

MARITIME RADIO

Restricted Operator's Certificate (Maritime)
with DSC endorsement



MARITIME RADIO



Fisheries and Oceans
Canada

Pêches et Océans
Canada

Canadian
Coast Guard

Garde côtière
canadienne

Radio Aids to Marine Navigation 2025 (Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg, Arctic and Pacific)



Safety First, Service Always



[RAMN link](https://www.ccg-gcc.gc.ca/publications/mcts-sctm/ramn-arnm/docs/ramn-arnm-2025-eng.pdf)

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Radio Aids to Marine Navigation 2025

(Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg, Arctic and Pacific)

- The main purpose of the Radio Aids Marine Navigation (RAMN) publication is to **present information on radio communications and radio navigational aids** services.
- **RAMN is an annual publication** however; monthly updates to the document occur as required, they are advertised by radio broadcast via NOTSHIPs and/or in Section 3 of Notices to Mariners. Mariners should check NOTMAR PART 3 on a monthly basis for updates
- <https://www.notmar.gc.ca/index-en.php>

Radio Aids to Marine Navigation 2025

(Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg, Arctic and Pacific)

Table of Contents

- [Publishing information](#)
- [Part 1: Foreword](#)
- [Part 2: Facilities Information](#)
- [Part 3: Vessel Traffic Services](#)
- [Part 4: General](#)
- [Part 5: Environment and Climate Change Canada's Marine and Ice Warning and Forecast Programs](#)



[Radio Aids to Marine
Navigation 2025
\(PDF, 11.9 MB\)](#)

Every ship station fitted on a Canadian ship or on a non-Canadian ship engaged in the coasting trade of Canada, pursuant to the Ship Station (Radio) Regulations 1999, and all ships in waters under Canadian jurisdiction, pursuant to the Charts and Nautical Publications Regulations, 1995, **are required to carry the most recent applicable edition of RAMN.**

[Link to RAMN](#)

Radio Aids to Marine Navigation 2025

(Atlantic) (Pacific)

Part 4 - General

4.1 Procedures

- [4.1.1 Radiotelephone Procedures](#)
- [4.1.2 Distress Communications in Radiotelephony](#)
- [4.1.3 Urgency Communications](#)
- [4.1.4 Safety Communications](#)
- [4.1.5 Aids to Navigation](#)

4.2 Systems

- [4.2.1 Global Maritime Distress and Safety System in Canada \(GMDSS\)](#)
- [4.2.2 Long-Range Identification and Tracking of Vessels Regulations \(LRIT\)](#)
- [4.2.3 Canadian NAVTEX Service](#)
- [4.2.4 Guidance for Masters in Distress Situations and Alerting of SAR authorities](#)
- [4.2.5 Procedure for Responding to DSC Distress Alerts by Ships](#)
- [4.2.6 AMVER - Automated Mutual-Assistance Vessel Rescue System](#)
- [4.2.7 Differential Global Positioning System \(DGPS\)](#)
- [4.2.8 Pre-Arrival Information Report \(PAIR\)](#)

4.3 Services

- [4.3.1 Notices to Shipping](#)
- [4.3.2 World-Wide Navigational Warning Service \(WWNWS\)](#)
- [4.3.3 Cellular Phone \(*16\) Service - Marine Emergencies](#)
- [4.3.4 Direction Finding \(VHF/DF\) Service](#)
- [4.3.5 Sail Plan Service](#)
- [4.3.6 Search and Rescue in Canadian Areas of Responsibility](#)
- [4.3.7 Marine Communications and Traffic Services Message Service](#)
- [4.3.8 Icebreaking and Ice Routing Services](#)
- [4.3.9 Canadian Hydrographic Service](#)
- [4.3.10 Inspection of Radio Apparatus](#)
- [4.3.11 Radio Station Licensing and MMSI Numbers](#)
- [4.3.12 Application for a Radio Inspection of a Compulsorily Fitted Vessel](#)
- [4.3.13 Marine Telephone Service](#)

2.1.7 Prescott, Ontario

MMSI: 003160029

Call Sign: VBR

Hours: H24

Services in English and in French.

All communications with Canadian Coast Guard Marine Communications and Traffic Services Centres are recorded.

For Radio Services, call Prescott Coast Guard Radio.

Coordinates

Mailing Address:

Fisheries and Oceans Canada
Canadian Coast Guard
Officer-in-Charge – MCTS Operations
Prescott MCTS Centre
P.O. Box 1000
401 King Street West
Prescott, ON K0E 1T0

Telephone: 613-925-4471

MCTS Operations
613-925-0666

NAVWARN Desk / NAVAREA XVII and

XVIII

Facsimile: 613-925-4519

Email: Safety.Prescott@innav.gc.ca
NAVWARN.MCTSPrescott@innav.gc.ca

Table 2-13 - Prescott MCTS/VBR - Ship/Shore Communications

Sites located at	Channels	Frequencies		Remarks
		Transmit	Receive	
Cornwall 45°01'06"N 074°43'47"W	Ch16 Ch70 Ch85	-	-	Operational March 15 to December 31.
Cardinal 44°47'17"N 075°25'19"W	Ch16 Ch26 Ch27 Ch70	-	-	Operational March 15 to December 31.

Radio Aids to Marine Navigation 2025

(Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg, Arctic and Pacific)

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Gananoque 44°23'59"N 075°58'23"W	Ch16 Ch85	-	-	Operational March 15 to December 31.
Kingston 44°15'46"N 076°40'39"W	Ch16 Ch24 Ch26 Ch70	-	-	-
Cobourg 44°03'59"N 078°12'41"W	Ch16 Ch27 Ch70 Ch85	-	-	-

Radio Aids to Marine Navigation 2025

(Atlantic, St. Lawrence, Great Lakes, Lake Winnipeg, Arctic and Pacific)



Sites located at	Channels	Frequencies		Remarks
		Transmit	Receive	
Trafalgar 43°29'41"N 079°43'48"W	Ch16 Ch24 Ch70	-	-	-
Fonthill 43°03'11"N 079°18'42"W	Ch16 Ch26 Ch27 Ch70	-	-	-
Orillia 44°34'40"N 079°17'40"W	Ch16 Ch26 Ch70	-	-	-

Table 2-14 - Prescott MCTS/VBR - Ship/Shore Communications Serving Lake Winnipeg

Sites located at	Channels	Frequencies		Remarks
		Transmit	Receive	
Beaver Creek 51°23'21"N 096°54'25"W	Ch16 Ch26	-	-	Operational May 15 to October 31.
Fraserwood 50°34'47"N	Ch16 Ch19	-	-	Operational May 15 to October 31.

Search and rescue

Incident reporting, safety systems and equipment, and maritime search and rescue service delivery.

Follow Coast Guard:     



Canadian Coast Guard

- The Canadian Coast Guard maintains search & rescue services
- CCG monitors Channel 16 from coast to coast
- CCG can be reached on Channel 16 and on that Station's working frequency
- Cell phone: *16
- Also provide weather broadcasts, notices to mariners, ship movement and public telephone service

Operator Certificate vs License



Operator must have a **Certificate**

Restricted Operator
Certificate (Maritime)

ROC(m)



Station may need a **License**

ITU regs state that **entering the waters of a foreign administration** then the vessel must carry a radio authorization from its home country.

Certificates



This Certificate is valid for life

Must be on board when you are operating a radio transmitter

The Certificate **applies to the Operator**, the person who uses a Marine Radio

Anyone whose **voice goes over the radio** is 'operating', so every person using the radio must have a certificate

Your certificate is good for both VHF and MF and HF Marine bands

Maritime Mobile Service

Includes:

VHF (Very High Frequency)

MF (Medium Frequency)

(not implemented in Canada)

VHF is short range

MF is long range



VHF is mainly for Pleasure craft and Coast Guard

Station Licence

A Station Licence is Not Required on Voluntarily Fitted Vessels

Voluntarily fitted vessels include:

- **Pleasure Craft** operating in Canada
- Fishing vessels under 8 metres in length
- Naval vessels
- Tug boats operating only in restricted waters

If you do not have a Station Licence:

- Use your own, self assigned call sign.
- The name of your boat is a good call sign



Station Licence

- It is renewable annually - Free – apply to Industry and Science Canada
- A call sign will be assigned
- The call sign must be used during transmissions
- It must be displayed near the radio equipment
- Must list all transmitting equipment at the station - Radar, VHF, MF and SSB radio etc
- USA WATERS - ITU regs state that entering the waters of a foreign administration where no reciprocal agreement exists (that includes the USA)...then the vessel must carry a radio authorization from its home country. The U.S. and Canada do not have a reciprocal agreement about VHF radio licenses.

Regulations

Innovation Science and Economic Development Canada

Industry Canada controls the radio spectrum

Equipment must have Industry Canada Type Approval

13.4 FCC / INDUSTRY CANADA INFORMATION

The following data pertaining to the transceiver is necessary to fill out the license application.

FCC Type Accepted: Part 80

Output Power with FNB-V105LI: 1.0/5.0 W (Low/High)

Emission: 16K0G3E

Frequency Range: 156.025 to 163.275MHz

FCC Type Number: K6630453X20

Industry Canada Type Approval: 511B-30453X20

ISED (Industry Canada) has delegated Canadian Power & Sail Squadrons authority to issue the ROC (Maritime) certificates

Secrecy of Communications

- Communications are private and must not be divulged with the exceptions noted below
- Any person who violates the secrecy of correspondence is liable on conviction to a fine and/or imprisonment
- Emergency communications, and any communications addressed to “All Stations” are not considered confidential

Radio Logbook

- **MUST** be maintained if a Compulsorily fitted vessel.
- **Should** be used if receiving Distress traffic even if you are Voluntarily fitted

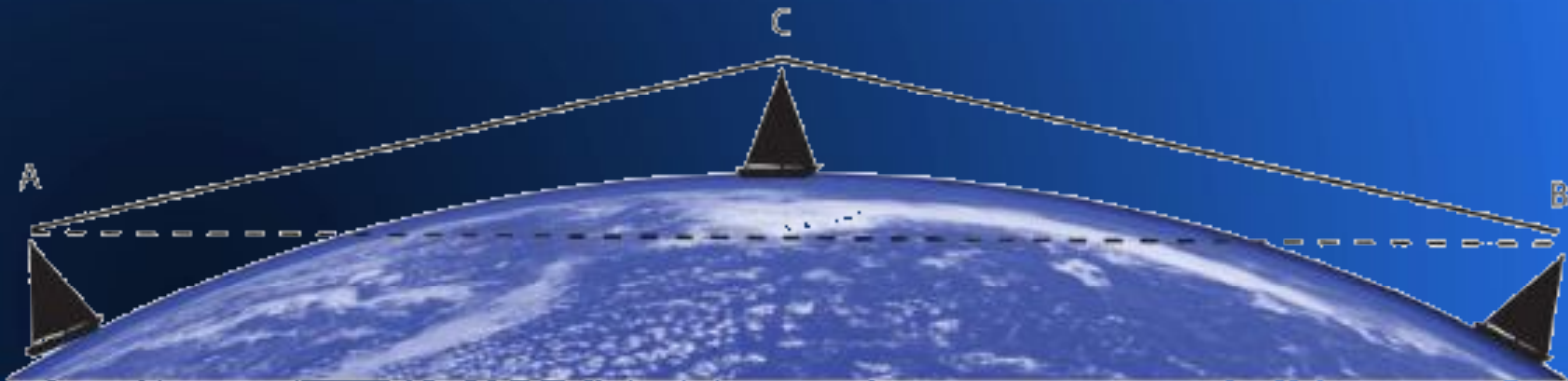
VHF Channel 16

The International Emergency calling frequency

- Is the Routine call connection frequency
- Is the listening frequency. It is recommended you listen when not transmitting
- It is 156.8 mHz (There is also a MF of 2182 kHz that is used for same purposes)

Range

- VHF radio is **line of sight**
- Your range is greatly influenced by the height of your antenna
- Land masses between you and other station can interfere with signals
- Under ideal conditions, you may communicate up to 85 km (approx. 40 mi.)



Transmission Power

VHF radios can transmit using either 1 watt or 25 watts (maximum) of power. (High/Low)

Portable radios use 1 watt or 5 watt.

When in close proximity to a station use 1 watt.

RBR-2 8.3 Power Restrictions

While in port, to minimize interference to other users, shall reduce operators their power to 1 watt

Use Channel 16

- For Distress, Urgency and Safety messages
- To call another station and to establish contact.
- **Then switch to a working frequency to communicate.**
- Working frequencies (column I) are designated in RBR-2 - Technical Requirements for the Operation of Mobile Stations in the Maritime Service – Schedule I

Innovation Science and Economic Development Canada

Industry Canada

Spectrum Management and Telecommunications

What's New

Online Services

Broadcasting

Radiocom

Telecom

RBR-2 — Technical Requirements for the Operation of Mobile Stations in the Maritime Service

Issue 1, September 2007

Regulation by Reference (Formerly RIC-13, Issue 4, May 1998)

Preface

10. Frequencies Allocated to Ship Radiotelegraphy Stations Using Manual or Automatic A1AAN Morse in the Exclusive Maritime Mobile Bands Between 4 and 25 MHz

Schedule I (Refer to Section 8) — Frequencies, Nature of Service, Type of Traffic and Area of Operation with Restrictions for the VHF Band in the Maritime Service

Schedule II (Refer to Section 6) — MF/HF Bands for Communications with Coast Stations and Other Ship Stations in the Maritime Service

RBR-2

Designated Frequencies – RBR-2 Schedule I

Column I Channel	Column II Frequencies (MHz)		Column III Area of Operation								Column IV Nature of Service & Type of Traffic	Column V Restrictions (Notes and Remarks) Refer to legend for abbreviations
	Ship Transmit	Ship Receive	EC	NL	AC	GL	WC	BCC	INLD BC	INLD PRA		
1	156.050	160.650						X			PC	
2	156.100	160.700						X			PC	
3	156.150	160.750						X	X		PC	
04A	156.200	156.200	X					X			IS, SS, C, S	DFO/Canadian Coast Guard only in BCC area. Commercial fishing in EC area.
05A	156.250	156.250	X	X	X	X	X	X	X		SM	
6	156.300	156.300	X	X	X	X	X	X	X	X	IS, C, NC, S	May be used for search and rescue communications between ships and aircraft.
07A	156.350	156.350	X	X	X	X	X	X	X		IS, SS, C	
8	156.400	156.400	X				X		X		IS, C, S	Also assigned for <u>intership</u> in the Lake Winnipeg area.
9	156.450	156.450			X			X		X	IS, SS, C, NC, S, SM	Commercial — BCC area. May be used to communicate with aircraft and helicopters in predominantly maritime support

Designated Frequencies – RBR-2 Schedule I

Area of Operation:

AA: All Areas

EC (East Coast): NL, AC, GL and Eastern Arctic areas

NL: Newfoundland and Labrador

AC: Atlantic Coast, Gulf and St. Lawrence River up to and including Montréal

GL: Great Lakes (including St. Lawrence above Montréal)

WC (West Coast): BCC, Western Arctic and Athabasca-Mackenzie

Watershed areas

BCC: British Columbia Coast (Pacific Coast)

INLD BC: Inland Waters of BC and the Yukon

INLD PRA: Inland Waters of MB, SK, and AB

Designated Frequencies – RBR-2 Schedule I

Nature of Service & Type of Traffic:

IS: Intership

SS: Ship/shore

C: Commercial

NC: Non-commercial

S: Safety

SM: Ship movement

PC: Public correspondence

AIS: Automatic Ship Identification and Surveillance System.

VTs: Vessel Traffic Services

Designated Frequencies – RBR-2 Schedule I



10	156.500	156.500			X	X		X			IS, SS, C, NC, S, SM	Commercial - BCC area. May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations.
11	156.550	156.550			X	X		X			IS, SS, C, NC, SM	VTs - BCC area. Also used for pilotage purposes.
12	156.600	156.600			X	X	X	X			IS, SS, C, NC, SM	VTs - BCC area. Port operations and pilot information and messages.
13	156.650	156.650	X	X	X	X	X	X	X		IS, C, NC SM	VTs - BCC area. Bridge-to-bridge navigational traffic.
14	156.700	156.700			X	X		X			IS, SS, C, NC, SM	VTs - BCC area. Port operations and pilot information and messages.
15	156.750	156.750	X	X	X	X	X	X	X		IS, SS, C, NC, SM	Port operations and Ship Movement - BCC area. All operations limited to 1-watt maximum power. May also be used for on-board communications.
16	156.800	156.800	International Distress, Safety and Calling.								AA	
17	156.850	156.850	X	X	X	X	X	X	X		IS, SS, C, NC, SM	Port operations and Ship Movement - BCC area. All operations limited to 1 watt maximum power. May also be used for on board communications.

Designated Frequencies – RBR-2 Schedule I

66A	156.325	156.325	X	X	X	X	X	X	X		S, IS, SS, C, NC	Port operations only in the St. Lawrence River/Great Lakes areas with 1-watt maximum power. 1 watt marina channel -BCC area.
67	156.375	156.375	X	X	X	X	X	X	X	X	S, IS, SS, C, NC	May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in EC and INLD PRA areas. Pleasure craft -BCC area.
68	156.425	156.425	X	X	X	X	X	X	X	X	IS, SS, NC	For marinas, yacht clubs and pleasure craft.
69	156.475	156.475	X	X	X	X	X	X	X		IS, SS, C, NC	Commercial fishing only - EC area. Pleasure craft -BCC area.
70	156.525	156.525	Digital Selective Calling for Distress, Safety and Calling.									
71	156.575	156.575	X	X	X	X	X	X	X		S, IS, SS, SM, C, NC	Ship Movement - BCC area. Marinas and yacht clubs -EC and on Lake Winnipeg.
72	156.625	156.625	X					X			IS, C, NC	May be used to communicate with aircraft and helicopters in predominantly maritime support operations. Pleasure craft -BCC area.
73	156.675	156.675	X	X	X	X	X	X	X	X	S, IS, SS, C, NC	May also be used for communications with aircraft engaged in coordinated search and rescue and antipollution operations. Commercial fishing only in EC and INLD PRA areas.

Uses of Marine Radio

May Not be used for

- **False DISTRESS traffic.**
- Profane or offensive language.
- Superfluous transmissions
 - Anyone, even a child, playing with the mike
 - Casual noise picked up on an open mike
 - Background music picked up while transmitting
 - Running with an open mike
 - Not related to marine operations

May be used for:

- DISTRESS and SAFETY messages
- Operational messages
- Business messages

A Typical VHF Radio

- On, Off, Volume
- Squelch
- Channel select
- Ch 16 button
- WX (weather)
- H/L (1w/25w)
- PTT switch-Push To Talk
- Distress button cover



- Keep a copy of the radio manual on board

Typical Indicators



- Channel selected or Scanned
- Transmitting (TX)
- Receiving (RX)
- Power level (25w/1w – Hi/Lo)
- Mode (Canada, US, International)
- Weather channel (WX)
- Weather Alert being received

Speak Plainly and Clearly

Moderate Rate and Rhythm.

- “BASS”:
 - brevity,
 - accuracy,
 - speed ~ moderate
 - secrecy.
- Use phonetic alphabet for clarity

International Phonetic Alphabet

A Alfa

B Bravo

C Charlie

D Delta

E Echo

F Foxtrot

G Golf

H Hotel

I India

J Juliett

K Kilo

L Lima

M Mike

N November

O Oscar

P Papa

Q Quebec

R Romeo

S Sierra

T Tango

U Uniform

V Victor

W Whiskey

X X-Ray

Y Yankee

Z Zulu

Phonetic Alphabet

- You must use the approved Phonetic Alphabet for both alphabetic spellings and numerics.
- Use Word Spelling when:
 - asked to spell a vessel's name
 - transmission is poor
 - using a vessel's call sign
- Practice by spelling out licence plates, road signs, billboards, and other signage.

You will be tested on the phonetic alphabet. A pass is required.

Use of Procedural words

- Do use proper words and phrases where appropriate
- If reception is poor standard phrases make your meaning clear and unambiguous

Acknowledge – Let me know you have received and understood this message

Roger – Message received and understood

Affirmative – Yes, or permission granted

Over means - my transmission is ended, I am expecting a response

Out means – conversation is ended, no reply expected

Stand by – wait till you hear further from me

Words twice – as request , or as information

Say Again – never use word “repeat”

“Over-and-out” is not a clear message – why?

Numbers

- Zero”, “Nine”, “Decimal”, “Thousand”.
- Numbers as separate digits:
 - 1500 hours = “one five “zero zero”.
- Except for whole thousands:
13,000 = “one three thousand”.
- A dollar amount, such as \$543.23, is transmitted as
Dollars Five Four Three Decimal Two Three

Time - 24 hour clock - 151830E

Use a six number sequence to show date and time – first two numbers show date of the month, next four numbers show time based on 24 hour clock. Finally a letter will show the time zone - example: 151830E

Noon on the 23rd day of the month EST is communicated 231200E.

- Be aware of Zulu time, which is UTC (Coordinated Universal Time), also called GMT or Greenwich Mean Time. 231200Z.
- Noon is 1200 (one two zero zero).
- Midnight is both 0000 and 2400.

Calling: Getting Started

1. Switch on the radio.
2. Select the frequency.
3. Adjust squelch.
4. **Listen** twice as long as you think is necessary.
5. The identity of the station being called is first, then “this is” and your identity. Avoid reverse calling.
6. Say the station names 1, 2 or 3 times depending on transmission quality or familiarity.

Single Station Call

Call: (on 16)

Misconduct, Misconduct, Misconduct

this is

Blue Jay, Blue Jay, Blue Jay, Over.

Reply:

Blue Jay

this is Misconduct,

Go to Channel 06,

Out

(both switch to 06)

Single Station Call - Response

(both now on 06)

Call

Blue Jay

this is Misconduct
Over.

Reply: Misconduct
this is Blue Jay,
(give message),
Over.

Single Station to Coast Guard Station

Establish contact on a CG Radio working frequency to avoid congestion on Channel 16:

Call: Prescott Coast Guard Radio,
Prescott Coast Guard Radio
Prescott Coast Guard Radio
This is Sunshine, Sunshine, Sunshine, on **channel 26**
Over

Response:
Sunshine this is Prescott Coast Guard Radio
Go Ahead, Over

General Call to any station in range

All Stations, All Stations, All Stations

This is Emily, Emily, Emily

Any vessel with weather information for Cape Bear area

Switch to Channel 06

Out

Multiple Station Call

Call on Channel 16

Runaground, Wayside, Aqua

Runaground, Wayside, Aqua

Runaground, Wayside, Aqua.

This is Castaway, Castaway, Castaway.

Switch to channel 06.

Out.

CALLING & WORKING FREQUENCIES

Call on a calling frequency - **VHF channel 16** (156.8MHz or MF 2182 kHz), unless you know the other station listens on a working frequency.

- **Switch to a working frequency (channel)** after establishing contact on a calling frequency (channel).
- **After completion of communications switch back to monitor the calling frequency (channel 16)**

Telephone Calling (Using Coast Guard Radio facilities)

(requires duplex (commercial) radio and an account with the CG)

Prescott Coast Guard Radio

Prescott Coast Guard Radio

Prescott Coast Guard Radio

This is Obsession, Obsession, Obsession.

Requesting telephone traffic on Channel 26.

Over.

(cell phone or satellite calling more common now)

Radio Checks

Prescott Coast Guard Radio

Prescott Coast Guard Radio

Prescott Coast Guard Radio.

This is Daytripper, Daytripper, Daytripper.

Requesting a radio check on channel 26.

Over.

Use a Coast Guard working channel NOT channel 16

Readability Scale

- 1 – Bad, unreadable.
- 2 – Poor, readable now and then.
- 3 – Fair, readable but with difficulty.
- 4 – Good, readable.
- 5 – Excellent, perfectly readable.

“Signal check, reading you Four, over.”

Control

Two ship stations: the station called.

Ship and shore: the shore station.

Distress: the distress vessel, unless control assumed by a more capable station.

Interruptions - priority

You may NOT interrupt another station unless your call is of a higher priority

Highest priority is **DISTRESS** (mayday)

then **URGENCY** (pan-pan)

then **SAFETY** (securite)

Remember: listen before transmitting

Priority of Communications

- ● **Distress** (Station or person) is in *grave & imminent danger*)
- ● **Urgency** (re safety of vessel or person)
- ● **Safety** (weather and navigational warnings)
 - Communications (re direction finding bearings)
 - Communications (re Search & Rescue aircraft)
 - Communications (re weather observations directed to an official weather office)
 - Service Messages (re radio communications)
 - **All other communications**

Distress Calls - Mayday

Mayday indicates this is a **Distress** communication

- ❖ A distress call indicates that the station or person (or another station) is threatened by **grave and imminent danger** and requires immediate assistance,

DISTRESS call has **priority** in all communications and all other communications shall cease immediately.

Not issued to a specific station. Not formally issued to “ALL STATIONS”
Implied to “ALL STATIONS”

Distress Call Frequencies.

- VHF Channel 16 (156.8 MHz). Where practicable, a listening watch should be maintained.
- MF 2182 kHz. Ensure a continuous listening watch. A period of silence – 3 minutes on the hour and on the half hour is maintained.
- VHF DSC Channel 70 (156.525 Mhz). Digital channel - (not for voice – details in the DSC section later)



A Distress Call

(If fitted) precede with the international Radiotelephone Alarm Signal – two audio tones that produce a warbling sound for 30-60 seconds, then

1. MAYDAY - MAYDAY – MAYDAY
2. THIS IS (name of your vessel 3 times)
3. MAYDAY and your vessel's Name once.
4. Give your POSITION (longitude/latitude or a geographic feature).



A Distress Call

5. State the **NATURE** of your Distress.
6. Give a **DESCRIPTION** of your vessel - type, length, colour, and any other information that will assist rescue.
7. Give the **NUMBER OF PERSONS** on board and their **INJURIES**.
8. State your **INTENTIONS** (i.e. abandoning vessel in dinghy).
9. Your **VESSEL'S NAME** (once) then “**over**”

Complete Mayday Call

1. MAYDAY - MAYDAY - MAYDAY
2. This is Sambo, Sambo, Sambo
3. MAYDAY Sambo.
4. Position two miles south of the Gibraltar Point buoy.
5. Have struck log and am taking on water.
6. Engine seized.
7. Two five foot C & C, white with red stripe.
8. Three people on board, one badly injured.
9. Preparing to abandon ship with lifejackets, no dinghy.
10. Sambo
11. Over

Distress Calls – Early Notification

EARLY NOTIFICATION OF SEARCH AND RESCUE AUTHORITIES OF DEVELOPING SITUATIONS

- In the interest of ensuring the highest level of safety, mariners should immediately notify the Canadian Coast Guard, through any MCTS centre of **any situation which is or may be developing into a more serious situation requiring assistance** from the Search and Rescue (SAR) System. The need for the earliest possible alerting of SAR Authorities to potential maritime emergencies cannot be over-emphasized
- It is always best to consider the worst-case scenario and to alert SAR authorities accordingly. **This notification places no obligations upon the master except to advise the Canadian Coast Guard when the situation has been corrected.**

Mayday - no response

Repeat DISTRESS call and message.

- Because might not be heard the first time.
- Repeat until an answer is received, or the vessel must be abandoned.
- If **no answer** on the DISTRESS frequency, then
 - Repeat on **any frequency**.
 - Start using **flares** and other distress signals.

If you hear a Mayday

Immediately proceed toward the vessel in distress

Continue to monitor the Distress signal

Give the Coast Guard a chance to reply first.

This means you **LISTEN**



Coast Guard Hears the Distress Call

If CCG Radio acknowledges and **asks for assistance**, and if you can help, call CCG Radio and give your **SPEED and ETA to the distressed vessel**.

Be careful not to obstruct distress communications.

- If appropriate do head towards the Distress vessel so that you can give help if needed.

Coast Guard does not acknowledge

Proceed to **Acknowledge the MAYDAY**

MAYDAY once.

NAME of the distress vessel 3 times.

THIS IS... (NAME of your vessel 3 times.)

RECEIVED MAYDAY.

Give information pertinent to arriving at their position.

OVER.

MAYDAY Relay

You can **hear** the MAYDAY call but **cannot respond**.

- You do not hear anyone else answer the call.
- You **first send an acknowledgement/relay message**.

Mayday

Serenity, Serenity, Serenity

This is Conqueror, Conqueror, Conqueror

Received Mayday

Unable to assist, Standby, will relay for you

Send the Relay message.

MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY.

This is Conqueror, Conqueror Conqueror.

MAYDAY Serenity.

Is located 5 miles South of Toronto Island.

Has struck a deadhead and taking on water.

She is a two two foot Fiberglass, white hull with blue cabin.

Four people aboard, no injuries.

They are preparing to abandon ship with lifejackets, no dinghy.

Conqueror Over.

Contact CCG Radio, to forward the information to
Search and Rescue.

Legal Requirement to assist

When in a car, there is no legal obligation to render help in an emergency situation

- In a boat, you are **required to assist** as long as doing so does not endanger your vessel, crew, passengers or yourself.
- You must acknowledge an unacknowledged Distress call
- If you are in a position to assist you should proceed to the position of the Distress and notify the CG of your ETA
- All stations that are aware of distress traffic and who cannot assist must follow the traffic until such time that it is evident that assistance is being given.
- **Cease all transmissions** which might hinder DISTRESS TRAFFIC.

DISTRESS TRAFFIC

All transmissions related to the distress **say “MAYDAY”** once preceding all transmissions.

- All stations not taking part **must maintain radio silence** until the CANCELLATION OF DISTRESS.
- **Control of distress traffic is with the distress vessel, unless control is delegated to another more capable station (typically CCG).**

Imposition of Silence

by the Station in Distress

MAYDAY.

Sunflight, Sunflight, Sunflight.

This is Sambo, Sambo, Sambo.

SEELONCE MAYDAY

(Means Distress traffic in progress, so STOP TRANSMITTING!)

OUT.

Imposition of Silence

by a Station **Other** than the Station in Distress

MAYDAY

All Stations, All Stations, All Stations.

This is Mambo, Mambo, Mambo.

SEELONCE DISTRESS

(Distress traffic in progress - STOP TRANSMITTING!).

OUT

Cancellation of Distress by Rescue Vessel

MAYDAY

All Stations, All Stations, All Stations

This is Mambo

One Four Three Zero Eastern Standard

Sambo

SEELONCE FEENEE *(or Silence Finished)*

All three persons safe on board this vessel.

Sambo has sunk.

Mambo Out

Notify The Coast Guard

After cancelling the distress call to ALL stations

The station canceling the distress **MUST** notify the Coast Guard that the distress is over, and why.

- The Coast Guard will advise Search & Rescue if required.

Urgency Communications - PAN PAN

- The station calling has a **very urgent message** to transmit concerning the **safety** of a ship, aircraft or other vehicle, or the safety of a person.
- Example: engine stalled - drifting to shore, flooding, but not sinking
- Use **Channel 16**
- Second priority in all communications.
- Can be addressed to **ALL STATIONS**, or to a specific station.

Urgency Communications

Other stations listen for 3 minutes then resume normal communications if no further traffic.

- If not addressed to “ALL STATIONS”, then other stations can resume normal communications on other frequencies.

Urgency Communications

Pan Pan, Pan Pan, Pan Pan.

All Stations, All Stations, All Stations. (can be to a specific station).

This is Obsession, Obsession, Obsession.

A person on our boat has severe stomach pain. We are returning to Toronto Harbour. Request faster vessel to meet us, and an ambulance at the marina.

Obsession, Over.

Cancellation of Urgency

Make the URGENCY ENDED call once action is no longer necessary.

- URGENCY ENDED call is made by the station that made the URGENCY call and **made to ALL STATIONS.**
- The station also makes a normal call to Coast Guard Radio to confirm that the Urgency has ended.

Cancellation of Urgency

- **All Stations, All Stations, All Stations.**
- This is Obsession, Obsession, Obsession.
- Coast Guard cutter has picked up sick person.
- Urgency Ended.
- Obsession, Out.

Safety Communications - SÉCURITÉ

- Messages that contain important navigational or weather warnings that deal with *imminent danger to marine navigation*.
- SAFETY CALL on Channel 16 any time, or MF 2182 kHz after the end of the next SILENCE PERIOD.
- Third priority communications, after DISTRESS and URGENCY.

Safety Communications

Ch 16

SÉCURITÉ, SÉCURITÉ, SÉCURITÉ.

ALL STATIONS, ALL STATIONS, ALL STATIONS.

This is Obsession, Obsession, Obsession.

SAFETY MESSAGE concerning the Western Gap **to**
follow Channel 06 (or another working channel)

Obsession, Out.

Working
channel

Transmit the SAFETY MESSAGE on a working channel, not the call frequencies.
Typically use Channel 06 (156.3 MHz) VHF, or MF frequencies 2638 or 2738 (all INTERSHIP frequencies). **No other station can interfere.**

Safety Communications

Working
channel

(Now on 06) SÉCURITÉ, SÉCURITÉ, SÉCURITÉ.
ALL STATIONS, ALL STATIONS, ALL STATIONS.

This is Obsession, Obsession, Obsession.

Large log floating 1/4 mile west of the Western Gap.
Menace to navigation.

Obsession, Out.

The first part is the call (on the calling & distress frequency Channel 16).

Typically it is to “All Stations”. It announces the channel on which the message will be transmitted and it tells briefly what the message concerns.

The second part, the Message, is sent on a working frequency, usually Channel 06.

Safety Communications

Commercial vessels may transmit a safety message on the distress and calling frequency (16) to warn other vessels that it may impede other vessels

Example: commercial vessel entering or maneuvering in the Port of Toronto, commercial vessel leaving a dock in Toronto Harbour

Additional Information

Radiotelephone Alarm:

International signal. Two-tone warbling for 30-60 seconds, preceding Distress or warning transmission.

Navigational Warning Signal:

Interrupted tone for 15 seconds on MF 2182 kHz. May be used by offshore exploration vessels in imminent danger of being rammed or by stations that consider a ship is in imminent danger of running aground, followed immediately by voice transmission giving identity and position of vessel.

Battery Maintenance

- **Boat batteries** are critical to operating your on board radio.
- They create explosive gases so they must be kept in a dry, well ventilated location.
- No flame, no smoking near batteries or an explosion can result.
- Maintained them in a fully charged condition.
- Top up the electrolyte with distilled water.
- Use a hydrometer to check level of charge

Distress Simulations

Let's practice!

1. Mayday call
2. Normal call

Global Maritime Distress & Safety System (GMDSS)



BREAK

Global Maritime Distress & Safety System (GMDSS)



The “Old” Analogue System

Stations should maintain a listening watch and monitor channel 16 to listen for any calls addressed to you, and for Distress, Urgency, and Safety calls.

However:

- Coverage is limited
- Position reporting is entirely manual (and may be inaccurate)
- Channel 16 is very cluttered

Specified GMDSS equipment

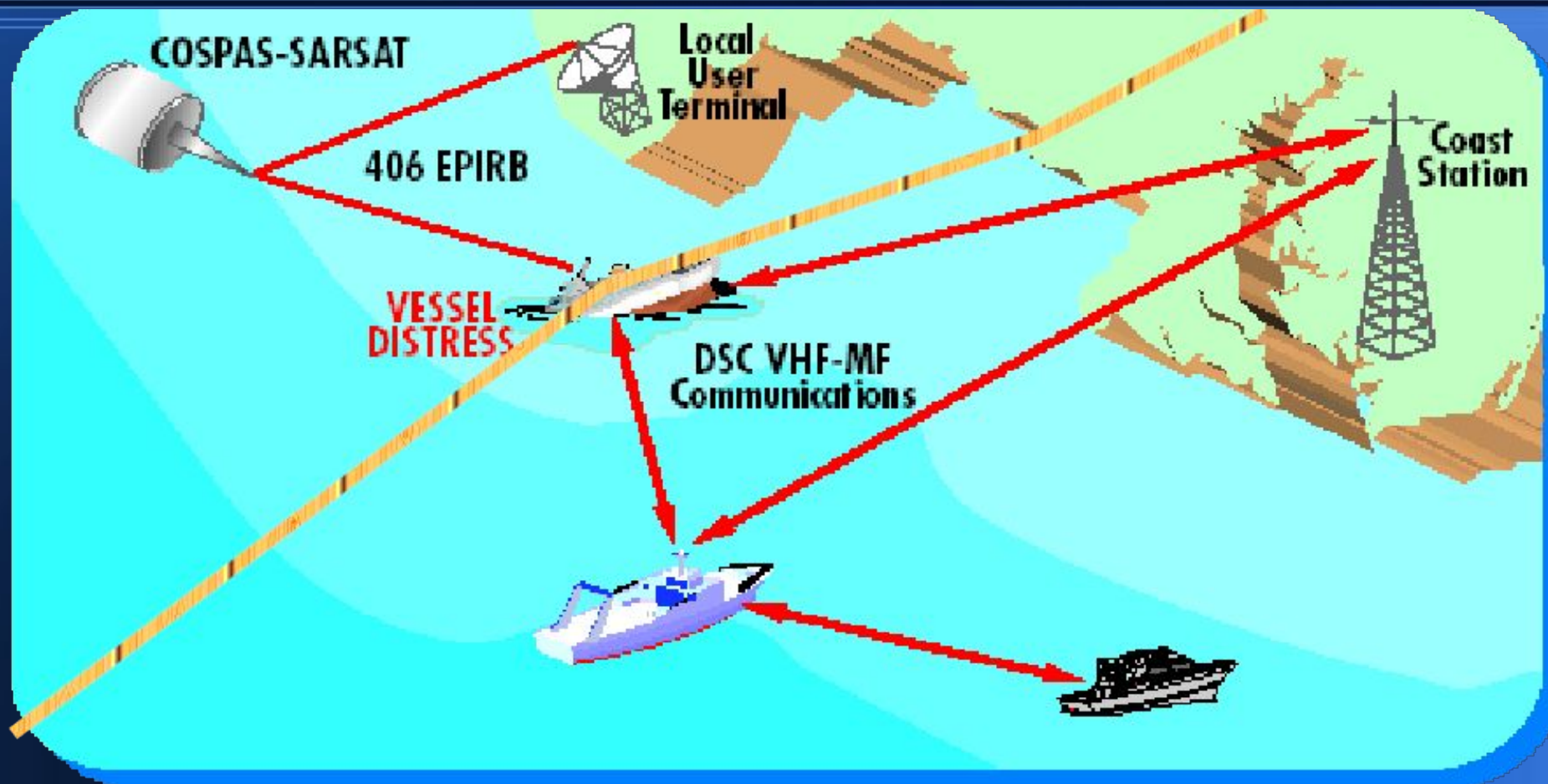
- The GMDSS generally applies to all ships of 300 gross tons and upwards on international voyages. However, the GMDSS is of equal valuable for other vessels, including recreational and other vessels which do not have a mandatory requirement under SOLAS to install equipment.
- Digital Selective Calling VHF / MF (DSC) radio installation
- Search & Rescue Transponder (SART)
- Portable VHF transceiver
- NAVTEX receiver operating on 518khz designed to receive safety information and SAR alerts
- INMARSAT system (International Maritime Satellite Organization)
- Emergency Position Indicating Radio Beacon (EPIRB)
- EPIB (Emergency Position Indicating Buoy)

Recommended GMDSS equipment recreational vessels

- Radio – VHF-DSC or MF-DSC (class D recommended) interfaced to GPS
- EPIRB – with GPS feature incorporated – initiates distress and gives position of the vessel to the cospas/sarsat satellite system
- Mandatory equipped vessels are no longer required to monitor VHF channel 16 – **Coast Guard continues to monitor Ch 16**



Global Maritime Distress & Safety System (GMDSS)



VHF – DSC Radios

Identifiable by a red button marked “Distress”, and “DSC” on the face plate

VHF-DSC radios function in line-of-sight fashion.

In USA all new models of marine radios must have DSC capability (other than handheld)



Digital Selective Calling – Ch 70

Digital Selective Calling" or "DSC" means using digital codes **that enable a radio station to establish contact** with, and transfer information to, another station or group of stations. Each station (ship or coast radio) is identified with a **unique number, the MMSI (Maritime Mobile Service Identity)**

- You can alert (page) another vessel using the MMSI. You no longer need to call (everyone) on Ch 16.
- You can initiate a distress call digitally, where the radio transmits your position and identity digitally.

Classes of DSC VHF radios



- Class A – fulfils IMO requirements for vessels over 300 GRT.
- Class B – minimum IMO requirements for non-pleasure craft
- Class C – withdrawn – not approved for use
- **Class D – recommended - good range of features for pleasure craft**
- Class E – minimum US specification for voluntary pleasure craft
- SC101 – withdrawn – Not recommended. In USA illegal to manufacture, sell or install since March 2011. Have only one receiver, thus can not receive a DSC distress, or send one, unless channel 70 selected. Can be found in bargain section – beware.

Maritime Mobile Service Identity (MMSI)

DSC equipped vessels and coast (shore) stations are each assigned a unique 9 digit identity number (MMSI) which is not transferable.

Recreational boaters with DSC equipped radios are required to obtain MMSI numbers and program them into the radios before using the DSC features.

CPC-2-3-07 — Obtaining Identities in the Maritime Mobile Service

Form AB — Ship station with VHF/DSC only, unlicensed or licensed radio

MMSI numbers are available from ISED at no cost

Maritime Mobile Service Identity (MMSI)

3 digits identify country of origin (Canada 316). Fleet vessels may obtain a unique fleet MMSI. Their MMSI have 0 preceding country identifier, coast stations have 00 preceding country identifier.

Ship MMSI:

316456789

Ship Group (fleet) MMSI:

031656789

(ship also requires own MMSI)

Coast (land based) Station MMSI: 003166789

Digital Selective Calling – Ch 70

Ch 70 is exclusively used for digital communication (not voice). The MMSI is communicated digitally.

- Radios cannot be tuned to Ch 70 (except by the automatic DSC features).
- Automatically monitored by DSC radios in range

The MMSI # of the station you are calling can be manually entered or that number can be stored in the directory.

The DSC Call

To call, enter or select the MMSI, select the working channel. This sounds an alert on the receiving radio and a message appears on its screen.

- The message shows **who is calling** and also **the channel** the sender wants to use for voice .
- The voice message and your reply is done in the traditional way on CH 16, CH 06 or a working channel appropriate for that type of call
- There are some responses that are digital in nature and are received on CH 70.
 - Acknowledgement
 - Will or will not comply (and reasons)

Distress Procedure

Make sure Latitude/Longitude and time is programmed in (if you do not have a GPS connected).

- Select type of distress from a menu (fire, sinking, MOB, etc.).
- Lift cover and hold down red button for 3 to 5 seconds.

The red Distress button is covered with a spring loaded door to prevent accidental activation.

- Alternatively go to Ch 16 and send normal distress call.



Positional Information

If GPS attached, positional information is automatic.

- If no GPS, you MUST manually enter position before making distress call
- **Manual position must be updated at least every four hours**
- Position is always included in a distress call

Other functions:

- You may make a position request using the MMSI
- If you receive a position request, you may choose to answer or refuse to give your position.

Distress Alert on DSC radio

- Activation of “Distress” button for 5 seconds sends alert to coast stations and other DSC equipped vessels in the vicinity.
Message repeated approx every 3 ½ minutes until digital acknowledgement received
- Automated message shows identity of vessel, location of vessel and may show nature of distress (from menu)
- Response and follow up communications to the distress message or relays should be made verbally on Channel 16.

The Coast Guard will be calling you on Ch 16 for confirmation and further information

Distress Response

Reply by voice on Ch 16.

- Boaters hearing distress call should switch to CH 16 and determine if Coast Guard acknowledges.
- If not acknowledged, contact distress vessel on CH 16 and follow regular procedures.

Note: **There is no mayday relay for DSC** distress – use Ch 16

2.4 In no case is a ship permitted to transmit a DSC distress relay call on receipt of a DSC distress alert on either VHF or MF channels.

Acknowledging Distress

Only acknowledge distress digitally if told to do so by Coast Guard or RCC (Rescue Coordination Centre)

- **Acknowledging digitally cancels the distress call**
- If not acknowledged, the call is (automatically) repeated at intervals (about 3 ½ minutes)

Note: typical pleasure craft VHF radios do not have this capability
- Some commercial operators are capable.

Cancelling Distress

All distress calls should be cancelled, including if originated digitally.

VHF DSC

1. switch off transmitter immediately, (if detected during alert transmission)
2. switch equipment back on and set to Channel 16; and
3. make broadcast to "All Stations" giving the ship's name, call sign and MMSI number, and cancel the false distress alert.

Example

All Stations, All Stations, All Stations

This is NAME, CALL SIGN,

MMSI NUMBER, POSITION.

Cancel my distress alert of DATE, TIME UTC, Master NAME, CALL SIGN, MMSI NUMBER,
DATE, TIME UTC

Watch Keeping

You are not required to monitor CH 16 (but strongly recommended)

- DSC maintains a listening watch on CH 70
- It sounds an alert if there is a Distress, Urgency, Safety call or a routine call directed to you.
- On **MF and HF** (but **not VHF**) there is a requirement for silence (listening only) for 3 minutes on the hour and on the half hour.



This allows a weaker distress signal at longer range to be heard over the background static.

Urgency Procedure

Some DSC radios have an 'Urgency' option, other use the 'All Ships' function.

- Some DSC radios have both. If so, use the Urgency function.
- Usually you set your working channel to CH 16 although you can use a different channel such as CH 06.

Make your call digitally (it goes out on Ch 70).

- Switch to 16 and follow with a standard voice urgency (Pan Pan) call.
- The digital signal will do a better job than CH 16 of alerting stations that have DSC capability.

Safety Calls

Make the call using the **Safety function if your radio has one**, otherwise you must use the 'All Stations' option.

- Specify a suitable working channel (such as Ch 06, but NOT CH 16) as the working channel.
- The Safety alert is broadcast on CH 70 digitally.
- Change to a suitable channel to send your Securite message.

All Stations

Select 'ALL STATIONS'.

- Select the voice channel before sending.
- All stations in range receive your call.
- Can be used to contact vessels in your vicinity when you don't know their MMSI#.

Reception of Safety or Urgency

Ships receiving a DSC safety or urgency call announcing a message addressed to all ships **shall NOT acknowledge**

- Should tune their receiver to the channel indicated in the call and listen to the message.

Routine Calls with DSC radios

(exact procedures vary by manufacturer – consult the manual)

Entering (or selecting from memory) the known MMSI number of a vessel or coast station sends a digital message sounding an audible alert (like a pager) on the vessel being called.

A message is displayed advising the vessel of the channel on which voice communications are to be carried out. Upon acknowledgment (digitally) both vessels change to the specified channel (usually automatic) for voice communication.

No need to use channel 16 to establish routine contact with another station, thus reducing congestion on this busy emergency and calling channel.

Also, there is a degree of privacy.

Cannot Comply

An incoming call can be acknowledged, or declined with a 'cannot comply'. (selected on the menu)

- If you selected 'Cannot Comply', your screen may show a series of explanations. Select one and it is sent digitally to the calling station. Your radio does not change channels as you are not connecting to the called station at this time.

Polling

You may issue a polling request. You are requesting the MMSI and position of vessels in range.

- Upon receiving a polling request, you may answer or choose not to answer

Portable VHF radios

Not as powerful as regular radios
(typically high 5 watts, low 1 watt).

- Not as sensitive as regular boat-mounted antenna.
- Required on some commercial vessels for use in lifeboats. (SOLAS approved)
- Can be DCS equipped.



Cospas-Sarsat Satellites

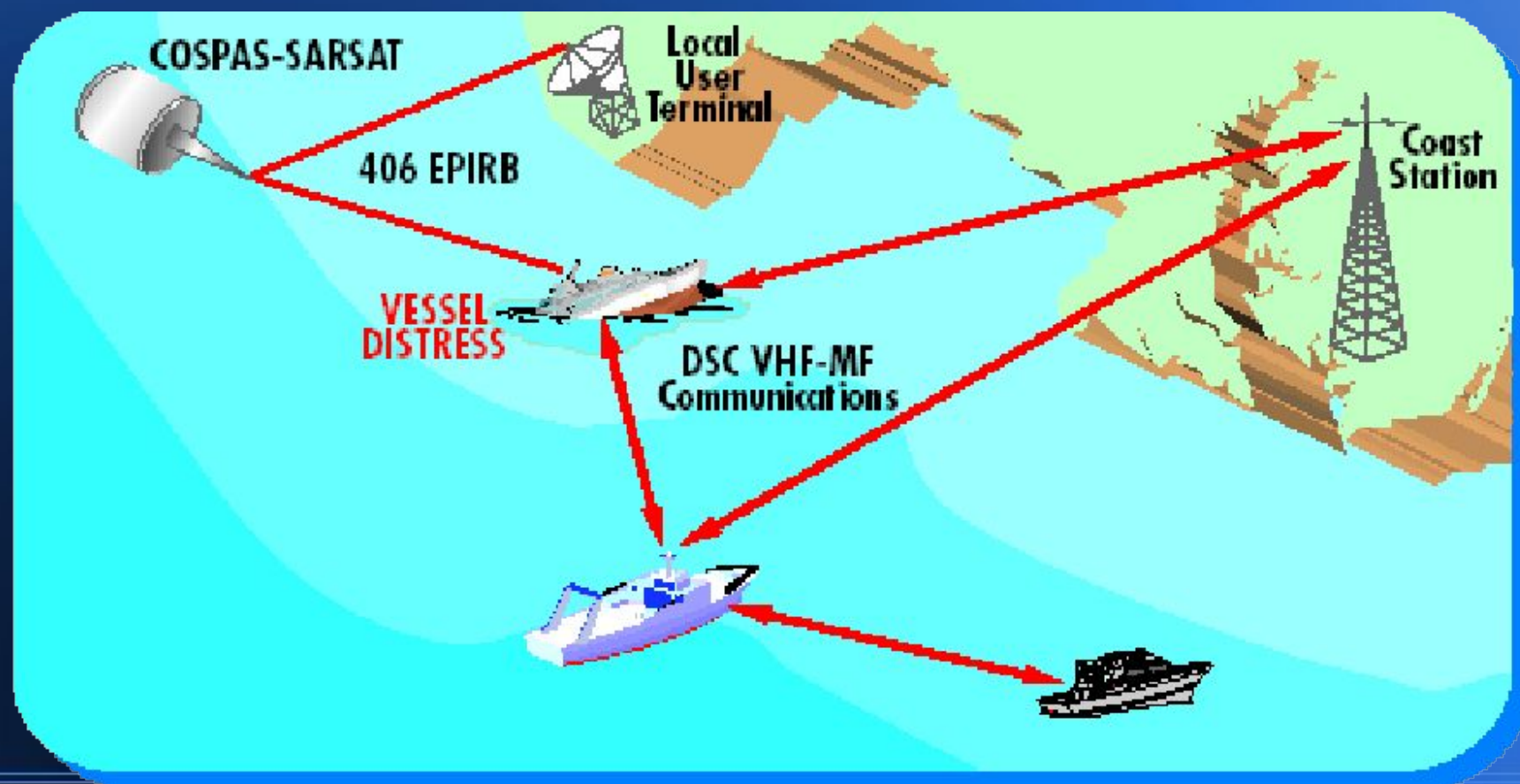
System established jointly by
Russia, France, Canada and the USA
to receive EPIRB signals



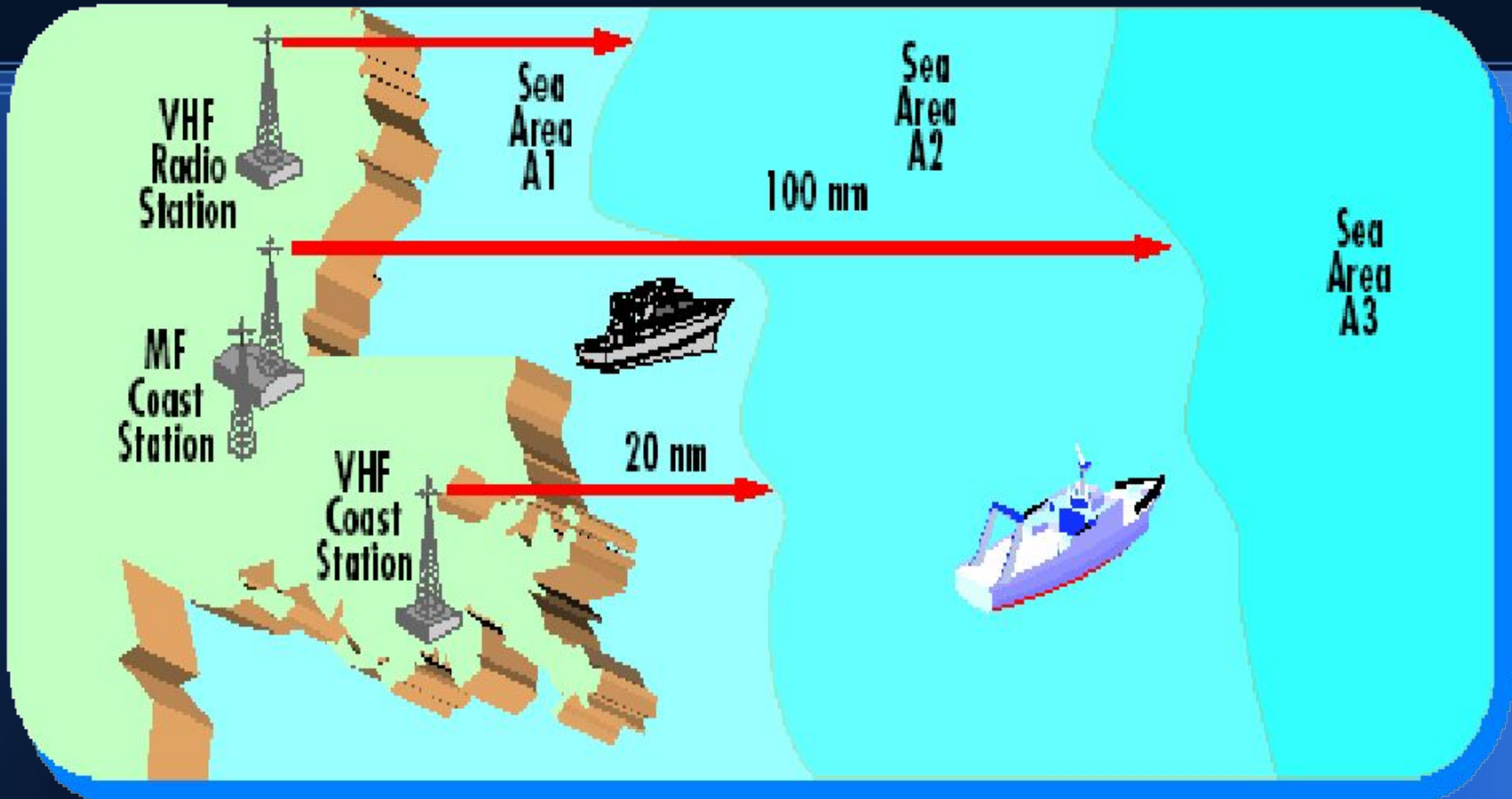
- The Cospas system is maintained by Russia, the Sarsat system is maintained by USA



Global Maritime Distress & Safety System (GMDSS)



GMDSS Sea Areas



Sea area A1 -The area within the radiotelephone coverage of at least one very high frequency (VHF) coast station in which continuous DSC alerting is available

GMDSS Sea Areas

GMDSS divides the world's oceans into four "sea areas":

- **Sea Area A1 - area within the radiotelephone coverage of at least one very high frequency (VHF) coast station in which continuous DSC alerting is available**
- Sea Area A2 falls within the range of at least one shore based MF-DSC coast station ~ 100 nm from shore excluding area A1
- Sea Area A3 is within INMARSAT satellite coverage between 70°N and 70°S excluding areas A1 and A2
- Sea Area A4 includes the polar regions excluding areas A1, A2 and A3.

Most recreational vessels operate in Sea Areas A1 and A2

Emergency Position Indicating Radio Beacon (EPIRB)

Next most useful GMDSS item after DSC-VHF radio

When activated it automatically transmits a distress message digitally to COSPAS-SARSAT satellites

Recommended if operating beyond Sea Area 1

Mariners are encouraged to fit float-free EPIRBs and register their COSPAS-SARSAT 406 MHz EPIRBs free-of-charge

Cna

[Canada Beacon Registry](#)
CANADA



Emergency Position Indicating Radio Beacon (EPIRB)

- Category 1 EPIRB can be activated automatically or manually. Mounted externally and automatically released and activated in depths of 1 to 3 meters
- Category 2 requires manual activation

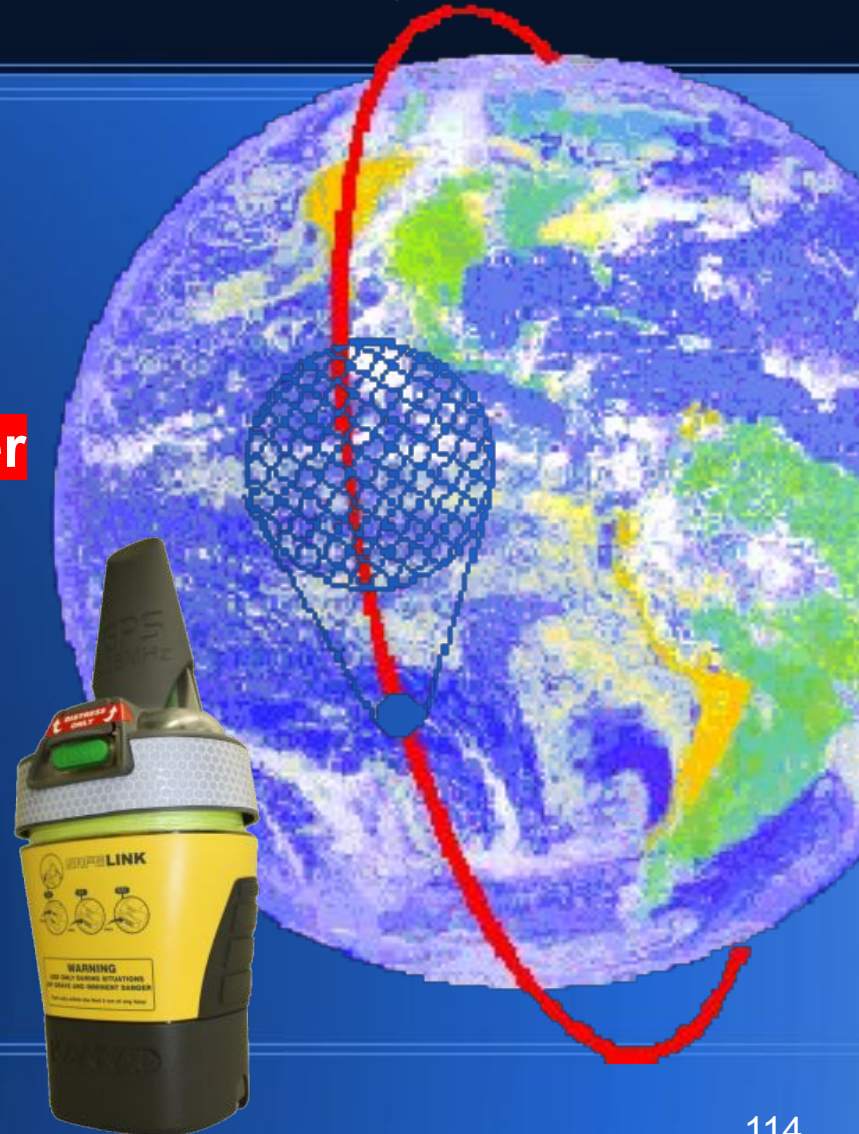
Accidental Activation

If for any reason an EPIRB is activated accidentally, the ship **must** contact the nearest coast station or an appropriate coast earth station or JRCC and cancel the distress alert.



Cospas-Sarsat Satellites - Response

- Provides worldwide coverage with 30 minutes to 2 hour response time
- If no GPS interfaced then Doppler Shift technology used to locate your position within 5 km
- If your model has a built in GPS it can pinpoint you within metres.



EPIRB Identification

**DON'T FORGET TO REGISTER YOUR EPIRB
IT COULD SAVE YOUR LIFE**

  Government of Canada / Gouvernement du Canada

Canadian Beacon Registry REGISTER ONLINE: www.canadianbeaconregistry.forces.gc.ca 

OFFICIAL CANADIAN 406MHz EPIRB REGISTRATION FORM

BEACON HEXADECIMAL CODE [PREFIX 278, 279, A78 OR A79]
(PROVIDED BY EPIRB MANUFACTURER, CANADIAN CODED AND APPROVED)

EPIRB MANUFACTURER MODEL #

DO YOU CURRENTLY HAVE ANY CANADIAN BEACONS ALREADY REGISTERED IN OUR DATABASE? Y ☐ N ☐

PLEASE SPECIFY TYPE OF EPIRB REGISTRATION

☐ NEW EPIRB REGISTRATION ☐ CHANGE OF EPIRB OWNERSHIP
☐ EPIRB REGISTRATION UPDATE ☐ REPLACEMENT BEACON

IF APPLICABLE, ENTER 15-DIGIT HEX CODE FOR BEACON BEING REPLACED:

OWNER, DEPT. OR COMPANY NAME **AUTHORIZED REPRESENTATIVE OR CONTACT NAME**

MAILING ADDRESS **TELEPHONE INFORMATION (INCLUDE COUNTRY & AREA CODE)**

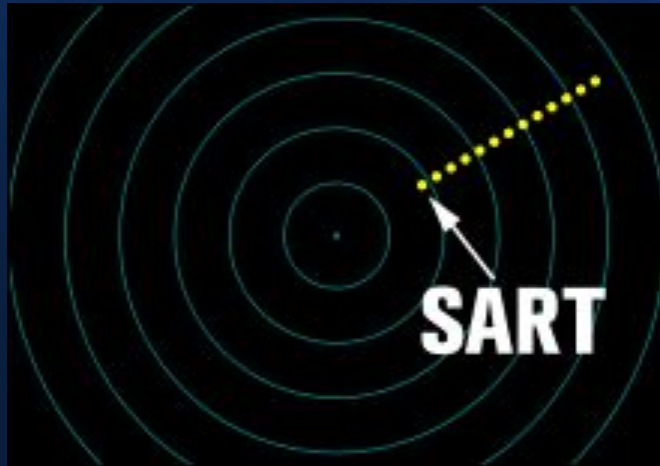
STREET ADDRESS HOME
 WORK
 CELL
CITY PROVINCE FAX



Other GMDSS Equipment

MF-DSC radios – longer range required for DSC operations in Sea Area 2

Search and Rescue Transponder –SART to assist in locating vessels in distress. Easily taken on board a life raft and actively responds to rescue vessel or rescue plane's radar. More effective than a radar reflector



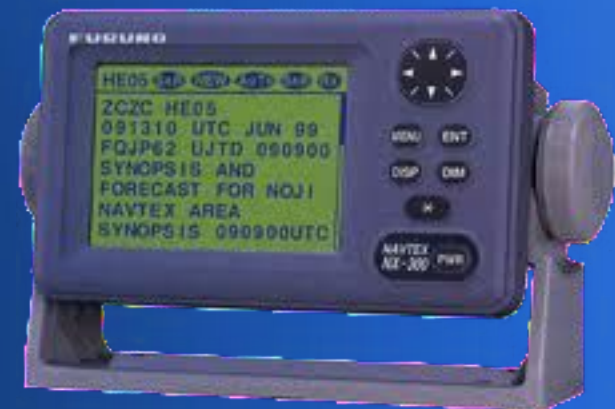
In passive mode batteries last 96 hours – can actively respond to radar signal for 8 hours



Navtex Receivers

Part of the WorldWide Navigational Warning Service (WWNWS) - generally known as the Maritime Safety Information Service.

- **Provides safety information (weather reports, etc.) to vessels at sea.**
- Are **receive only**, not two way communication
- Require a screen or a printer to show the data.



Restricted Operator Certificate (Maritime) ROC (M) with DSC endorsement

Next session:

1. Written exam – multiple choice
42/60 required to pass
2. Oral exam – must be passed
 - Phonetic alphabet ... RAMN 4.1.1.3
 - Safety Communications ... RAMN 4.1.4
3. Exams are marked right away, if passed, you complete and sign the application and receive a temporary certificate.

Your permanent card will be mailed to you.



SAFETY CALL

For DSC radios, select Channel 06

- push DSC/ENT,
- select DSC menu
- use channel selector choose 'All Ships'
- press DSC/ENT
- press DSC/ENT again to make the call

Both standard and DSC radios. . .

Select Channel 16

SECURITE, SECURITE, SECURITE,
ALL STATIONS, ALL STATIONS,
ALL STATIONS

This is **Capri, Capri, Capri**

Safety message concerning to follow on
channel - (06)

Switch to Channel 06 and pass on the safety
message as follows on the next page.

SECURITE, SECURITE, SECURITE
ALL STATIONS, ALL STATIONS, ALL STATIONS

This is **Capri, Capri, Capri**

Safety message (e.g., large deadhead floating
near...

menace to navigation)

Capri OUT

Safety Call - Sample

Also practice your Phonic Alphabet

You will be asked to spell the name of a
vessel and say a call sign in the
phonetic alphabet

Restricted Operator Certificate (Maritime) ROC (M)

vhf.sail1.ca



Annex C: Guidance on the Acceptance of Digital Nautical Publications in Canada

Under SOLAS, charts and nautical publications in electronic form can be used to meet SOLAS V carriage requirements provided suitable back-up arrangements are in place. As such, electronic nautical publications must meet the same requirements as the hard copies:

- For the area to be navigated must have onboard and use the most recent editions;
- Must be published or issued by the appropriate authority as specified;
- Must be correct and up-to-date, based on information that is contained in the *Notices to Mariners*, *Notices to Shipping* or *radio navigational warnings*.

The following guidance should be taken into account when digital nautical publications are used:

- The main (primary) system must be located on the bridge and should be conveniently situated close to either the planning or voyage monitoring stations;
- To ensure continuity of operation it is important that the computer hardware used is **highly reliable**;
- The system must not interfere in any way with the operation of other bridge systems;
- Screen size, resolution and brightness should be chosen to ensure a clear display of navigational information in all ambient light conditions;
- The primary system **must be available at all times** during the voyage and therefore **must have an emergency source of power**;

Annex C: Guidance on the Acceptance of Digital Nautical Publications in Canada

- Appropriate back-up is needed to ensure continuous availability of data in the event of computer system failure. Acceptable back-up arrangements would include a **complete duplicate system with an independent power supply (i.e., a 2nd computer)**. While the back-up does not necessarily need to be kept on the navigation bridge, it should be possible to readily transfer the duplicate system, or printed hard copies, to the bridge.
- Updates should be applied to both the primary and back-up system as soon as practical. When in port, they should be applied prior to passage planning and commencement of the voyage.
- As the publications must be on board, **simply being able to access the publications through the internet would not be considered on board and therefore not acceptable**. However, hard copies printed from official internet sources would be acceptable.

Transport Canada Marine Safety Inspectors must be able to readily verify:

- the publication has been published, or issued, by the appropriate authority,
- the publication is complete for the area to be navigated,
- the update status (i.e., latest edition, corrected and up-to-date as published and amended by the issuing authority).