collision - A set of bearings taken on a converging vessel in order to determine if a danger of collision exists.

Bearing, Compass - A bearing relative to the Ship's Compass North.

Bearing, Magnetic - A bearing relative to the Magnetic North.
Bearing, Relative - A bearing relative to the ship's heading or bow of the vessel.

Bearing, Ring - A ring fitted over a compass and equipped with sighting lines for observing compass bearings.

Bearing, True - A bearing relative to True North.
Beating - The procedure of sailing or running to windward with alternate tacks across the wind.

Belay - To make fast a rope on a cleat by taking turns.

Bifurcation Buoy - A buoy that marks where a channel divides.

Bitt - A fitting or post for securing, usually on deck.

Bollard - A vertical piece of timber or iron ashore, to which a vessel may be moored.

Boot line - A narrow line painted on the hull of pleasure vessels to mark the normal draft line.

Bow - The forepart of a vessel where the sides of the hull curve to meet the stem.

Bowline - A knot tied to the end of the line to form a loop that will not slip.

Bridle - Two lengths of line, or a single length in bight, which are secured to the end of the towline (generally by a shackle), the ends of which are secured to two strong points on the tow.

Broach - An uncontrollable turn broadside to the sea when running with the wind on the quarter.
Broad on the Beam - A direction at right angles to the keel. At 90 degrees, port or starboard, from the ship's head.
Broad on the Bow - A direction at approximately 45 degrees, port or starboard, from the ship's head.

Broad on the Quarter - A direction at approximately 135 degrees, port or starboard, from the ship's head.

Buoy - A floating mark anchored to the bottom, used as an aid to navigation.

Burdened - The vessel with the responsibility to give way to another vessel.

## C

Cabin - A space inside a vessel, accommodation or shelter.

Camber - The vertical curvature of a deck as seen in cross section.

Can Buoy - A cylindrical buoy floating end-up.
Capsize - To overturn a vessel by rolling.
Cardinal Buoy - An aid to navigation that indicates the cardinal direction toward safe water.

Cardinal Points - The four main points of the compass - North, South, East, West.
Cast Off - The operation of letting go a cable or line that secures a vessel to a buoy, dock or other ship, to permit it to get underway.
Casualty Reception Point (CRP) - A terminal located near a medical facility, capable of treating a large number of injured.

Catenary - The vertical curve of the towline, the deeper the curve the more the catenary.

Centre of Gravity - The point through which the force of gravity produced by the vessel's mass can be considered to act.
Chart - A "map" of the sea area showing any coastal lines and used specifically for nautical navigation.
Chine - The line described by the meeting of the bottom and the side of the boat.

Chock - A fitting to allow a line to pass through. A block or wedge to prevent movement of equipment.

Cleat - A fitting with two arms or horns to which a line may be made fast.
Close-aboard - Beside, close to, alongside.
Clove Hitch - A knot used for fastening to a post or a rail.
Coaming - The raised border above the deck around a hatch or cockpit.

Companionway - A stairway from one deck to another.

Compass - An instrument for determining horizontal direction.

Compass Error - The angular difference between True North and Compass North.

Compass North - The direction of North as indicated by the compass.

Compensation - The adjusting of a compass so as to remove or reduce deviation.

Con - To steer a boat by direct observation of landmarks.

Conical Buoy - A cone-shaped buoy, floating with the point up.

Co-ordinated SAR system - The facilities, equipment and procedures established in each Search and Rescue Region to co-ordinate the response to SAR incidents.

Correcting - The conversion of courses or bearings from compass to magnetic to true.
Course - The intended horizontal direction of travel, measured in degrees clockwise from reference North.

Coxswain - The person in charge of a small vessel.

Cross-Track Error - The distance away from the planned track. Used in reference to electronic navigation systems.

Current - The horizontal movement of water.

## D

Datum - A reference level from which depths and heights are measured. The probable location of a search object or person, corrected for drift, at any specified time.

Datum Marker Buoy (DMB) - A small buoy, often fitted with a transmitter, that is deployed at the datum position.

Dead Ahead - Directly ahead.
Dead Astern - Directly astern.
Deadhead - A log or heavy timber floating nearly vertical with little of its bulk visible above the surface of the water.

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

Deck - The horizontal platforms in ships separating compartments one above the other.

Deck Log - A book in which the conduct of the vessel is recorded.

Degree - A unit of angular measure of being $1 / 360$ of one complete revolution.

Deviation - The angular difference between Compass North and Magnetic North.
Dinghy - A small, open, unballasted boat propelled by oars, sail or outboard motor; a ship's small boat.

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.

Discharge Current - The water expelled by the propeller.

Displacement - The weight of the volume of water displaced by a floating vessel.
Displacement Hull - A hull that is supported solely by buoyancy at any speed.
Distress - A SAR incident wherein there is reasonable certainty that one or more individuals are threatened by grave and imminent danger, and require immediate assistance.

Docking - The procedure for coming alongside and securing to a wharf or jetty.

Downwind - To leeward, the direction in which the wind is blowing.
D.R. - Abbreviation for Dead Reckoning.

Draft - The measurement from the waterline to deepest point of the vessel, i.e. The minimum depth of water required to float a vessel.
Drift - (1) The speed of a current. (2) The distance a vessel is moved by a current. (3) To move idly without propulsion by sail or engine.

## E

Ebb - A tidal flow towards the sea.
Equator - The great circle whose plane is perpendicular to the polar axis, midway between the poles.
E.T.A. - Abbreviation for Estimated Time of Arrival.

Fairway Buoy - A buoy that marks landfall, the entrance to a channel, or the centre of a channel.
Fall Off - The movement when a ship is steered or blown off course to leeward.

Fathom - A unit of measure equal to six feet. Used to describe depth of water, or length of rope or line.

Fender - A device hung over the side of a vessel to protect the hull from other vessels, docks or objects.

Fetch - The distance over water which the wind has blown uninterrupted.
Figure-of-Eight Knot - A stopper knot shaped like a figure of eight.
Fix - A relatively accurate position determined without reference to any former position.

Flare - (1) A signal device to indicate distress.
(2) The external concave curve of the bow of a ship.

Float Plan - The recording of the itinerary of a cruise that is filed with someone reliable ashore (also known as a Sail Plan).
Flood - A current associated with a rising tide.
Fore-and-Aft - From towards the bow to towards the stern in a ship.
Forward - A directional term indicating at, or towards the bow.

Founder - To fill with water and sink.
Freeboard - The vertical distance from the water to the deck level, usually stated for the point of least freeboard.

Girted - A dangerous condition whereby the towline becomes near to, or at right angles to a vessel, causing a transverse pulling moment and the potential for loss of stability and capsize.

Give Way - To yield the right of way to another vessel.

Great Circle - A circle inscribed on the earth's surface whose plane passes through the earth's centre.

Ground - To touch the bottom or shore.
Ground Tackle - A collective term used to embrace all of the gear used for anchoring, or for securing a navigation buoy to the bottom.

Gunwale - The upper edge of the hull.
Gyro Compass - A directional instrument that indicates Gyro North, which can be very close to True North.

## H

Half Hitch - The simplest knot, usually part of another knot.

Halyard - A rope used for hoisting sails, spars or flags.

Hard Chine - A chine with a sharp angle to it.
Hatch - An opening in the deck for access to the interior.

Head - (1) The bow of the ship. (2) Upper corner of the triangular sail. (3) Upper edge of a rectangular sail. (4) A shipboard toilet.

Heading - The direction in which the ship's head is pointed.

Headway - Movement through the water in a forward motion.

Heel - The lean of a boat due to external forces.
Helm - A vessel's steering apparatus. The angle of the rudder on course; used in sailing in lee-helm or weather-helm.

Hull - The body of a vessel from the keel to the deck line.

Hull Speed - The maximum speed at which a displacement hull can be driven.
Humanitarian Incident - An incident not directly related to an Air or Marine SAR incident, that requires the provision of assistance by SAR resources to save life or relieve human suffering, including medevacs, transport of human organs, or medical supplies and search for missing persons.
Hypothermia - A condition in which the core temperature of the human body drops to a dangerous level.

## $\mathbf{I}-\mathbf{J}-\mathbf{K}$

In Step - Keeping the tow a proper distance behind your boat in relation to the sea/swell patterns so that your vessel and the tow ride over the seas in the same relative position, eg. wave crest to wave crest.

Joint Rescue Co-ordination Centre - A unit responsible for promoting efficient organisation of SAR service, and for co-ordinating the conduct of SAR operations within a Search and Rescue Region.

Keel - On a sailing vessel, an underwater member designed to resist lateral movement.
The principal fore-and-aft-line member of a framed hull; the hull's backbone.

Kellet - (Sentinel) A heavy weight attached in the length of the anchor rope to reduce the angle of pull on the anchor.

Knockdown - The state of a sailing vessel that is heeled over with her sails in the water.

Knot - (1) A unit of speed equal to one nautical mile per hour. (2) The tucks and loops in a line used to fasten it to an object or to itself.

## L

Latitude - The angular distance of a point on the surface of the Earth North or South of the Equator as measured at the centre of the Earth.

Lee Side - The side opposite to the direction from which the wind blows.

Leeward - Away from the wind.
Leeway - The lateral motion of a vessel to leeward under the influence of the wind.

Life Line - A line strung around the deck to provide a handhold in heavy weather.
Lighthouse - A major light built as a manmade aid to navigation; may be manned or unmanned.
Limber Holes - Drainage holes through a frame or floor timber at the bottom of the bilge.

Line of Position (LOP) - A line on the chart along which the vessel is known to lie, abbreviated as LOP.

List - The tilting of a vessel to one side or another due to loading, flooding or cargo shift.
Locker - A cupboard, chest or cabinet.
$\mathbf{L o g}$ - A device that measures distance traveled through the water, from which speed can be calculated. A book in which the conduct of a boat is recorded. To record an event in the logbook (log it).

Long Splice - A joining splice that joins two lines as one, that does not increase the diameter of the line.
Longitude - The angular distance East or West of the prime meridian of a point on the surface of the Earth as measured at the polar axis.

Lubber's Line - The reference line of a compass.

## M

Magnetic - Having to do with the Earth's magnetic field.

Magnetic Compass - A directional instrument actuated by the Earth's magnetic field.

Magnetic North - The North direction indicated by a magnetic compass.

Magnetic Pole - One of the two geographic areas, North or South, where the Earth's magnetic field enters and leaves the Earth vertically.

Marine incident - A SAR Incident where the original vehicle of transportation of the person(s) involved was a vessel, including air cushion vehicles operating over water.
Marline spike - (1) An adjective applied to seamanship embracing the art and shaping and working the ropes.
(2) A pointed tool used for working with ropes.

Mayday - The spoken radiotelephone distress signal.

Medevac - The urgent evacuation of a patient in circumstances other than a marine or air incident, for the purpose of saving life and relieving or preventing human suffering. Includes evacuation of a person from a vessel for medical reasons.

Mercator Projection - The most common type of chart projection used for navigational charts.

Meridian - An imaginary line joining the Earth's poles. The prime meridian is the one that passes through Greenwich, England and represents zero longitude.

Messenger Line - A length of light line which can be cast, propelled or floated considerably further than the towline, and which can be used to transfer the towline to the tow.

Minute - (1) Time - $1 / 60$ th of an hour.
(2) An angle $-1 / 60$ th of a degree.

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

Multi-tasked Resources - Resources that are formally funded and allocated for emergency SAR use in addition to their normal activities. When used in SAR, they are referred to as PRIMARY SAR RESOURCES.

N

Nautical Mile - A unit of distance being 1852 metres ( 6076.6 feet). This is equivalent to the length of arc of one minute of latitude on any great circle.
Notices to Mariners - A government publication issued regularly that contains all corrections and additions to chart information relating to navigable waters.

## 0

On Scene Commander (OSC) - The commander of a search and rescue unit (vessel or aircraft) designated to coordinate surface and air operations within a specified area.
Operator - The person in effective charge and control of the vessel and who is responsible for the vessel.

Other SAR Resources - Resources other than primary or secondary, which from time to time participate in SAR activities when required. Includes civilian volunteers and Federal Government-funded resources.

## P

Parallel of Latitude - An imaginary circle on the surface of the Earth parallel to the plane of the Equator.
Parent Unit - The ship, office, or operations centre that has tasked you to your mission, and is responsible for you.
Pelorus - The navigation instrument used for taking visual bearings, having a card and an arc rotating sight bar with two sighting vanes.

PFD - Abbreviation for Personal Flotation Device.

Pillar Buoy - A very large structural buoy that may have a light, bell or whistle.

Pitch - (1) The theoretical distance a propeller would move ahead in one revolution.
(2) The up and down motion of the bow and stern of a vessel due to the action of the sea.

Pitchpole - To overturn a vessel end over end.
Planing or Hydroplaning - A method by which a hull skims over the surface of the water.

Planing Hull - A hull of such a shape as to be capable of planing.

Pleasure Craft - A boat, a ship, a vessel, or any other description of water craft that is used exclusively for pleasure and does not carry passengers or goods for hire, reward, remuneration or any object of profit.

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

Point - (1) To sail more closely to the wind. (2) $111 / 4$ degrees of a compass rose.

Polyconic - A chart projection normally used on harbour charts.

Pooped - Vessel is pooped by a sea breaking over the stern as the vessel runs before the wind.

Port - The left hand side of the vessel when facing forward.

Primary SAR Resources - Aircraft or vessels operated and equipped specifically for Search and Rescue, and manned with SAR-trained crews. Primary SAR resources are under the direct operational control of the SRR Commander for SAR tasking.

Privileged - The vessel having the right-of-way.
Propeller - (Screw, Wheel) A device which, when rotated, will propel a vessel.

Pulpit - A raised railing at the bow or stern to prevent crew from falling overboard.


Quarter - The after part of a ship's side. The stern "corners" of a vessel.

R

Radiotelephone - A communication system wherein the voice is transmitted via radio waves.

Rafted - Several vessels or barges tied together side by side, which may be anchored, being towed or inboard vessel may be tied alongside.

Range - (1) Two aids to navigation which, when seen to be in line, establishes a line of position (LOP). (2) The difference in depth between high and low tides.

Reaching - Sailing with the wind approximately on the beam.

Reef - 1. One large rock out crop, or several rock outcrops close to the surface of the water. 2. (vb) The process of reducing the area of a sail carried, when strong winds arrive.

Reef Knot - A joining knot.
Rescue Co-ordination - The function of integrating the efforts of SAR facilities and resources to achieve concerted and harmonised resolution of SAR incidents in an effective and efficient manner.

Rescue Specialist - Specially-trained rescue personnel who are a key part of a SAR crew.
Relative Wind - The direction and velocity of the wind as observed from a moving vessel.

Reverse - Go astern.
Rigging - An inclusive term for all the wires and ropes used to support masts and to control spars and sails.

Rode - The line joining a vessel to its anchor.
RPM - Abbreviation for Revolutions Per Minute, normally referring to the propeller or engine.

Rudder - The underwater portion of the steering mechanism.

Rules of the Road - Slang name for the International Regulations for Preventing Collision at Sea (Collision Regulations).

Running Fix - A position determined by the use of bearings that have an appreciable time difference in between them.

SAR Incident - A reported incident that requires a response by the SAR system.

SAR Mission - The task assigned to a SAR Unit by a JRCC/CSS/CAS in response to a SAR incident. A SAR MISSION commences with formal tasking by JRCC/CSS/CAS and is normally defined in scope and time.

SAR Operation - When the response to a distress incident requires the utilisation of more than one resource and/or numerous SAR missions are anticipated during the execution of the incident, it is considered a SAR operation.
SAR Resource - A resource tasked or directed by a JRCC to respond to a search and rescue incident.

SAR Tech - A Canadian Air Force crewmember with specific SAR training, operating with DND SAR aircraft.

Scale - As applied to a chart, the ratio of the distance on the chart to the distance on the Earth's surface (e.g. 1/80,000 means one unit on the chart represents 80,000 units on the Earth's surface).

Scope - The ratio of the length of anchor rode to the depth of water; both lengths are referenced to the chock where the rode leaves the vessel.

Screw - See Propeller.
Searchmaster (SM) - An individual who has been appointed by a Search and Rescue Region Commander to co-ordinate and direct a specific SAR operation.
Search and Rescue (SAR) - Search and rescue is the search for and provision of aid to persons, ships or other craft that are, or are feared to be, in distress or immediate danger.
Search and Rescue Region (SRR) - A specified geographical area in which SAR operations are coordinated and controlled by a designated Joint Rescue Coordination Centre.

Search and Rescue Unit (SRU) - A unit composed of trained personnel and provided with equipment suitable for the expeditious conduct of search and rescue operations.
Secondary SAR resources - Aircraft or vessels operated and equipped for other than Search and Rescue, but which can be expected to respond (when available) to SAR tasking. Includes multi-tasked government resources.

Secure - To make fast (tie up).
Semi-Displacement Hull - A hull that performs partly as a displacement hull and partly as a planing hull.

Set - (1) The direction in which a current flows.
(2) To dig an anchor firmly into the bottom.

Sheer - (1) A wide swing off course.
(2) The shape of the deckline as seen from a point on the beam.
Sheet Bend - A knot used principally for joining two ropes of unequal size.

Shoal - A shallow area in a body of water.
Shock Loading - The resistance caused by intermittent or varying forces of waves, or sea conditions encountered by the boat in tow, which cause heavy stress on deck fittings and the towing rig.
Short Splice - A joining splice between two pieces of line that has a larger diameter than the line.
Skeg - A projection under the propeller.
Skipper - (slang) The person in command of a vessel.

Slack - The interval of minimum horizontal tidal movement (minimum current).

Small Stuff - Cordage of less than $1 / 4$ inch diameter.

Soft Chine - A rounded chine.
Soundings - Measurements of the depths of water.
Spar Buoy - An anchored floating spar used as an aid to navigation.
Spotters - Personnel aboard a SAR unit who are carrying out a visual search

Spring Line - A mooring line running either aft from the forward end, or forward from the after end, to prevent movement of a vessel fore and aft.

Stability - The property of a vessel to right herself after heeling.
Stand - The interval of zero vertical water motion at the turn of the tide.

Stand/Stood Down - SAR Unit is notified by JRCC or OSC to discontinue its involvement with an incident.

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

Standing Rigging - The fixed and permanent rigging on a mast such as shrouds and stays.

Starboard - The right hand side of the vessel when facing forward.

Steer - To direct the course of a vessel by the use of the wheel or tiller.

Steerage Way - Movement through the water fast enough to enable the vessel to respond to the rudder.

Stem - The foremost member of a vessel forming the bow and joining the keel at its lower level.

Stern - The after part of a vessel.
Sternway - The backward motion of a vessel.
Strip Chart - A large-scale chart designed principally for pleasure craft and printed in long, narrow form, covering waterways such as canals or rivers. Latitude and longitude lines are not necessarily parallel to the chart outline borders.
Strut - An outboard support for a propeller shaft.
Swamp - To fill a boat with water.
Swell - A condition of the sea resulting from a previous or distant storm or high wind.

## T

Take Way Off - To halt the movement of that vessel through the water.

Thrust - Force applied by the propeller when rotated.

Tidal Current - Current due to tidal action.
Tidal Rip - A confused, tumbling surface condition, caused by tidal currents flowing over underwater ridges.

Tide - The vertical rise and fall of water caused by the gravitational pull of the Sun and Moon.

Tiller - A handle attached to the upper end of the rudderpost.
Topsides - The sides of a vessel, between the waterline and the sheer.

Towing Drogue - An object, deployed from the stern of the vessel in tow to create an aft pull that slows, stabilizes and reduces the towed vessels tendency to overtake the towline.

Track - A boat's intended path over the Earth's surface.

Transit - A line that intersects two points of land.

Transom - The transverse part of a hull closing off the stern of the vessel.

Trim - (1) The set of the sail. (2) The fore and aft or athwartships attitude of a vessel with respect to her waterline. (3) To adjust the set of the sails. (4) To alter the fore and aft or athwartships attitude of the vessel.

True North - The direction of the North Geographical Pole.
True North Pole - The position at which the Earth's axis intersects the surface in the Northern Hemisphere. (North Geographical Pole)

True Wind - The direction and velocity of the wind as observed from a stationary point.

## U

Underway - A vessel when not at anchor, aground or made fast to shore.

Undocking - The manoeuvre to leave a dock or wharf.

V

Variation - The angular difference between Magnetic North and True North.

## W

Wake - The V shaped disturbed area of water around and behind a moving vessel, which is set into motion by the passage of that vessel.
Wash - The loose or broken water left behind a pleasure craft as it moves along, also includes the water thrown aft by the propeller.

Wheel - The propeller steering wheel.
Whipping - A wrapping of small stuff applied to the end of the line to prevent unlaying.

Wind Direction - The direction from which the wind blows.

Windward - Towards the wind.

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Yaw - To swing off course, as in a following sea.

## REFERENCES

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- RNLI Boat and Crew Manual (2001)
- Seamanship Techniques (DJ House)
- Small Craft Training Manual (Pacific Region)
- The Annapolis Book of Seamanship (John Rousmaniere 1999)
- The Wheel House Companion (Captain Scott)
- USCG Boat Crew Seamanship Manual (US Dept. of Transportation)


## REGULATIONS

## Boating Restriction Regulations

- CCG Pacific ISM crewmember Checklist
- CCGA National Performance Objectives
- Collision Regulations
- Canada Shipping Act
- Tackle Regulations

