



LIGHTS, BUOYS AND FOG SIGNALS

ATLANTIC COAST

INCLUDING

THE GULF AND RIVER ST. LAWRENCE TO MONTRÉAL

2001

Canadian Coast Guard

MARINE PROGRAMS

CORRECTED UP TO NOTICES TO MARINERS MONTHLY EDITION NO. 02 OF 2001

Cette publication est aussi disponible en français.

This publication is available from:

**Hydrographic Chart Distribution Office
Department of Fisheries and Oceans
1675 Russell Road
P.O. Box 8080
Ottawa, Ontario
Canada
K1G 3H6**

Phone: (613) 998-4931

Fax: (613) 998-1217

E-mail: chs_sales@dfo-mpo.gc.ca

Internet: <http://www.chs-shc.dfo-mpo.gc.ca>

or

through your authorized Canadian Hydrographic Service Chart Dealer

© Minister of Fisheries and Oceans Canada 2001

Catalogue No. T34-5/2001E

ISBN No. 0-660-17597-5

Ottawa, Canada

(Aussi disponible en français)

**RECORD OF CHANGES TO THE LIST OF LIGHTS,
BUOYS AND FOG SIGNALS FROM MONTHLY EDITION
NOTICES TO MARINERS**

2001

1	4	7	10
2	5	8	11
3	6	9	12

2002

1	4	7	10
2	5	8	11
3	6	9	12

2003

1	4	7	10
2	5	8	11
3	6	9	12

ATLANTIC COAST

INCLUDING

THE GULF AND RIVER ST. LAWRENCE TO MONTRÉAL

Regional Information

MARITIMES REGION

The lights in the Bay of Fundy and along the Southwestern and Eastern Coasts of Nova Scotia, the Coast of Cape Breton Island, including the Bras d'Or Lakes, the Coast of Prince Edward Island, and along the Northumberland Strait, and Chaleur Bay to the Québec Border, are exhibited year round. Exceptions to the aforementioned lights are those lights listed as seasonal in the "Remarks" column of the List of Lights.

All other lights under the control of the Canadian Coast Guard are maintained in operation whenever navigation in the vicinity is open. In any case where there is reasonable doubt whether the light is required it is kept in operation.

Range lights on the north shore of Prince Edward Island and the east shore of New Brunswick are liable to be moved without notice to mark shifting channels.

All light buoys in the lower part of the Bay of Fundy west of a line drawn through Tufts Point on the New Brunswick shore east of Quaco Head, and Port Lorne light on the Nova Scotia shore; and on the south coast of Nova Scotia west of Liscomb, are maintained year round.

Due to difficulties in maintaining buoys through the winter months as a result of freezing spray and drift ice and the buoys being displaced or set adrift, the lifting of buoys in the upper part of the Bay of Fundy and along the Nova Scotia Coast east of Liscomb, and Cape Breton Island including the Bras d'Or Lakes and in the Gulf of St. Lawrence and Northumberland Strait to the Québec Border will commence by December 15 annually. Some of the buoys in Mahone Bay and in the Bedford Basin are lifted beginning November 15 annually. A certain number of summer buoys are replaced by winter spar buoys. (Those buoys are indicated in the "Remarks" column). Details on changes made to fixed and floating aids for the winter season are published every Fall in a *Notice to Shipping* by the Maritimes Region and disseminated by means of a radio broadcast when changes occur.

Buoys marking the deep water channel to the Strait of Canso will remain on position unless otherwise advised by *Notices to Shipping*.

LAURENTIAN REGION

In the Gulf and St. Lawrence River the majority of lights are maintained year round. A few lightstations on outlying islands are closed for the winter and are replaced by winter lights.

The fixed lighted aids and fog signals with the reference "seasonal" in the remarks column are maintained in operation according to their respected areas:

- from Beauharnois to Grondines, including tributaries, the aids are maintained from May 15 to October 15, with the exception of Bellmouth Curve (L.L. 2286) which is maintained from November 1st to April 15.
- downstream of Grondines to Havre St-Pierre (including Petite Île au Marteau light), the aids are maintained from April 15 to December 10.
- between Havre St-Pierre and the Labrador limit, the aids are maintained from May 15 to December 10.
- for the Arctic Ocean, Hudson Strait and Hudson Bay, the aids are maintained from June 1st to December 1st.

When the reference "seasonal" is not mentioned, it is understood that the fixed lighted aids are maintained in operation year round.

Details on changes made to floating aids for the winter season are published every Fall in the Notice to Shipping broadcasted by the region and on the internet site. (<http://www.qc.dfo.ca/fr/navig/aidenavig.htm>).

In the Fall, following a Notice to Shipping broadcast advising decommissioning of the buoys in the small craft channels, some buoys are lifted, others remain in position. Being unwatched, these buoys may not necessarily be in their advertised positions or display their normal characteristics. The following Spring, a Notice to Shipping will broadcast the return of their normal operation.

Cautions in the Use of Aids to Navigation

In the Fall, following a *NOTSHIP* advising of the decommissioning of buoys in small craft channels, some buoys are lifted, others remain in position or are relocated to areas that are less exposed to atmospheric conditions. Being unwatched, these buoys may not necessarily be in their advertised positions or display their normal characteristics. The return of their normal operation will be advertised in a *NOTSHIP* at the beginning of the navigation season.

Most aids to navigation are not under continuous observation and mariners should be aware that, with the many thousands of aids in Canada, failures and displacements do occur. The Coast Guard does not guarantee that all aids to navigation will operate as advertised and be in the positions advertised at all times. Mariners observing lights out of operation or buoys, markers, etc., off charted position, damaged or missing are responsible for reporting such to the nearest Coast Guard Radio Station, Vessel Traffic Centre or Coast Guard Office.

Aids to navigation are subject to damage, failure or dislocation by ice or storms, by being struck by vessels or tows, and by power failures. Ice and storm damage may be widespread and require considerable time to repair. Isolated damage may exist for a long time without being discovered and reported. Floating aids and pier lights in or near the water are exposed to particularly rigorous strain during ice movement.

Mariners are cautioned that buoys may fail to exhibit their advertised characteristics. Lights may be extinguished or sound signals may not function due to ice, collisions, mechanical failure and, in the case of bell and whistle buoys, calm water. The shape of a buoy may be altered by ice formation or damage. The colour of a buoy may be altered by freezing spray, marine growth or fouling by birds.

Mariners are cautioned not to rely solely on buoys for navigation purposes. Navigation should be by bearing or angles from fixed shore aids or other charted landmarks and by soundings whenever possible.

The buoy positions shown on government charts should be considered only as approximate positions. There are a number of limiting factors in accurately positioning buoys and their anchors, such as prevailing atmospheric and sea conditions, tidal and current conditions, seabed conditions and the fact that buoys are moored to anchors by varying lengths of chain and may drift about their charted positions within the scope of their moorings.

Since moving ice is liable to move buoys from their advertised positions, mariners should proceed with extreme caution under these circumstances.

Mariners are reminded that grids of charts of an area may vary from one chart to another. When plotting the positions of aids by the latitude and longitude method, the results should be checked against other available information.

In some instances where it is necessary to establish a buoy in close proximity to or on a navigational hazard, i.e., shoal, reef or ledge, etc., the buoy symbol may be off-set slightly on the chart in the direction of the preferred navigable water so that the existing hazard depicted on the chart will not be overprinted by the buoy symbol. Such off-sets will be indicated on the chart by means of an arrow.

Mariners are cautioned not to navigate too closely to a buoy and risk collision with it, its mooring or with the underwater obstruction which is marks.

Many lights are equipped with sun switches that turn the lights off in daylight. These lights, both ashore and on most buoys are unlit between sunrise and sunset. Mariners unable to see these lights during the daylight hours should not assume that the equipment is not functioning normally.

At some lightstations, winter lights equipped with sun switches are operated when the main lights are decommissioned for the winter months. A winter light does not necessarily exhibit the same characteristics as the main light and has reduced intensity. The characteristics of a particular winter light and its season of operation are noted in the "Remarks" column of the *List of Lights, Buoys and Fog Signals*.

Major lightstations which exhibit the main light 24 hours per day are equipped with an emergency light which is brought into service automatically throughout the hours of darkness in the event of failure of the main light. These emergency lights are white and have a standard characteristic of group flashing (6) 15 sec., that is six flashes, each of 0.5 second duration, followed by a period of darkness (eclipse) of 7 seconds. Emergency lights are normally (on a dark night with a clear atmosphere) visible at 5 nautical miles. The emergency lights shown on range lights are white and have a standard characteristic of quick flashing (flash 0.5 sec; eclipse 0.5 sec). The *List of Lights, Buoys and Fog Signals* publications identify which lightstations are equipped with emergency lights.

Atmospheric conditions can have a considerable effect on light transmission and the visibility of lights. For example:

- (a) The distance of an observer from a light cannot be reliably estimated from its apparent brightness.
- (b) At night it is difficult to distinguish between a white light and a yellow or blue light seen alone, except at a short distance.
- (c) Under some atmospheric conditions white and yellow lights may take on a reddish hue.
- (d) Alternating lights with phases of different luminous intensity may change their apparent characteristics at different distances because some phases may not be visible.
- (e) Weak lights are more easily obscured by conditions of low visibility than more powerful lights. Coloured lights are also inferior in intensity to white lights and are more quickly lost under unfavourable circumstances.
- (f) During cold weather, and more particularly with rapid changes of weather, ice, frost or moisture may form on the windows of lantern houses, thereby greatly reducing their visibility and possibly causing coloured lights to appear white.
- (g) A light exhibiting a very short flash may not be visible at as great a range as a light exhibiting a longer flash.

The mariner should not rely solely on colour when using a sector light, but should verify his line of position by taking a bearing on the light. On either side of the line of demarcation, between white and red, and also between white and green, there is always a small arc of uncertain colour. When the arc of visibility of a light is cut off by sloping land, the bearing at which it disappears or appears will vary with the observer's distance and height of eye.

The sighting of a light may be adversely affected by a strongly illuminated background.

In view of the varying distances at which a fog signal can be heard at sea, and the frequent occurrence of fog near, but not observable from, a fog signal station, mariners are cautioned that:

- (a) While every endeavour will be made to start fog signals as soon as possible after signs of fog have been detected, they should not, when approaching the land in a fog, rely implicitly upon these fog signals, but should always take soundings, which, in nearly all cases, will give sufficient warning of danger.
- (b) They must not judge their distance from a fog signal by the power of the sound. Under certain atmospheric conditions the sound may be lost at a very short distance from the station, and these conditions may vary within very short intervals of time. Mariners should not assume that a fog signal is not in operation because they do not hear it, even when in close proximity to it.

The visual aids to navigation (e.g. lights) provided by the Canadian Coast Guard are for the purpose of assisting marine navigation. Hunters, snowmobilers and ice fishermen are cautioned that aids to navigation installed for marine navigation purposes cannot be relied upon after the close of the marine navigation season. Such aids may stop operating without warning and will not be recommissioned by the Coast Guard until the next opening of marine navigation.

**Director General
Marine Programs
Canadian Coast Guard
Department of Fisheries & Oceans
OTTAWA, CANADA**

ABBREVIATIONS AND EXPLANATIONS

POSITION AND DESCRIPTION OF AIDS

The positions of all aids listed in this volume refer to the largest scale Canadian Hydrographic Service chart.

Information on position, characteristic, colour, visible range, bearings, and arcs of visibility is intended for practical use in navigation. It should not be used as a basis for surveys or other work requiring a high order of precision.

The geographical positions of the lights are approximate. The bearings are true and are given from seaward, except for fog signals, in degrees from 000° (North) to 359°, measured clockwise (unless otherwise indicated).

Emergency changes are covered by *Notices to Shipping* and the operation of the aid restored to normal as soon as possible.

Aids which are identified by the words "Privately Maintained" are not maintained by the federal government or a provincial government of Canada. Since their quality of operation may not be maintained to Canadian Coast Guard standards, the user should satisfy himself that the service provided by these aids is adequate for his intended purposes.

LIGHT CHARACTERISTICS

A light's characteristic is composed of:

1. RHYTHM - the sequence of intervals of light and darkness
2. COLOUR - the colour exhibited by the light
3. PERIOD - the time taken to complete one rhythm cycle (not applicable to fixed lights) e.g. a South Cardinal buoy light may display a characteristic of (Q(6) + LFI) W 15s -it's rhythm, (Q(6) + LFI), is a group of 6 quick flashes followed by a single long flash it's colour, W, is white the period of time this cycle is repeated 4 times per minute (every 15 seconds)

DAYMARKS

The Description column of the List of Lights describes the shape of daymarks for all lights. Should no shape of daymark be mentioned for range lights, it can be assumed that the daymarks are trapezoidal.

RADAR REFLECTORS

All lighted buoys reflect radar and thus radar reflectors on buoys are not mentioned in the "Remarks" column. Some shore lights have added radar reflectors to enhance their radar reflection and these are noted in the "Remarks" column.

THE CANADIAN AIDS TO NAVIGATION SYSTEM

The Canadian Aids to Navigation System is a combined lateral - cardinal system and conforms to the IALA (International Association of Lighthouse Authorities) Maritime Buoyage System, Region "B". Details of the Canadian aids to navigation system can be found in the publication "*The Canadian Aids to Navigation System*", available from any Coast Guard District or Regional office.

RADAR BEACONS (RACONS)

Radar beacons (Racons) may be established at lighthouses, on buoys or at other specific charted locations ashore or afloat, to enhance identification and detection range of these features by radar. Some Racons operate only the X band 9320-9500 MHz, whilst others are dual bands X/S, "X" band plus "S" band of 2920-3100 MHz. It should also be noted that the slow sweep (SS) type of Racon will give a response every 72-120 seconds, whilst the frequency agile Racon (FAR) will respond more frequently. The Racon signal appears on the radar display as a line commencing at the approximate range of the Racon and extending outwards along its line of bearing from the ship toward the limit of the display. The signal displayed may be a solid line or it may be broken into a code consisting of a series of dots and dashes as shown in relevant publications.

Radiobeacons and Radar beacons (Racons) shown in this volume are indicated at the nearest light. Complete information may be obtained from the appropriate volume of the publication "*Radio Aids to Marine Navigation*".

DESCRIPTION OF COLUMNS

- Column 1** - Indicates light list number of each aid
- Column 2** - Name of aid
- Column 3** - Location
- Column 4** - Characteristic of light
- * **Column 5** - Focal height in metres above water
- Column 6** - Nominal range
- Column 7** - Description, height in metres
- Column 8** - General remarks, fog signals and CHS No. of the largest scale chart of the area

NOTA

* Elevations are expressed in metres above Higher High Water Large Tides except in the St. Lawrence River west of Trois-Rivières, in the St. Lawrence Seaway, in the Great Lakes and in other Inland waters where they are expressed in metres above chart datum.

ABBREVIATIONS AND EXPLANATIONS

NOMINAL RANGE

The nominal range of a light used as an aid to marine navigation is its luminous range in a homogeneous atmosphere in which the meteorological visibility is 10 nautical miles.

INTERNATIONAL NUMBERS

An international reference number is shown in *italics* under the regular List of Lights number against certain lights considered to be of international significance. The purpose of these numbers is to provide an easy method of identifying the lights when reporting by wireless, defects or changes in their advertised characteristics.

When reporting on lights which do not have an international reference number, mariners are requested to identify them by List of Lights number and the name of the volume.

Canadian "*Notices to Mariners*" published monthly contain information which should be used to correct *Lists of Lights, Buoys and Fog Signals, Radio Aids to Marine Navigation, Sailing Directions* and Canadian charts. These notices may be obtained free on request to:

Superintendent,
Information and Publications,
Aids to Navigation Division,
Canadian Coast Guard,
Department of Fisheries and Oceans,
Ottawa, Ontario.
K1A 0E6

OR

via Internet: <http://www.notmar.com>

ERRORS

Any error or omission which is detected herein should be immediately communicated to:

Superintendent,
Information and Publications,
Aids to Navigation Division,
Canadian Coast Guard,
Department of Fisheries and Oceans,
Ottawa, Ontario.
K1A 0E6

FAILURE OF AIDS TO NAVIGATION

Mariners are requested to immediately report any failure of a marine aid to navigation to the nearest Canadian Coast Guard Office or to a Coast Guard Radio Station or Traffic Centre (see pages xv to xvii) or to:

Superintendent,
Information and Publications,
Aids to Navigation Division,
Canadian Coast Guard,
Department of Fisheries and Oceans,
Ottawa, Ontario.
K1A 0E6

ABBREVIATIONS AND EXPLANATIONS

CAUTION

New nomenclature and abbreviations for light flash characters have been introduced below. New abbreviations only are shown in the main body of this publication. Since changes in the abbreviations on hydrographic charts can only be accomplished over a number of years, mariners should refer to this table when relating light character information on the charts to that contained herein.

LIGHTS

	INTERNATIONAL	OLDER FORM	DESCRIPTION
A FIXED	F	F	A light which appears continuous and steady and of constant colour to an observer whose position remains unchanged in relation to it.
B DIRECTION			A light illuminating a sector of very narrow angle and intended to mark a direction to be followed.
C RANGE LIGHTS			Two or more lights associated to form one or more leading lines (or ranges). A leading line defined by two such leading lights is called the axis of the lights.
D SECTOR			A light presenting different characters (usually different colours) over various parts of the horizon of interest to marine navigation.
E RHYTHMIC			A light showing intermittently with a regular periodicity.
Flashing	FI	FI.	A light in which the total duration of light in each period is clearly shorter than the total duration of darkness and in which the flashes of light are all of equal duration.
Group-Flashing	FI(3)12s	Gp.FI.	Flashing light in which the flashes are combined in groups, each group including the same number of flashes, and in which the groups are repeated at regular intervals. The eclipses separating the flashes within each group are of equal duration and this duration is clearly shorter than the duration of the eclipse between two successive groups.
Composite Group-Flashing	FI(2+1)		A light similar to a group-flashing light except that successive groups in a period have different numbers of flashes.
Equal-Interval (Isophase)	Iso	E.Int.	A light for which the alternations of light and darkness are of equal duration. (Durations of more than one second.)
Occulting	Oc	Occ.	A light in which the total duration of light in each period is clearly longer than the total duration of darkness and in which the intervals of darkness (occultations) are all of equal duration.
Group-Occulting	Oc (2) 20 s	Gp.Occ.	Occulting light in which the occultations are combined in groups, each group including the same number of occultations, and in which the groups are repeated at regular intervals. The intervals of light separating the occultations within each group are of equal duration and this duration is clearly shorter than the duration of the interval of light between two successive groups.
Quick-Flashing	Q	Qk.FI.	A light exhibiting rapid regular alternations of light and darkness.
Very Quick	VQ		A light exhibiting very rapid regular alternations of light and darkness.
Interrupted Quick-Flashing	IQ	Int.Qk.FI.	Quick-flashing light in which the rapid alternations are interrupted at regular intervals by eclipses of long duration.
Morse Code	Mo(A)	(Mo.A.)	A light in which flashes of different duration are grouped in such a manner as to reproduce a Morse character.
Long Flash	LFI		A light exhibiting a flash of an extended period repeated at regular intervals.
F - ALTERNATING	AI	Alt.	A rhythmic light showing light of alternating colours.

ABBREVIATIONS AND EXPLANATIONS

ABBREVIATIONS

N. = North	W = white
S. = South	R = red
E. = East	G = green
W. = West	Y = yellow
m = metre(s)	Bu = blue
s = second(s)	(U.S.) = United States
	(Fr.) = France

COMMON LIGHT FLASH CHARACTERS

In Canada, many fixed aids and all lighted buoys are equipped with lights that exhibit the following common flash characters. The publication "The Canadian Aids to Navigation System" gives detailed descriptions of all the characteristics of Aids to Navigation used in Canada.

Name	Description	Light Flash Characteristics
Flashing	A light in which a flash is regularly repeated at a rate of 15 flashes per minute (a flash every 4 seconds) .5 sec. flash, 3.5 sec. eclipse	Fl 4s
Quick Flashing	A light in which a flash is regularly repeated at a rate of 60 flashes per minute (a flash every second) .3 sec. flash, .7 sec. eclipse	Q 1s
Very Quick Flashing	A light in which a flash is regularly repeated at a rate of 120 flashes per minute (a flash every 1/2 second) .2 sec. flash, .3 sec. eclipse	VQ .5s
Morse "A"	A light in which a short flash is followed by a long flash to form the letter "A" in the Morse Code 10 times per minute (every 6 seconds) 0.3 sec. flash; 0.6 sec. eclipse; 1.0 sec. flash; 4.1 sec. eclipse;	Mo (A) 6s
Long Flash	A light in which a flash of 2 seconds duration is repeated at a rate of 6 flashes per minute (a flash every 10 seconds) 2.0 sec. flash; 8.0 sec. eclipse;	LFI 10s
Group Flashing(2)	A light in which a group of 2 flashes is regularly repeated 12 times per minute (every 5 seconds) 0.4 sec. flash; 0.6 sec. eclipse; 0.4 sec. flash; 3.6 sec. eclipse;	Fl (2) 5s
	A light in which a group of 2 flashes is regularly repeated 6 times per minute (every 10 seconds) 1.0 sec. flash; 1.0 sec. eclipse; 1.0 sec. flash; 7.0 sec. eclipse;	Fl(2) 10s
Composite Group Flashing	A light in which a group of 2 flashes is followed by a single flash, the whole sequence being regularly repeated 10 times per minute (every 6 seconds) 0.3 sec. flash; 0.4 sec. eclipse; 0.3 sec. flash; 1.2 sec. eclipse; 0.3 sec. flash; 3.5 sec. eclipse;	Fl(2 +1) 6s
	A light in which a group of 2 flashes is followed by a single flash; the whole sequence being regularly repeated 6 times per minute (every 10 seconds)	Fl(2 + 1) 10s

Name	Description	Light Flash Characteristics
Group Quick Flashing(3)	<p>0.5 sec. flash; 0.7 sec. eclipse; 0.5 sec. flash; 2.1 sec. eclipse; 0.5 sec. flash; 5.7 sec. eclipse;</p> <p>A quick flashing light in which a group of 3 flashes is regularly repeated 6 times per minute (every 10 seconds)</p>	Q(3) 10s
Group Very Quick Flashing(3)	<p>0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 7.7 sec. eclipse;</p> <p>A very quick flashing light in which a group of 3 flashes is regularly repeated 12 times per minute (every 5 seconds)</p>	VQ(3) 5s
Group Quick Flashing(6) plus Long Flash	<p>0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 3.8 sec. eclipse;</p> <p>A light in which a group of 6 quick flashes is followed by a single long flash; the whole sequence being regularly repeated 4 times per minute (every 15 seconds)</p>	(Q(6) + LFI) 15s
Group Very Quick Flashing(6) plus Long Flash	<p>0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 2.0 sec. flash; 7.0 sec. eclipse;</p> <p>A light in which a group of 6 very quick flashes is followed by a single long flash; the whole sequence being regularly repeated 6 times per minute (every 10 seconds)</p>	(VQ(6) + LFI) 10s
Group Quick Flashing(9)	<p>0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 2.0 sec. flash; 5.0 sec. eclipse;</p> <p>A quick flashing light in which a group of 9 flashes is regularly repeated 4 times per minute (every 15 seconds)</p>	Q(9) 15s
Group Very Quick Flashing(9)	<p>0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 0.7 sec. eclipse; 0.3 sec. flash; 6.7 sec. eclipse;</p> <p>A very quick flashing light in which a group of 9 flashes is regularly repeated 6 times per minute (every 10 seconds)</p>	VQ(9) 10s
	<p>0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 0.3 sec. eclipse; 0.2 sec. flash; 5.8 sec. eclipse;</p>	

Group Flashing(5)	<p>A light in which a group of 5 flashes is regularly repeated 3 times per minute (every 20 seconds)</p> <p>0.5 sec. flash; 1.5 sec. eclipse; 0.5 sec. flash; 1.5 sec. eclipse; 0.5 sec. flash; 1.5 sec. eclipse; 0.5 sec. flash; 1.5 sec. eclipse; 0.5 sec. flash; 11.5 sec. eclipse;</p>	Fl(5) 20s
Isophase	<p>A light for which the alterations of light and darkness are of equal duration</p> <p>1.0 sec. flash; 1.0 sec. eclipse</p>	Iso 2s
Isophase	<p>A light for which the alterations of light and darkness are of equal duration</p> <p>2.0 sec. flash; 2.0 sec. eclipse</p>	Iso 4s
Isophase	<p>A light for which the alterations of light and darkness are of equal duration</p> <p>3.0 sec. flash; 3.0 sec. eclipse</p>	Iso 6s

TABLE OF DISTANCES

Table of Distances at which objects can be seen at sea, according to their respective elevations and the elevation of the eye of the observer.

Height in Metres	Distances in Nautical Miles	Height in Metres	Distances in Nautical Miles
2	2.9	45	13.9
3	3.6	50	14.7
4	4.2	55	15.4
5	4.6	60	16.1
6	5.1	70	17.4
7	5.5	80	18.6
8	5.9	90	19.7
9	6.2	100	20.8
10	6.6	120	22.8
12	7.2	140	24.6
14	7.8	160	26.3
16	8.3	180	27.6
18	8.8	200	29.4
20	9.3	250	32.9
25	10.4	300	36.0
30	11.4	350	38.9
35	12.3	400	41.6
40	13.1		

CONVERSION TABLE FOR HEIGHTS AND DISTANCES

In metres to feet	
Metres	Feet
1	3.2
2	6.5
3	9.8
4	13.1
5	16.4
6	19.6
7	22.9
8	26.2
9	29.5
10	32.8
20	65.6
30	98.4
40	131.2
50	164.0
100	328.0
200	656.1
300	984.2
400	1,312.3
500	1,640.4
1,000	3,280.8
2,000	6,561.6

Example:

An observer whose eye is 12 metres above the water can see a light having an elevation of 40 metres above the water at a distance:
7.2 + 13.1 = 20.3 nautical miles.

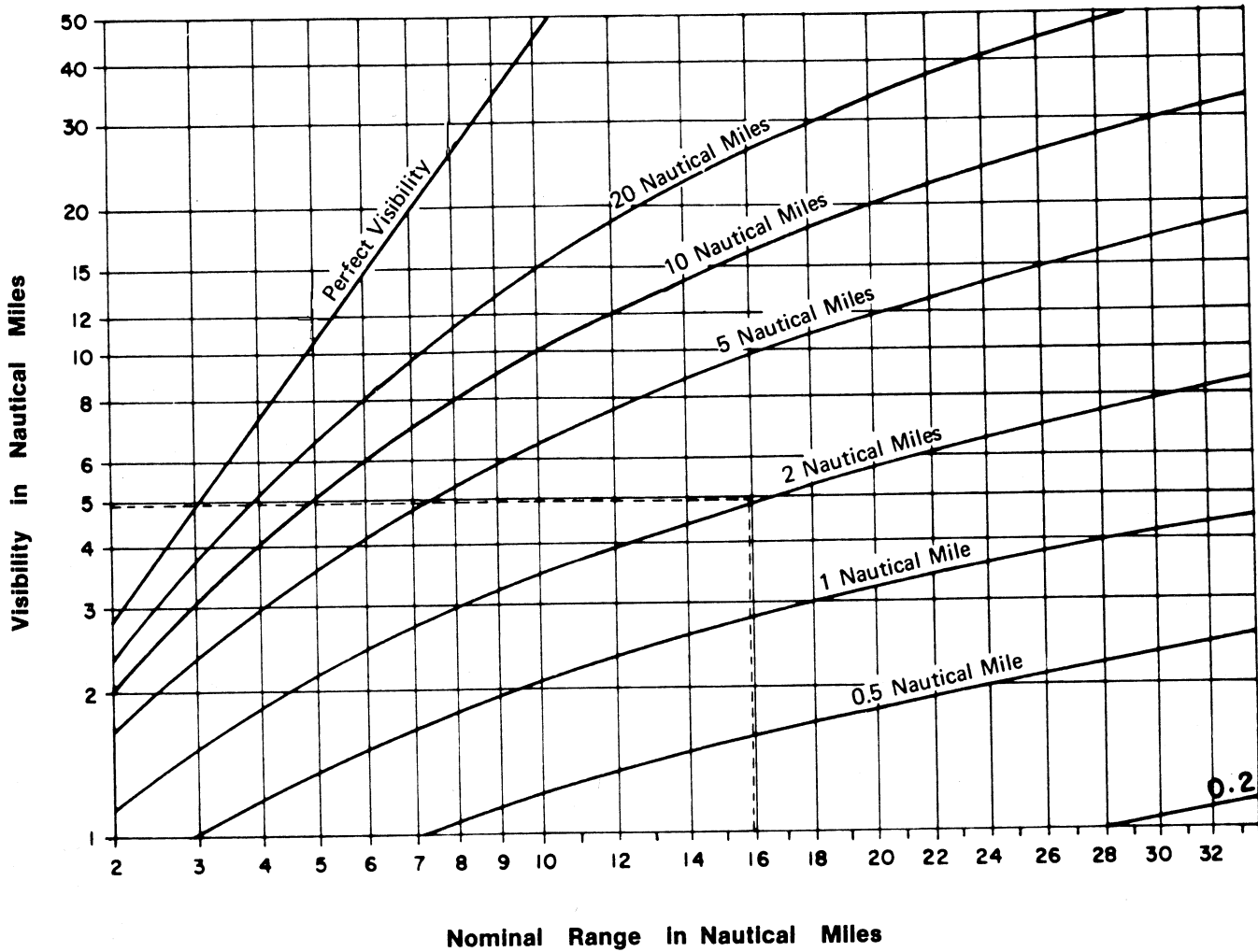
1 NAUTICAL MILE = 1852 metres

Note:

The following conversion factors may also be of assistance:

- a) multiply feet by 0.3048 to obtain metres
- b) divide metres by 0.3048 to obtain feet

NOMINAL RANGE DIAGRAM



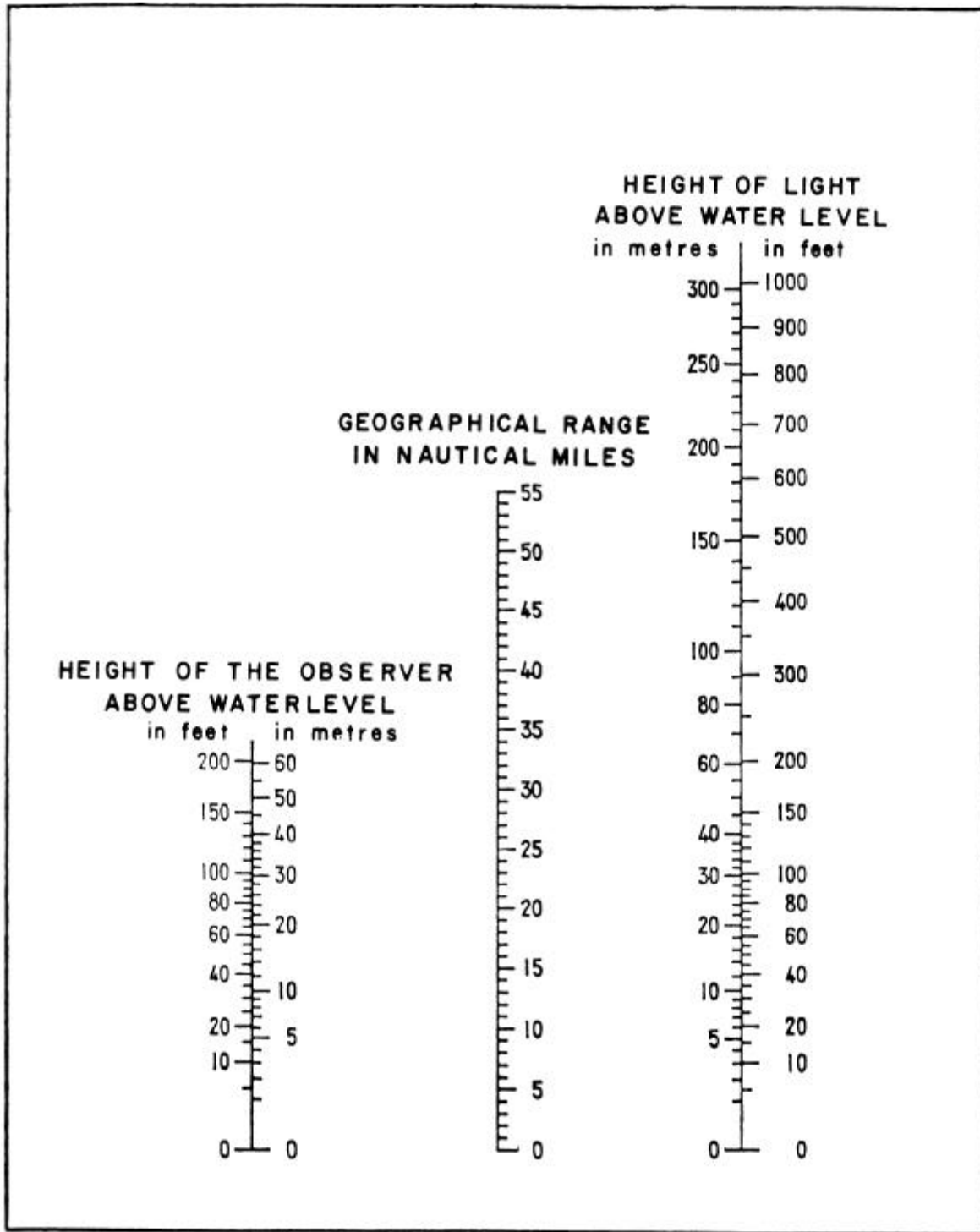
The light list in column 7 gives the nominal range of each lightstation optic where there is sufficient light to be seen 2 nautical miles or more when the meteorological visibility is 10 nautical miles.

When the mariner obtains the meteorological visibility from the weather report he can find the distance the light can be seen at night from the nominal range diagram.

Example: The light list gives the nominal range 16 nautical miles. The weather report gives the meteorological visibility 2 nautical miles. The point on the bottom of the diagram marked 16 is followed upwards until it intersects the curve marked 2 nautical miles. Follow that height horizontally to the left margin to find that the visibility of the light is 5 nautical miles.

Caution: The nominal range diagram is correct when the meteorological visibility is the same in the whole of the distance between the ship and the lighthouse. Conditions occur when this may not be true.

NOMOGRAM



By using the above Nomogram a geographical range can be determined by placing a straightedge against the height of the respective light and the height of the observer above water level.

CANADA

AIDS TO NAVIGATION PROTECTION REGULATIONS

Regulations have been enacted, under the *Canada Shipping Act*, to require anyone who accidentally damages an aid to navigation to report such occurrence to the Canadian Coast Guard and thus ensure the availability of the important service which they provide. These Regulations, which are called *Aids to Navigation Protection Regulations*, are as follows:

1. These Regulations may be cited as the *Aids to Navigation Protection Regulations*.
2. In these Regulations "*aid to navigation*" means a buoy, beacon, lighthouse, lightship or any other structure or device installed, built or maintained for the purpose of assisting the navigation of vessels.
3. (1) The person in charge of a vessel or tow that runs down, moves, damages or destroys an aid to navigation shall report the fact as soon as is practicable to the nearest Regional Director General or District Manager of the Canadian Coast Guard, Department of Fisheries and Oceans.
(2) Every person who fails to comply with subsection (1) is liable to a fine of \$200.

CRIMINAL CODE

Section 439 of the **Criminal Code of Canada** provides:

- "439.(1) Everyone who makes fast a vessel or boat to a signal, buoy or other seamark that is used for purposes of navigation is guilty of an offence punishable on summary conviction."
The penalty is a fine of not more than \$2,000.00 or six months imprisonment or both.
- (2) Everyone who wilfully alters, removes or conceals a signal, buoy or other seamark that is used for purposes of navigation is guilty of an indictable offence and liable for imprisonment for a term not exceeding ten years."

(Order in Council P.C. 1990 - 2285 dated October 25, 1990)

CANADIAN COAST GUARD REGIONAL AND DISTRICT OFFICES

ADDRESS

JURISDICTIONS

NEWFOUNDLAND REGION:

ST. JOHN'S, NFLD	SUPERINTENDENT, AIDS TO NAVIGATION, P.O. BOX 5667, St. John's, Nfld. A1C 5X1 Tel.: 1 (709) 772-5195 or 1 (709) 772-2800 (E) Traffic Centre 1 (709) 772-2083 or 1 (709) 772-2084 (H/N)	Province of Newfoundland and Labrador
------------------	--	---------------------------------------

MARITIMES REGION:

REGIONAL OPERATIONS CENTRE: Tel.: 1 (902) 426-6030 (B)(N/H)

DARTMOUTH, N.S.	REGIONAL DIRECTOR, P.O. Box 1035, 176 Portland Street Dartmouth, N.S. B2Y 1J3 Tel.: 1 (902) 426-3907 (B)
-----------------	--

CHARLOTTETOWN, P.E.I.	AIDS TO NAVIGATION OFFICER, P.O. Box 1236 Charlottetown, P.E.I. C1A 7M8 Tel.: 1 (902) 566-7936 (B) 1-800-565-1633 (B) (TF)	P.E.I., East Coast of N.B. to Québec Border, on Southeastern shore of Nova Scotia from Liscomb East, Cape Breton and North shore of Nova Scotia in Northumberland Strait
-----------------------	--	---

DARTMOUTH, N.S.	SUPERINTENDENT, AIDS TO NAVIGATION, P.O. Box 1000, Dartmouth, N.S. B2Y 3Z8 Tel.: 1 (902) 426-3151 (B) 1-800-565-1633 (B) (TF)	From Cape Sable, N.S. to Cape St. Lawrence , Bras D'Or Lake, Strait of Canso, North of Causeway, St. Paul and Sable Island, N.S.
-----------------	--	--

SAINT JOHN, N.B.	AIDS TO NAVIGATION OFFICER, P.O. Box 700, Saint John, N.B. E2L 4B3 Tel.: 1 (506) 636-4703 (B) 1-800-565-1633 (B) (TF)	Coastal Waters of the Bay of Fundy from the International Maine Boundary to Cape Sable, N.S., Saint John River System
------------------	---	---

LAURENTIAN REGION:

QUÉBEC, QUÉ.	SUPERINTENDENT, AIDS TO NAVIGATION, 101 Champlain Blvd., Québec, Qué. G1K 7Y7 Tel.: 1 (418) 648-7450 (B)	Gulf and River St. Lawrence on the N. Shore from Grondines to Labrador Border, S. Shore, Pointe Langlois to N.B. Border, Inland Waters that drain into River and Gulf, Hudson Bay and Strait St. Lawrence River from Beauharnois to Grondines, Richelieu River to U.S. Border, Ottawa River to Ottawa, Inland Waters that drain into St. Lawrence, Ottawa and Richelieu Rivers
--------------	--	---

(B) Service is available in French and English
 (E) Service is available in English only
 (TF) Toll Free
 (N/H) Nights and Holidays

CANADIAN COAST GUARD REGIONAL AND DISTRICT OFFICES

ADDRESS

JURISDICTIONS

LAURENTIAN REGION: (Cont'd)

AIDS TO NAVIGATION SECTOR

Tel.: 1 (418) 648-5119 (B)
Fax: 1 (418) 649-6690

ALERT NETWORK

Tel.: 1 (418) 648-4366 (B) (N/H)
1-800-363-4735 (B) (N/H) (T/F)

CENTRAL AND ARCTIC REGION:

SARNIA, ONT.

REGIONAL DIRECTOR GENERAL,
201 North Front Street, Suite 703
Sarnia, Ont. N7T 8B1
Tel.: 1 (519) 383-1800 (E)
Operations Centre 1 (519) 383-1841 (N/H)

Regional Superintendent,
Aids to Navigation,
Tel.: 1 (519) 383-1859 (E)

Notices to Shipping,
Tel.: 1 (519) 337-6360 (E)

PRESCOTT, ONT

SUPERVISOR,
AIDS TO NAVIGATION,
P.O. Box 1000,
Prescott, Ont. K0E 1T0
Tel.: 1 (613) 925-2865 (E)

PARRY SOUND, ONT.

SUPERVISOR,
AIDS TO NAVIGATION,
P.O. Box 310,
Parry Sound, Ont. P2A 2X4
Tel.: 1 (705) 746-2196 (E)

HAY RIVER, N.W.T.

SUPERVISOR,
AIDS TO NAVIGATION
P.O. Box 5002,
Hay River, N.W.T. X0E 0R0
Tel.: 1 (867) 874-5501 (E)

(B) Service is available in French and English
(E) Service is available in English only
(TF) Toll Free
(N/H) Nights and Holidays

CANADIAN COAST GUARD REGIONAL AND DISTRICT OFFICES

ADDRESS

JURISDICTIONS

WESTERN REGION:

VANCOUVER, B.C.

REGIONAL DIRECTOR GENERAL,
350 - 555 Hastings Street West.,
Vancouver, B.C. V6B 5G3
Tel.: 1 (604) 775-8877 (E)

Northern Portion of B.C. Coast from Cape Caution to
International Boundary at the North Queen Charlotte
Islands

VICTORIA, B.C.

SUPERINTENDENT,
AIDS TO NAVIGATION
25 Huron Street,
Victoria, B.C. V8V 4V9
Tel.: 1 (250) 480-2600 (E)

From International Boundary on the South to Cape
Caution, Vancouver Island, Inland Waters of British
Columbia

(B) Service is available in French and English
(E) Service is available in English only
(TF) Toll Free
(N/H) Nights and Holidays