

## PART 5 ENVIRONMENT CANADA'S MARINE AND ICE WARNING AND FORECAST PROGRAMS

### 5.1 BACKGROUND

Environment Canada's Meteorological Service of Canada (MSC) is the agency responsible for delivering Canada's weather service. The MSC offers a broad range of products and services that are designed to help mariners make informed decisions on how weather will affect them. The Canadian Coast Guard plays an important role in disseminating forecasts and warnings and in collecting and relaying weather information from volunteer observers and ships.

The constant stream of data coming from both automated and manned coastal observation stations, as well as ships and weather buoys, is supplemented by satellite imagery, weather radar and a full set of numerical weather products adapted for marine operations.

### 5.2 MARINE WARNING PROGRAM

Warnings of extreme weather events that pose a threat to life and property at sea such as strong winds, freezing spray, high coastal waters, squall lines and other localized phenomena shall be issued for the offshore economic zone including the St. Lawrence Seaway and major inland waters.

Major inland waters are defined as having significant marine activity and where time to reach safe harbour is comparable to the marine weather warning lead time. The criteria for issuing weather warnings is based on national guidelines, but determined regionally to account for regional climatology and the nature of the regional marine community. The following table describes the warning program:

**Table 5-1- Synoptic Warnings**

| Synoptic warnings*               | Warning criteria   |
|----------------------------------|--|
| Strong wind warning <sup>1</sup> | Winds <sup>2</sup> 20 to 33 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an "except" statement. |
| Gale warning                     | Winds <sup>2</sup> 34 to 47 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an "except" statement. |
| Storm warning                    | Winds <sup>2</sup> 48 to 63 knots inclusive occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an "except" statement. |
| Hurricane force wind warning     | Winds <sup>2</sup> 64 knots or above occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an "except" statement.        |
| Freezing spray warning           | Ice accretion rate of 0.7 cm/hr or more occurring or expected to occur in any portion of a marine area including any portion defined by a local effect or an "except" statement.     |

Notes:

\*These warnings are included in the body of the text forecast.

1. The strong wind warning program is active on a regional basis as required for coastal and inland waters during the recreational boating season. A warning is not required when the wind is described using the range 15-20 knots. This range is normally used for greater accuracy.
2. Gusts are excluded from the definition.

**Range:** With the exception of Note (1) above, when a range is used to describe the wind speed, the upper value of the range determines the warning category.

**Table 5-2 - Localized Warnings**

| Localized warnings/watches*  | Warning criteria   |
|------------------------------|--|
| Squall watch                 | Advance notice of conditions that are favourable to the development of squalls.  |
| Squall warning               | Wind gust $\geq$ 34 knots associated with a line or an organized area of thunderstorms.  |
| Tornado watch                | Advance notice of conditions that are favourable to the development of tornados.   |
| Tornado warning              | Evidence of tornado formation (radar, report from a reliable source, etc.) over a marine area, or an existing tornado moving from land to an adjacent marine area. |
| Waterspout watch**           | Advance notice of conditions that are favourable to the development of cold-air waterspouts.   |
| High water level warning     | Issued to warn mariners and coastal populations of potentially hazardous impacts due to abnormally high water levels or waves along coastal areas.                 |
| Special marine warning/watch | Used to describe conditions other than those defined above that may have potentially hazardous impacts on navigation.  |

Notes: \* These warnings/watches are delivered using separate messages.

\*\* Waterspout warnings are not issued.

**Ice warnings:** refer to the Canadian Ice Service, Section 5.10

### 5.3 MARINE AND ICE FORECAST PROGRAM

Marine forecasts are issued for the offshore economic zone including the St. Lawrence Seaway and major inland waters.

For sea ice, ice forecasts are issued for offshore marine areas as well as the Great Lakes. The production schedule is detailed in each regional section of this part. The forecast program includes the following bulletins:

**Table 5-3 - Marine Forecast Program**

| Forecast or bulletin name                    | Details  |
|--|--|
| Technical marine synopsis                    | Provides the positions and trends of the main weather systems for the forecast period covering Days 1 and 2.   |
| Marine forecast (or Regular marine forecast) | Provides information on: synoptic warnings, wind, visibility, precipitation and freezing spray. It may include air temperature as appropriate. Valid for Days 1 and 2. |
| Recreational boating marine forecast         | Tailored to the needs of recreational boaters, it is available on a seasonal basis and only in specific regions.   |
| Marine weather statement                     | Issued when deemed necessary, it provides additional information on potentially high impact marine conditions.   |
| Wave height forecast                         | Provides information on significant wave heights valid for Days 1 and 2 (not available for northern and Arctic lakes or inland waterways).                             |
| Extended marine forecast                     | Meant for longer-range planning purposes, it provides an extended marine wind outlook for Days 3, 4, and 5.  |
| Iceberg bulletin                             | Provides information on distribution of icebergs valid for the time of issue of the bulletin.  |
| Ice forecasts                                | Provides information on hazardous ice conditions valid for Days 1 and 2.   |

| Forecast or bulletin name | Details   |
|---------------------------|---|
| NAVTEX <sup>1</sup>       | International Maritime Organization (IMO)-compliant NAVigational TeIEX bulletin issued with each regular marine forecast or ice forecasts in a standardized abbreviated format - see Section 5.7.1 for Abbreviations. |
| MAFOR <sup>1</sup>        | This is a specialized coded marine forecast produced for Québec and Ontario regions.  |

Note (1): More details on NAVTEX are provided in section 5.7.

### 5.3.1 Monitoring the Forecast

Forecasts are monitored, and amended as necessary, to reflect unexpected or changing weather conditions according to criteria based on the following principles:

- a) when safety or security is at risk;
- b) when inconvenience to the marine community will be extensive; or
- c) when the product could adversely affect the credibility of the marine forecast program.

### 5.3.2 Marine and Ice Forecast Areas

Marine forecasts and ice forecasts are issued for marine and ice areas as outlined in the regional maps. The sizes and boundaries of these areas are determined regionally based on the following considerations:

- a) marine traffic density;
- b) the ability to forecast to the proposed resolution;
- c) the degree to which, climatologically, marine weather varies; and
- d) the ability to distribute the information effectively to the marine community.

### 5.3.3 Current Conditions

Current weather data is available to Canadians for their local area. The frequency and quality of the data will be consistent with the standards established by the World Meteorological Organization (WMO). The data may include, as appropriate:

- a) wind speed and direction;
- b) atmospheric pressure;
- c) sky conditions;
- d) precipitation type;
- e) restrictions to visibility;
- f) wave height;
- g) current temperature.

General information on current sea-ice will be provided to the marine community once a week to provide an adequate planning tool for those considering entering ice-encumbered waters.

### 5.3.4 Emergency Response

Meteorological support is provided during emergencies and includes the provision of meteorological information and forecasts. In the case of a pollution event, Environment Canada adheres to the "polluter pay" policy for the provision of all services. Where agreements are in place, Environment Canada will make its distribution systems available to transmit vital information during emergency situations.

### **5.3.5 Delivery of Marine Warning and Forecast Services**

Delivery of marine warning and forecast services to mariners navigating waters within Environment Canada's forecast areas of responsibility is primarily by mass communication in order to reach the greatest number of mariners through the standard communications technologies available to mariners. The following principles apply, regardless of the specific available technologies:

- a) Marine forecasts and warnings comprising the meteorological Maritime Safety Information (met MSI) issued by Environment Canada will be made available to the marine community via the Canadian Coast Guard Marine Communications and Traffic Services according to established procedures within the framework of the Global Maritime Distress and Safety System (see RAMN, Section 4.2.1 General Procedures – Systems – GMDSS).
- b) Internet access via the World-Wide Web. All forecast and warning information will be found at the following address: [http://www.weather.gc.ca/canada\\_e.html](http://www.weather.gc.ca/canada_e.html). Mariners should note, however, that the internet is not part of the Maritime Safety Information system and should never be relied upon as the only means to obtain the latest marine forecasts and warning information. Access to the internet may be interrupted or updated information delayed without prior notice.
- c) Marine and Environmental Advisories, Watches and Warnings are distributed through various mechanisms including partnerships with national and regional media distributors and local emergency measures organizations.
- d) In addition to the aforementioned mediums, basic services to mariners and Canadians in general shall also be delivered by mass distribution in partnership with media, relying on current and developing technologies in radio, television, newspaper and the Internet. These distribution mechanisms represent the primary methods by which most Canadians receive their weather information, now and in the future.

## **5.4 VOLUNTARY OBSERVING SHIP (VOS) PROGRAM**

The VOS program has been discontinued within Canada. Environment Canada currently supports the Automated Voluntary Observing Ship program (AVOS) program and will support visiting VOS ships from other jurisdictions on a "best efforts" basis. Contact your regional PMO for further information.

## **5.5 BUOYS PROGRAM**

In order to complement the observational network, Environment Canada operates a network of buoys across the country. This data becomes part of the collection of weather reports sent to the distribution network and is used to improve marine forecasting. The location, WMO identifiers and names of the Environment Canada buoys are given in the regional annexes.

Mariners are requested to use caution when approaching buoys as mooring chains are normally not detectable from a ship and can be damaged or even severed if there is contact. Such a mishap could possibly result in the buoy going adrift thus requiring a costly effort to recover the platform. Please keep the regional PMO informed of any incidents involving buoys.

Buoy locations: buoy positions are described in each specific regional annex.

## 5.6 PORT METEOROLOGICAL OFFICERS (PMOs)

In addition to a variety of other duties, PMOs also act as a liaison between Environment Canada and ships involved in the VOS and AVOS programs. This is to encourage vessels to report weather and ice conditions, to instruct observers about procedures and the use of code; to supply observing forms, handbooks (free of charge); to calibrate equipment; and, in some cases, to install, on loan, meteorological or oceanographic instrumentation. The PMO is also responsible for recruiting new vessels to participate in the AVOS program.

If a PMO visits your ship, feel free to ask questions about observing and coding, and reporting weather and ice conditions. Inform the PMO of any concerns you may have with forecasts, warnings, or facsimile products, especially if you have specific problems. The PMO will contact the appropriate party for investigation. Keep the PMO informed of your contact information.

### 5.6.1 Port Meteorological Officers (PMOs)

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## 5.7 NAVTEX

MSC will provide Canadian Coast Guard with marine forecast information in NAVTEX format for coastal and offshore areas of responsibility based on IMO standards. Marine forecast information provided will include:

- a) warnings (Winds & ice accretion);
- b) synopsis (major features); and
- c) forecasts (wind, visibility, ice accretion, wave height).

Each bulletin will contain a WMO telecommunication header, a valid period, notes on parameters used within the bulletin, a synopsis section, a weather forecast section and a wave forecast section. Below is a sample of a partial NAVTEX produced for Canadian Coast Guard MCTS Sydney. Note that NAVTEX will make use of abbreviations: this is necessary in order to comply with the physical limitations of the NAVTEX system. In the example, text in superscript indicates how abbreviations are used. Section 5.7.1 provides a detailed list used by NAVTEX.

**NAVTEX service sample (518 kHz)**

Header FQCN34 CWHX 171400  
 Title (part one) NAVTEX/1 FOR SYDNEY VCO AT 10:00 AM AST FRI <sup>Friday</sup> 17 NOV  
 November 2006.

**Weather forecast**

Parameters VLD <sup>valid period</sup> 17/14Z-19/03Z,  
 WND(KT) <sup>wind in knots</sup>, VIS(NM) <sup>visibility in nautical miles</sup> ABV <sup>above</sup> 1 NM UNL IND  
 unless indicated, FOG IMPLIES VIS 1 NM OR LESS.

Synopsis **SYNOPSIS:**  
 17/14Z STRM <sup>storm</sup> 980 MB OVR SRN NFLD <sup>over southern Newfoundland</sup>  
 18/14Z STRM <sup>storm</sup> 985 MB OVR NRN NFLD. <sup>over northern Newfoundland</sup>  
 17/14Z RIDG OVR WRN QUE. <sup>ridge over western Québec</sup>  
 18/14Z RIDG OVR WRN GU ST LAW. <sup>ridge over western Gulf of St Lawrence</sup>

Area name EASTERN SHORE, FOURCHU:  
 Warning WNG <sup>warning</sup>: NIL.  
 Wind forecast WND: SW <sup>southwest</sup> 10-15. 17/18Z SE <sup>southeast</sup> 15-20. 18/06Z V15. 18/12Z  
 SW <sup>southwest</sup> 15-20. 18/18Z SW20-25. 19/00Z SW15-20.  
 Visibility forecast VIS: 17/13Z-19/03Z PTH-FG <sup>fog banks</sup>

{... other marine areas }

End of weather END/

**Wave height forecast**

Parameters WAVES(M) <sup>metres</sup> VLD 17/09Z-18/10Z.

Area name EASTERN SHORE, SABLE, EAST SCOTIAN SLOPE-N <sup>northern half</sup>,  
 FOURCHU, BANQUEREAU:

Height in meters 1-2.

{... Other marine areas}

End of waves and part one END/

**NAVTEX service sample (518 kHz)**

Header ► FQCN34 CYQX 171330  
 Title (VCO part two) NAVTEX/2 FOR SYDNEY VCO.  
 ►

**Weather forecast**

Parameters VLD 17/13Z-19/03Z.

Marine areas ► GULF-PORT AU PORT, SOUTHWEST COAST:  
 Warning ► WNG: NIL.  
 Wind ► WND: S10-15G20. 17/23Z S10-15. 18/11Z S15-20. 18/18Z SW20.  
 Visibility ► VIS: 17/12Z-19/02Z FG-PTH.



|                              |   |                             |
|------------------------------|---|-----------------------------|
|                              |   | {... other marine areas}    |
| End of weather               |   | END/                        |
| ▶                            |   |                             |
| <b>Wave height forecast</b>  |   |                             |
| Parameters                   | ▶ | WAVES(M) VLD 17/09Z-18/09Z. |
| Marine areas                 | ▶ | GULF PORT AU PORT:          |
| Waves                        | ▶ | 1-2. 18/06Z 0-1.            |
|                              |   | {... other marine areas}    |
| End of waves and<br>part two | ▶ | END/                        |

Mariners navigating northern and Arctic waters are advised that marine forecast bulletins issued for MSC's METAREAs marine forecast service uses similar abbreviated text formatting as is used in the NAVTEX marine weather bulletins issued by the MSC. Further information regarding the MSC's METAREAs forecast program is provided in RAMN Part 5, Section 5.9, Northern Canada.

**5.7.1 Abbreviations used by MSC within NAVTEX and METAREAs Bulletins**

**Table 5-4 - Date/Time Standards**

|          |     |          |     |           |       |
|----------|-----|----------|-----|-----------|-------|
| April    | APR | June     | JUN | September | SEP   |
| August   | AUG | March    | MAR | Sunday    | SUN   |
| December | DEC | May      | MAY | Thursday  | THU   |
| February | FEB | Monday   | MON | Today     | TDY   |
| Friday   | FRI | November | NOV | Tonight   | TNGHT |
| January  | JAN | October  | OCT | Tuesday   | TUE   |
| July     | JUL | Saturday | SAT | Wednesday | WED   |

**Table 5-5 - Marine Forecast Area Dividing Standards**

|                     |     |                     |     |                     |      |
|---------------------|-----|---------------------|-----|---------------------|------|
| - eastern half      | - E | - northwestern half | -NW | - southwestern half | - SW |
| - northeastern half | -NE | - southeastern half | -SE | - western half      | - W  |
| - northern half     | -N  | - southern half     | -S  |                     |      |

**Table 5-6 - Forecast Parameters**

|           |      |        |     |               |    |
|-----------|------|--------|-----|---------------|----|
| valid     | VLD  | unless | UNL | milibar       | MB |
| indicated | IND  | knots  | KT  | nautical mile | NM |
| implies   | IMPL | meters | M   |               |    |

**Table 5-7 - Wind Elements**

|           |    |           |     |              |     |
|-----------|----|-----------|-----|--------------|-----|
| East      | E  | south     | S   | west         | W   |
| North     | N  | southeast | SE  | light        | LGT |
| Northeast | NE | southwest | SW  | with gust to | G   |
| Northwest | NW | variable  | VRB | warning      | WNG |

**Table 5-8 - Freezing Spray Qualifier**

|                |         |        |     |                      |          |
|----------------|---------|--------|-----|----------------------|----------|
| freezing spray | FRZ-SPR | risk   | RSK | outside the ice edge | OUT-EDGE |
| moderate       | MOD     | severe | SEV | over open water      | OVR-OW   |
| at times       | OCNL    |        |     |                      |          |

**Table 5-9 - Wave Elements**

|             |     |
|-------------|-----|
| Ice covered | ICE |
|-------------|-----|

**Table 5-10 - Weather Elements**

|                  |         |                       |        |                     |          |
|------------------|---------|-----------------------|--------|---------------------|----------|
| blizzard         | BZ      | hail                  | HL     | mist patches        | PTH-MIST |
| blowing snow     | BS      | heavy rain            | HVY-RA | rain                | RA       |
| drizzle          | DZ      | heavy snow            | HVY-SN | rain and snow mixed | MIX-RASN |
| flurries         | LGT- SN | heavy<br>thunderstorm | HVY-TS | scattered           | SCT      |
| fog              | FG      | ice fog               | IFG    | showers             | SHWRS    |
| fog banks        | PTH-FG  | ice pellets           | IP     | snow                | SN       |
| freezing drizzle | FRZ-DZ  | light snow            | LGT-SN | thunderstorm        | TS       |
| freezing rain    | FRZ-RA  | mist                  | MST    | waterspout          | WTSPT    |

**Table 5-11 - Weather/Visibility Elements (qualifier)**

|            |           |                  |           |                  |       |
|------------|-----------|------------------|-----------|------------------|-------|
| at times   | OCNL      | as low as 1 mile | NR 1      | one mile or less | 0-1   |
| heavy      | HVY       | in precipitation | IN-PRECIP | above one mile   | ABV 1 |
| occasional | OCNL      | near zero        | NR 0      | visibility       | VIS   |
| very poor* | VERY POOR | poor*            | POOR      | moderate*        | MOD   |
| good*      | GOOD      |                  |           |                  |       |

**Table 5-12 - Trend Descriptors (synopsis)**

|             |      |                  |       |           |       |
|-------------|------|------------------|-------|-----------|-------|
| building    | BLDN | intensifying     | INTSF | splitting | SPLIT |
| dissipating | DISS | merging          | MERG  | weakening | WKN   |
| deepening   | DPN  | quasi-stationary | QSTNR |           |       |

**Table 5-13 - Systems Descriptors (synopsis)**

|                |          |                     |         |                     |         |
|----------------|----------|---------------------|---------|---------------------|---------|
| cold front     | C-FRONT  | hurricane           | HURR    | ridge               | RIDG    |
| cold           | COL      | low                 | LOW     | storm               | STRM    |
| disturbance    | DISTRUB  | trough              | TROUGH  | tropical depression | TD      |
| flat low       | FLAT LOW | post tropical storm | POST-TS | tropical storm      | TS      |
| frontal system | FRONT    | high                | HIGH    | warm front          | W-FRONT |

**Table 5-14 - Position Descriptors (synopsis)**

|          |      |                   |         |           |     |
|----------|------|-------------------|---------|-----------|-----|
| cape     | CAP  | lake              | LK      | pacific   | PAC |
| coastal  | CSTL | longitude         | LONG    | peninsula | PEN |
| from     | FM   | near              | NR      | river     | RIV |
| island   | IS   | located on a line | ON LINE | strait    | STR |
| latitude | LAT  | over              | OVR     |           |     |

**Table 5-15 - Cardinal Point Descriptors (synopsis)**

|              |         |                     |       |              |      |
|--------------|---------|---------------------|-------|--------------|------|
| central      | CENTRAL | northeast-southwest | NE-SW | southeast    | SE   |
| east         | E       | northern            | NRN   | southeastern | SERN |
| eastern      | ERN     | north - south       | N-S   | southern     | SRN  |
| east - west  | E-W     | northwest           | NW    | southwest    | SW   |
| from         | FM      | northwestern        | NWRN  | southwestern | SWRN |
| north        | N       | northwest-southeast | NW-SE | west         | W    |
| northeast    | NE      | south               | S     | western      | WRN  |
| northeastern | NERN    |                     |       |              |      |

**Table 5-16 - Territorial References (synopsis)**

|                     |           |                           |      |                      |      |
|---------------------|-----------|---------------------------|------|----------------------|------|
| Alberta             | ALTA      | New Brunswick             | NB   | Ontario              | ONT  |
| British Columbia    | BC        | Newfoundland              | NFLD | Prince Edward Island | PEI  |
| Great Lakes         | GRT LKS   | Newfoundland and Labrador | NL   | Québec               | QUE  |
| Gulf of St Lawrence | GU ST LAW | Nova Scotia               | NS   | Saskatchewan         | SASK |
| Labrador            | LAB       | Northwest Territories     | NWT  | Yukon Territory      | YT   |
| Manitoba            | MAN       |                           |      |                      |      |

**5.7.2 Ice Elements**

**Table 5-17 - Ice Concentration**

|           |    |                           |      |              |      |
|-----------|----|---------------------------|------|--------------|------|
| 1 tenth   | 1  | 6 tenths                  | 6    | bergy water  | BW   |
| 10 tenths | 10 | 7 tenths                  | 7    | consolidated | CONS |
| 2 tenths  | 2  | 8 tenths                  | 8    | ice free     | IF   |
| 3 tenths  | 3  | 9 plus tenths             | 9+   | open water   | OW   |
| 4 tenths  | 4  | 9 tenths                  | 9    | trace of     | TR-  |
| 5 tenths  | 5  | 9 to 10 tenths (lake ice) | 9-10 |              |      |

**Table 5-18 - Ice Type**

|                |     |            |      |                |      |
|----------------|-----|------------|------|----------------|------|
| first year ice | FYI | medium ice | MEDI | thick ice      | TKI  |
| grey ice       | GI  | new ice    | NI   | thin ice       | THI  |
| greywhite ice  | GWI | old ice    | OI   | very thick ice | VTKI |

**Table 5-19 - Ice Qualifier**

|       |     |          |       |        |      |
|-------|-----|----------|-------|--------|------|
| light | LGT | moderate | MOD   | strong | STRG |
|       |     | pressure | PRESS |        |      |

**Table 5-20 - Ice General**

|            |      |           |      |                 |          |
|------------|------|-----------|------|-----------------|----------|
| conditions | CDNS | except    | EXC  | possible        | POSS     |
| edge       | EDGE | ice       | ICE  | along the coast | ALNG CST |
| estimated  | EST  | including | INCL |                 |          |

**Table 5-21 - Ice Direction**

|               |      |               |      |               |      |
|---------------|------|---------------|------|---------------|------|
| eastward      | EWD  | northwestward | NWWD | southwestward | SWWD |
| northeastward | NEWD | southeastward | SEWD | westward      | WWD  |
| northward     | NWD  | southward     | SWD  |               |      |

\* The visibility ranges associated with descriptive visibility terms as used in METAREAs visibility forecasts are given in the following table:

**Table 5-22 - Visibility Category and Range**

| Visibility category (NAVTEX term) | Visibility Range (nautical miles)              |
|-----------------------------------|--|
| Very poor (VERY POOR)             | Less than 0.5 (vis < 0.5)                      |
| Poor (POOR)                       | 0.5 or greater and less than 2 (0.5 ≤ vis < 2) |
| Moderate (MOD)                    | 2 or greater and 5 or less (2 ≤ vis ≤ 5)       |
| Good (GOOD)                       | Greater than 5 (5 < vis)                       |



Environment Canada

Environnement Canada

**SUGGESTIONS / COMMENTS / COMMENTAIRES**

|  |   |
|--|---|
| Help us to serve you:<br><br>Make us aware of your comments regarding the Environment Canada Marine and Ice Services | Aidez-nous à mieux vous servir:<br><br>Faites-nous parvenir vos commentaires concernant le programme de prévisions maritimes d'Environnement Canada |
|--|---|

|                     |  |   |
|---------------------|--|---|
| Officer/Officier:   |  | Return to / Envoyer à:<br><br>National Service Operations Division – Marine & Transportation /<br>Division des services opérationnels nationaux – marine et transports<br>Environnement Canada / Environnement Canada<br>PO Box / Case Postale 370<br>Gander, NL A1V 1W7<br>Fax x Télécopieur: 709-256-6627<br>Email / Courriel: <a href="mailto:Tom.King@ec.gc.ca">Tom.King@ec.gc.ca</a> |
| Ship/Navire:        |  |   |
| Position Latitude:  |  |   |
| Position Longitude: |  |   |
| Date:               |  |   |
|                     |  |   |

**. Subject / Détails:**

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## 5.8 PACIFIC COAST

### 5.8.1 Marine Weather Forecast Program

The Pacific Storm Prediction Centre (PSPC) located in Vancouver, BC issues regular marine forecast and technical synopsis 4 times daily at the same time throughout the year. The forecasts are valid out to midnight of the following day. Additional products include a 3 to 5 day marine wind outlook and a wave height forecast issued twice daily.

**Table 5-23 - Production Schedule – Text Format**

| Forecast name             | Issue Time                 | Time Zone | Marine Region  |
|---------------------------|----------------------------|-----------|----------------|
| Technical marine synopsis | 04:00, 10:30, 16:00, 21:30 | PDT / PST | Pacific waters |
| Marine forecast           | 04:00, 10:30, 16:00, 21:30 | PDT / PST | Pacific waters |
| Marine weather statement  | as needed                  |           | Pacific waters |
| Wave height forecast      | 04:00, 16:00               | PDT / PST | Pacific waters |
| Extended marine forecast  | 04:00, 16:00               | PDT / PST | Pacific waters |

**Table 5-24 - Production Schedule - NAVTEX format (refer to Part 2 for the MCTS broadcast schedule)**

| MCTS Centres              | Name   | Header      | Issue Time                         |
|---------------------------|--------|-------------|------------------------------------|
| Prince Rupert VAJ – South | Navtex | FQCN33 CWVR | 04:00, 10:30, 16:00, 21:30 PDT/PST |
| Prince Rupert VAJ - North | Navtex | FQCN35 CWVR | 04:00, 10:30, 16:00, 21:30 PDT/PST |

*Marine Weather Warnings (refer to Table 5-1).*

Note the following regional particularities:

|   | Warning Types       | Comments  |
|---|---------------------|---|
| 1 | Strong wind warning | Issued only from March 20 to Remembrance Day.<br>Applies to the inner waters only: Queen Charlotte Strait, Johnstone Strait, Strait of Georgia, Howe Sound, Haro Strait and Strait of Juan de Fuca. |

### 5.8.2 Marine Weather Observations and Forecast Bulletins

Local weather observations are available for several stations including lighthouses, ocean buoys, automatic weather reporting stations and other stations of the regular weather network. The broadcast listing provides more information on available stations and broadcast times. Marine forecast bulletins are updated at regular intervals or whenever necessary. These bulletins are available on MSC's Automated Telephone Answering Device (ATAD), as well as Weatheradio and Canadian Coast Guard's continuous marine broadcast.

### 5.8.3 Weatheradio Canada

Weatheradio is a public service designed to make weather information available over VHF or FM radio continuously. Weatheradio is dedicated to transmitting up to the minute weather reports and forecasts directly to all users including the marine community.

Environment Canada Weatheradio operates four main stations serving Pacific region. These are:

| Stations             | Call Sign | Frequency (MHz) | Note                 |
|----------------------|-----------|-----------------|----------------------|
| Vancouver - Victoria | XKK506    | 162.400         | Continuous broadcast |
| Port Hardy (FM)      | CBPD-FM   | 103.700         | Continuous broadcast |
| Port Hardy           | VFM839    | 162.525         | Continuous broadcast |
| Ucluelet             | CIZ319    | 162.525         | Continuous broadcast |
| Port Alberni         | VFM825    | 162.525         | Continuous broadcast |
| Prince Rupert        | VXB571    | 162.525         | Continuous broadcast |
| Masset               | CKK900    | 162.425         | Continuous broadcast |

Further information regarding EC's Weatheradio network can be obtained via the Internet at

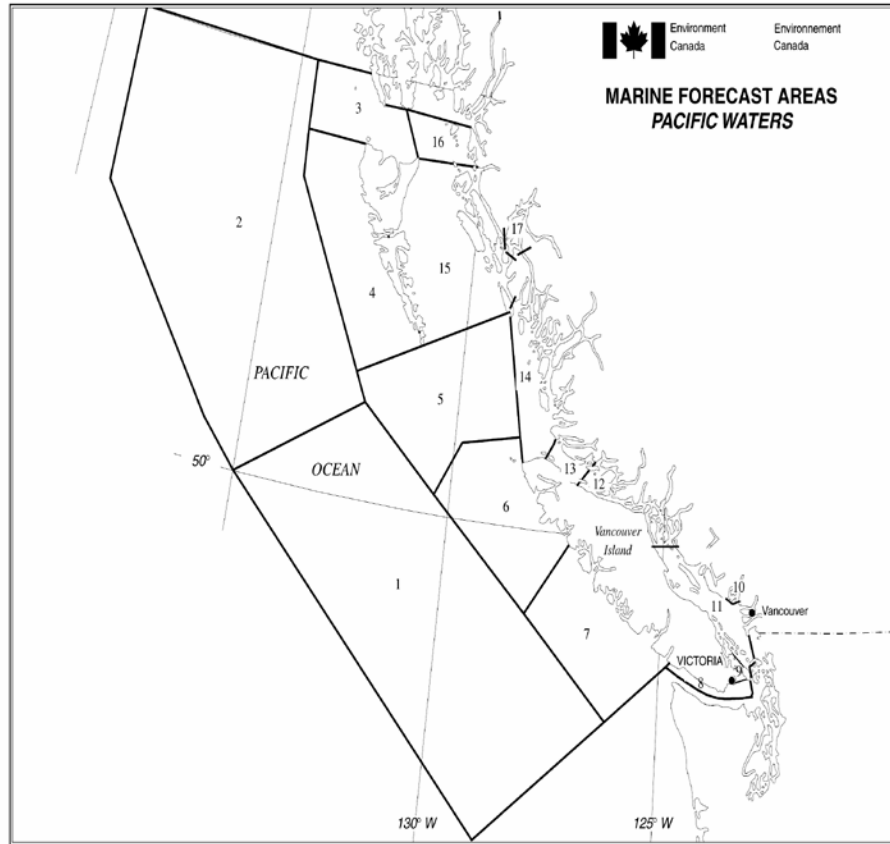
<http://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=792F2D20-1>

**Table 5-25 - Buoy Positions – Northeast Pacific**

| WMO#  | Name                   | LAT (deg) | LONG (deg) |
|-------|------------------------|-----------|------------|
| 46004 | Middle Nomad           | 50.930 N  | 136.095 W  |
| 46036 | South Nomad            | 48.355 N  | 133.938 W  |
| 46131 | Sentry Shoal           | 49.906 N  | 124.985 W  |
| 46132 | South Brooks           | 49.738 N  | 127.931 W  |
| 46145 | Central Dixon Entrance | 54.366 N  | 132.417 W  |
| 46146 | Halibut Bank           | 49.340 N  | 123.727 W  |
| 46147 | South Moresby          | 51.828 N  | 131.225 W  |
| 46181 | Nanakwa Shoal          | 53.833 N  | 128.831 W  |
| 46183 | North Hecate Strait    | 53.617 N  | 131.105 W  |
| 46184 | North Nomad            | 53.915 N  | 138.851 W  |
| 46185 | South Hecate Strait    | 52.425 N  | 129.792 W  |
| 46204 | West Sea Otter         | 51.368 N  | 128.750 W  |
| 46205 | West Dixon Entrance    | 54.165 N  | 134.283 W  |
| 46206 | La Perouse Bank        | 48.835 N  | 125.998 W  |
| 46207 | East Dellwood          | 50.874 N  | 129.916 W  |
| 46208 | West Moresby           | 52.515 N  | 132.692 W  |



Figure 5-1 - Marine forecast areas: Pacific waters



### 5.8.4 Marine Forecast Areas

**Table 5-26 - Pacific Waters**

| Offshore |           | North Coast |  | South Coast |                                   |
|----------|-----------|-------------|--|-------------|-----------------------------------|
| Area     | Area Name | Area        | Area Name  | Area        | Area Name                         |
| 001      | Explorer  | 003         | Dixon Entrance West                              | 006         | West Coast Vancouver Island North |
| 002      | Bowie     | 004         | West Coast Haida Gwaii                           | 007         | West Coast Vancouver Island South |
|          |           | 005         | Queen Charlotte Sound                            | 008         | Juan de Fuca Strait               |
|          |           | 014         | Central Coast from McInnes Island to Pine Island | 009         | Haro Strait                       |
|          |           | 015         | Hecate Strait                                    | 010         | Howe Sound                        |
|          |           | 016         | Dixon Entrance East                              | 011         | Strait of Georgia                 |
|          |           | 017         | Douglas Channel                                  | 012         | Johnstone Strait                  |
|          |           |             |  | 013         | Queen Charlotte Strait            |

### 5.8.5 Marine Weather Observations

**Table 5-27 - Lighthouse Reports, (Type L), Automatic Reporting Stations (Type A), Ocean Buoys reports (Type B)**

| Area Name                  | Area Name                 | Area Name               | Area Name                 |
|----------------------------|---------------------------|-------------------------|---------------------------|
| Addenbroke Island - L      | EastPoint - A             | Lucy Island - A         | Scarlett Point - L        |
|                            | Egg Island - L            | McInnes Island - L      | Sentry Shoal - B          |
| Ballenas Island - A        | Entrance Island - A       | Merry Island - L        | Sheringham Point - A      |
| Bella Bella - A            | Entrance Island - L       | Middle Nomad - B        | Sisters Island - A        |
| Boat Bluff - L             | Esquimalt Harbour - A     | Nanakwa Shoal - B       | Smith Island (USA)* - B   |
| Bonilla Island - A         | Estevan Point - A         | Nootka - L              | Solander Island - A       |
| Bonilla Island - L         | Estevan Point - L         | North Hecate Strait - B | South Brooks - B          |
| Cape Beale - L             | Fanny Island - A          | North Nomad - B         | South Hecate Strait - B   |
| Cape Flattery (USA)* - B   | Friday Harbour (USA)* - A | Pachena Point - L       | South Moresby - B         |
| Cape Lazo - L              | Green Island - L          | Pam Rocks - A           | South Nomad - B           |
| Cape Mudge - L             | Grey Islet - A            | Pine Island - L         | Tatoosh Island (USA)* - A |
| Cape Scott - L             | Grief Point - A           | Point Atkinson - A      | Trial Island - L          |
| Cape St James - A          | Halibut Bank - B          | Point Wilson (USA)* - L | Triple Island - L         |
| Carmanah Point - L         | Herbert Island - A        | Port Angeles (USA)* - L | Tsawwassen - L            |
| Cathedral Point - A        | Holland Rock - A          | Prince Rupert - A       | Tsawwassen Ferry - A      |
| Central Dixon Entrance - B | Ivory Island - L          | Pulteney Point - L      | Victoria Harbour - A      |
| Chatham Point - L          | Kelp Reef - A             | Quatsino - L            | Victoria/Gonzales Pt - A  |
| Chrome Island - L          | Kindakun Rocks - A        | Race Rocks - A          | West Dixon Entrance - B   |
| Cumshewa Island - A        | La Perouse - B            | Rose Spit - A           | West Moresby - B          |
| Discovery Island - A       | Langara Island - A        | Sandheads - A           | West Sea Otter - B        |

| Area Name         | Area Name          | Area Name          | Area Name |
|-------------------|--------------------|--------------------|-----------|
| Dryad Point - L   | Langara Island - L | Sartine Island - A |           |
| East Dellwood - B | Lennard Island - L | Saturna Island - A |           |

*\* Note that the following stations are located in Washington USA: Cape Flattery, Friday Harbour, Point Wilson, Port Angeles, Smith Island, Tatoosh Island.*

## 5.9 NORTHERN CANADA

Includes: Western and Eastern Arctic, Hudson Bay & Major Inland Lakes of Manitoba, Northern Saskatchewan and Northwest Territories.

### 5.9.1 Marine Weather Forecast Program

The Prairie and Arctic Storm Prediction Centre (PASPC), which is jointly located in Edmonton and Winnipeg, provides marine weather forecasts in support of Arctic marine activity during the open water season from summer into parts of the fall. Wave height forecasts are provided for salt water areas. The PASPC-Edmonton forecast area encompasses Lake Athabasca, Great Slave Lake, the Mackenzie River, as well as the waterways of the Western and High Arctic, and Baffin Bay.

The PASPC-Winnipeg provides marine forecasts for Hudson Bay, Hudson Strait, Foxe Basin, Ungava Bay, and Davis Strait. Marine forecasts are also provided for Lake Winnipeg (north and south basins), Lake Manitoba and Lake Winnipegosis during the open water season in support of pleasure and commercial activities.

The forecast program for the Manitoba Lakes continues through the winter months as a public rather than a marine forecast in aid of commercial ice fishing. Minimum and maximum temperatures along with wind chill are included in the forecast.

**Table 5-28 - Production schedule – Text Format**

| Forecast name             | Issue Time          | Time Zone | Marine region   |
|---------------------------|---------------------|-----------|---|
| Technical marine synopsis | 06:30, 18:30        | MDT / MST | Western Arctic  |
|                           | 06:30, 18:30        | MDT / MST | Central Arctic  |
|                           | 04:45, 16:45        | EDT / EST | Hudson Bay and Eastern Arctic   |
| Marine forecast           | 08:00, 16:30, 21:30 | CDT/CST   | Manitoba  |
|                           | 05:00, 17:00        | MDT / MST | Inland waters (Lake Athabasca, Great Slave Lake, the Mackenzie River) |
|                           | 07:00, 19:00        | MDT / MST | Western Arctic Waterway   |
|                           | 05:30, 17:30        | EDT / EST | Arctic  |
|                           | 05:00, 17:00        | CDT / CST | Hudson Bay  |
|                           | 05:30, 17:30        | EDT / EST | Southern Nunavut  |
|                           | 05:00, 17:00        | EDT / EST | Eastern Nunavut   |
| Extended forecast         | 05:00, 17:00        | MDT / MST | Inland waters   |
|                           | 07:00, 19:00        | MDT / MST | Western Arctic Waterway   |
|                           | 05:30, 17:30        | EDT / EST | Arctic  |
|                           | 05:00, 17:00        | CDT / CST | Hudson Bay  |
|                           | 05:30, 17:30        | EDT / EST | Southern Nunavut  |
|                           | 05:00, 17:00        | EDT / EST | Eastern Nunavut   |
| Wave height forecast      | 07:00, 19:00        | MDT / MST | Western Arctic Waterway   |
|                           | 05:30, 17:30        | EDT / EST | Arctic  |
|                           | 05:00, 17:00        | CDT / CST | Hudson Bay  |
|                           | 05:30, 17:30        | EDT / EST | Southern Nunavut  |
|                           | 05:00, 17:00        | EDT / EST | Eastern Nunavut   |

| Forecast name            | Issue Time  | Time Zone              | Marine region                    |
|--------------------------|-------------|------------------------|----------------------------------|
| Marine weather statement | As required | MDT / MST<br>EDT / EST | Central Arctic<br>Eastern Arctic |

**Table 5-29 - Production Schedule - NAVTEX format (refer to Part 2 for the MCTS broadcast schedule).**

| MCTS Centre | Name   | Header      | Issue Time             |
|-------------|--------|-------------|------------------------|
| Iqaluit VFF | NAVTEX | FQCN36 CWNT | 05:30, 17:30 EDT / EST |

*Marine Weather Warnings (refer to Table 5-1- Synoptic Warnings).*

Note the following regional particularities:

|   | Warning Types       | Comments  |
|---|---------------------|---|
| 1 | Strong wind warning | Applies to Manitoba Lakes, Lake Athabasca, Great Slave Lake and Mackenzie River |

### 5.9.2 Weather and Ice Messages

Ship weather and ice reports in the international meteorological code, taken at the standard synoptic hours of 00:00, 06:00, 12:00 and 18:00 UTC are solicited from ships of all nationalities which have been recruited by their own national weather service, or other weather services. These reports should be transmitted directly to the circuit using Inmarsat. Alternatively, the observation should be passed to the nearest MCTS Centre, irrespective of the ship's position. Reports made close to, or even within sight of land, are as important as reports made offshore, due to the greater variability of weather conditions in proximity to a coastline. Such reports contribute to the overall knowledge of Arctic weather from both a real-time operational perspective and from a climate perspective.

The PASPC also welcomes weather, sea, and ice observations from the lakes. Real-time observations, and those up to a few hours after the event, are most valuable. Pass observations to 1 800 66STORM (1 800-667-8676).

**Table 5-30 - Buoys - Buoys Deployed During the Open Water Season**

| WMO#  | Location/Information  | LAT (deg) | LONG (deg) |
|-------|---|-----------|------------|
| 45140 | Lake Winnipeg South Basin (moored buoy)                             | 50.48 N   | 96.44 W    |
| 45141 | Great Slave (moored buoy 25 nm northeast of Hay River)              | 61.11 N   | 115.19 W   |
| 45144 | Lake Winnipeg North Basin (moored buoy)                             | 53.15 N   | 98.15 W    |
| 45145 | Lake Winnipeg between North and South Basins                        | 51.24 N   | 96.420 W   |
| 45150 | Great Slave (moored buoy - immediate west of Inner Whaleback Rocks) | 61.55 N   | 113.45 W   |
| 48021 | Tuktoyaktuk (moored buoy - Beaufort Sea)                            | 70.35 N   | 133.00 W   |

The Great Slave Lake buoys are deployed in early July and retrieved in late September or early October. They provide hourly wind, air temperature, surface water temperature and wave data.

The Lake Winnipeg South Basin buoys are deployed annually in May or June and retrieved in October. They provide hourly wind, air temperature, surface water temperature and wave data.

The Tuktoyaktuk buoy is deployed in early August and retrieved in late September. It provides hourly wind, air temperature, surface water temperature, and wave data.

### 5.9.3 Weatheradio Canada

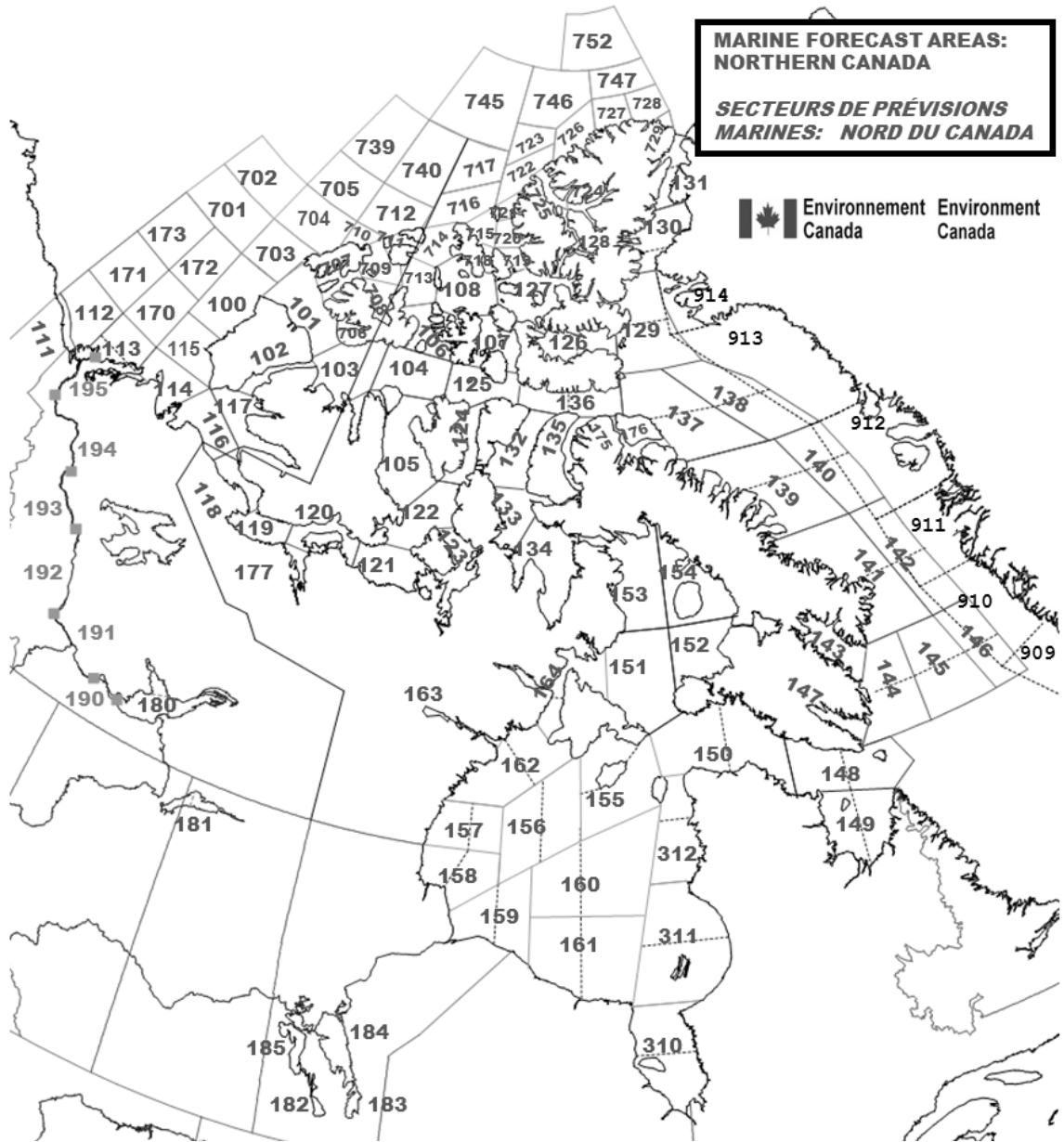
Weatheradio is a public service designed to make weather information available over VHF or FM radio continuously. Weatheradio is dedicated to transmitting up to the minute weather reports and forecasts directly to all users including the marine community.

Environment Canada Weatheradio operates several stations serving Northern region. These are:

| Station                    | Call Sign | Frequency (MHz) | Effective Radiated Power (Watts) | Location                    |
|----------------------------|-----------|-----------------|----------------------------------|-----------------------------|
| Arviat                     | CKO583    | 162.400         | 27                               | Arviat                      |
| Behchoko                   | CHR950    | 162.475         | 302                              | Behchoko                    |
| Cap Dorset (Kingait)       | XJS717    | 162.550         | 25                               | Cap Dorset (Kingait)        |
| Dauphin                    | VBA814    | 162.550         | 123                              | Moon Lake                   |
| Fort McPherson             | CHR956    | 162.450         | 245                              | Fort McPherson              |
| Fort Providence            | CHR951    | 162.425         | 303                              | Fort Providence             |
| Fort Simpson               | CHR952    | 162.400         | 76                               | Fort Simpson                |
| Fort Smith                 | CFM468    | 162.425         | 309                              | Fort Smith                  |
| Hay River                  | CIE211    | 162.550         | 245                              | Hay River                   |
| Inner Whaleback Rocks      | XKI403    | 161.650         | 8                                | Inner Whaleback Rocks       |
| Inuvik                     | VBU996    | 162.400         | 54                               | Hidden Lake                 |
| Iqaluit                    | VEV284    | 162.550         | 30                               | Iqaluit                     |
| Iqaluit (FM)               | CIQA      | 93.3            | 42                               | Iqaluit Airport             |
| Long Point*                | VCI386    | 162.550         | 72                               | Long Point                  |
| Nahanni Butte              | CHR957    | 162.525         | 224                              | Nahanni Butte               |
| Norman Wells               | CHR953    | 162.400         | 269                              | Norman Wells                |
| Pine Point                 | XJS786    | 162.475         | 389                              | Pine Point                  |
| Rankin Inlet (Kangiqliniq) | XJS716    | 162.400         | 40                               | Rankin Inlet (Kangiqliniq)  |
| Riverton*                  | XLF471    | 162.400         | 195                              | Riverton                    |
| Tuktoyatuk                 | CHR955    | 162.475         | 269                              | Tuktoyatuk                  |
| Winnipeg*                  | XLM538    | 162.550         | 126                              | Trizic Building             |
| Yellowknife                | VBC200    | 162.400         | 148                              | Yellowknife Seismic Station |

*\*Note: Winnipeg, Riverton and Long Point provide continuous broadcast of marine weather forecasts and warnings for the Manitoba Lakes, and of marine weather observations when available. Further information regarding EC's Weatheradio network can be obtained via the Internet at <http://www.ec.gc.ca/meteo-weather/default.asp?lang=En&n=792F2D20-1>.*

Figure 5-2 - Marine forecast areas: Northern Canada



**5.9.4 Marine Forecast Areas**

**Table 5-31 - Eastern and Western Arctic Waters, and Hudson Bay**

| Number | Area Name       | Forecast Availability Period* | Number | Area Name            | Forecast Availability Period* |
|--------|-----------------|-------------------------------|--------|----------------------|-------------------------------|
| 100    | Prince Alfred   | Shipping season               | 155    | Coats                | Shipping season               |
| 101    | McClure         | Shipping season               | 156    | Central              | Shipping season               |
| 102    | Prince of Wales | Shipping season               | 157    | Arviat               | Shipping season               |
| 103    | Melville        | Shipping season               | 158    | Churchill            | Shipping season               |
| 104    | Rae             | Shipping season               | 159    | York                 | Shipping season               |
| 105    | McClintock      | Shipping season               | 160    | South-Central Hudson | Shipping season               |
| 106    | Byam            | Shipping season               | 161    | South Hudson         | Shipping season               |
| 107    | Queens          | Shipping season               | 162    | Rankin               | Shipping season               |
| 108    | Maclean         | Shipping season               | 163    | Baker                | Shipping season               |
| 109    | (unused)        | -                             | 164    | Roes Welcome         | Shipping season               |
| 110    | (unused)        | -                             | 170    | North Tuktoyaktuk    | Shipping season               |
| 111    | Yukon Coast     | Shipping season               | 171    | North Mackenzie      | Shipping season               |
| 112    | Mackenzie       | Shipping season               | 172    | West Prince Alfred   | Shipping season               |
| 113    | Tuktoyaktuk     | Shipping season               | 173    | Northwest Beaufort   | Shipping season               |
| 114    | Baillie         | Shipping season               | 175    | Navy Board           | Shipping season               |
| 115    | Banks           | Shipping season               | 176    | Pond                 | Shipping season               |
| 116    | Amundsen        | Shipping season               | 177    | Bathurst             | Shipping season               |
| 117    | Holman          | Shipping Season               | 310    | James Bay            | Shipping season               |
| 118    | Dolphin         | Shipping season               | 311    | Belcher              | Shipping season               |
| 119    | Coronation      | Shipping season               | 312    | Puvirnitug           | Shipping season               |
| 120    | Dease           | Shipping season               | 701    | CT4                  | Shipping season               |
| 121    | Maud            | Shipping season               | 702    | CU4                  | Shipping season               |
| 122    | St-Roch         | Shipping season               | 703    | South Prince-Patrick | Shipping season               |
| 123    | Larsen          | Shipping season               | 704    | Prince Patrick       | Shipping season               |
| 124    | Peel            | Shipping season               | 705    | North Prince Patrick | Shipping season               |
| 125    | Barrow          | Shipping season               | 706    | Liddon               | Shipping season               |
| 126    | Jones           | Shipping season               | 707    | Fitzwilliam          | Shipping season               |
| 127    | Norwegian       | Shipping season               | 708    | Griper               | Shipping season               |
| 128    | Eureka          | Shipping season               | 709    | Ballantyne           | Shipping season               |
| 129    | Clarence        | Shipping season               | 710    | Brock                | Shipping season               |
| 130    | Kane            | Shipping season               | 711    | Wilkins              | Shipping season               |
| 131    | Robeson         | Shipping season               | 712    | Borden               | Shipping season               |
| 132    | Regent          | Shipping season               | 713    | Hazen                | Shipping season               |
| 133    | Boothia         | Shipping season               | 714    | Gustaf               | Shipping season               |



## PART 5 - ENVIRONMENT CANADA'S MARINE AND ICE WARNING AND FORECAST PROGRAMS

| Number | Area Name        | Forecast Availability Period* | Number | Area Name           | Forecast Availability Period* |
|--------|------------------|-------------------------------|--------|---------------------|-------------------------------|
| 134    | Committee        | Shipping season               | 715    | Peary               | Shipping season               |
| 135    | Admiralty        | Shipping season               | 716    | South Ellef Ringnes | Shipping season               |
| 136    | Lancaster        | Shipping season               | 717    | Ellef Ringnes       | Shipping season               |
| 137    | West Baffin      | Shipping season               | 718    | Hassel              | Shipping season               |
| 138    | East Baffin      | Shipping season               | 719    | Massey              | Shipping season               |
| 139    | West Clyde       | Shipping season               | 720    | South Sverdrup      | Shipping season               |
| 140    | East Clyde       | Shipping season               | 721    | North Sverdrup      | Shipping season               |
| 141    | West Davis       | Shipping season               | 722    | South Axel Heiberg  | Shipping season               |
| 142    | East Davis       | Shipping season               | 723    | Axel Heiberg        | Shipping season               |
| 143    | Cumberland       | Shipping season               | 724    | Greely              | Shipping season               |
| 144    | West Brevoort    | Shipping season               | 725    | Nansen              | Shipping season               |
| 145    | Central Brevoort | Shipping season               | 726    | Ellesmere           | Shipping season               |
| 146    | East Brevoort    | Shipping season               | 727    | Ward Hunt           | Shipping season               |
| 147    | Frobisher Bay    | Shipping season               | 728    | Bartlett            | Shipping season               |
| 148    | Resolution       | Shipping season               | 729    | Alert               | Shipping season               |
| 149    | Ungava           | Shipping season               | 739    | CV4                 | Shipping season               |
| 150    | Nottingham       | Shipping season               | 740    | CV5                 | Shipping season               |
| 151    | West Foxe        | Shipping season               | 745    | CW3                 | Shipping season               |
| 152    | East Foxe        | Shipping season               | 746    | CW4                 | Shipping season               |
| 153    | Igloolik         | Shipping season               | 747    | CW5                 | Shipping season               |
| 154    | Prince Charles   | Shipping season               | 752    | CX4                 | Shipping season               |

*\* If required, marine forecasts may also be made available outside the regular availability period upon user request.*

**Table 5-32 - Inland Waters**

| Number | Area Name  | Availability Period |
|--------|--|---------------------|
| 180    | Great Slave Lake   | Open water season   |
| 181    | Lake Athabasca   | Open water season   |
| 182    | Lake Manitoba  | Open water season   |
| 183    | Lake Winnipeg - south basin                                | Open water season   |
| 184    | Lake Winnipeg - north basin                                | Open water season   |
| 185    | Lake Winnipegosis  | Open water season   |
| 190    | Wrigley Harbour (mile 0) to Axe Point (mile 91)            | Open water season   |
| 191    | Axe Point (mile 91) to Camsell Bend (mile 290)             | Open water season   |
| 192    | Camsell Bend (mile 290) to Tulita (mile 512)               | Open water season   |
| 193    | Tulita (mile 512) to Fort Good Hope (mile 684)             | Open water season   |
| 194    | Fort Good Hope (mile 684) to Point Separation (mile 913)   | Open water season   |
| 195    | Point Separation (mile 913) to Kittigazuit Bay (mile 1081) | Open water season   |

**Table 5-33 - Danish Marine Forecasts for Baffin Bay Waters available via Danish Meteorological Institute, Copenhagen Telephone: (45) 39 15 7500**

| Number | Area Name          | Period     | Number | Area Name       | Period     |
|--------|--------------------|------------|--------|-----------------|------------|
| 907    | Nunap Isuata Kitaa | Year round | 911    | Attu            | Year round |
| 908    | Nuuarsuit          | Year round | 912    | Uiffaq          | Year round |
| 909    | Narsalik           | Year round | 913    | Qimusseriarsuaq | Year round |
| 910    | Meqqitsoq          | Year round | 914    | Kiatak          | Year round |

**Table 5-34 - Marine Weather Observations – Manned Station Reports for:**

| Area Name                   | Area Name     | Area Name     |
|-----------------------------|---------------|---------------|
| Alkalik                     | Inuvik        | Gjoa Haven    |
| Fort MacPherson             | Tuktoyaktuk   | Coral Harbour |
| Fort Resolution             | Yellowknife   | Hall Beach    |
| Hay River                   | Norman Wells  | Churchill     |
| Lake Winnipeg: Berens River | Sachs Harbour | Iqaluit       |
| Resolute Bay                | Kugluktuk     | Cape Dorset   |

**Table 5-35 - Marine Weather Observations – Automatic Reports for:**

| Area Name                                |
|--|
| Inner Whale Back Island auto-station     |
| Egg Island auto-station (Lake Athabasca) |
| Lake Winnipeg: Gimli                     |
| Lake Winnipeg: Grand Rapids              |
| Lake Winnipeg: George Island             |
| Lake Winnipeg: Norway House              |
| Lake Winnipeg: Victoria Beach            |

**Table 5-36 - Marine Weather Observations – Buoy Reports for:**

| Area Name                               |
|---|
| Great Slave Lake Buoy #45141            |
| Great Slave Lake Buoy #45150            |
| Lake Winnipeg Narrows Buoy# 45145       |
| Lake Winnipeg Buoy #45140 (South Basin) |
| Lake Winnipeg Buoy #45144 (North Basin) |

### ***5.9.5 Marine Forecast Service to METAREAs XVII, XVIII, and Northwestern Sections of METAREA IV (Hudson Bay & Approaches)***

Environment Canada's METAREAs Forecast Program provides marine forecast service to METAREAs XVII, XVIII, and northwestern sections of METAREA IV during the northern and Arctic shipping season.

The geographical boundaries of METAREA XVII are as follows: from 67°N 168° 58'W to 90°N to 67°N 120°W then back to 67°N 168° 58'W.

The geographical boundaries of METAREA XVIII are as follows: from 67°N 120°W to 90°N to 67°N 035°W then back to 67°N 120°W.

Forecast service to waters comprising northwestern sections of METAREA IV including Hudson Bay & Approaches covers all sea-areas that lay within the geographical region bounded by 67°N to the north, 071°W to the east, 51°N to the south, and 095°W to the west.

Marine Forecast service to these METAREAs is tailored to ensure compliance with the relevant standards for this type of service within the framework of the Global Maritime Distress and Safety System (GMDSS). Meteorological Maritime Safety Information (met MSI) consisting of marine weather warnings and forecasts, wave height forecasts, and sea-ice conditions for waters within these METAREAs is regularly issued twice-daily and updated as required – see maps:

Figure 5-3 - Marine Forecast Areas: METAREAs XVII & XVIII

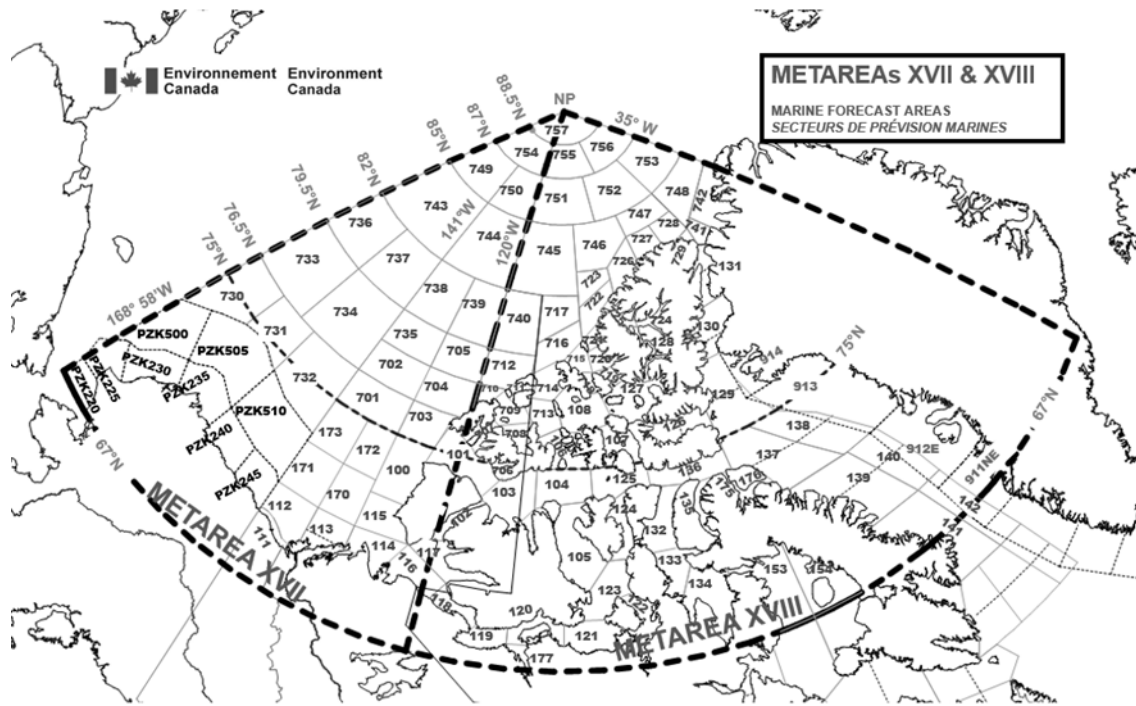
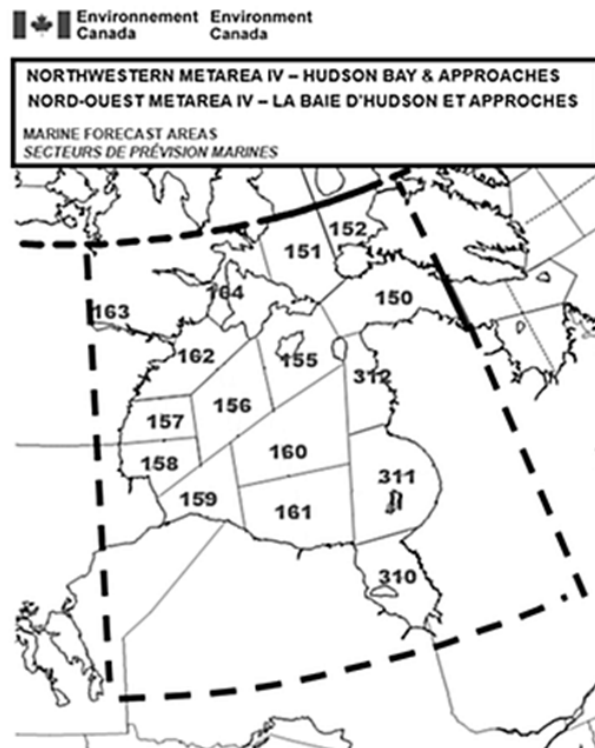


Figure 5-4 - Marine Forecast Areas - Northwestern METAREA IV



### 5.9.6 Serviced Forecast Zones

Environment Canada currently provides marine weather warnings and forecast, wave height forecasts, and sea-ice conditions, to the following marine zones within METAREAs XVII, XVIII and northwestern sections of METAREA IV:

**Table 5-37 - FQCN01 CWAO - Marine Forecasts & FICN01 CWIS – Ice Bulletin for METAREA XVII North of 75°N:**

| Number | Area Name            | Number | Area Name |
|--------|----------------------|--------|-----------|
| 101    | McClure              | 736    | CV1       |
| 701    | CT4                  | 737    | CV2       |
| 702    | CU4                  | 738    | CV3       |
| 703    | South Prince Patrick | 739    | CV4       |
| 704    | Prince Patrick       | 743    | CW1       |
| 705    | North Prince Patrick | 744    | CW2       |
| 730    | CT1                  | 749    | CX1       |
| 731    | CT2                  | 750    | CX2       |
| 732    | CT3                  | 754    | CY1       |
| 733    | CU1                  | 757    | CZ1       |
| 734    | CU2                  |        |           |
| 735    | CU3                  |        |           |

**Table 5-38 - FQCN02 CWAO - Marine Forecasts & FICN02 CWIS – Ice Bulletin for METAREA XVII South of 75°N:**

| Number | Area Name     | Number | Area Name          |
|--------|---------------|--------|--------------------|
| 100    | Prince Alfred | 117    | Holman             |
| 101    | McClure       | 170    | North Tuktoyaktuk  |
| 111    | Yukon Coast   | 171    | North MacKenzie    |
| 112    | MacKenzie     | 172    | West Prince Alfred |
| 113    | Tuktoyaktuk   | 173    | Northwest Beaufort |
| 114    | Baillie       | 730    | CT1                |
| 115    | Banks         | 731    | CT2                |
| 116    | Amundsen      | 732    | CT3                |

**Table 5-39 - FQCN03 CWAO - Marine Forecasts & FICN03 CWIS – Ice Bulletin for METAREA XVIII North of 75°N:**

| Number | Area Name | Number | Area Name          |
|--------|-----------|--------|--------------------|
| 101    | McClure   | 720    | South Sverdrup     |
| 106    | Byam      | 721    | North Sverdrup     |
| 107    | Queens    | 722    | South Axel Heiberg |
| 108    | MacLean   | 723    | Axel Heiberg       |
| 126    | Jones     | 724    | Greely             |
| 127    | Norwegian | 725    | Nansen             |

| Number | Area Name           | Number | Area Name |
|--------|---------------------|--------|-----------|
| 128    | Eureka              | 726    | Ellesmere |
| 129    | Clarence            | 727    | Ward Hunt |
| 130    | Kane                | 728    | Bartlett  |
| 131    | Robeson             | 729    | Alert     |
| 707    | Fitzwilliam         | 740    | CV5       |
| 708    | Griper              | 741    | CV6       |
| 709    | Ballantyne          | 742    | CV7       |
| 710    | Brock               | 745    | CW3       |
| 711    | Wilkins             | 746    | CW4       |
| 712    | Borden              | 747    | CW5       |
| 713    | Hazen               | 748    | CW6       |
| 714    | Gustaf              | 751    | CX3       |
| 715    | Peary               | 752    | CX4       |
| 716    | South Ellef Ringnes | 753    | CX5       |
| 717    | Ellef Ringnes       | 755    | CY2       |
| 718    | Hassel              | 756    | CY3       |
| 719    | Massey              | 757    | CZ1       |

**Table 5-40 - FQCN04 CWAO - Marine Forecasts & FICN04 CWIS – Ice Bulletin for METAREA XVIII South of 75°N:**

| Number | Area Name       | Number | Area Name      |
|--------|-----------------|--------|----------------|
| 101    | McClure         | 133    | Boothia        |
| 102    | Prince of Wales | 134    | Committee      |
| 103    | Melville        | 135    | Admiralty      |
| 104    | Rae             | 136    | Lancaster      |
| 105    | McClintock      | 137    | West Baffin    |
| 116    | Amundsen        | 138    | East Baffin    |
| 117    | Holman          | 139    | West Clyde     |
| 118    | Dolphin         | 140    | East Clyde     |
| 119    | Coronation      | 141    | West Davis     |
| 120    | Dease           | 142    | East Davis     |
| 121    | Maud            | 153    | Igloodik       |
| 122    | St. Roch        | 154    | Prince Charles |
| 123    | Larsen          | 175    | Navy Board     |
| 124    | Peel            | 176    | Pond           |
| 125    | Barrow          | 177    | Bathurst       |
| 132    | Regent          | 706    | Liddon         |

**Table 5-41 - FQCN05 CWAO - Marine Forecasts & FICN05 CWIS - Ice Bulletin for Northwestern Sections of METAREA IV including Hudson Bay & Approaches:**

| Number | Area Name  | Number | Area Name            |
|--------|------------|--------|----------------------|
| 150    | Nottingham | 160    | South-Central Hudson |
| 151    | West Foxe  | 161    | South Hudson         |
| 152    | East Foxe  | 162    | Rankin               |
| 155    | Coats      | 163    | Baker                |
| 156    | Central    | 164    | Roes Welcome         |
| 157    | Arviat     | 310    | James Bay            |
| 158    | Churchill  | 311    | Belcher              |
| 159    | York       | 312    | Puvirnituq           |

Forecast service to U.S. waters within METAREA XVII is provided by the National Weather Service. Forecast service to Greenlandic waters within METAREA XVIII is provided by the Danish Meteorological Institute. Further information may be obtained by contacting these agencies directly.

Detailed information regarding the geographic locations and boundaries associated with the METAREAs forecast zones may be obtained by contacting the Meteorological Service of Canada at the following:

Telephone: (709) 256-6612  
 Facsimile: (709) 256-6627  
 Email: [metareas17.18@ec.gc.ca](mailto:metareas17.18@ec.gc.ca)

Additional information may be obtained by consulting the Joint Commission on Oceanography and Marine Meteorology (JCOMM) web site at <http://weather.gmdss.org> or by consulting the Canadian Coast Guard notices to mariners (NOTMAR) web site at <http://notmar.gc.ca>

### **5.9.7 METAREAs Forecast Transmission**

During the navigation season, met MSI for sections of METAREA XVII and XVIII south of 75°N, and northwestern sections of METAREA IV, is broadcast via Inmarsat-C SafetyNET over Inmarsat's Pacific Ocean Region (POR) or Atlantic Ocean Region-West (AOR-W) satellite network. Scheduled broadcast times are:

METAREA XVII (POR) at 03:00 UTC and 15:00 UTC daily.

METAREA XVIII (AOR-W) at 03:00 UTC and 15:00 UTC daily.

Northwestern METAREA IV (AOR-W) at 03:00 UTC and 15:00 UTC daily.

Met MSI for METAREAs XVII and XVIII will be transmitted using rectangular addressed messaging that encompasses waters comprising these two METAREAs until Inmarsat-C receivers or Mini-C terminals operating in Arctic waters have been updated to recognize the SafetyNET address code  $C_3 = 17$  and 18 for METAREAs XVII and XVIII respectively. Users should note that meteorological MSI received by their sat-C terminals may be labeled as navigational MSI.

Met MSI for the northwestern sections of METAREA IV is transmitted using rectangular addressed messaging that encompasses waters comprising Hudson Bay & Approaches. The SafetyNET address code for this rectangular area is  $C_3 = 50n098w18030$ . Thus only those Inmarsat-C receivers aboard vessels navigating within the boundaries defined by this rectangular area will print out met MSI for the northwestern sections of METAREA IV.

During the navigation season met MSI for sections of METAREA XVII and XVIII north of 70° N is broadcast via High Frequency Narrow Band Direct Printing (HF NBDP) on 8416.5 kHz from the Canadian Coast Guard Marine Communications and Traffic Services (MCTS) Centre in Iqaluit NU. Scheduled broadcast times are 03:30 UTC and 15:30 UTC daily. Mariners should note that actual HF service provision dates will be announced by Canadian Coast Guard Notice to Shipping.

Mariners navigating northern or Arctic waters may also obtain METAREAs forecast bulletin via internet by accessing Environment Canada's "Datamart" web page. However, users are cautioned that the internet is not part of the GMDSS MSI dissemination system and should never be relied upon as the only means to obtain the latest marine forecast and warning information. Access to the internet may be interrupted from time to time, or updates may be delayed. Mariners are advised to refer to the appropriate GMDSS-approved marine communication systems such as Inmarsat-C SafetyNET, HF NBDP, or international NAVTEX for the latest information. When accessing Environment Canada's Datamart web page please ensure the page you are viewing is updated and not from your web browser's cache. If in doubt, use your web browser's Refresh or Reload button to update the web page.

Internet link to the FQCN01 CWAO forecast for METAREA XVII north of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FQ&issuer=CWAO&location=CN01](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FQ&issuer=CWAO&location=CN01)

Internet link to the FICN01 CWIS ice bulletin for METAREA XVII north of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FI&issuer=CWIS&location=CN01](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FI&issuer=CWIS&location=CN01)

Internet link to the FQCN02 CWAO forecast for METAREA XVII south of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FQ&issuer=CWAO&location=CN02](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FQ&issuer=CWAO&location=CN02)

Internet link to the FICN02 CWIS ice bulletin for METAREA XVII south of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FI&issuer=CWIS&location=CN02](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FI&issuer=CWIS&location=CN02)

Internet link to the FQCN03 CWAO forecast for METAREA XVIII north of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FQ&issuer=CWAO&location=CN03](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FQ&issuer=CWAO&location=CN03)

Internet link to the FICN03 CWIS ice bulletin for METAREA XVIII north of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FI&issuer=CWIS&location=CN03](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FI&issuer=CWIS&location=CN03)

Internet link to the FQCN04 CWAO forecast for METAREA XVIII south of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FQ&issuer=CWAO&location=CN04](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FQ&issuer=CWAO&location=CN04)

Internet link to the FICN04 CWIS ice bulletin for METAREA XVIII south of 75° N:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FI&issuer=CWIS&location=CN04](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FI&issuer=CWIS&location=CN04)

Internet link to the FQCN05 CWAO forecast for northwestern sections of METAREA IV:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FQ&issuer=CWAO&location=CN05](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FQ&issuer=CWAO&location=CN05)

Internet link to the FICN05 CWIS ice bulletin for northwestern sections of METAREA IV:

[http://dd.weather.gc.ca/cgi-bin/bulletin\\_search.pl?product=FI&issuer=CWIS&location=CN05](http://dd.weather.gc.ca/cgi-bin/bulletin_search.pl?product=FI&issuer=CWIS&location=CN05)



## 5.10 CANADIAN ICE SERVICE (CIS)

### 5.10.1 Ice Forecasts

Ice forecasts are produced where there is marine activity. The intent is to advise users of ice conditions including warnings that are in effect or that could develop during the day, the evening and the following day, in marine areas. Forecasts also provide a point by point description of the ice edge.

The iceberg bulletin is produced once a day. The purpose is to convey routine, general information on the iceberg distribution off the Canadian East Coast. The bulletin provides the estimated limit of all known icebergs and a general description of the number of icebergs for each marine area.

**Table 5-42 - Production Schedule – Ice Bulletins Text Format**

| Forecast Name    | Issue Time | Time Zone | Marine Region                         |
|------------------|------------|-----------|---------------------------------------|
| Iceberg bulletin | 11:00      | EDT/EST   | East Coast Waters                     |
| Ice forecasts    | 10:00      | EDT/EST   | Western and Central Arctic            |
|                  | 11:00      | EDT/EST   | Hudson and Foxe                       |
|                  | 11:00      | EDT/EST   | Eastern and Northern Arctic           |
|                  | 10:00      | EDT/EST   | Gulf of St. Lawrence                  |
|                  | 10:00      | EDT/EST   | East Newfoundland and Labrador waters |
|                  | 12:00      | EDT/EST   | Great Lakes                           |

**Table 5-43 - Production Schedule - NAVTEX Format (refer to Part 2 for the MCTS broadcast schedule)**

| MCTS Centre     | Name       | Header       | Issue Time               |
|-----------------|------------|--------------|--------------------------|
| St John's VON   | Ice NAVTEX | FICN33 CWIS  | 17:50 (W), 21:50 (S) UTC |
| Sydney VCO      | Ice NAVTEX | FICN34 CWIS  | 22:10 UTC                |
| Labrador VOK    | Ice NAVTEX | FICN35 CWIS  | 23:20 UTC                |
| Iqaluit VFF     | Ice NAVTEX | *FICN36 CWIS | 07:00, 19:00 UTC         |
| Prescott VBR    | Ice NAVTEX | FICN38 CWIS  | 00:40, 12:40 UTC         |
| Thunder Bay VBA | Ice NAVTEX | FICN39 CWIS  | 06:00, 18:00 UTC         |

\* Ice NAVTEX FICN36 is being broadcast from MCTS Iqaluit since November 20, 2013.

**Table 5-44 - Ice Warning Criteria**

|   | Warning Name                           | Warning Criteria  |
|---|--|---|
| 1 | Ice Pressure warning                   | Reported or forecast strong ice pressure.   |
| 2 | Rapid Closing of Coastal Leads warning | Rapid closing of coastal leads is expected to occur. Leads are corridors of mainly ice-free water surrounded by pack ice.     |
| 3 | Special Ice Warning                    | When one tenth or more of grey-white ice or older is expected to move into areas when that ice is not normally present, or... |
|   |  | For any unusual or significant ice event that may present a hazard to navigation.   |

### **5.10.2 Ice Program**

Ice forecasts are issued for daily, monthly and seasonal time scales.

### **5.10.3 Ice Reports or Observations**

Ice reports from ships or aircraft are normally relayed through MCTS Centres for broadcast. These reports are all assimilated in the daily ice charts produced by CIS.

### **5.10.4 Ice Charts**

Current ice charts are produced daily. The area covered by the chart depends on the time of season and these charts are normally broadcast at times specified in tables below.

Once a week, CIS produces Regional ice charts. These charts are intended to be used as a planning tool rather than a tactical support tool and are available on the CIS Website at <http://www.ice-glaces.ec.gc.ca/> and through commercial communication lines. They are not broadcast through MCTS Centres.

### **5.10.5 Ice Beacons**

In order to better track the ice drift or to verify ice models, CIS deploys a few ice beacons yearly. While most beacons are only reporting their positions, a few are equipped with barometric pressure sensors.

### **5.10.6 Weatheradio Canada**

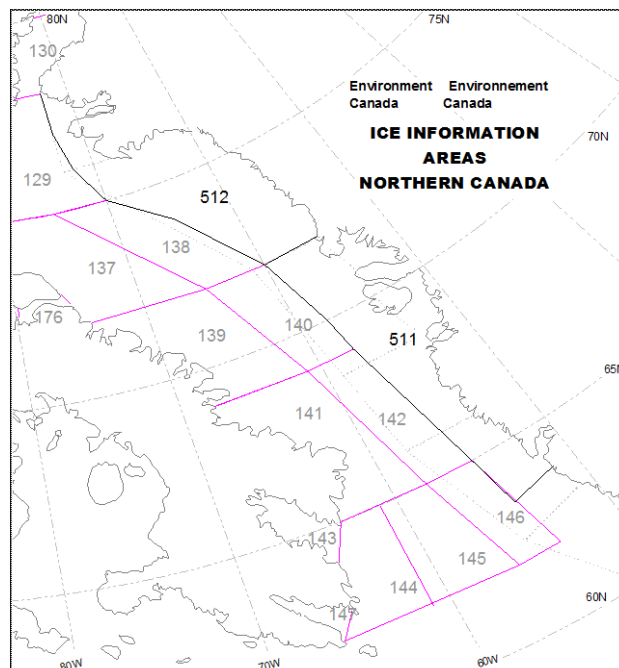
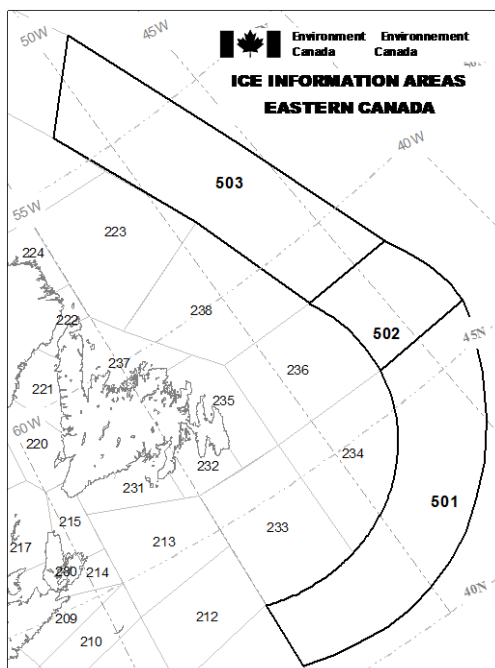
Ice forecasts and warnings are not broadcast via Weatheradio, however, mariners planning operations in waters impacted by hazardous ice conditions may obtain details regarding ice conditions by consulting the CIS website at <http://www.ice-glaces.ec.gc.ca/> or by contacting their regional MCTS Centre. Detailed ice information may also be obtained through consultation with an Environment Canada meteorologist using the "Weather One-on-One" '1 900' service at 1-900-565-5555. For cell phone users and credit card billing call 1-888-292-2222. User fees apply.

### **5.10.7 Ice Areas**

Areas for which ice forecasts apply are identical to the marine forecasts area. In addition to these, ice forecasts will cover Lake Michigan, and may cover 3 areas along the East Coast (501 to 503).

- 501 Tail of the Grand Banks
- 502 Flemish
- 503 Southeast Labrador Sea
- 541 Lake Michigan

**Figure 5-5 - Ice information areas: Eastern and Northern Canada**



**5.10.8 Ice Charts**

The following list describes ice charts produced to support marine activities which are available for broadcast. All available charts can be transmitted or re-transmitted on request. MCTS broadcast times are found in PART 2.

**Table 5-45 - Ice Charts Listing**

| Ice Charts                            | Broadcast Site          | Season      |
|---------------------------------------|-------------------------|-------------|
| Iceberg limit                         | MCTS Sydney             | Year round  |
| Gulf of St. Lawrence                  | MCTS Sydney             | Winter      |
| Northeast or East Newfoundland Waters | MCTS Sydney             | Winter      |
| Southeast Newfoundland Waters         | MCTS Sydney             | Winter      |
| Labrador Coast                        | MCTS Iqaluit            | Summer      |
| Hudson Strait                         | MCTS Iqaluit            | Summer      |
| Northern Hudson Bay                   | MCTS Iqaluit            | Summer      |
| Southern Hudson Bay                   | MCTS Iqaluit            | Summer      |
| Foxe Basin                            | MCTS Iqaluit            | Summer      |
| Davis Strait                          | MCTS Iqaluit            | Summer      |
| Baffin Bay                            | MCTS Iqaluit (Resolute) | Summer      |
| Approaches to Resolute                | MCTS Iqaluit (Resolute) | Summer      |
| Queen Maud                            | MCTS Iqaluit (Resolute) | Summer      |
| Amundsen Gulf                         | MCTS Iqaluit            | Summer      |
| Alaskan Coast                         | MCTS Iqaluit            | Summer      |
| Eureka                                | MCTS Iqaluit (Resolute) | *On request |
| Parry Channel                         | MCTS Iqaluit (Resolute) | *On request |

| Ice Charts      | Broadcast Site          | Season      |
|-----------------|-------------------------|-------------|
| M'Clure Strait  | MCTS Iqaluit (Resolute) | *On request |
| Resolute - Byam | MCTS Iqaluit (Resolute) | *On request |
| Bering Strait   | MCTS Iqaluit            | *On request |
| Chukchi         | MCTS Iqaluit            | *On request |
| Nunivak         | MCTS Iqaluit            | *On request |
| Canada Bassin   | MCTS Iqaluit            | *On request |
| Alert           | MCTS Iqaluit            | *On request |
| Nome            | MCTS Iqaluit            | *On request |
| Arctic Ocean    | MCTS Iqaluit            | *On request |
| North Pole      | MCTS Iqaluit            | *On request |

*\*On request: Ice charts for Canadian Waters available upon request to MCTS with at least 5-day prior notice.*

METOC Halifax (CFH): The Canadian Forces Fleet MetOc Broadcast service (radioteletype and radiofacsimile) was placed in abeyance effective September 2, 2010. The Canadian Forces Fleet MetOc Broadcast may be reinstated and ceased without warning as necessitated by military operational requirements. When notified, MCTS will issue a Notice to Shipping concerning reinstatement or cessation of this service. Broadcasts intended for North Atlantic waters North of 35N and West of 35W. Radio facsimile transmission commences with a 30 second break followed by a 30 second signal.

**Table 5-46 - Canadian Coast Guard and Canadian Forces Fleet MetOc Radio Facsimile Stations**

| Name          | Call Sign | Modulation | Index of cooperation | Power | Frequencies (kHz)          | Drum Speed |
|---------------|-----------|------------|----------------------|-------|----------------------------|------------|
| MCTS Iqaluit  | VFF       | J3C (FM)   | 576                  | 1 KW  | 3251.1, 7708.1 (USB)       | 120 RPM    |
| METOC Halifax | CFH       | J3C (FM)   | 576                  | 6 KW  | 4271, 6496.4, 10536, 13510 | 120 RPM    |
| METOC Halifax | CFH       | J3C (FM)   | 576                  | 10 KW | 122.5                      | 120 RPM    |
| MCTS Sydney   | VCO       | J3C (FM)   | 576                  | 5 KW  | 4416, 6915.1               | M          |

For correct reception of this broadcast on WMO standard facsimile recorders requiring 2300 Hz for White and 1500 Hz for Black, 1900 Hz centre frequency, radio receivers should be tuned in the UPPER SIDEBAND MODE or USB: add 1.9 to the indicated USB frequencies for FSK frequencies.

### 5.10.9 Facsimile Broadcast

Upon authorized request from Canadian Coast Guard, C-GCFR can transmit observed conditions via satellite fax. Vessels must make a request through the Canadian Coast Guard to receive it.