

# RADIO HANDBOOK

Your guide to marine communication

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Maritime New Zealand  
Level 10, Optimisation House, 1 Grey Street  
PO Box 27006, Wellington 6141

Website: [www.maritimenz.govt.nz](http://www.maritimenz.govt.nz)

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# INTRODUCTION

This handbook is a guide for operators of vessel and coastal radio stations, including operators of VHF (very high frequency) and SSB (single sideband, also called MF/HF) radios. It provides information about:

- [how search and rescue is managed in New Zealand](#)
- [distress, urgency and safety calls, including appropriate use of cellphones](#)
- [radio-telephone procedures](#)
- [coverage](#)
- [useful contacts and terms.](#)

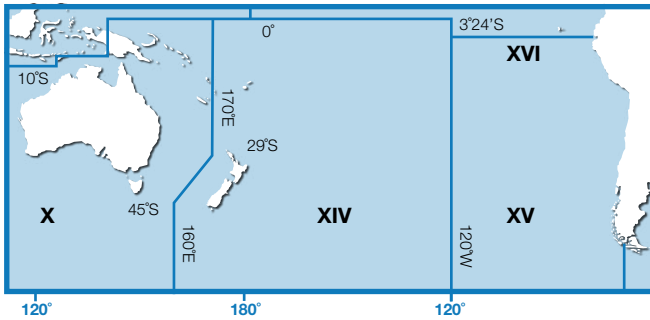
## Maritime Radio

For seafarers, their vessel's radio is their main lifeline to land.

Maritime New Zealand's Maritime Radio Service (Maritime Radio) is responsible for maintaining VHF and HF radio services for New Zealand's coastal waters and much of the South Pacific Ocean and Tasman Sea. The services it provides include monitoring radio frequencies for distress messages around the clock.

The region covered by the New Zealand Distress and Radio Safety Service is known as NAVAREA XIV and includes 12.5 percent of the Earth's ocean surface. It extends from the middle of the Tasman Sea to the mid-Pacific Ocean, and from Antarctica to the equator.

## NAVAREA regions



Maritime New Zealand (MNZ) is also responsible for broadcasting Maritime Safety Information (MSI) within the NAVAREA. MSI includes meteorological information, coastal and oceanic navigational warnings, ice accretion warnings and ionospheric prediction forecasts.

The service provided by MNZ is complemented by a network of volunteer private radio operators located around New Zealand and its offshore islands. The network is monitored at all times by staff working at the Maritime Operations Centre (MOC), co-located with the Rescue Coordination Centre New Zealand in Lower Hutt.

The Maritime Radio Service comprises 30 coastal VHF stations. Of these stations, 28 provide VHF radio coverage throughout the coastal waters of New Zealand. The other two stations provide VHF radio coverage in the coastal waters of the Chatham Islands. There is also an oceanic MF/HF radio station located east of Lake Taupo.

All stations are linked to the MOC. It coordinates the transmission of all MSI on voice HF and VHF, as well as navigational warnings broadcast over the Inmarsat SafetyNET satellite system. The scheduled broadcast times, channels and frequencies are shown on pages 46–48.

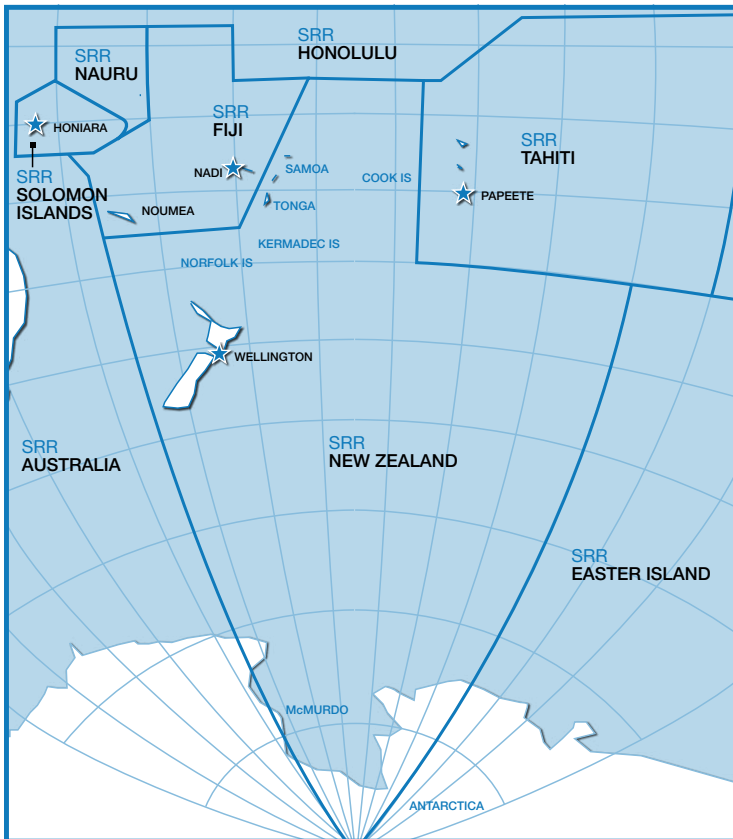
The MOC also provides these services to mariners:

- [telephone patch and message relay facilities for search and rescue and medical purposes on VHF and SSB](#)

- reception and processing on VHF and MF/HF (SSB) of:
  - » trip reports (TRs)
  - » ships' meteorological observations
  - » incoming clearance requests from Customs and the Ministry of Agriculture and Forestry.

## How search and rescue is managed in New Zealand

### Search and rescue regions



★ Rescue Coordination Centre New Zealand — Search and rescue region (SRR) boundaries

The Rescue Coordination Centre New Zealand (RCCNZ) is responsible for coordinating all major aviation and maritime search and rescue missions within the New Zealand search and rescue region (SRR). The region extends halfway to Australia, halfway to Chile, and from the equator to Antarctica.

RCCNZ is also responsible for coordinating land-based missions when an emergency position-indicating radio beacon (EPIRB) or personal locator beacon (PLB) is activated.

All search and rescue efforts coordinated by RCCNZ are termed Category II incidents. These incidents arise because an aircraft, vessel or person is in distress, and often require national and international civil and military resources. There are at least two fully qualified search and rescue officers (SAROs) on watch at RCCNZ at any time.

The New Zealand Police are responsible for coordinating Category I incidents, which include many maritime search and rescue missions close to shore. Category I incidents also include land-based search and rescue efforts that do not arise from a distress beacon being activated. RCCNZ frequently provides support and advice to the New Zealand Police during Category I search and rescue incidents.

Further information about RCCNZ can be found on Maritime New Zealand's website at [www.maritimenz.govt.nz](http://www.maritimenz.govt.nz). If you need advice or assistance, freephone **0508 472 269** or email [rccnz@maritimenz.govt.nz](mailto:rccnz@maritimenz.govt.nz).



# HOW RADIO WORKS

## Radio waves

Radio transmitters work by supplying a rapidly changing electrical current to an aerial (antenna), to create a changing electromagnetic field. The speed at which these currents change controls the speed at which the electromagnetic field around the aerial changes. This is measured in hertz (Hz).

1Hz	1 hertz	1 cycle per second
1kHz	1 kilohertz	1 thousand cycles per second
1MHz	1 megahertz	1 million cycles per second
1GHz	1 gigahertz	1 billion cycles per second

Consider the image of a pebble dropped into a pond, with the pebble representing the transmitter. The radiating ripples represent the fluctuating electromagnetic fields. These fields are called radio waves, and they radiate out from the aerial at the speed of light.

Marine VHF radio operates at a frequency of approximately 156MHz, while MF/HF (single sideband or SSB) radios operate at frequencies from about 2MHz to 22MHz.

## Frequency characteristics

The different frequencies have different characteristics for specific purposes, and are subdivided into bands:

Frequency range	Band classification	Band abbreviation
10–30kHz	Very low frequency	VLF
30–300kHz	Low frequency	LF
300–3000kHz (3MHz)	Medium frequency	MF
3–30MHz	High frequency	HF
30–300MHz	Very high frequency	VHF
300–3000MHz (3GHz)	Ultra-high frequency	UHF
3GHz–30GHz	Super-high frequency	SHF

VHF radio waves travel in a straight line and do not bend to any great extent over hills, headlands or the horizon. VHF radio is used for local transmissions, but aerials must be in sight of each other (meaning they have ‘line of sight’).

MF radio waves have a greater tendency to follow the Earth’s curvature. They suit medium-range navigational aids, regional broadcasting and medium-range communications because they can travel around obstructions and over the horizon.

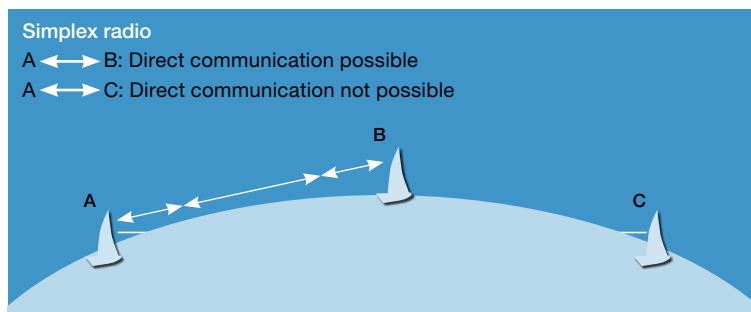
HF radio waves do not bend over the horizon, but use a layer of the Earth’s atmosphere (the ionosphere) to reflect radio waves back to Earth. The ionosphere’s properties vary throughout the day, but it is most stable shortly before sunrise and just after sunset. These are particularly good times for SSB communications in the HF band.

During the daytime, SSB transmissions are not as reliable, due to the sun’s effect on the ionosphere. In general, higher frequencies such as 12MHz or 16MHz achieve better communications during daylight, while lower frequencies such as 4MHz or 6MHz work better at night.

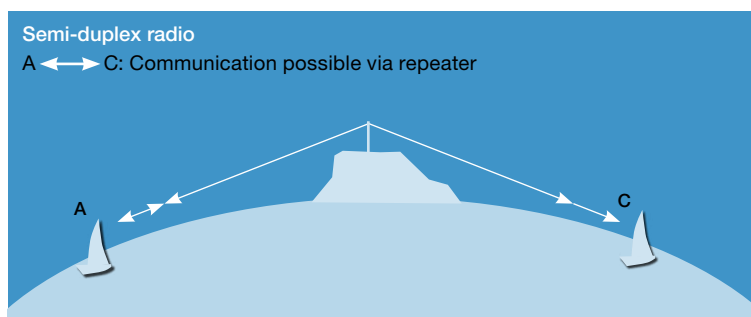
The distance between stations is also a factor, with higher frequencies (8MHz and higher) providing better results at longer ranges.

## Simplex and Semi-duplex VHF radio

**Simplex** means both stations use the same frequency for transmitting and receiving. All channel 16 transmissions are simplex.



**Semi-duplex** uses a third (repeater) station, normally located on a mountain or similarly elevated location. The repeater receives the incoming signal and simultaneously retransmits it on a different frequency. To do this, semi-duplex uses two frequencies, one to transmit and another to receive through a repeater.



Because VHF signals will not pass through land masses, a repeater may be placed on a hilltop so that stations on opposite sides can communicate with each other. By elevating the repeater station, vessels up to about 70 miles apart can communicate, even though the line of sight between the vessels may be less than 10 miles.

## Aerials (antennae)

The approximate distance in miles from an aerial to the horizon is calculated in this way:

$$\text{Distance} = 1.2\sqrt{\text{aerial height (metres)} \times 3}$$

Note: the aerial height in the formula is the height above sea level.

Two aerials will be in range of each other when their distances overlap.

Not all aerials radiate power equally in all directions, and a single 'whip' (dipole) aerial mounted vertically at the vessel's masthead will usually provide the best 360° coverage.

## Shielding

Aerials should be positioned to avoid being shielded by superstructure, masts and similar structures that could interfere with the radio waves as they radiate from the aerial. The masthead is usually the best location because aerials are less prone to damage there and the range is maximised.

# DISTRESS CALLS

Channel 16 is the international VHF channel for maritime distress and hailing (calling).

## Distress, urgency and safety calls

Special calls are used in cases of distress, urgency and safety, and must be properly understood and used.

**DISTRESS:** the radio-telephone distress signal **MAYDAY** is used to indicate that a vessel, aircraft or person is in grave and imminent danger and requires **immediate** assistance.

**URGENCY:** the radio-telephone urgency signal **PAN PAN** is used to indicate that a vessel has a very urgent message to transmit about its safety (such as loss of steering).

**SAFETY:** the radio-telephone safety signal **SÉCURITÉ** (pronounced say-cure-ee-tay) is used to indicate that the calling station has an important navigational or meteorological warning to transmit.

## Communicating distress

A station in distress may use any means at its disposal to attract attention, make its position known and obtain help.

**Use of MAYDAY is prohibited except to indicate distress.**

The distress call has absolute priority over all other transmissions. All vessels and coastal stations hearing it must immediately cease all

transmissions that could interfere with the distress communications, and must maintain a listening watch on the frequency being used.

Distress calls and distress messages should usually be sent only on the authority of the vessel's master or skipper, or the person responsible for the station.

Stations monitoring distress communications should exercise great care not to interfere with the transmissions of the station in distress or with other assisting stations.

When **MAYDAY** is not warranted but urgency is required for the safety of the vessel or person, the urgency signal **PAN PAN** should be used.

**Distress and urgency calls and messages must be cancelled if assistance is no longer required or when the incident is over.**

## Distress procedure

The distress procedure follows this sequence:

- alarm signal (if available)
- distress call
- distress message.

These frequencies are dedicated to distress, safety and calling:

- VHF radio distress calls, transmitted on channel 16
- SSB distress calls, transmitted on 2182kHz, 4125kHz, 6215kHz, 8291kHz, 12290kHz or 16420kHz.

## Alarm signal

The radio-telephone alarm signal is only used on single sideband (SSB) transmissions on 2182kHz, 4125kHz or 6215kHz (but not all SSB radios are fitted with an alarm signal generator). It consists of two different audio frequency tones, transmitted alternately, producing a distinctive warbling sound.

The purpose of this signal is to attract the attention of the person on radio watch or to activate an automatic receiver alarm (if fitted). It should be sent continuously for at least 30 seconds, but not for longer than one minute.

It may be used only:

- to announce that a distress call or message is about to follow
- to announce the loss of someone overboard when the assistance of other vessels is required (in this case, the message must be preceded by the distress signal and the alarm signal should not be repeated by other stations)
- by an authorised coastal station transmitting an urgent cyclone warning, preceded by the safety signal.

Any radio-telephone alarm signal transmitted by a coastal station is followed by a single tone for 10 seconds.

## Distress call

Switch to **full power**.

The radio-telephone distress call is the distress signal **MAYDAY** (spoken three times), the words **THIS IS**, the name of the vessel in distress (spoken three times) and its callsign (spoken once).

This message consists of:

- the distress signal **MAYDAY** three times
- the name (three times) and callsign (once) of the vessel in distress.

## Distress message

The distress call should be followed immediately by the distress message.

This message consists of:

- the distress signal **MAYDAY**
- the name and callsign (once) of the vessel in distress
- the vessel's position (either in terms of latitude and longitude, or as a true bearing and distance from a charted geographical point)
- nature of the distress
- type of assistance required
- number of people on board
- any other information that may help the rescue, such as the sea conditions and description of the vessel
- the word **OVER**.

### Example

- Switch to VHF channel 16 or SSB 2182kHz, 4125kHz, 6215kHz.
- Switch to **full power**.
- On SSB, send an alarm signal if available.
- MAYDAY, MAYDAY, MAYDAY.
- THIS IS ALBATROSS, ALBATROSS, ALBATROSS ZM1726.
- MAYDAY ALBATROSS ZM1726 – FIVE NAUTICAL MILES WEST OF KAPITI ISLAND – HOLED AND LISTING HEAVILY, ENGINE ROOM FLOODED – REQUIRE IMMEDIATE ASSISTANCE – THREE PEOPLE ON BOARD – SEAS ROUGH.
- OVER.

**Important: Listen on the same frequency for an acknowledgement.**



## Acknowledging a distress message

**Any station hearing a distress call and message should write it down.** Inform the officer of the watch, skipper or master immediately.

If no immediate response is heard from a shore station, acknowledge the distress call and take all possible steps to attract the attention of other stations that may be able to help.

A message acknowledging a distress call should take the following form:

- the distress signal **MAYDAY**
- the name (three times) and callsign (once) of the vessel sending the distress message
- the words **THIS IS**
- the name (three times) and callsign (once) of the station acknowledging receipt
- the word **RECEIVED**
- the distress signal **MAYDAY**
- the word **OVER.**

### Example

- MAYDAY.
- ALBATROSS, ALBATROSS, ALBATROSS ZM1726.
- THIS IS BLUE DUCK, BLUE DUCK, BLUE DUCK ZM1983.
- RECEIVED MAYDAY.
- If there is any doubt about the vessel's position, repeat the position back to confirm it.
- OVER.

## Relaying a distress message

In most cases, a vessel or coastal station re-transmits a distress message to summon further assistance. This message consists of:

- the signal **MAYDAY RELAY** (spoken three times)
- the words **ALL STATIONS** (spoken three times)
- the words **THIS IS**
- the name (three times) and callsign (once) of the relaying station
- the distress message, as broadcast by the vessel in distress
- the word **OVER**.

When using SSB, use the alarm signal (if available).

### Example

- MAYDAY RELAY, MAYDAY RELAY, MAYDAY RELAY.
- ALL STATIONS, ALL STATIONS, ALL STATIONS
- THIS IS BLUE DUCK, BLUE DUCK, BLUE DUCK ZM1983.
- MAYDAY ALBATROSS ZM1726 – FIVE MILES WEST OF KAPITI ISLAND – HOLED AND LISTING HEAVILY, ENGINE ROOM FLOODED – REQUIRE IMMEDIATE ASSISTANCE – THREE PEOPLE ON BOARD – SEAS ROUGH .
- OVER.

In cases where the distress message is repeated on a frequency other than that used by the vessel in distress, an indication should be given of the frequency used and the time the message was received.

### Example

- Follow the initial procedures as outlined above, then:
- FOLLOWING RECEIVED ON CHANNEL 60 AT 0930 – MAYDAY ALBATROSS ZM1726 – FIVE MILES WEST OF KAPITI ISLAND (and so on).
- OVER.

## Controlling distress traffic

The control of radio distress traffic is the responsibility of the vessel in distress or the station relaying a distress message. In most cases these stations will transfer control to Maritime Radio and RCCNZ is immediately advised.

Although maritime radio stations cover New Zealand waters, there may be situations when another station has to control the distress traffic. In all cases, the controlling station should inform search and rescue authorities, usually via Maritime Radio. Coordination of any search and rescue (SAR) will then pass to RCCNZ or the New Zealand Police, the two legally constituted SAR coordinating authorities in New Zealand.

If necessary, the station in distress or the station in control of the distress traffic may impose silence on other stations in the area, using the signal **SEELONCE MAYDAY**, followed by its own name and callsign. Other stations near the vessel in distress may, if necessary, impose silence by using the signal **SEELONCE DISTRESS**.

### Example

- **SEELONCE MAYDAY** (followed by the station or vessel name and callsign). Used by the controlling station (normally Taupo Maritime Radio).

### Example

- **SEELONCE DISTRESS** (followed by the vessel's own name and callsign). Used by other stations, or vessels near the distressed vessel, to make their presence known.

## Resuming restricted working

When complete silence is no longer necessary on a frequency being used for radio distress traffic, the controlling station will transmit on that frequency a message addressed to ALL STATIONS, indicating that restricted working may be resumed with caution.

### Example

- MAYDAY.
- ALL STATIONS, ALL STATIONS, ALL STATIONS.
- THIS IS TAUPO MARITIME RADIO, TAUPO MARITIME RADIO, TAUPO MARITIME RADIO, ZULU LIMA MIKE 0930 (time of the message) ALBATROSS ZM1726.
- PRUDONCE.
- OUT.

## Resuming normal working

When distress communications have ceased, the controlling station will transmit a message addressed to ALL STATIONS, indicating that normal working may be resumed.

### Example

- MAYDAY.
- ALL STATIONS, ALL STATIONS, ALL STATIONS.
- THIS IS TAUPO MARITIME RADIO, ZULU LIMA MIKE 0940 (time of the message) ALBATROSS ZM1726.
- SEELONCE FEENEE.
- OUT.

**Important:** the radio watch and contact with the vessel in distress should continue until all activity has ended. A distress or urgency call can be cancelled by transmitting a message advising that assistance is no longer required. After that time, a normal listening watch should be maintained.

When circumstances change, a vessel that has broadcast a **MAYDAY** may change the message to a **PAN PAN** when grave and imminent danger has passed. A **PAN PAN** can also be upgraded to a **MAYDAY** if a situation deteriorates.

## Urgency signal and message

The radio-telephone urgency signal is **PAN PAN** (spoken three times) and indicates that the calling station has a very urgent message to transmit about the safety or operational capability of a vessel, or about a person in difficulty. Medical emergencies are normally designated as PAN PAN messages.

The urgency signal has priority over all other communications except distress. All stations hearing it must take care not to interfere with the transmission of the message that follows.

The urgency message may be addressed either to ALL STATIONS or to an INDIVIDUAL STATION. As soon as the station responsible for transmitting the urgency message knows that action is no longer necessary, it must cancel the message.

The urgency signal and message should be sent on any international distress frequency or channel for radio-telephone. In the case of a long message or medical call, the caller should change to a working frequency.

## Example

- Switch to **full power**.
- Use VHF channel 16 or SSB 2182kHz, 4125kHz, 6215kHz, 8291kHz, 12290kHz or 16420kHz (or any other frequency where it is known that a coastal station or vessel is keeping watch).
- PAN PAN, PAN PAN, PAN PAN.
- ALL STATIONS, ALL STATIONS, ALL STATIONS.
- THIS IS ALBATROSS, ALBATROSS, ALBATROSS ZM1726 – FIVE NAUTICAL MILES WEST OF KAPITI ISLAND – DISMASTED AND DRIFTING – REQUIRE TOW – SEA SMOOTH – NO IMMEDIATE DANGER.
- THERE ARE (number of people) ON BOARD.
- OVER.

**Important: Listen on the same frequency for an acknowledgement.**

## Safety signal and message

The radio-telephone safety signal SÉCURITÉ (say-cure-ee-tay) is spoken three times. This indicates that the coastal station or vessel is about to transmit a message containing an important navigational or meteorological warning.

Navigational and meteorological warnings are broadcast by Maritime Radio stations as soon as possible after they have been received, then repeated following the next silence period (for SSB only), and at scheduled times (as shown on pages 46–48), until they are cancelled or replaced.

The safety signal and call should normally be sent on VHF channel 16, SSB 2182kHz, 4125kHz or 6215kHz, and the safety message that follows is transmitted on a working frequency.

Safety messages are usually addressed to ALL STATIONS, but in some cases may be addressed to a particular station.

### Example

- SÉCURITÉ, SÉCURITÉ, SÉCURITÉ.
- ALL STATIONS, ALL STATIONS, ALL STATIONS.
- THIS IS TAUPO MARITIME RADIO, TAUPO MARITIME RADIO, TAUPO MARITIME RADIO, ZULU LIMA MIKE.
- LISTEN 2207kHz (working frequency) FOR (type of warning message).
- OUT.

# Emergency position-indicating radio beacons (EPIRBs)

All vessels should carry a 406MHz EPIRB.

EPIRBs are designed to alert authorities that someone is in distress and to provide a homing signal for searching aircraft. EPIRBs operate on the 406MHz frequency, with a low-power homing signal on 121.5MHz.

The Cospas-Sarsat international satellite system for search and rescue monitors only the 406MHz frequency. The system covers the entire world, with information collected by satellites passed on to ground stations. For New Zealand, these alerts are received by RCCNZ at its base in Lower Hutt near Wellington.

Each 406MHz EPIRB transmits a unique identification number (called a Hex ID). Provided this number is registered with RCCNZ, the identity of the vessel and its owner will be known, and a search and rescue officer will immediately call the people registered as their contacts.

Once activated, an EPIRB should be left running continuously until the rescue is completed.

**Do not** turn the EPIRB off, because RCCNZ search and rescue officers will be responding to the alert, to determine your position and the nature of the distress.

There is a link on the home page of MNZ's website to register your 406MHz beacon. Registration is free, confidential and legally required.





It is vital for search and rescue efforts that RCCNZ is notified of any changes of vessel or 406MHz EPIRB ownership. If you need to check or update your beacon details, phone the RCCNZ Beacon Administrator on (04) 577 8034 or 0508 406 111.

**Important:** great care should be taken to avoid accidentally activating a beacon. Beacons should be stowed correctly, and not stored or disposed of without first removing the batteries.

Most cases of accidental activation occur when an EPIRB is dumped at a rubbish tip, thrown in a cupboard or has gear stowed on top of it. These transmissions may interfere with genuine distress signals, and locating the source of them can be very costly and time consuming.

In the event of a beacon being accidentally activated, immediately contact RCCNZ on freephone 0508 472 269 or Maritime Radio on (04) 914 8333 to prevent a search and rescue mission being launched needlessly. Beacon owners are not prosecuted for an accidental activation.

## Personal locator beacons (PLBs)

PLBs also operate on the 406MHz frequency, with a low-power 121.5MHz homing signal. Although they are used extensively by trampers (hikers) and frequently as personal beacons on small craft, PLBs are not designed for use in the marine environment because:

- some do not float
- once activated, they usually operate for 24 hours (rather than EPIRBs' 72 hours of operation).



## Summary – Procedures for distress, urgency and safety communications

Type of call				
	Radio type	Distress	Distress acknowledgement	Distress relay
Distress channel	VHF only	Channel 16	Channel 16	Channel 16
Is an alarm signal sent (if fitted)?	SSB only	Yes, for 30–60 seconds 2182kHz (vessels); 4125kHz and 6215kHz (coastal radio stations)	No	Yes + 10-second tone by coastal station
Call	VHF and SSB	MAYDAY MAYDAY MAYDAY. THIS IS name, name, name, callsign.	MAYDAY. Name name, name, callsign.	MAYDAY RELAY MAYDAY RELAY MAYDAY RELAY. ALL STATIONS ALL STATIONS ALL STATIONS. THIS IS name, name, name, callsign.
Message	VHF and SSB	MAYDAY. Name, callsign, position, nature of distress, help required, number of people on board, vessel description, weather, sea state, etc. OVER.	THIS IS name, name, name, callsign (of acknowledging vessel). RECEIVED MAYDAY. OVER.	MAYDAY. Name, callsign (of vessel in distress). Distress message. OVER.
Remarks	VHF and SSB	Write the message down. Listen on same frequency as MAYDAY received. Must be cancelled if no longer required.		If repeated on a different frequency, say <b>THE FOLLOWING RECEIVED ON channel/frequency</b> and repeat the distress message.

Type of call				
	Radio type	Resumption of restricted/full working	Urgency	Safety (important navigation or meteorological warning)
Distress channel	VHF and SSB	Channel 16 – SSB 2182kHz, 4125kHz, 6215kHz	Channel 16	Channel 16, then working channel
Is an alarm signal sent (if fitted)?	SSB only	No	Yes	Yes (also urgent cyclone warning)
Call	VHF and SSB	<b>MAYDAY.</b> ALL STATIONS ALL STATIONS ALL STATIONS. THIS IS name, callsign (of the coastal station), time, name and callsign (of vessel in distress).	<b>PAN PAN</b> PAN PAN PAN PAN. ALL STATIONS ALL STATIONS ALL STATIONS. Or: Specific station Specific station Specific station. THIS IS name, callsign.	<b>SÉCURITÉ</b> SÉCURITÉ SÉCURITÉ. ALL STATIONS ALL STATIONS ALL STATIONS. THIS IS name, callsign. LISTEN working frequency FOR type of warning.
Message	VHF and SSB	<b>PRUDONCE</b> (for restricted working) or <b>SEELONCE</b> <b>FEENEE.</b> <b>OUT.</b> (for normal working).	<b>URGENT</b> <b>MESSAGE.</b>	<b>ALL STATIONS</b> <b>ALL STATIONS</b> <b>ALL STATIONS.</b> THIS IS name, callsign, warning message.
Remarks	VHF and SSB		Listen on same frequency. Must be cancelled if no longer required.	

## Using cellphones for distress and urgency calls

There are serious limitations on using a cellphone rather than a marine radio:

- Many areas do not have cellphone coverage or have limited offshore range.
- Changes in the density of traffic using a cellphone site onshore can change phone coverage without warning, meaning a cellphone cannot be fully relied on to provide communication in the event of an emergency.
- Cellphones can only provide person-to-person communications. They cannot broadcast and are not a substitute for a properly installed marine radio with a trained operator.
- Nearby vessels are in the best position to provide assistance in many emergencies, but they will be unaware of an emergency unless VHF radio and/or flares are used. However, a cellphone sealed in a plastic bag is a useful back-up to marine radio in areas where there is good coverage, and may provide life-saving communications.

If you *are* going to be using a cellphone, keep a phone charger on board and carry a spare battery, because your phone will use more power if you are a long distance from a cellphone site. While at sea, use power conservation features (if available).

Put your cellphone in a waterproof plastic bag to protect it in case of the vessel capsizing or being swamped. It can be used while still inside the bag without losing signal strength. Keep your cellphone on you or clipped to your lifejacket, so you can access it in an emergency or if you end up in the water without warning.

If you use a cellphone to call for assistance, follow these instructions:

- Dial 111 for distress or urgency messages.
- Provide emergency services with:
  - » the name and a brief description of the vessel
  - » cellphone number
  - » vessel's location or position
  - » nature of the problem and assistance required
  - » number of people on board
  - » the skipper's name, home address and landline phone number
  - » any other relevant information.
- Don't hang up after talking to search and rescue services, unless you are instructed to do so.
- Keep the line free for access by search and rescue services.
- Conserve the cellphone's battery as much as you can.

## Using satellite telephones



Satellite telephones provide global coverage and are a better option than cellphones, but calls from these are more expensive. **Freephone numbers do not work on satellite telephones.**

To contact RCCNZ, phone (00 64 4) 577 8030. If your phone has a speed dial or voice command facility, save this number onto the phone before you set out.

# RADIO-TELEPHONE PROCEDURE

Radio communications use specific words (procedural words or 'prowords') and abbreviations. It is important for all marine radio operators to use the correct procedure and prowords.

The recipient of your call may not have English as their first language, and by following international conventions and using prowords you are more likely to be understood. **Safety or lives may depend on using clear communication.**

Follow this process for ordinary radio communications:

- Turn the radio on, adjust the volume and squelch, and select a channel.
- **Listen.** Others may be using the channel for messages more urgent than your own.
- **Think.** Prepare what you are going to say before you transmit, and keep your message brief.
- When not transmitting, ensure you do not hold down the transmit switch (Push to Talk or PTT). If this switch is jammed or held down by mistake, it prevents any other person from transmitting any messages on your selected frequency or channel, and your radio cannot receive.
- Speak simply and clearly, using the correct prowords.
- Avoid using local names, terms and jargon, which will cause confusion.

**WARNING:** some marine radios are equipped with a VHF DSC facility. DSC signals from these radios are not processed by the New Zealand Maritime Radio network. Other, similarly equipped, radios within VHF range **may** be able to receive and interpret these signals but this can not be guaranteed. In New Zealand coastal waters, voice **must** be used for **distress** and **urgency** messages.

## Procedural words (prowords)

It is essential that all stations use the correct terms when using their radio. The International Maritime Organization (IMO) and International Telecommunication Union (ITU) have developed a system of prowords over many decades that are used primarily to promote safety at sea.

Prowords aid comprehension and precision for mariners, whose first language may not be English. These words are taught to student operators around the world.

In recent years, other terms that are not prowords have been introduced in New Zealand and other nations, and in some cases are quite widely used. Some of these additional terms are local in origin and others come from American Citizen Band radio and amateur (ham) radio, but they are *not* appropriate for maritime communications.

Use **only** the IMO/ITU prowords listed below, without exception.

Proword	Meaning
Affirmative	Yes. You are correct. What you have transmitted is correct.
All after...	The portion of the message to which I refer is that portion which follows...
All before...	The portion of the message to which I refer is that portion which precedes...
Correction	I have made a mistake; this version following is the correct one...
Disregard, out	This transmission is in error – disregard it.
Figures...	A group of one or more characters, the first of which is a numeral, follows...
From...	The originator of this message follows...

Proword	Meaning
Initial(s)...	A group of one or more characters, the first of them a letter, follows...
I read back...	The following is a response to your instruction "Read back..."
I say again...	I am repeating the transmission or portion indicated...
I spell...	I will spell the next word phonetically...
MAYDAY ( <i>three times</i> )	A vessel or person is in grave and imminent danger.
Negative	Not received. No.
Nothing heard	The station called did not respond.
Out	Ending transmission – no answer is required or expected.
Over	End of my transmission – I am ready for your reply. ( <b>'Over' and 'Out' are NEVER used together by one station.</b> )
PAN PAN ( <i>three times</i> )	I have urgent traffic or an urgent situation.
Radio check	The caller is requesting confirmation that their radio is working and an indication of strength and clarity. (The response is given on a scale of 1–5 for both, with 1 being the least. A typical response might be "4 by 4".)
Roger	I have received and understand your last transmission. (Does not mean 'Yes' or 'Permission granted'.)
Say again...	Repeat all of your last transmission. (Response: "I SAY AGAIN.")



Proword	Meaning
SÉCURITÉ ( <i>three times</i> )	I have a navigation problem. I am expecting a state of emergency to develop, or I have information relating to a hazard to navigation.
This is...	This transmission is from the station whose name and callsign follow...
Time...	Following is the time or date/time group of this message...
To...	To the following addressee(s) for action...
Unknown station	The identity of the station is unknown. Identify and say again.
Wait...	I must pause for a few seconds. Do not transmit yet.
Wilco	I will cooperate. (Not the same as “Roger” and must not be used together. Only to be used by the addressee.)
Word (or all) after...	The word(s) I did not receive is (are) the word (or all) after...
Word (or all) before	The word(s) I did not receive is (are) the word (or all) before...

## Phonetic alphabet

When you need to spell out callsigns, words and other information, use this format:

Letter	Word	Spoken as	Letter	Word	Spoken as
A	Alpha	<b>AL</b> FAH	N	November	NO <b>VE</b> M BER
B	Bravo	<b>BRAH</b> VOH	O	Oscar	<b>OSS</b> CAR
C	Charlie	<b>CHAR</b> LEE	P	Papa	PAH <b>PAH</b>
D	Delta	<b>DELL</b> TAH	Q	Quebec	KEH <b>BECK</b>
E	Echo	<b>ECK</b> OH	R	Romeo	<b>ROW</b> ME OH
F	Foxtrot	<b>FOKS</b> TROT	S	Sierra	SEE <b>AIR</b> RAH
G	Golf	GOLF	T	Tango	<b>TANG</b> GO
H	Hotel	HOH <b>TELL</b>	U	Uniform	<b>YOU</b> NEE FORM or <b>OO</b> NEE FORM
I	India	<b>IN</b> DEE AH	V	Victor	<b>VIK</b> TAH
J	Juliet	<b>JEW</b> LEE ETT	W	Whiskey	<b>WISS</b> KEY
K	Kilo	<b>KEY</b> LOH	X	Xray	<b>ECKS</b> RAY
L	Lima	<b>LEE</b> MAH	Y	Yankee	<b>YANG</b> KEY
M	Mike	MIKE	Z	Zulu	<b>ZOO</b> LOO

Emphasised syllables are shown in **blue** text.

## Transmitting numbers (figures)

When transmitted by radio, numbers can become garbled and then are incorrectly recorded by the receiving station. Numbers (referred to by the proword 'figures') should be transmitted as a series of single-digit numbers.

Number	Word	Spoken as	Number	Word	Spoken as
0	Zero	<b>ZEE</b> ROH	6	Six	SIX
1	One	WUN	7	Seven	<b>SEV</b> EN
2	Two	TOO	8	Eight	AIT
3	Three	TREE	9	Nine	<b>NINE</b> ER
4	Four	<b>FOH</b> WER	DECIMAL	Decimal	DAY SEE MAL
5	Five	FIFE			

Emphasised syllables are shown in **bold** text.

### Example

- You are in distress and your GPS shows you are in the following position:  
43° 45.97'S, 174° 52.48'E.
- The position should be transmitted as:

WE ARE IN 4 – 3 DEGREES 4 – 5 DECIMAL 9 – 7  
MINUTES SOUTH;

1 – 7 – 4 DEGREES 5 – 2 DECIMAL 4 – 8 MINUTES EAST.

## SSB frequencies and VHF channels

All vessels licensed to operate in the marine frequency bands between 1605kHz and 2850kHz must be able to transmit and receive on 2182kHz. Distress, urgency and safety calls should be made on this frequency.

The 2182kHz frequency is also the general calling (hailing) and reply frequency when establishing communication with vessels and coastal stations, and is used by coastal stations to announce the transmission of safety information and lists of current messages.

Except for distress and urgency, all communications should be carried out on a working or inter-ship frequency, leaving 2182kHz available for such calls. Safety traffic should also be transmitted on a working frequency.

## New Zealand SSB frequencies in medium and high-frequency bands (MF/HF)

Supplementary calling frequency	2045kHz
Supplementary ship-to-ship frequency	2068kHz
Inter-ship working frequency (for use after communication has been established on 2182kHz or 2045kHz)	2456kHz 2638kHz 2068kHz
Harbour authority working frequency	2162kHz 2012kHz
Working frequencies for exchanging messages between private coastal stations and ships (after communication has been established on 2182kHz or 2045kHz)	2480kHz 2444kHz
For communication with coastal stations providing communication for aquatic sporting events (also used by land stations providing communication for sporting events)	2089kHz 2129kHz
Working frequencies between coastal and ship stations, or inter-ship (after initial contact has been established on 4125kHz)	4146kHz 4417kHz
Working frequencies between coastal and ship stations, or inter-ship (after initial contact has been established on 6215kHz)	6224kHz 6227kHz
Working frequencies for exchanging messages between Taupo Maritime Radio and ships (after communication has been established on a calling frequency)	2207kHz 4146kHz 6224kHz 8297kHz 12356kHz 16531kHz

## International distress and calling frequencies in medium and high-frequency bands (MF/HF)

The international distress, safety and calling frequency for radio-telephony <b>ALWAYS KEEP A LISTENING WATCH ON THIS CHANNEL</b>	2182kHz
The international distress, safety and calling frequency	4125kHz 6215kHz
International calling frequency only (not monitored by Maritime Operations Centre (MOC)/callsign ZLM)	8255kHz
International distress and safety frequency only	8291kHz
International distress, safety and calling frequencies	12290kHz 16420kHz

## VHF channels used in New Zealand

The international distress, safety and calling frequency for the marine mobile VHF radio-telephone service

16

All vessels' stations licensed to operate in the authorised bands between 156MHz and 174MHz must be able to transmit and receive on this channel

### **ALWAYS KEEP A LISTENING WATCH ON THIS CHANNEL**

Inter-ship navigation safety

13

Working channels for inter-ship communication

6, 8

Working channels for harbour authority radio communications on port operation and vessel movements

9, 10, 11, 12,  
14, 19

Continuous weather transmission channels

20, 21, 22, 23

Two-frequency talk-through repeater channels (some allocated to Coastguard and other private coastal stations)

1, 2, 3, 4, 5,  
60, 61, 62,  
63, 64, 65,  
66, 80, 81,  
82, 83, 84,  
85, 86

Working channel for Great Barrier Maritime Radio

25

Working channel for Whangarei, Tolaga, Wairarapa, Taranaki, D'Urville, Fox, Puysegur, Kaikoura and Waitaki maritime radio and anti-pollution operations

67

## VHF channels used in New Zealand (continued)

Working channel for Cape Reinga, Plenty, Napier, Farewell, Picton, Akaroa, Greymouth and Bluff maritime radio	68
Working channel for Whanganui maritime radio	69
DSC (Digital Selective Calling) distress alert and messaging*	70
Working channels between coastal and ship stations (after initial contact has been made on channel 16) and for Kaitaia, Auckland, Runaway, Wellington, Westport, Fiordland, Chalmers, Cape Egmont and Stewart Island maritime radio	71
Channel for use in association with marina developments	73
Working channels between coastal and vessel stations (after initial contact has been made on channel 16)	74
Channels available for aquatic events	17, 77
Working channels for Chatham Islands maritime radio	60, 62

\*There is currently no shore-based VHF DSC in New Zealand.

## Using callsigns and IDs

All transmissions must be identified by the vessel's name and callsign. Because many vessels have similar names, radio operators should use their vessel's callsign to correctly identify themselves.

Radio Spectrum Management agents issue SSB callsigns and MMSI (Maritime Mobile Service Identity) numbers. VHF callsigns are allocated and administered by the Coastguard Boating Education Service (see page 60).



## Operating procedure

Except in situations of distress, radio stations should first listen to ensure that other communications will not be interrupted before transmitting on any frequency or channel. This is particularly important on VHF channel 16, and on SSB frequencies 2182kHz, 4125kHz, 6215kHz, 8291kHz, 12290kHz and 16420kHz.

Calling (hailing) frequencies should be used only for initial calls and replies, except in cases of distress or urgency. When communication has been established, stations must change to a working frequency before continuing.

The following example illustrates the procedure for contacting another vessel station.

### Example

Calling on channel 16:

- KOTARE (up to three times) ZM1624 – THIS IS OCEAN BLUE (up to three times) ZM1234 – ARE YOU RECEIVING ME? – OVER.
- OCEAN BLUE ZM1234 – THIS IS KOTARE ZM1624 – CHANGE TO CHANNEL 6 – OVER.

Working on channel 6:

- KOTARE (up to three times) – THIS IS OCEAN BLUE – ARE YOU RECEIVING ME? – OVER.
- OCEAN BLUE – THIS IS KOTARE RECEIVING YOU LOUD AND CLEAR – GO AHEAD – OVER.
- KOTARE – THIS IS OCEAN BLUE – WILL BE ARRIVING PICTON AT ABOUT 6 PM. CAN WE MEET YOU AT THE FERRY TERMINAL THEN? – OVER.
- OCEAN BLUE – THIS IS KOTARE – WE CAN MAKE THAT MEETING – SEE YOU THEN – OVER.
- KOTARE – THIS IS OCEAN BLUE – OUT.

This example illustrates VHF operation and inter-ship communication. The same procedure is used for ship-to-shore and MF/HF communications.

## Silence period

**VHF:** There is no provision for silence periods in the VHF maritime mobile service.

**SSB:** During their hours of service, all radio-telephone stations that are licensed for operation in the frequency bands between 1605kHz and 2850kHz must keep watch on 2182kHz for three minutes at the start of each hour and half-hour. During these periods, all transmissions between the frequencies of 2173.5kHz and 2190.5kHz must stop, except for distress and urgency communications.

**Time:** The clock used by the radio operator must be checked regularly to ensure correct timekeeping, especially during the silence periods.

## Radio listening watch

Having vessel and coastal stations listen on the international distress frequency of channel 16 and/or 2182kHz is an essential part of maintaining the safety of life at sea.

RCCNZ has coordinated several SAR incidents where vessels and people have been in extreme danger and made a MAYDAY broadcast. Relay broadcasts on channel 16 did not raise any response from other vessels, and when search and rescue resources arrived at the scene they found other craft near the vessel in distress. If any of these had been keeping an appropriate listening watch, they could have given assistance straight away and reduced the peril for people in grave and imminent danger.

**Remember: Always keep a listening watch. The next life saved could be yours.**

With a properly installed and maintained radio, maintaining a listening watch uses very little power. All modern marine radios have the facility for dual watch (and/or multi-channel scanning), allowing multiple channels to be monitored at the same time.

Watches are kept continuously at the locations and on the calling frequencies listed on page 47.

## Voyage or trip reports

Vessels are encouraged to provide coastal stations with details of their voyages. These trip reports (TR) are useful in the event of a search and rescue operation, and can help to determine a vessel's last known position.

### On departure, the TR comprises:

- the abbreviation TR (Tango Romeo)
- the vessel's name and callsign
- port of departure
- port of destination and, if possible, estimated time of arrival (ETA)
- the number of people on board (POB).

#### Example

- TR OCEAN BLUE / ZM1234 LEAVING WELLINGTON. ETA PICTON 1800 TODAY, THREE POB. OVER.

### On arrival, the TR comprises:

- the abbreviation TR
- the vessel's name and callsign
- the port and, if applicable, estimated time of departure (ETD).

#### Example

- TR OCEAN BLUE / ZM1234 ARRIVED PICTON. STATION CLOSING. ETD 0900 THURSDAY. OVER.

Fishing vessels are also strongly advised to report their positions to the nearest coastal station:

- on leaving port for the fishing grounds
- on arrival at the fishing grounds
- when proceeding from one area to another on the same voyage, or on arrival in port.

### Example

- TR OCEAN BLUE / ZM1234 LEAVING WELLINGTON FOR MERNOO BANK AREA. ETA 0600 ON THE 11TH. THREE POB. OVER.

Every effort should be made to notify arrival at a safe anchorage or at the end of the voyage. However, **unless a vessel is reported overdue, the absence of a closing TR will not initiate a search or other follow-up action.**

# COVERAGE AND SERVICES

## Maritime Radio: VHF and SSB

MNZ's Maritime Operations Centre and private coastal station operators provide maritime radio services for New Zealand waters. These services are summarised below.

For private coastal stations, the range of services is indicated, but not all operators offer the full range. For details of these, refer to the *New Zealand Nautical Almanac*, published annually.



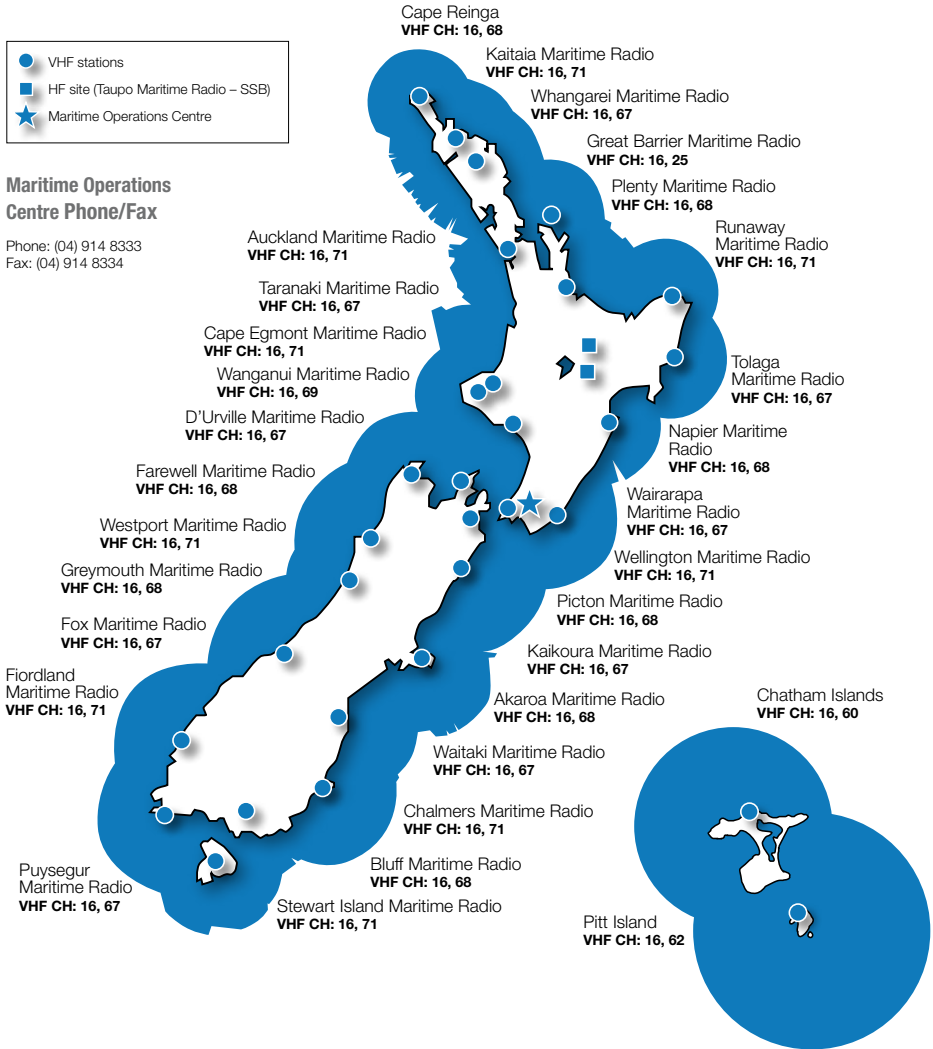
Service	Maritime Operations Centre	Private
Public non-commercial service	Yes	Some
Watchkeeping on VHF distress channel	Continuous	Varies
Watchkeeping on MF/HF distress frequencies	Continuous	Varies
Provision of communications for distress situations	Yes – nationally and NAVAREA XIV	In some locations
Regular schedule of weather and navigational bulletins on VHF and MF/HF	Yes	Some
Immediate weather warnings	Yes	Some
Immediate navigational warnings	Yes	Some
Location	32 radio stations, remotely controlled from a single national operating centre	Local or regional service in many locations
Commercial services, such as messaging or connection to the telephone network	No. Customs/ Immigration/Ministry of Agriculture and Forestry and medical advice only	Some
Personalised subscription service	No	Some
Voyage or trip reports	Yes	Yes

# Maritime Radio VHF coverage

- VHF stations
- HF site (Taupo Maritime Radio – SSB)
- ★ Maritime Operations Centre

## Maritime Operations Centre Phone/Fax

Phone: (04) 914 8333  
 Fax: (04) 914 8334



**Note:** gaps in coverage may exist within the areas shown, due to terrain 'shadows' (which can occur under cliffs close to the shore or in bays and fiords) and occasional system maintenance.

A continuous listening watch is kept on channel 16 by all Maritime Radio VHF stations.

The VHF coverage shown on the map is for vessels with a 25W (normal full power) radio working into a correctly installed antenna mounted 4 metres or more above the waterline.

## VHF broadcasts

Maritime Radio makes the following broadcasts each day. These include weather warnings, situation and forecast, and navigational warnings.

All times are in New Zealand Local Time and include a long-range (five-day) outlook.

All New Zealand coastal VHF stations broadcast forecasts for all weather areas simultaneously (see page 48).

### Maritime Radio VHF voice broadcasts

Calling	Channel 16
Working	Channels 25, 67, 68, 69, 71 (see page 45 for area detail)
Times	0133, 0533, 0733, 1033, 1333, 1733, 2133 NZST or NZDT

**Note:** the 1033 broadcast includes all warnings in force and reports from coastal stations, but provides no situation or forecast.

Local area forecasts and current wind conditions are also broadcast continuously by Coastguard using channels 20–23.

Chatham Islands coastal VHF stations transmit weather forecasts simultaneously on their working channels 60 and 62 at 0603, 1403, 1803, 2203 (Chatham Islands Local Time).



## Taupo Maritime Radio/ZLM (MF/HF)

The MF/HF (SSB) Maritime Radio Service is provided by Taupo Maritime Radio, whose antennae are on a site in the central North Island.

A continuous watch is kept on all calling frequencies.

The calling and working frequencies are shown below.

Taupo Maritime Radio voice frequencies (kHz)						
Calling	2182	4125	6215	8291	12290	16420
Working	2207	4146	6224	8297	12356	16531

For vessels near New Zealand, the lower frequency bands (in MHz) generally provide the best radio communication with Taupo Maritime Radio.

Taupo Maritime Radio Digital Selective Calling (DSC) frequencies (kHz)					
Distress	4207.5	6312.0	8414.5	12557.0	16804.5

MF/HF propagation can never be exactly predicted for all places, times and conditions. For guidance on the best frequencies to use, mariners are advised to keep a close watch on the Ionospheric Prediction Service (IPS) warnings in *Notices to Mariners*.

## MF/HF broadcasts

The following broadcasts are made on MF/HF frequencies from Taupo Maritime Radio. A preliminary call is made on the calling frequencies, with broadcasts then made on the working frequencies. All times are in New Zealand Local Time.

Broadcast type	Times	Frequencies (kHz)	
		Calling	Working
Coastal warnings and bulletins (including Chatham Islands)	0133	2182	2207
	1333	4125	4146
	0533	6215	6224
	1733		
Coastal reports	0803	2182	2207
	1203	4125	4146
	2003	6215	6224
Oceanic warnings*	0303	6215	6224
	0333	8291	8297
	1503	12290	12356
	1533	16420	16531
Oceanic weather bulletins and warnings	0903	6215	6224
	1003	8291	8297
	2103	12290	12356
	2203	16420	16531

\* For daylight saving time, add one hour.

**Notes:**

- **Bulletins** contain the weather situation and forecast.
- **Reports** contain the weather situation at selected coastal sites.
- **Warnings** include navigational, ionospheric and meteorological warnings.

## Warnings

Meteorological warnings are issued by the New Zealand Meteorological Service, and navigational warnings are issued by MNZ (from RCCNZ) and the New Zealand Hydrographic Office.

Warnings are broadcast on VHF by Maritime Radio and on SSB by Taupo Maritime Radio as soon as possible after they have been received. The warnings are repeated on SSB following the next silence period, and then at scheduled times until they are cancelled or replaced.

All warning information is available from Maritime Radio stations or Taupo Maritime Radio on request.

Information contained in radio navigation warnings is primarily to assist mariners on their approach to ports. Harbour authorities provide local harbour warnings, but if they do not have a continuous VHF radio service, Maritime Radio stations will broadcast radio navigation warnings on their behalf.

Some of the information contained in coastal navigational warnings covers:

- changes to lights, buoys and beacons affecting major shipping areas
- the establishment of major aids to navigation, or significant changes to existing ones
- the presence of large, unwieldy tows in congested waters, or vessels engaged in seismic surveys that require other vessels to keep well clear
- areas where search and rescue, weapon firing, cable- and pipe-laying activities, anti-pollution exercises or other potentially dangerous operations are being carried out near shipping areas
- significant malfunctioning of radio communications services.

## Other weather information

Additional forecasts for small craft operating in local waters are broadcast by Radio New Zealand community stations and normally read with scheduled news programmes, which may vary in length. Some private radio stations also broadcast local forecasts.

Marine weather information is also available from MetService New Zealand's website at [www.metservice.co.nz](http://www.metservice.co.nz).

Many private coastal stations also broadcast local marine weather and safety information.

Facsimile weather charts are broadcast on MF/HF daily. A schedule of this service is broadcast daily at 1100 and 2300 UTC (Coordinated Universal Time) on 5807kHz.

## Medical advice

Medical advice may be obtained by transmitting a message to any of the coastal VHF stations of Maritime Radio or by SSB to Taupo Maritime Radio/ZLM.

The stations will forward the message to RCCNZ, which will contact the appropriate medical authority and pass on their reply to the vessel. No charge is made for this service.

## Ionospheric Prediction Service (IPS)

Communications over SSB are variable but predictable, due to ionospheric changes (see page 8). During periods of degraded ionospheric propagation, warnings are promulgated by Taupo Maritime Radio. The quarterly optimum frequencies are published in the *New Zealand Nautical Almanac*.

## Satellite safety services

Many vessels are now equipped with Inmarsat-C, which is a text communication system using satellites. As well as its use for messaging, this service can be used for sending distress alerts and receiving safety information.

MNZ provides coastal warnings and weather bulletins on the Inmarsat-C satellite service. These broadcasts are coded so that all vessels equipped for Inmarsat-C within a radius of 800 nautical miles (centred on Nelson) can receive them.

The oceanic broadcasts are coded so they can be received throughout NAVAREA XIV, New Zealand's area of responsibility for Maritime Safety Information, which covers much of the southern Pacific Ocean.

**Coastal bulletins** contain current warnings, the current weather situation and forecasts for New Zealand coastal forecast areas.

Content of broadcast	Time (UTC)
Situation, forecasts and warnings for New Zealand coast	1330
Warnings, wind force greater than 34 knots, SW Pacific, 0° to 55°S, 150°E to 120°W	1530
Warnings, situation and forecasts, 0° to 55°S, 150°E to 120°W	2130
Situation, forecasts and warnings for New Zealand coast	0130
Warnings, wind force greater than 34 knots, SW Pacific, 0° to 55°S, 150°E to 120°W	0330
Warnings, situation and forecasts, 0° to 55°S, 150°E to 120°W	0930

**Oceanic bulletins** contain warnings, situation and forecasts for these five weather forecast areas:

Islands: Equator to 25°S, 160°E to 120°W

Subtropic: 25°S to 40°S, Australian coast 150°E to 170°W

Forties: 40°S to 55°S, 150°E to 170°W

Pacific: 25°S to 55°S, 170°E to 120°W

Southern: 55° to Antarctica, 160°E to 120°W

These bulletins are broadcast on Inmarsat-C at the times listed on the previous page.

## Tsunami warnings in New Zealand

The Ministry of Civil Defence & Emergency Management (MCDEM) is responsible for tsunami warnings in New Zealand. MCDEM maintains a 24/7 monitoring and warning capability and works closely with GNS Science to conduct tsunami threat assessment for New Zealand following earthquakes in the Pacific. New Zealand is a member of the Pacific Tsunami Warning System.

Tsunamis are categorised in accordance with their travel time to the nearest New Zealand coast:

- distant source (>3 hours travel time)
- regional source (1–3 hours travel time)
- local source (<1 hour travel time).

Official notifications are published on the MCDEM website ([www.civildefence.govt.nz](http://www.civildefence.govt.nz)) and are sent by MCDEM to all local authorities, the emergency services, relevant government agencies and other organisations, such as Coastguard and the media, for public broadcast. MetService provides a link to official tsunami notifications on their marine web page. Taupo Maritime Radio and local VHF stations also broadcast notifications to vessels and boats within the 200km coastal zone.

## Tsunami characteristics

In deep ocean water a tsunami is hardly noticed. In water over 6,000m deep they can travel at a speed of over 800km per hour. Reefs, bays, entrances to rivers and harbours, undersea features and the slope of the shore can all modify a tsunami as it approaches shore. The shallower coastal sea bed causes it to slow down and increase dramatically in height, resulting in rapid changes in water level and unpredictable dangerous currents, most noticeable in harbours, ports and estuaries. Damaging wave activity, dangerous drifting objects and unpredictable currents can affect harbours and estuaries for a period of up to 24 hours following the initial tsunami impact on the coast. Stay in contact with harbour authorities to verify conditions are safe for navigation and berthing.

All vessels are advised to keep a listening watch on VHF channel 16 at all times

### Example message of warning broadcasts by Taupo Maritime Radio (SSB) and local Maritime Radio on VHF channel 16:

National warning – tsunami threat to New Zealand issued by Ministry of Civil Defence & Emergency Management at xx:xx UTC (time) xx:xx (date) due to an earthquake near Xxxxxxxx (place). Boats already at sea should stay well offshore and remain at a depth of at least 100m until further advised. Boats in harbours and estuaries must consider immediate return, or immediately move to deeper water. Mariners should contact their local harbour authority and listen to local radio stations for further information.

Additional tsunami information is available on the MCDEM website at [www.civildefence.govt.nz](http://www.civildefence.govt.nz).

# OTHER INFORMATION

## Medical evacuation (Medevac)

Use this checklist when notifying a Medevac alert:

- Name and callsign of the vessel with the medical emergency
- Type and/or description of vessel
- Position in latitude and longitude in degrees and minutes, or bearing and distance from a charted landmark
- Date and time of position
- Vessel's course and speed
- Patient's name, nationality, age, gender
- Patient's symptoms
- Medication recently given
- Medication available on board
- Radio frequencies in use or monitored
- Contact address, phone or fax number, website or email address
- Last port of call, port of destination, estimated time of arrival
- On-scene weather (wind strength and direction, visibility) and sea conditions
- Nature of assistance required
- Other pertinent information, such as a cellphone or satellite telephone number.

There may be local variations to this checklist.



## Sea rescue by helicopter

Once a helicopter has been tasked, the time it takes to locate a vessel in distress and the effectiveness of its rescue effort depend largely on the cooperation of the vessel involved.

You should provide information to the radio station about:

- your position, as accurately as possible (latitude/longitude in degrees and minutes or by bearing and distance from a charted landmark)
- a description of the vessel
- the nature of your distress
- your communications capabilities (such as VHF, SSB, EPIRB, cellphone or satellite telephone number, if applicable).

From the air, and especially if there are many other vessels in the area, it can be difficult for the helicopter crew to identify the vessel it is searching for, unless the vessel uses a distinctive signal that can be clearly seen.

To ensure the on-scene time for the helicopter is kept to a minimum:

- brief your crew on what to expect
- activate your EPIRB, which has a homing signal and, usually, a strobe light
- by day, use an orange smoke float distress flare, an orange square (some are marked with a black 'V'), a signal lamp or heliograph
- at night, use a torch or a red hand-held flare (do not fire a parachute flare when the helicopter is close by)
- where possible, give a cellphone or satellite telephone number to the coordinating agency (either RCCNZ or Police).

## Working with a helicopter

- When the helicopter arrives, change course to place the wind 30° on the port bow if possible, and maintain this new course at your standard speed.
- Lash or stow all loose gear that could be blown about by the helicopter's powerful down-draught. If possible, drop all sail and motor. Lash your boom(s) to the coachroof.
- Keep all unnecessary personnel out of the way while the helicopter is winching.
- Allow the winch cable (high-line) to touch the water or the vessel **before you handle it**, to dissipate any build-up of static electricity.
- Do not allow the winch cable to become attached (or make fast) to the vessel under any circumstances.
- Ensure the person being lifted is wearing a lifejacket, if possible. If the person is a patient, they should be made as comfortable as possible and, if conscious, briefed and reassured about the rescue procedure.
- At night, light the deck using lights or torches facing downwards.
- By day, indicate the apparent wind by using a flag or smoke (as long as it will not impair the pilot's visibility).
- On reaching the shore, follow the instructions of the pilot or crewman, leaving the helicopter in a forward direction and keeping well clear of the tail rotor and engine exhausts.

**Do exactly as the helicopter pilot tells you.** The pilot will not put his crew and machine in any unnecessary danger.

Be aware that no form of communication by radio (or even person-to-person conversation) is usually possible when a helicopter is overhead, due to its noise.

## Secrecy of correspondence

Any person who receives information not intended for them shall not disclose or make use of that information or disclose the existence of the transmission unless they are specifically authorised to do so.

## Transmissions in harbour

To avoid interference to any other radio service, minimum transmitter power should be used by vessels while in harbour.

## Testing radio apparatus

When it is necessary for a vessel to transmit signals for testing, the transmissions must be brief and should include the vessel's callsign and name. A shielded dummy load may also be used for testing purposes.

## Interference

It is **critical** that all stations interfere as little as possible with the working of other stations. Operators should restrict their use of the radio frequency/channel to an absolute minimum. Unnecessary conversation not only interferes with the genuine needs of other users, but may also disrupt a distress call. If you want to chat, use a cellphone, Citizen Band radio or satellite telephone.

Another common cause of interference is the handset switch (PTT) being accidentally activated. Take care to replace the handset correctly in its holder after use.

## Offences and penalties

New Zealand law provides penalties for people who communicate false information affecting safety. Every person who uses any means to knowingly provide another person with false information about the safety of a vessel, structure or person commits an offence under the Maritime Transport Act. The penalty can be imprisonment for up to 12 months and/or a fine of up to \$10,000.

Use of a radiotelephone to provide false or misleading information is also an offence under the Radiocommunications Act 1989, with a penalty of up to \$30,000 (or \$200,000 for a company).

# USEFUL CONTACTS

## Maritime New Zealand (MNZ)

PO Box 27006

Wellington 6141

**Ph** (04) 473 0111

**Fax** (04) 494 1263

**Email**

maritime.radio@maritimenz.govt.nz

Contact details for district offices  
are listed on the website

[www.maritimenz.govt.nz](http://www.maritimenz.govt.nz)

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## Rescue Coordination Centre New Zealand (RCCNZ)

PO Box 30050

Lower Hutt 5040

**Ph** (04) 577 8030

**Fax** (04) 577 8038

**Email** rccnz@maritimenz.govt.nz

24-hour numbers:

**Freephone** 0508 472 269

(not available to satellite  
telephone users)

**Accident reporting**

**Freephone** 0508 222 433

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## Marine Pollution Response Service (MPRS)

PO Box 45209

Auckland 0651

**Ph** (09) 834 3908

**Fax** (09) 834 3907

**Email** mprs@maritimenz.govt.nz

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## Maritime Operations Centre (MOC)

Ph 0800 MARITIME (0800 627 484) or (04) 914 8333

Fax (04) 914 8334

Email [maritime@kordia.co.nz](mailto:maritime@kordia.co.nz)

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## Coastguard Boating Education (CBES)

PO Box 91322

Website: [www.cbes.org.nz](http://www.cbes.org.nz)

Auckland 1142

Ph 0800 40 80 90 or (09) 361 4700

Fax (09) 376 4775

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## Land Information New Zealand (LINZ)

Lambton House

Website: [www.linz.govt.nz](http://www.linz.govt.nz)

160 Lambton Quay

(click on the 'Mariners' link)

Private Bag 5501

Wellington 6145

Ph (04) 460 0110

Fax (04) 472 2244

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## 406MHz distress beacon registration (free)

Ph 0800 406 111

Website: [www.beacons.org.nz](http://www.beacons.org.nz)

(Note: if you purchase a new or used 406MHz beacon, you must register it with RCCNZ. This is a free service.)

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Other useful information for boat owners includes:

- *New Zealand Nautical Almanac* (published annually and available from many bookshops or chandlers)
  - *New Zealand Notices to Mariners* (available free from LINZ)
  - Ministry of Civil Defence & Emergency Management (MCDEM)  
website: [www.civildefence.govt.nz](http://www.civildefence.govt.nz)
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# GLOSSARY OF TERMS

## Calling frequency or channel

The frequency (for MF/HF) or channel (for VHF) for establishing initial contact, before switching to the working frequency or channel for ongoing communication.

## Channel

A VHF radio frequency designation, expressed as a one- or two-digit number.

## Chatham Islands Time

New Zealand Local Time (either NZDT or NZST) plus 45 minutes.

## Coastal station

A land station in the Maritime Radio Service.

## Distress frequency or channel

For VHF, channel 16.

For SSB, frequencies 2182kHz, 4125kHz or 6215kHz.

For MF/HF, 8291kHz, 12290kHz, 16420kHz.

Distress communications are not switched to the working channels or frequencies. Always keep a listening watch on these channels or frequencies.

## EPIRB

Emergency position-indicating radio beacons operate on the 406MHz frequency and are used to facilitate search and rescue operations.

## GPS

Global positioning systems are satellite-derived signal-positioning systems.

## IPS

Ionospheric Prediction Service, which acts as the Australian Space Weather Agency and provides that country's national radio propagation and space weather services.

## Maritime Radio Service

The public marine radio service provided by MNZ, which continuously monitors safety calling frequencies, provides distress and safety communications, and aids safety by broadcasting maritime safety information, including weather and navigational information. The service includes the MF/HF station, Taupo Maritime Radio, coastal VHF stations and Inmarsat-C satellite services.

## MAYDAY

The distress signal, indicating that a vessel, aircraft or person is in grave and imminent danger and immediate assistance is required.

## MF/HF

Medium and high frequency, used to describe frequencies or channels in the range 300kHz–30MHz. SSB (single sideband) radios are used for communication in the MF/HF bands.

## MNZ

Maritime New Zealand, the government agency with statutory responsibilities for maritime safety, security and environmental protection.

## MOC

Maritime Operations Centre, co-located with RCCNZ in Lower Hutt, near Wellington. It monitors and provides a continuous service to the marine radio network.

## MSI

Maritime Safety Information. (MSI is also the abbreviation for Maritime Safety Inspectors employed by MNZ at all major ports in New Zealand.)

## NAVAREA XIV

The navigational area of the world's oceans that New Zealand's government is responsible for.



### **Navigational warnings**

Warnings about hazards to navigation, issued by MNZ and the New Zealand Hydrographic Office and broadcast by coastal stations.

### **NZDT**

New Zealand Daylight Time, which is UTC (Coordinated Universal Time) plus 13 hours (daylight saving time).

### **NZLT**

New Zealand Local Time (either NZDT or NZST).

### **NZST**

New Zealand Standard Time, which is UTC (Coordinated Universal Time) plus 12 hours (outside daylight saving time).

### **PAN PAN**

Urgency signal, used to indicate the caller has a very urgent message to transmit.

### **PLB**

Personal locator beacon, operating on the 406MHz frequency and used to alert search and rescue authorities. These beacons usually operate for 24 hours and are not designed for marine use, as their primary use is by people who are inland and beyond radio or cellphone range.

### **PRUDONCE**

A signal advising that complete silence is no longer needed on a frequency being used for distress traffic, and that restricted working may be resumed with caution.

### **Radio frequency**

A measure of the rate at which radio waves oscillate per second (with units given in hertz). For ship radio stations, this term is commonly used for MF/HF sets and expressed in kHz (kilohertz) or MHz (megahertz).

### **RCCNZ**

The Rescue Coordination Centre New Zealand is responsible for coordinating major maritime, aviation and emergency beacon-related

search and rescue (Category II) missions in New Zealand’s search and rescue region. Other (Category I) missions are coordinated by the New Zealand Police. These are the only two statutory bodies responsible for SAR coordination in New Zealand.

## **SAR**

Search and rescue.

## **SÉCURITÉ**

A signal used to indicate the caller is about to transmit a message containing an important navigational or meteorological warning.

## **SEELONCE FEENEE**

A signal used to advise that distress communications have ceased and normal working may be resumed.

## **Ship (vessel) station**

Any mobile radio station in the Maritime Radio Service located on board any vessel that is not permanently moored.

## **SRR**

Search and rescue region.

## **SSB**

Single sideband mode of transmission, used on MF/HF maritime frequencies.

## **UTC**

Coordinated Universal Time (from the French). This is the time kept at the Greenwich Meridian and based on International Atomic Time (TAI).

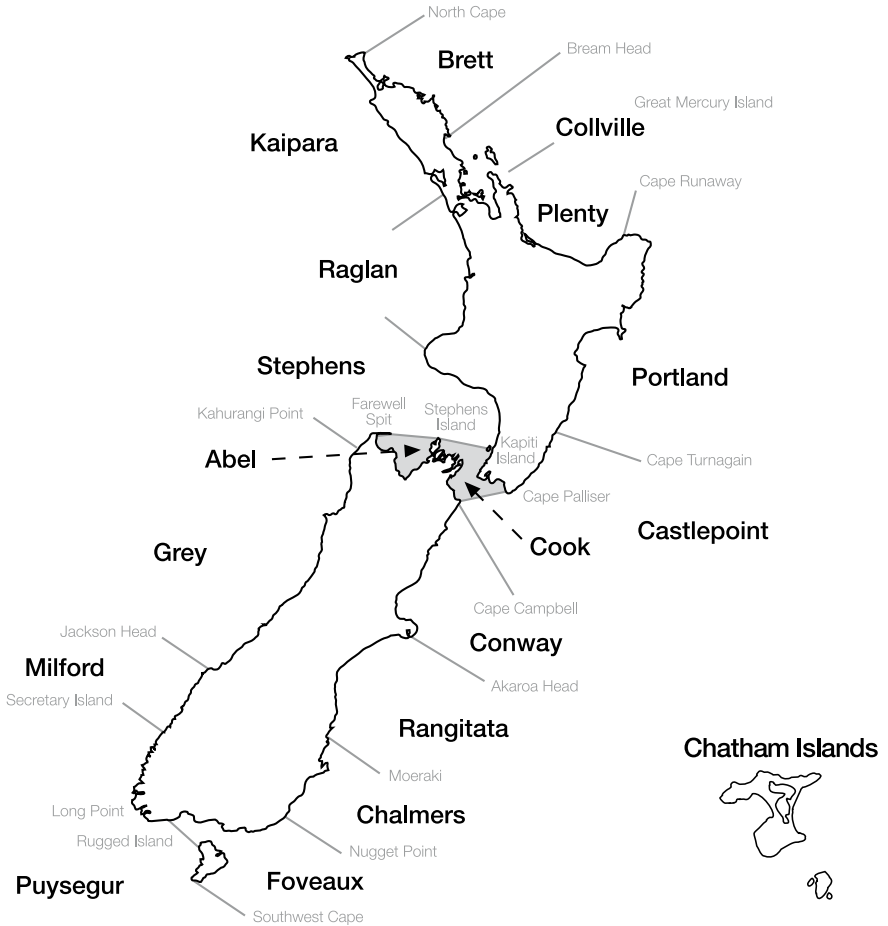
## **VHF**

Very high frequency, used to identify frequencies or channels in the range 30MHz–300MHz.

## **Working channel or frequency**

The channel (for VHF) or frequency (for MF/HF) where communications are carried out after initial contact has been established on the calling frequency or channel.

## Coastal weather forecast areas



Up-to-date weather information is provided on the MetService website at [www.metservice.com](http://www.metservice.com) or by phoning MetPhone on **0900 999 + your area code**.

