

# **Elements of Knowledge**

## **Training Reference Tables**

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
01 - SAR Unit Performance	1.0 Introduction to SRU Performance SRU Vessel and Training Individual contributions to the team 1.1 Team Performance Rescue Team Priorities 1.1.1 Command Structure 1.2 On Watch 1.3 Vessel Positions 1.3.1 General Duties 1.3.2 Helm 1.3.3 Navigation Monitor 1.3.4 Linehandler / Operations 1.3.5 Equipment setup and operation 1.3.6 Lookout 1.3.7 Common Positions According to Vessel State/Mission 1.4 Vessel Fitness 1.4.1 Routine Inspection 1.4.2 Pre-departure Inspection 1.5 Mission Execution 1.5.1 On Call 1.5.2 Mission Preparation 1.5.3 Mission Briefing 1.5.4 Response Priorities (get there safely) 1.5.5 Night Operations 1.6 Team Communication 1.6.1 Open Boat Communications 1.7 Risk Assessment 1.7.1 Stop Assess and Plan (SAP) 1.8 Critical Incident Stress (CIS) 1.8.1 A Normal Reaction to an Abnormal Event 1.8.2 Activation of the System 1.8.3 Signs of CIS	CHAPTER 2 HUMAN FACTORS 2.1 Why spend time discussing human factors? 2.2 Profile of a good SAR team Communication Briefings Make the time Be open and friendly Anyone can conduct the briefing A briefing must be interactive Define responsibilities Use closed-circuit communications Keep focused Ensure that no question remains unanswered Debriefings Challenge and response Steps in a challenge Taking advantage of challenges Obstacles to challenges Short term strategies Identify the problem Developing the plans Check the plans Summary briefing Monitor Authority and assertiveness Management styles Tiger style - high on performance but low on people Penguin style - low on performance but high on people Snail style - low on both performance and people Sheep style - average concerns for both people and performance Dolphin style - high on people, high on performance Management style analysis Workload Decrease the number of tasks to be accomplished Decrease the weight of individual tasks Increase the time available for accomplishing the tasks

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		<p>State of a team  Optimum state (+1)  Concerned state (+2)  Alarmed state (+3)  Bored state (-1)  Inattentive state (-2)  Inattentive at a critical phase (-3)  Judgement and decision-making strategies  Vigilance  Problem discovery  Problem diagnosis  Alternative generation  Risk analysis  External influences  Decision  Action  Monitoring  2.3 Image and attitude  2.3.1 Heroism: a dangerous attitude  Professionalism  The ingredients of professionalism  Knowledge and skills  Acting in a professional manner  Image  Crew Attitude  Knowledge and skills  Operating a boat in a professional and courteous manner  2.4 Critical-incident stress management  Critical-incident stress  Reacting according to experience  Countering the effects of stress</p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
02 - Personal Safety	2.0 Introduction 2.1 Flotation 2.1.1 Life Jackets 2.1.2 Personal Flotation Devices (PFDs) 2.1.3 Anti-Exposure Work Suits 2.1.4 Abandonment immersion suits 2.2 Insulation & Thermal Protection 2.2.1 Thermal Underwear 2.3 Protection 2.3.1 Drysuit 2.3.2 Helmets 2.3.3 Eye Protection 2.3.4 Gloves 2.3.5 Footwear 2.4 Mobility 2.5 Visibility 2.6 Signalling for Distress 2.6.1 Equipment Vest 2.7 Additional gear 2.7.1 Knife 2.7.2 Pocket Mask, Rubber Gloves and Eye Wear 2.7.3 Gear Bag 2.8 Maintenance & Cleaning 2.8.1 Drysuit Maintenance 2.8.2 Drysuit Repairs 2.8.3 Float Test 2.9 Cold water survival 2.9.1 Preventing Hypothermia 2.9.2 Signs and Symptoms	CHAPTER 3 . PERSONAL SAFETY General Protection in cold water Wearing gear that fits Cleaning and maintaining your safety gear Picking the proper gear for the job Flotation Warmth Protection Ease of detection Mobility Personal safety equipment General Buoyant devices General Standard life jackets Small vessel life jackets Personal Flotation Devices (PFDs) Anti-exposure work suits Testing the floating capability of PFDs and flotation suits Abandonment immersion suit Dry suits General Dry suit maintenance Dry suit storage Repairs Thermal underwear Equipment vest Strobe light Personal distress flares Whistle Heliograph Dye marker Flashlight Portable VHF radio Knife

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		Additional gear General cleaning routines for protective clothing

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03 - Vessel Fitness and Safety	3.0 Introduction to Vessel Fitness & Safety 3.1 Briefing 3.1.1 Pre-mission Briefing 3.1.2 Passenger Briefing 3.2 Pre-Departure Check 3.2.1 Bring the Weather and Tide Information 3.3 Emergencies 3.3.1 Crew Overboard 3.3.2 Capsize, Sinking 3.3.3 Crew Strategies for Cold Water Survival 3.3.4 Fire On-Board Your Vessel 3.3.5 Signalling a Distress 3.4 Vessel Inspection 3.4.1 Regular Inspections are Mandatory 3.4.2 Example General Weekly Inspection List for Larger CGA Vessels 3.5 Vessel Systems Maintenance 3.5.1 Inboard Engines 3.5.2 Outboard Engines 3.5.3 Checking the Electrical System 3.6 Fuelling 3.6.1 Fuel Consumption and Range 3.6.2 Safe Fuelling	CHAPTER 4. VESSEL SAFETY Checklists and inspection of equipment How and what to inspect Sample inspection checklist Maintenance and repairs General Routine maintenance Boat mechanics and troubleshooting General Hull Tubes Outboard engine systems Fuel and oil Clutch, throttle and gears Power tilt and trim Propellers and attachment system Batteries and electric systems Engine cooling system Engine alarms Troubleshooting basic mechanical problems Introduction Troubleshooting diesel engines Problems common to both gasoline and diesel engines Outboard motor troubleshooting Troubleshooting steering gear failure SAR equipment Binoculars Night vision goggles Searchlight Flashlight Life buoys Rescue extension Fire extinguishers Rescue frame SAR pumps Trailering a boat

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		<p>General</p> <ul style="list-style-type: none"> <li>Trailer capacity</li> <li>Balancing and securing the boat</li> <li>Pre-departure checklist</li> <li>As you trailer</li> <li>Launching the boat</li> <li>Recovering the boat</li> <li>Trailer maintenance</li> <li>You and the law</li> <li>On board emergencies</li> <li>Person overboard</li> <li>Recovery procedure</li> <li>Anderson (one-turn) manoeuvre</li> <li>Williamson manoeuvre</li> <li>Accidental grounding</li> </ul> <p>General</p> <ul style="list-style-type: none"> <li>Accidental-grounding checklist</li> <li>Emergency procedure in the event of capsizing</li> </ul> <p>General</p> <ul style="list-style-type: none"> <li>Prevention</li> <li>Precautions</li> <li>Escape procedures</li> <li>Alongside a capsized boat</li> <li>Remaining inside a capsized boat</li> <li>Self-righting techniques for an RHIB</li> <li>Injury to a crewmember</li> <li>Becoming disoriented</li> <li>Fire on board</li> <li>Opening a hatch</li> </ul>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
04 - Communications & Record Keeping	4.0 Introduction 4.1 Radio Watch & Log Keeping 4.1.1 Duties and Responsibilities 4.1.2 Log Keeping 4.1.3 Vessel Log Keeper 4.2 VHF Communication System 4.2.1 Canadian Joint Rescue Centres 4.2.2 Radio Operators Certificate (ROC) 4.3 Operating the VHF 4.3.1 Basic controls on VHF radios include 4.3.2 International VHF Radio Procedures 4.3.3 Terms for Use with Marine VHF 4.3.4 Communication Example 4.4 Search and Rescue Communications 4.4.1 Calling the Joint Rescue Co-ordination Centre 4.4.2 JRCC Use of Pagers 4.4.3 Communication Tips 4.4.4 Initial Departure Message 4.5 Distress Communications 4.5.1 GMDSS (Global Maritime Distress and Safety System) 4.5.2 VHF Distress Messages and other Urgent Traffic 4.5.3 Distress Calls Received by Telephone	CHAPTER 1 . MARITIME SAR IN CANADA 1.1 Who is involved? Canadian Coast Guard Department of National Defence Interdepartmental Committee on Search and Rescue (ICSAR) National Search and Rescue Secretariat (NSS) 1.2 How is maritime SAR delivered in Canada? Management and monitoring Operations Prevention Volunteers 1.3 Vessels Primary SAR vessels Secondary SAR vessels Canadian Coast Guard Auxiliary (CCGA) Vessel of opportunity 1.4 Rescue co-ordination and alerting Rescue Co-ordination Centres and Maritime Rescue Sub-centres On-scene Co-ordinator / Co-ordinator Surface Search Rescue alerting, detection and communications What is GMDSS? Why GMDSS? GMDSS equipment Maritime Safety Information (MSI) GMDSS Sea Areas - International GMDSS Sea Areas- Canada Vessel compliance Communications between GMDSS vessels and non-GMDSS vessels Canadian Coast Guard Marine Communications and Traffic Services Centres Canadian Rescue Co-ordination Centres and Maritime Rescue Sub-centres Operator proficiency Marine Communication and Traffic Services 1.5 Canadian Coast Guard program effectiveness 1.6 Unnecessary use of the SAR system System of last resort Ensure self-reliance



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		1.7 Partnership and team approach to search and rescue What is my potential contribution to a search and rescue effort? Your level of training The capabilities of your boat and crew Equipment on board 1.8 Who should be called first? Waters under federal responsibility Provincial responsibilities

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
05 - Practical Seamanship	5.0 Introduction to Practical Seamanship 5.0.1 Line Handler 5.1 Knots and Lines 5.1.1 Construction 5.1.2 Lay and Weave 5.1.3 Knots, Bends and Hitches 5.1.4 Coiling and Stowing 5.1.5 General Precautions for Working with Rope 5.1.6 Line Inspection 5.2 Deck Safety and Lines Under Load 5.2.1 Never Stand in the Bight! 5.2.2 Watch your head! 5.3 Mooring and Securing the Vessel 5.3.1 Tying Up 5.3.2 Cleat 5.3.3 Sampson Post 5.4 Anchoring 5.4.1 Anchor Types 5.4.2 Main parts of a typical anchor 5.4.3 Anchor Fittings 5.4.4 Setting the Anchor 5.4.5 Scope 5.4.6 Weighing Anchor 5.4.7 Clearing a Fouled Anchor	CHAPTER 5 . SEAMANSHIP AND TERMINOLOGY Boat terminology General Location, position and direction aboard a boat Construction terminology Boat measurement Construction parts Deck fittings Types of boats Sailboats Types of sailboat The basic small sailboat Small motorboats The Runabout Freshwater and saltwater fishing boats (boats for anglers) Cruisers. trawlers. and houseboats Pontoon and deck-type boats Personal watercraft Inflatable boats Canoes. kayaks. and rowboats Fishing vessels Side trawler Stern trawler Outrigger trawler or beam trawler Tuna purse seiner Purse seiner Dredger Lift-netter Pot vessel Longliner Tuna longliner Pole-and-line vessel Troller Pump fishing vessel Trawler-purse seiner Boat motions

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		Ropes Types and characteristics of ropes Twisted vs. braided ropes Natural fibre rope Sisal Hemp Manila Synthetic fibre ropes Nylon Polyesters Polypropylene 5.5 Knots. bends. hitches and related items General Knots Bowline Square Knot Figure-eight knot Bends Sheet bend Fisherman's bend Hitches Half hitch Timber hitch Clove Hitch Whipping Splicing Short splice Long splice Eye splice Using ropes with deck fittings Securing a line to a standard cleat Securing a line to a Sampson post Securing a line to a bitt Securing a line to a railing 5.6 WireRope Construction

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		Wire rope lay Safety considerations Safe working loads Bending stress Inspection 5.7 Working with ropes, lines and wires Working with ropes Rope inspection Coiling and faking a rope Cutting a rope Safe working loads Working with wires Taking a rope from a reel Storage Seizing and cutting Accidents involving use of mooring wires and reels Working safely

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
06 - Boat Handling	6.0 Introduction 6.1 Helm Position 6.2 Forces on Your Vessel 6.2.1 Winds 6.2.2 Waves 6.2.3 Current 6.2.4 Combined natural forces 6.3 Vessel Characteristics 6.3.1 Displacement Hulls 6.3.2 Planing Hulls 6.4 Propulsion and Steering 6.4.1 Pivot Point 6.4.2 Trim 6.5 Propellers 6.5.1 Parts of a Propeller 6.6 Basic Manoeuvres 6.7 Manoeuvring 6.7.1 Directed Thrust 6.7.2 Twin Engine Directed Thrust 6.7.3 Waterjets 6.7.4 Non-Directed Thrust and Rudder Deflection 6.8 Getting Underway 6.9 Approaching the Dock 6.10 Station Keeping	CHAPTER 9 . BOAT HANDLING General The art of boat handling Environmental forces acting on a boat Winds Seas Current Combined environmental forces Propulsion and steering Shaft, propeller and rudder Propeller action Propeller current Side force Cavitation Rudder action Outboard motors and stem drives Thrust and direction control Propeller side force Vertical thrust Cavitation Waterjets Thrust and direction control No side force Cavitation Boat handling characteristics Inherent handling characteristics Single propeller characteristics Dead in the water Right-hand propeller - ahead Right hand propeller - astern Rudder position - backing Twin propeller characteristics Port Propeller Stopped Starboard propeller stopped Twin propeller pivot turn Twin propeller steering

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<p>           Outboard and characteristics            Major differences            Types of hulls            Displacement hulls            Wave drag and theoretical hull speed            Semi-planing hulls            Planing            What is planing?            Trim angle            The evolution of v-bottomed hulls            Heeling and stability            Basic boat handling techniques            Leaving the dock            Prior to getting underway            Getting underway            Leaving the dock            Clearing a berth            On board procedures on fast units            Accelerating            Trimming outboard engines            Turning            Docking a vessel            Docking - general technique            Docking - strong winds or currents technique            Beaching a boat            Anchoring a boat            Advanced boat handling techniques            Manoeuvring alongside another vessel (pacing)            Determine approach            Course and speed            Approach from leeward and astern            Lines and fenders            Going alongside            Begin to close            Use a sea painter            Make and hold contact         </p>

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		Conduct the mission Clearing Close quarter situations Using winds and currents to advantage Station keeping Winds and current Waves Backing Shallow water manoeuvring techniques Heavy weather boat handling Heavy seas Rolling Pitching Yawing Running in following seas Operating a vessel in excessive wind Counteracting the effects of the wind Heavy weather piloting Preparation Chart preparation Chart labeling Radar Ranges Chart Stowage

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07 - Navigation	7.0 Introduction to Navigation 7.1 Navigation Monitor 7.1.1 Publications 7.2 Aids to Navigation 7.2.1 Buoys and Beacons 7.2.2 Ranges and Transits 7.2.3 Sector Lights 7.2.4 Fog Signals 7.3 Hydrographic Charts 7.3.1 Mercator Projection Chart 7.3.2 Chart Symbols 7.3.3 Chart Check 7.3.4 Distances and Positions 7.4 The Compass 7.4.1 Using your Eyes and Chart in Piloting 7.4.2 Transit Lines 7.5 Collision Regulations 7.5.1 Fundamentals of Collision Prevention 7.5.2 Conduct of Vessels in Sight of One Another 7.5.3 Narrow Channels and Traffic Separation Schemes 7.5.4 Navigation lights for Small Vessel 7.5.5 Day Shapes Basic 7.5.6 Sound Signals 7.6 Electronic Navigation 7.6.1 Radar 7.6.2 Global Positioning System (GPS) 7.6.3 Electronic Charting Systems and Chart Plotters 7.6.4 Depth Sounder 7.7 Navigation: When in doubt stop or slow down	CHAPTER 6 . NAVIGATION SAFETY Collision regulations General Responsibility Lookout Safe speed Conduct of vessels in sight of one another Meeting, crossing and overtaking Sailboats and special situations Conduct of vessels in restricted visibility Lookout procedures General Requirement Assignment and station Guidelines Lookout positioning Object identification Relative bearings Position angle Distance Making reports Scanning Scanning procedure Night scanning Fog scanning Night lookout watch Dark adaptation Scanning Helm watch Guidelines Towing watch General Guidelines Observed danger Maintaining watch Anchor watch



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		<p>Guidelines</p> <p>Check for chafing</p> <p>Check for dragging</p> <p>Check your position</p> <p>6.3 Aids to navigation</p> <p>General</p> <p>Buoys</p> <p>Lateral buoys</p> <p>Cardinal buoys</p> <p>Special purpose buoys</p> <p>Lights, leading lights, sector lights and direction lights</p> <p>Lights</p> <p>Leading lights (also known as range lights)</p> <p>Sector lights</p> <p>Direction lights</p> <p style="text-align: right;">CHAPTER 7 . NAVIGATION</p> <p>Navigating with charts</p> <p>The magnetic compass</p> <p>Deviation</p> <p>Finding deviation</p> <p>Anatomy of a chart</p> <p>Scale</p> <p>Projection</p> <p>Datum</p> <p>Compass Rose</p> <p>Variation</p> <p>Latitude and Longitude</p> <p>Working with charts</p> <p>TOOIS</p> <p>Measuring distance</p> <p>Plotting bearings and courses</p> <p>Correcting for deviation and variation</p> <p>Uncorrecting for deviation and variation</p> <p>Distance, speed and time</p> <p>Danger bearings and angles</p> <p>Relative bearings</p>

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		<p>Determining position</p> <p>The fix</p> <p>Bearings with the steering compass</p> <p>Observations on a single object</p> <p>Dead Reckoning</p> <p>Regulations and other printed sources of maritime info</p> <p>General regulations</p> <p>Navigating with charts in a small SAR unit</p> <p>Know your chart</p> <p>Visualize</p> <p>Always know where you are and where you will be</p> <p>Find good routes to navigate through your territory</p> <p>Electronic navigation</p> <p>Radar</p> <p>General</p> <p>Basic principle</p> <p>Advantages</p> <p>Disadvantages</p> <p>Minimum range</p> <p>Maximum range</p> <p>Operational range</p> <p>Reading the radar indicator</p> <p>Operating controls</p> <p>Reading and interpolating radar images</p> <p>Radar contacts</p> <p>Radar fixes</p> <p>Loran</p> <p>General</p> <p>Receiver characteristics</p> <p>Determining position</p> <p>Refining a Loran-C line of position</p> <p>Global Positioning System (GPS)</p> <p>Standard positioning service</p> <p>Equipment features</p> <p>Differential Global Positioning System (DGPS)</p> <p style="text-align: right;">CHAPTER 8 . WAVES AND WEATHER</p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		Wave theory General The parts of a propagating wave Wave energy Particle motion Factors in creating shape Breaking waves Refraction and reflection Combining wave fronts Rip currents Tsunamis Understanding weather General The atmosphere - general concepts Applied knowledge Special weather conditions Thunderstorms Fog and snow Icing Maritime weather information Maritime weather forecasts Weather warnings Effect of wind

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
08 - Towing	8.0 Introduction 8.1 (STOP & ASSESS) Tow Assessment and Safety 8.1.1 Towing SAP (Stop Assess Plan) 8.1.2 Safety on Board Your Tow 8.2 (The Plan) Pre-Tow Briefing 8.2.1 Towline Safety 8.3 Positions 8.3.1 Line Handler: Set up and Passing the line 8.3.2 Crewmembers On-board the Tow 8.3.3 Tow Watch 8.3.4 Helm 8.3.5 Towline length 8.4 Towing Log Entries 8.4.1 Taking notes 8.4.2 JRCC SITREPS 8.5 Towing Alongside 8.6 Handling a Sinking Tow	CHAPTER 10 . TOWING General Safety Communications Forces in towing Static forces Momentum Friction resistance Form drag Wave making resistance Wave, spray and wind drag Wave drag Spray drag Wind drag Combination of forces and shock loading Towing equipment Towlines Towline reel Towing pendants and bridles Pendant Bridle Messengers Chafing gear Preventing chafing damage -13 Thimbles Deck fittings and other fittings Condition and inspection Using a drogue Prepare the drogue gear Pass the drogue Rig drogue for deployment Deploy the drogue Shortening up and recovering the drogue Approaching a vessel in need of towing Before approaching the vessel Towing approaches

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<p>Determining the towing approach to use</p> <p>The parallel approach</p> <p>Crossing-the-T approach</p> <p>The 45-degree approach</p> <p>The back-down approach</p> <p>Passing the towline</p> <p>General</p> <p>Preparation and use of heaving line</p> <p>Preparation and use of float line</p> <p>Line throwing apparatus</p> <p>Weighing anchor of a disabled craft</p> <p>General</p> <p>The shackle method</p> <p>The kicker-hook method</p> <p>The bowline method</p> <p>Selection of the towline connecting point</p> <p>Trailer eyebolt</p> <p>Bow cleat, bow bitt or Sampson post</p> <p>Method of connection</p> <p>Use of bridles</p> <p>Double-leg bridles</p> <p>Single-leg bridles</p> <p>Stern tow</p> <p>Preliminary procedures</p> <p>Procedures underway</p> <p>Towing speed</p> <p>General</p> <p>Determining safe towing speed - displacement hull</p> <p>Determining safe towing speed - planing hull</p> <p>Towing alongside</p> <p>General</p> <p>Shortening the tow</p> <p>Securing alongside</p> <p>Entering a marina with a vessel in tow</p> <p>Docking the alongside tow</p> <p>Heavy weather towing</p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		Towing in current General Towing upstream Towing downstream Towing across the current and/or from current to still water Towing aircraft General Approach Passing the line Towing Lights Person overboard operations with a tow astern General Method Tandem towing Methods Honolulu method Daisy chain method "Y" method Sinking tow and a tow on fire Passing the canister pump to a vessel in tow Managing a sinking tow Fire on a towed vessel Towing precautions checklist

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
09 - Search	9.0 Introduction 9.1 Stage One: Awareness 9.1.1 Who answers the call for help? 9.1.2 Canadian SAR System Responds 9.2 Stage Two: Initial Actions 9.2.1 Search Action Plan Message from JRCC 9.2.2 SAR detectives 9.2.3 Preparing Yourself to Search 9.2.4 Pre- Departure Briefing 9.2.5 Preparing Your Vessel for Searching 9.3 Stage Three: Searching 9.3.1 Making the Search Action Plan Happen 9.3.2 Datum and LKP 9.3.3 Target Profile 9.3.4 Look to find 9.3.5 Searching at Night 9.3.6 The Use of Spotters 9.3.7 Recognising a distress 9.3.8 Shoreline Searches 9.3.9 Search Patterns 9.3.10 Drifting with the Datum 9.3.11 Driving the pattern 9.3.12 Finding Things 9.4 Other Search Units 9.5 Example of Log Entries During a Search	CHAPTER 11 . SAR OPERATIONS Awareness and initial actions -7 SAR stages Awareness Initial action Planning Operations Conclusion Emergency phases Uncertainty phase Alert Phase Distress phase Awareness stage: Methods for communicating distress Distress signals targeted to rescue centres Distress signals targeted to anyone nearby Radio communications MAYDAY PAN-PAN SECURITE Radio alarm signal Receiving a distress message Pyrotechnics Flag hoists Hand signals Light signals Initial action stage Timing of an SAR mission SAR communications Communication methods SITREPS Communication priorities Release of information to the media and the public Planning Before departure and during transit Basic search planning Datum

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		Datum point Datum line Datum area Forces affecting datum Leeway Local wind-driven current Sea current Tidal current River current Search area description Comer point Trackline Centre point (circle) Centre point (rectangle) Centre point-landmark (rectangle, bearing and distance) Landmark boundaries Search patterns Search pattern designation Square patterns(S) Sector patterns (V) Parallel track patterns (P) The creeping line single-unit pattern (CS) The trackline single-unit return pattern (TSR) Additional search patterns Barrier Shoreline search Initial response Initial response search area Procedure Communications with RCCJMRSC Appropriate search pattern Search area coverage Sweep width( W) Track spacing (S) Commence search point Search preparation



Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<ul style="list-style-type: none"> <li>Brief crew and lookouts</li> <li>Search object briefing</li> <li>Lookout assignments</li> <li>Conducting a search</li> <li>Visual search procedures</li> <li>Locating the search object</li> <li>Locating surface craft</li> <li>Locating overdue vessels</li> <li>Locating disoriented or lost vessels</li> <li>Locating abandoned vessels</li> <li>Locating distressed aircraft</li> <li>Locating person in the water</li> <li>Foundered or sunken vessels</li> <li>Search reduction</li> <li>Cessation of searches</li> </ul>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
10 - Rescue	10.0 Introduction 10.1 Stop Assess Plan 10.1.1 SAP is a team communication process 10.2 Rescue and Recovery 10.2.1 Person in the Water 10.2.2 Recovery From Various Survival Craft 10.2.3 Person trapped under a vessel 10.2.4 Recovering from shore 10.2.5 Recovery of non-survivors 10.3 Treatment, Transport and Transfer of Survivors 10.3.1 Patient management for marine specific accidents 10.3.2 Transport 10.3.3 Transfer to or from another vessel 10.3.4 Transfer to Medical Care 10.4 Saving a vessel 10.4.1 Assessing a Vessel's Stability 10.4.2 Rescue of a vessel drifting onto a lee shore 10.4.3 Damage Control 10.4.4 Righting or Towing Capsized Vessels 10.4.5 Assisting Grounded Vessels 10.4.6 Firefighting 10.5 Helicopter Operations 10.5.1 Hoist Operations 10.5.2 Air drops 10.5.3 Aircraft Emergencies 10.6 Boarding a Vessel 10.6.1 Stop and Assess (Pacing) 10.6.2 Plan 10.6.3 Approaching to Board 10.6.4 Boarding 10.6.5 Departing 10.7 Seaplanes 10.8 Log Entries Example of a CCGA Vessel's Log	Rescue Arriving on scene Recovering persons in the water General guidelines Methods of recovery Rescue of persons from burning vessels Guidelines Vessel on fire at fuel docks and marinas Rescue from survival craft Grounded vessels and damage control Broaching Pounding Refloating procedures Straight pull Wrenching and pulling Bow-on pull couring Heeling sailing vessels Damage control in SAR incidents Water flow control methods Suggested damage-control kit Rescue of capsized vessels Righting powerboats Righting a powerboat by par buckling Righting using bow and transom eyebolt Righting using towline fore and aft of boat's keel Refloating swamped boats astern using trailer eyebolt Righting small sailboats Righting larger vessels Righting technique Kayaks, canoes and small rowboats Rescue of a vessel drifting onto a lee shore Grounded vessels on lee shore or in other danger Boosting another vessel Procedure for boosting Escorting a vessel

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<p>Escorting procedure  Removing/delivering persons from/to shore  Procedure  Life Raft method  Removing/delivering persons from/to other vessels  General guidelines  Use of life raft for transfer  Patients in stretchers  Larger ocean-going vessels  Passenger ship  Ship at anchor  Heavy weather  Aircraft rescue  Airborne  Ditching nearby - general guidelines  Helicopter ditching  Aircraft crash - general guidelines  Rescue operations with DND planes and helicopter  Equipment Drops  Survival Kit Air Droppable (SKAD)  Air-droppable pump  Parachute drops  Joint operations with DND helicopters  Preparation of the SRU  Control of deck operations  Positioning of vessel and conduct of normal hoist process  Aircraft engine failure  Aircraft emergency entry  Recovering submerged victims  What agencies can recover victims?  General guidelines  Mission conclusion</p> <p style="text-align: right;">CHAPTER 12-EMERGENCY CARE AND  TRANSPORTATION OF MARITIME CASUALTIES</p> <p>Medical emergencies  Information gathering</p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<p> Responding to the incident  Communication with casualty vessel  Arrival on scene  Decision Point  Stabilizing patient  Transfer  Transport  Ambulance reception Point  Hand-over to the ambulance  Water extrication 9  Some sample methods of water extrications  Single or multiple person manual lift  Plastic spine board or Miller board  Plastic basket stretcher  Parbuckling or net rolling  Hypothermia  Mild hypothermia (non life-threatening)  Severe hypothermia (life-threatening)  Cold water near drowning  Factors in survival of cold water near-drowning  Additional factors in long-term submersion  Body reactions and responses to cold (autonomic or automatic)  Medical management and transport of the cold water near-drowning victim  Basic life support rescue from the water  Rescue breathing  Chest compressions  Advanced cardiac life support  Apparent signs of death  Re-warming procedures  Contamination with oil  Diving related injuries (SCUBA. etc.)  Physiology of diving  Decompression  Common diving emergencies  Barotrauma  Ear barotrauma </p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		<p>Sinus barotrauma  Tooth barotrauma  Digestive tract barotrauma  Air embolism. decompression sickness and bends  Air embolism  Decompression sickness (DCS) and bends  Guidelines for the treatment of divers  Remove the diver from the water  Special considerations - recovering technical divers  Undressing an injured or unconscious diver  Determine the nature of the problem  Organize transport to a recompression chamber  Place the victim in the appropriate position  Perform a secondary survey and treat all other injuries  Multi-casualty situations  Triage  General rules of triage  Casualty evaluation  Priorities for treatment and evacuation  Urgent category (red)  Delayed category (yellow)  Minor category (green)  Deceased category (black)  The tagging system  The tagging of casualties  Triage tags  Multi-casualty first aid  Airways  Breathing  Circulation  Deadly bleeding  Hypothermia  Shock  Long bone fractures  Bums  Spinal injuries</p>

Training Element	SAR Crew Manual	SAR Seamanship Reference Manual
		Cervical spine Spinal immobilization techniques Using rigid cervical collars Using spinal immobilization devices Spine boards Kendrick Extrication Device (KED) Miller board or litter In-water spinal injuries Care of rescue craft survivors Survival at sea Medical problems encountered with survivors Seasickness Sunburn Dehydration and malnutrition Heat exhaustion Heat cramps Cold exposure injuries (local) Chilblains Immersion foot Frostbite External assistance Medical advice Signs of death Only a doctor can declare a patient dead Use of a camera Transportation of casualty in Fast Rescue Craft Limitations of Fast Rescue Craft Methods of Immobilization in FRC Artificial Respiration (AR) and CPR in FRC