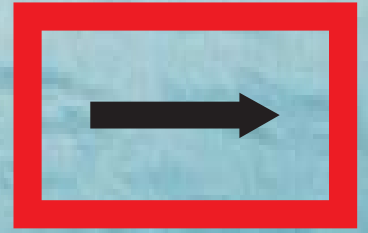
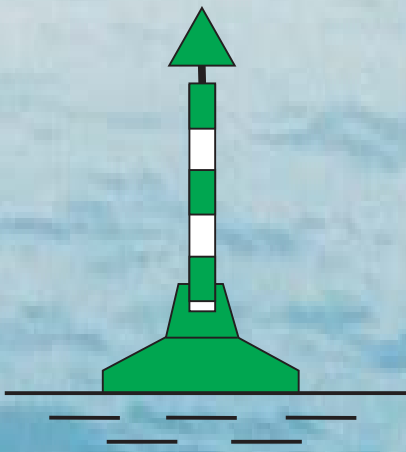


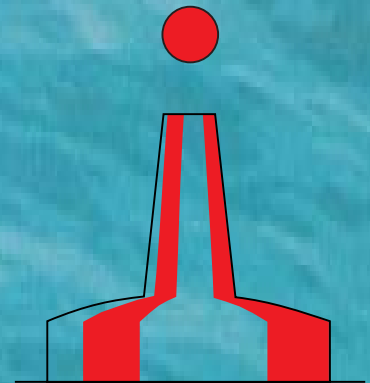
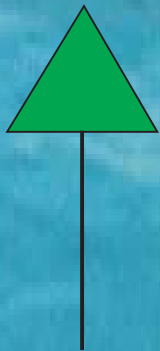
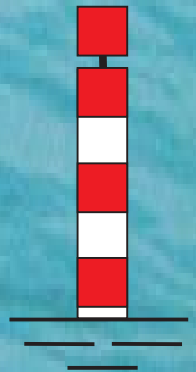
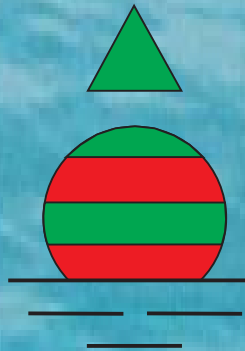
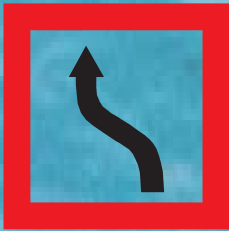
ECONOMIC COMMISSION FOR EUROPE



SIGNI

Signs and Signals on Inland Waterways

Revision 1



UNITED NATIONS

TRANS/SC.3/108/Rev.1

ECONOMIC COMMISSION FOR EUROPE

INLAND TRANSPORT COMMITTEE

Working Group on Inland Water Transport

SIGNI

SIGNS AND SIGNALS ON INLAND WATERWAYS

Revision 1



UNITED NATIONS

New York and Geneva, 2005

NOTE

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FOREWORD

The very first resolution adopted by the UNECE Working Party on Inland Water Transport was resolution No. 1 of 28 August 1957 on the Standardization of Signalling Systems on Inland Waterways (documents TRANS/195, Annex 2 and TRANS/325). The provisions of the Annex to the resolution were later amended by resolution No. 16 of 1975.

After the adoption in 1982 by the International Association of Lighthouse Authorities (IALA) of a new maritime buoyage system, the Working Party, desirous for the safety of navigation to harmonize the system of signs and signals on inland waterways with the IALA maritime system of buoyage, revised the Annex to resolution No. 16 accordingly by adopting its resolution No. 22 “SIGNI - Signs and Signals on Inland Waterways. Additions and Amendments to Resolution No. 16, Annex” (documents TRANS/SC.3/107, Annex 2 and TRANS/SC.3/108).

Reproduced below is the text of the above-mentioned resolution No. 22 of 1982 followed by the Annex, as amended later by resolutions Nos. 29 and 51 of the Working Party, bringing it in line with the revised European Code for Inland Waterways (CEVNI) as reflected in TRANS/SC.3/115/Rev.2.

SIGNI - SIGNS AND SIGNALS ON INLAND WATERWAYS

ADDITIONS AND AMENDMENTS TO RESOLUTION No. 16, ANNEX

Resolution No. 22

(adopted by the Working Party on Inland Water Transport
on 12 November 1982)

The Working Party on Inland Water Transport,

Having considered resolution No. 1, the annex to which describes a signalling system for inland waterways which is applicable to inland waterways not forming a closed system unconnected with inland waterways of international concern,

Having considered resolution No. 16, the annex to which describes a signalling system for inland waterways, SIGNI, applicable to all inland waterways (TRANS/SC.3/85, annex 1 - TRANS/SC.3/86 and Corr.1-3),

Having requested its Group of Experts on the Standardization of Rules of the Road and Signs and Signals in Inland Navigation to examine the possibility of revising the provisions of SIGNI when the new maritime buoyage rules drawn up by the International Association of Lighthouse Authorities (IALA) and adopted by the International Maritime Organization (IMO) have been finalized (TRANS/SC.3/85, para. 14),

Having examined the new IALA maritime buoyage system as set out in the Agreement of 15 April 1982,

Having considered the reports of the Group of Experts on its thirteenth, fifteenth, sixteenth, eighteenth, nineteenth and twenty-first sessions (TRANS/SC.3/GE.2/24, 28, 30, 34, 37 and 40),

Noting the desirability, for the safety of navigation, of harmonizing the system of signs and signals on inland waterways with the maritime system of buoyage,

Considering therefore that it would be desirable for the provisions of SIGNI to be based on the IALA system of maritime buoyage, so far as it can be applied to inland waterways,

Decides to replace the annex to resolution No. 16 (TRANS/SC.3/86 and Corr.1-3) by the annex to the present resolution entitled "SIGNI - SIGNS AND SIGNALS ON INLAND WATERWAYS", which will be reproduced in document TRANS/SC.3/108,

Requests Governments to inform the Executive Secretary of the Economic Commission for Europe whether they agree to apply the additions and amendments contained in the new "SIGNI" and, if so, to inform the Executive Secretary of the waterways or waterway systems to which the provisions of this resolution will apply,

Requests the Executive Secretary of the Economic Commission for Europe to place the question of the application of this resolution periodically on the agenda of the Working Party on Inland Water Transport.

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RECOMMENDATIONS

1 PRINCIPLES

1.1 General

1.1.1 Marking on a particular waterway or waterway network

Where the competent authorities decide to install a system of marking on a particular waterway or inland navigation network, they may:

- (i) select from among the marks covered by these recommendations those which they deem suitable for the waterway or waterway network in question;
- (ii) supplement the marks selected with additional marks not included in the system defined below, provided always that the shape and colour of such marks and the nature of any symbol employed are consistent with the system and are such that the additional marks cannot be confused with any of the system's existing marks.

In cases where these recommendations permit alternatives, the competent authorities shall, unless there are overriding reasons to the contrary, agree on the alternative to be adopted on all of the several parts of the same waterway.

1.1.2 “Right” and “Left”

On rivers, whether free-flowing or canalized, the terms “right” and “left” shall respectively mean to the right and to the left of an observer facing downstream.

On canals, lakes and broad waterways the competent authorities shall decide the matter in the light of local conditions. However, it is recommended that for canals the terms “right” and “left” should be defined as meaning to the right and to the left respectively of an observer facing in the direction in which the numbers indicated on successive kilometre markings rise.

1.1.3 Day and night marking

Where the prescribed mark consists of:

- (a) Lights only: the lights may be used both by day and by night;
- (b) Boards only: the boards may be used as night marks if illuminated;
- (c) Boards and lights: by day, either boards or lights may be used;
by night, either lights or illuminated boards may be used.

1.1.4 Use of rhythmic lights

In principle, the use of rhythmic lights shall be reserved for the marking of the waterway.

Rhythmic lights shall also be used under the conditions specified in section 6.

For the types of rhythmic light recommended, see 1.2 below, and annex 1.

1.1.5 Use of fixed lights

In principle, the use of fixed lights shall be reserved for purposes other than those referred to in 1.1.4.

For the meanings of the fixed lights recommended, see 1.3.

1.1.6 Lighting

In certain cases lighting may be provided at night (e.g. lighting of the lower part of a bridge, of the piers of a bridge, of the approaches to a lock, of a section of a canal, etc.). Such lighting may be used to supplement the marks.

Lighting shall be so designed as to avoid dazzle.

1.1.7 Intensity and range of lights

The competent authorities shall prescribe the intensity and range of lights with due regard for local circumstances.

It is recommended that the luminous intensity of a light should be determined in accordance with the Recommendation on the Determination of the Luminous Intensity of Marine Aid-to-navigation Lights, December 1977, published in the IALA Bulletin No. 75 - 1978-3.

For the calculation of the range of a light, it is recommended that use should be made of the formulae in general use, such as:

Those given in German Standard DIN 5037, published by the Deutsches Institut für Normung (DIN); or

Those given in British Standard No. 942, published by the British Standards Institution.

1.1.8 Colours of lights

The chromaticities of the colours of lights should lie within the chromaticity areas defined in the recommendations of the International Commission on Illumination ("Colours of light signals", in ICI publication No. 2.2 (TC-1.6) of 1975).

1.1.9 Boards bearing special signs

The boards recommended are all rectangular.

They are divided into two categories according to the signs they bear:

- (i) Signs giving instructions: these shall be coloured white and bordered in red and display black symbols. Where they indicate a prohibition, the boards shall also bear a diagonal red bar;

- (ii) Signs giving information or indicating the end of an instruction for vessels proceeding in one direction only: all boards shall be rectangular and blue in colour, with white symbols.

Note 1: The visibility of the boards may be improved by a narrow white border.

Note 2: If necessary, these signs may be supplemented by the additional boards, indicator plates and inscriptions referred to under 5.2.1, 5.2.3, 5.2.4 and 5.2.5.

1.1.10 Dimensions of buoys and boards

The choice of appropriate dimensions for buoys and boards shall in each case be left to the competent authorities, who shall take account of local conditions (width of waterway, speed of current, etc.).

It is recommended that in the application of this item the letters, figures and analogous symbols should be of a height not less than one five-hundredth of the maximum distance from which they must be read, and that the thickness of the stroke should be not less than one seventh of that height.

1.1.11 Colours of buoys and boards

The chromaticities of the surface coatings of buoys and boards should lie within the chromaticity areas defined in the recommendations on the surface colours of visual signs and signals published by the International Commission on Illumination (see 1.1.8.). The back of the panel, if visible from the navigable zone, shall be of such a colour as not to be misleading.

1.1.12 Semaphores

In special cases where a semaphore is required to regulate navigation (e.g. in harbours), the competent authorities shall determine the signals to be given by the semaphore in such a way as to avoid any confusion or conflict with the signals described in these recommendations.

They shall preferably choose a signalling system using red and green lights, operable as required.

1.1.13 Warning posts

In special cases where it is necessary to set up warning posts (e.g. on winding sections of waterway where the visual range is limited), the competent authorities shall determine the signals to be given by such posts so far as possible on the basis of these recommendations, and in such a way as to avoid confusion or conflict with the signals described in them.

1.1.14 Geographical limits of applicability of the marking system recommended

The competent authorities shall if necessary determine the boundaries between inland waterways (to which the recommended marking system applies) and maritime

waterways.

1.2 Rhythmic lights

The rhythmic lights are described in annex 1.

1.3 Fixed lights

1.3.1 The basic principle of marking by fixed lights is as follows:

- A fixed red light means “Stop”;
- A fixed green light means “Go ahead”.

and the meaning of the other marks comprising red or green lights derives from that principle. In particular, a fixed red light combined with other lights means either “Stop” or “Caution”.

However, since green lights are always placed at the side of the waterway or channel, vessels must never steer towards a green light. It has therefore been found necessary to provide for another signal authorizing passage towards which vessels may steer: a yellow light.

Pairs of lights should form a visual angle of not less than 5' ($\tan 5' = 0.00145$) to distinguish them from one another.

1.3.2 Single red light “No passage”

This signal shall apply:



Either to some of the channels or arms of the waterway (prohibited channels under bridges, prohibited arms, etc.).



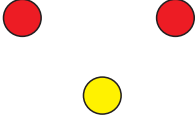
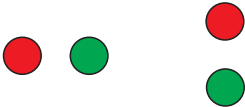


Or to the whole of the waterway (stoppage of navigation, locks, etc.).



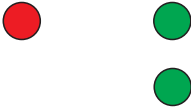


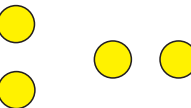
The use of this signal shall be limited to cases where a single red light is sufficient to indicate the intended prohibition clearly. In other cases, the use of two or more red lights is recommended (see below).

1.3.3. Two red lights placed one above the other (a pair)

Complete and prolonged stoppage of navigation (blockage of waterway bridges or locks out of service, etc.).



- 1.3.4 Two red lights placed side by side (a pair)
- 
- Complete but brief stoppage of navigation. This signal shall always be operable as required (movable bridges, locks, narrow channels, etc.).
- Extinction of one of the red lights means: “Passage forbidden (passage about to be authorized)”.
- 1.3.5 Two or more red lights set apart
- 
- “No passage” (between the lights). See also 1.3.6.
- 1.3.6 Two red lights set apart with a yellow light between them
- 
- “No passage (between the lights) except in conformity with the restrictions in force” (closed movable bridge, etc.)
- A yellow light may also be combined with the signal referred to in 1.3.4.
- 1.3.7 A red light and a green light placed side by side (a pair) or a red light above a green light
- 
- “No passage now but stand by to go ahead”. This signal is always operable as required.
- 1.3.8 Single green light
- 
- “Go ahead” (the green light is always placed at the side of the navigable channel). The use of this signal shall, however, be restricted to cases where a single green light is sufficient clearly to indicate the clear passage. In other cases, the use of two green lights set apart and indicating the passage is recommended.
- 1.3.9 Two green lights placed side by side (a pair)
- 
- “Go ahead” (this signal is always placed at the side of the navigable channel). It is always operable as required, the permission to pass being limited in time.

1.3.10	Two green lights placed one above the other (a pair)	“Go ahead” (this signal is always placed at the side of the navigable channel). This signal may be used in particular cases (lock out of service with all gates open).
		
1.3.11	Two green lights set apart	“Go ahead between the lights”.
		
1.3.12	One red light and two green lights placed one above the other	“Pass only on the side showing two green lights”.
		
1.3.13	Two pairs of green lights placed one above the other	“Pass on either side”.
		
1.3.14	Single yellow light, alone or between green lights	“Go ahead, but look out for traffic coming the other way”. Vessels may steer towards the yellow light, which is placed above the navigable channel.
		
1.3.15	A pair of yellow lights (placed one above the other, or, if necessary, side by side), alone or between green lights	“Go ahead, traffic in the opposite direction is prohibited”. Vessels may steer towards the yellow lights, which are placed above the navigable channel.
		

1.3.16 One or two white lights:

Fixed light(s): advance signal
(see note 1 below)



“Difficulty ahead - Stop if the regulations so require”.

Examples: Lock closed, vessel navigating in the opposite direction.

Isophase light(s): advance signal
“You may proceed”



Examples Lock open, no vessel navigating in the opposite direction.

1.3.17 A fixed white light and an isophase white light placed side by side (a pair)



“You are recommended to steer towards the side showing the isophase light”. Signal to be used, for example, on the approach to a double lock.

1.3.18 A red light above a white light



“Do not cause wash”.

1.3.19 One red light above a white light, a second red light being placed alongside the first



“Presence of an obstacle. Pass only on the side showing both the red and the white lights, and do not cause wash”.

1.3.20 Two red lights, each above a white light



“Presence of an obstacle. Pass on either side, but do not cause wash”.

1.3.21 Two isophase yellow lights placed one above the other (a pair)



Vessels proceeding on the main waterway must, if necessary, change course and speed to allow vessels to leave harbours or tributary waterways.

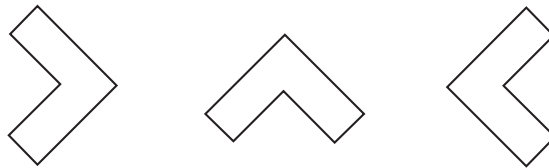
Note 1: Single fixed white lights shall not be used except as advance signals. Fixed white lights must be used with care as they may be confused with other white lights (for instance, public lighting).

Note 2: In all the signals prescribed under 1.3.2. to 1.3.15., each fixed red, green or yellow light may be replaced by a red-white-red, a green-white-green or a yellow board respectively, as provided below in parts 3 and 4.

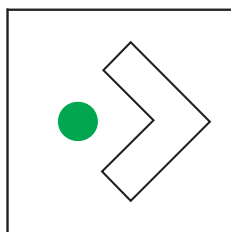
1.4 Additional luminous signal

Luminous white arrow (combined with certain lights of 1.3)

The signal relates to the direction of navigation shown by the arrow



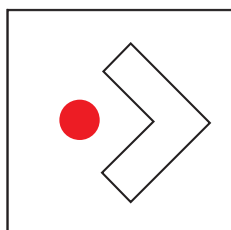
Examples:



On a main waterway, at the entrance to a basin, this signal means:

(1) with green light

Permission to enter the basin to which the arrow is pointing.



(2) with red light

Prohibition of entry to the basin to which the arrow is pointing.

1.5 Buoyage and marking system

1.5.1 The principles of the IALA Maritime Buoyage System set out in the Agreement of 15 April 1982 have been taken, where applicable to inland waterways, as the basis for the following provisions. These provisions have been defined in such a way as to avoid, as far as possible, any risk of conflict or confusion between the two systems of buoyage.

1.5.2 There are three different categories of buoyage and marking:

“Buoyage of channel limits in the waterway” by means of buoys or spares (see 2.1):

This category will normally be used only on sections of waterway where the channel cannot be indicated sufficiently clearly by marks placed on the banks.

“Buoyage and marking of danger points and obstacles”, i.e. points which vessels must avoid:

Danger points include, e.g.: campshot, projections of the bank, low banks liable to flooding, fixed obstacles.

Obstacles include, e.g.: grounded or sunken vessels or floating equipment; work sites in the waterway, lost anchors.

“Marks on land indicating the position of the channel” in relation to the banks. The marks indicate the position of the navigable channel in relation to the banks and, where appropriate, its crossover from one bank to the other. The marks may also be used to provide isolated reference points for boatmasters.

In the case of lakes and broad waterways, the three categories of buoyage and marking referred to above are used. In addition, special provisions are prescribed under 2.4.

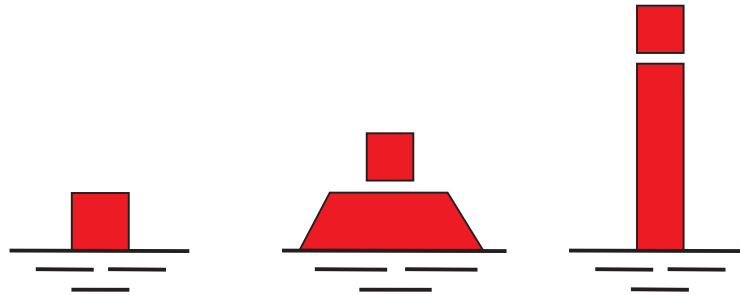
2 BUOYAGE AND MARKING OF THE WATERWAY

2.1 Buoyage of channel limits in the waterway

2.1.1 Right-hand side of the channel

By day: red buoys, preferably cylindrical, or red spars.

A red cylindrical topmark is compulsory on the spars and on the buoys if they are not cylindrical.

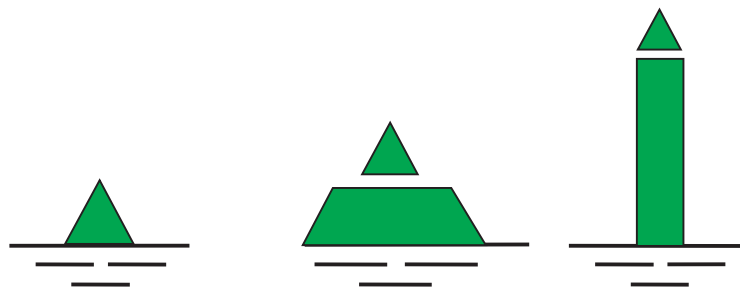


By night: rhythmic red lights, of any type.

2.1.2 Left-hand side of the channel

By day: green buoys, preferably conical, or green spars.

A green conical topmark point upward is compulsory on the spars and on the buoys if they are not conical.

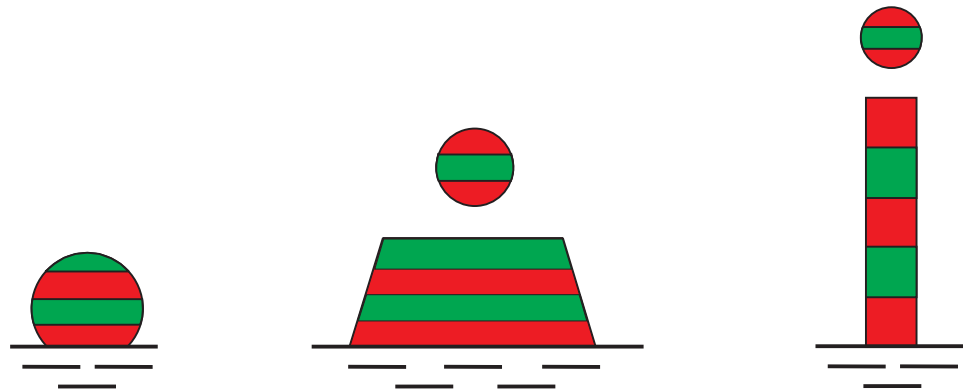


By night: rhythmic green lights, of any type.

2.1.3 Bifurcation of the channel

By day: buoys, preferably spherical, with horizontal red and green bands, or spars with horizontal red and green bands.

A spherical topmark with horizontal red and green bands is compulsory on the spars and on the buoys if they are not spherical.



By night: Continuous white scintillating light or isophase white light.

Where there is a risk of confusion with maritime signs and signals or with signs and signals for lakes and broad waterways as defined in 2.4, this rhythm shall not be used and shall be replaced by the group-flashing rhythm (group of three flashes).

When a bifurcation mark is used on lakes and broad waterways, care should be taken to avoid any risk of confusion with the marks provided for in 2.4.

2.1.4 The buoyage described above may not be used for the channels and special zones referred to in part 7 of this document.

Note 1: If, because the local situation of a waterway is necessary to indicate the priority channel, a cylindrical or conical topmark may be added to the bifurcation mark.

In such case, by night, the rhythmic white light should be replaced by a red rhythmic light for marks with a cylindrical topmark or a green rhythmic light for marks with a conical topmark.

Note 2: Where the buoyage installed at the limit of the channel separates that channel from a waiting area, the buoys shall, according to the side of the channel, be either the red cylindrical or the green conical buoys described above. Such buoys shall bear the letter "P" painted in white on the side and any lights on them shall have a different rhythm from that of the other buoys placed at the limits of the channel.

2.2 Buoyage and marking of danger points and obstacles

2.2.1 Where it is desired merely to draw attention to an obstacle or danger point without requiring vessels under way to move in a particular direction, the following may be used:

2.2.1.1 For obstacles and danger points in the channel: the buoys, spars, topmarks and lights prescribed under 2.1 above for marking the channel limits.

2.2.1.2 For obstacles and danger points outside the channel, either marks on land or buoys in the waterway:

(i) Marks on land

Right bank

By day: cones placed point downward and painted red



By night: rhythmic red lights, of any type.

Left bank

By day: cones placed point upward and painted green



By night: rhythmic green lights, of any type

Where it is possible to pass on either side

By day: two cones placed one above the other, the upper one painted red and the lower one green.



By night: continuous white scintillating light, or isophase white light.

If there is a risk of confusion with the maritime marking, or the marking for lakes and broad waterways described in 2.4, this quick rhythm shall not be used, but shall be replaced by the group-flashing rhythm (group of three flashes).

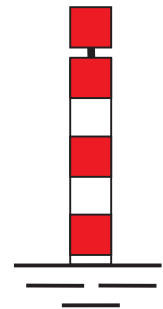
The above cones may be replaced by triangular panels with a white ground and a red or green border.

(ii) Floating and fixed marks in the waterway

Right bank

By day: spars with red and white horizontal bands and a cylindrical red topmark

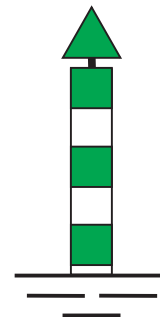
By night: rhythmic red lights, or any type.



Left bank

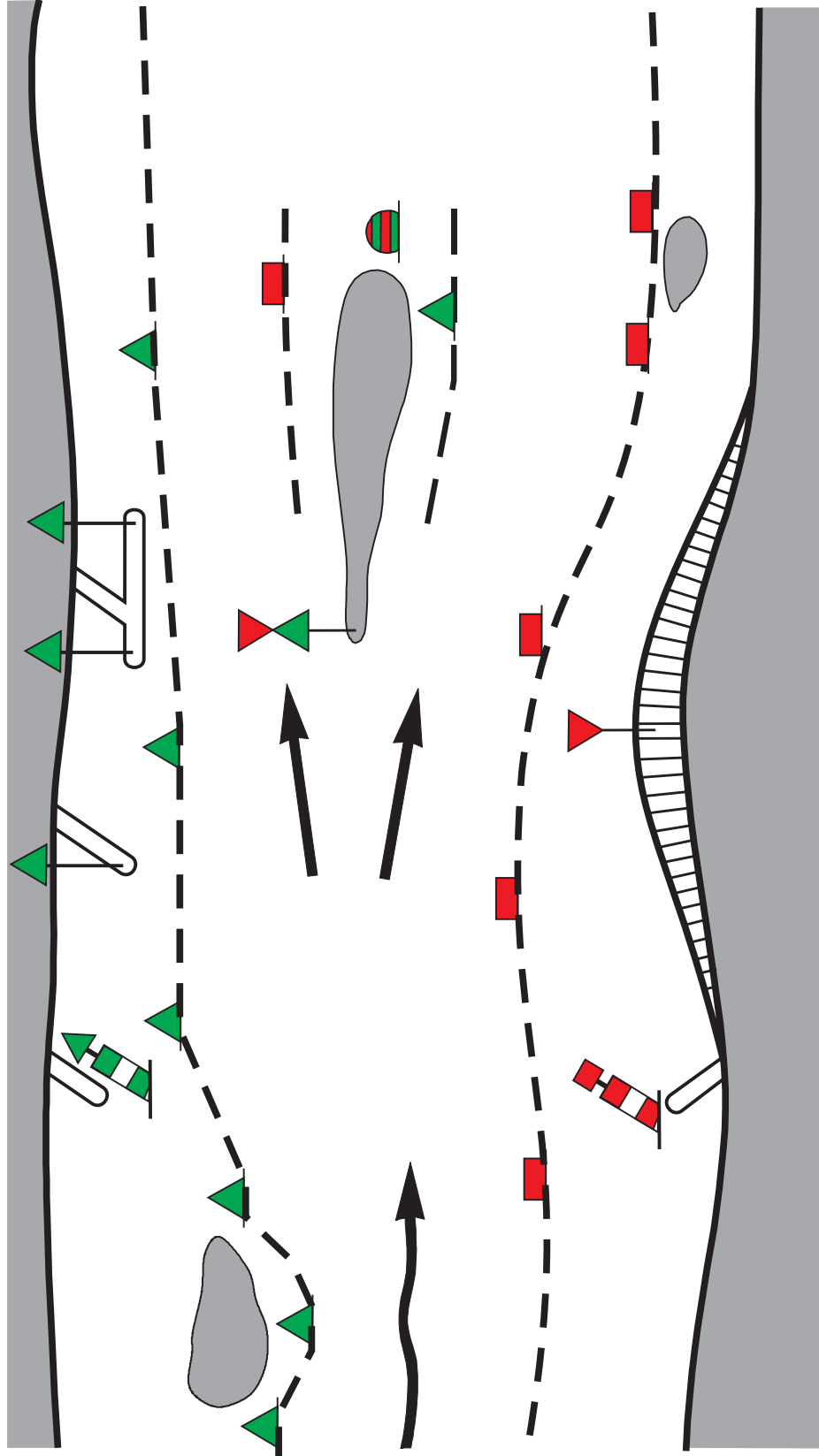
By day: spars with green and white horizontal bands and a green conical topmark, point upward.

By night: rhythmic green lights, of any type.

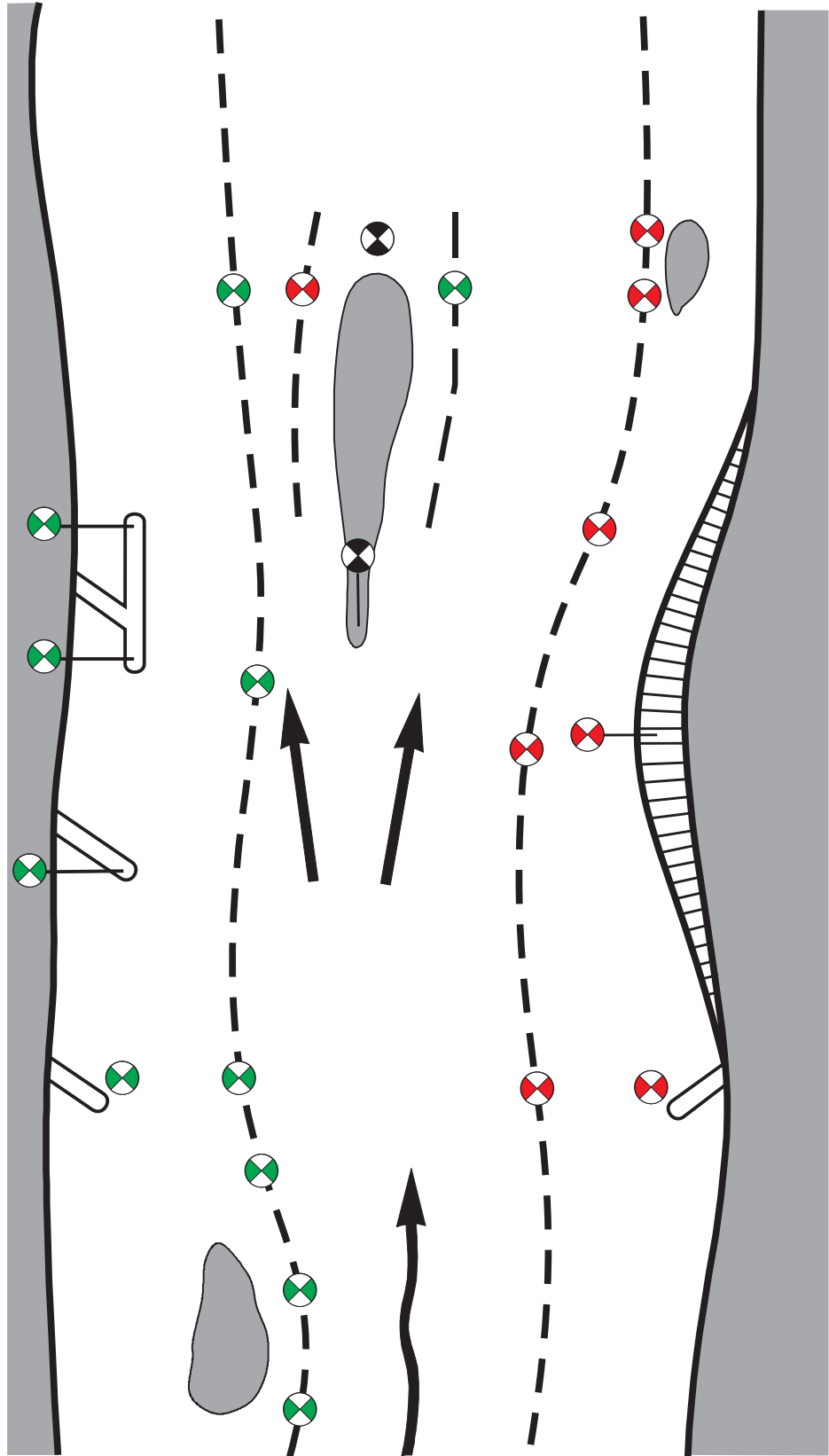


Examples:

By day



By night



2.2.2 Where it is desired to draw attention to the obstacles and danger points and to prescribe only the side on which vessels must pass, the following marking (which may be placed on auxiliary craft) shall be used:

On the prohibited side

On the permitted side

By day:

A rectangular red board with a horizontal white stripe



A rectangular green board with a vertical white stripe

or a red ball



or two green bicones placed one above the other

By night:

A red light

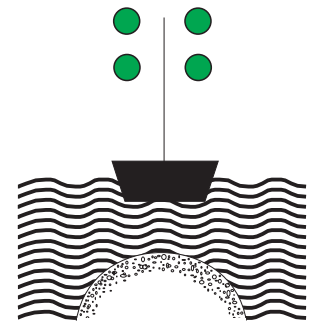
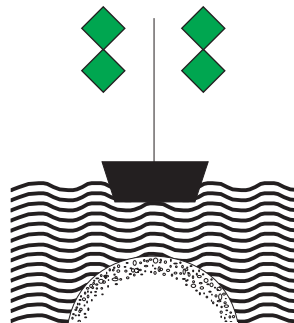
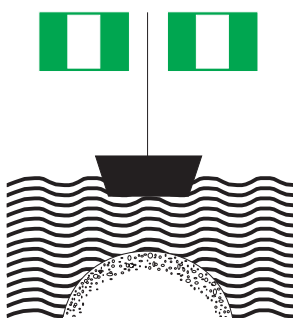
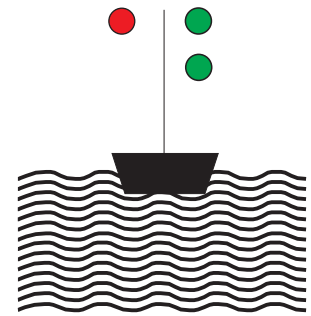
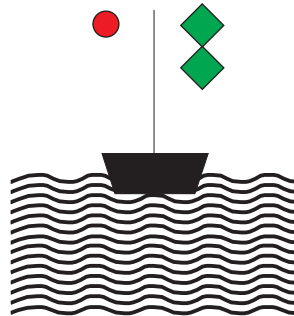
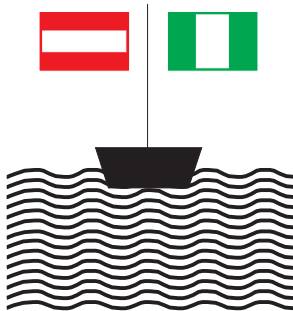


Two green lights placed one above the other

Examples:

By day

By night



2.2.3

Where it is desired both to draw attention to such obstacles and danger points and to require vessels under way to avoid causing wash, the flags, boards, balls or lights shown below shall be used; they may be placed either on the obstacle itself or on an auxiliary craft.

In such case a mark must be placed on each side of the obstacle, i.e.:

On the side where the channel is clear

On the side where the channel is not clear

By day:

A red-and-white flag or board

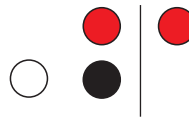


A red flag or board

or

or

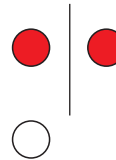
A red ball above a white or black ball (according to the background against which it is required to stand out)



A red ball

By night:

A red light above a white light

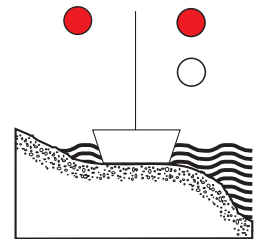
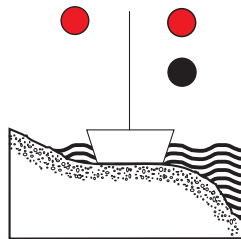
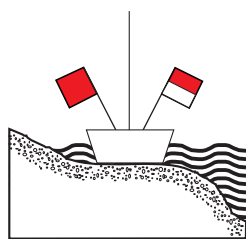


A red light

Examples:

By day

By night



2.3 Marks on land indicating the position of the channel

2.3.1 Marks on land indicating the position of the navigable channel in relation to the banks.

Right bank

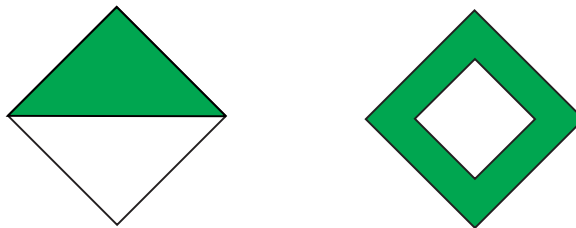
By day: square boards (sides horizontal and vertical), red, with two horizontal white stripes; or square frames (sides horizontal and vertical), painted red.



By night: rhythmic red lights, of any type.

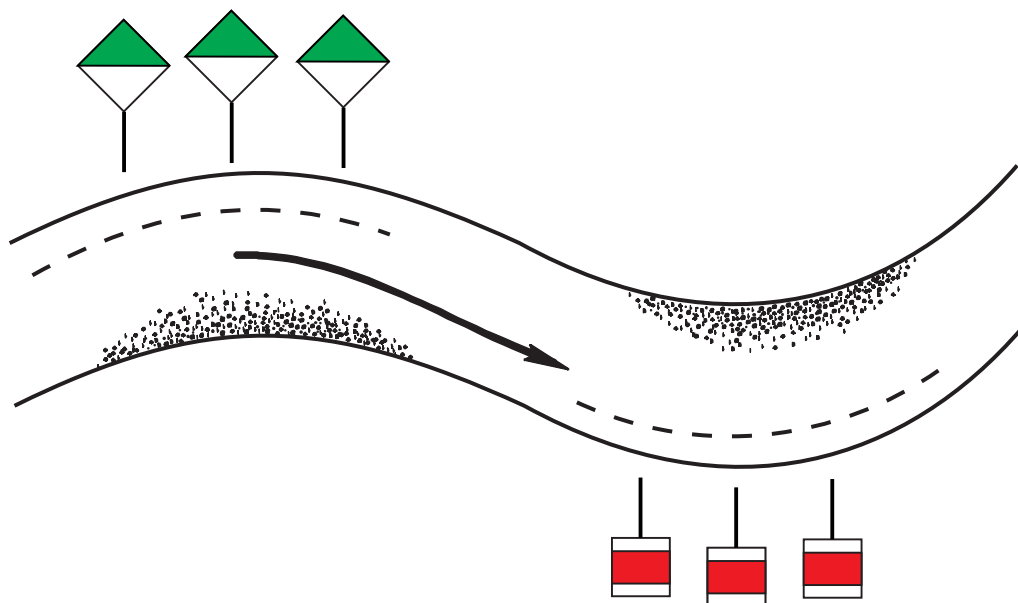
Left bank

By day: square boards (diagonals horizontal and vertical), upper half painted green and lower half white; or square frames (diagonals horizontal and vertical) painted green.



By night: rhythmic green lights, of any type.

Example:



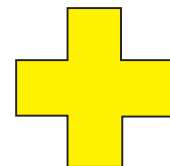
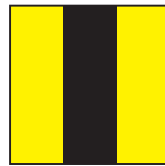
2.3.2 Buoyage of cross-overs

If it is desired to improve the above marking, crossings of the channel from one bank to the other (cross-overs) may be specifically marked.

Right bank

By day: square yellow boards (sides horizontal and vertical), with a central vertical black stripe;

or a lath-assembled St. George's cross painted yellow.

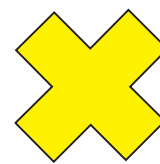
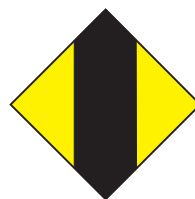


By night: yellow lights (with, if so desired, a beam of restricted spread), flashing or occulting, with an even-number characteristic other than the group-flashing rhythm (group of two flashes).

Left bank

By day: square yellow boards (diagonals horizontal and vertical), with a central vertical black stripe;

or a lath-assembled St. Andrew's cross painted yellow.

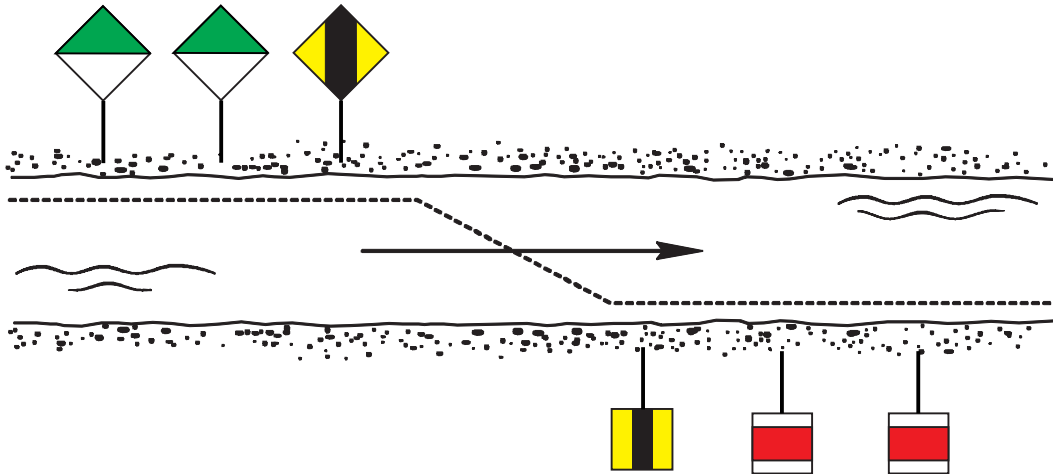


By night: yellow lights (with, if so desired, a beam of restricted spread), flashing or occulting, with an odd-number characteristic other than the group-flashing rhythm (group of three flashes).

Some of the boards prescribed above may be replaced by solids of revolution exhibiting the same outline and the same colours.

Examples:

- (i) Mere indication of the position of a cross-over



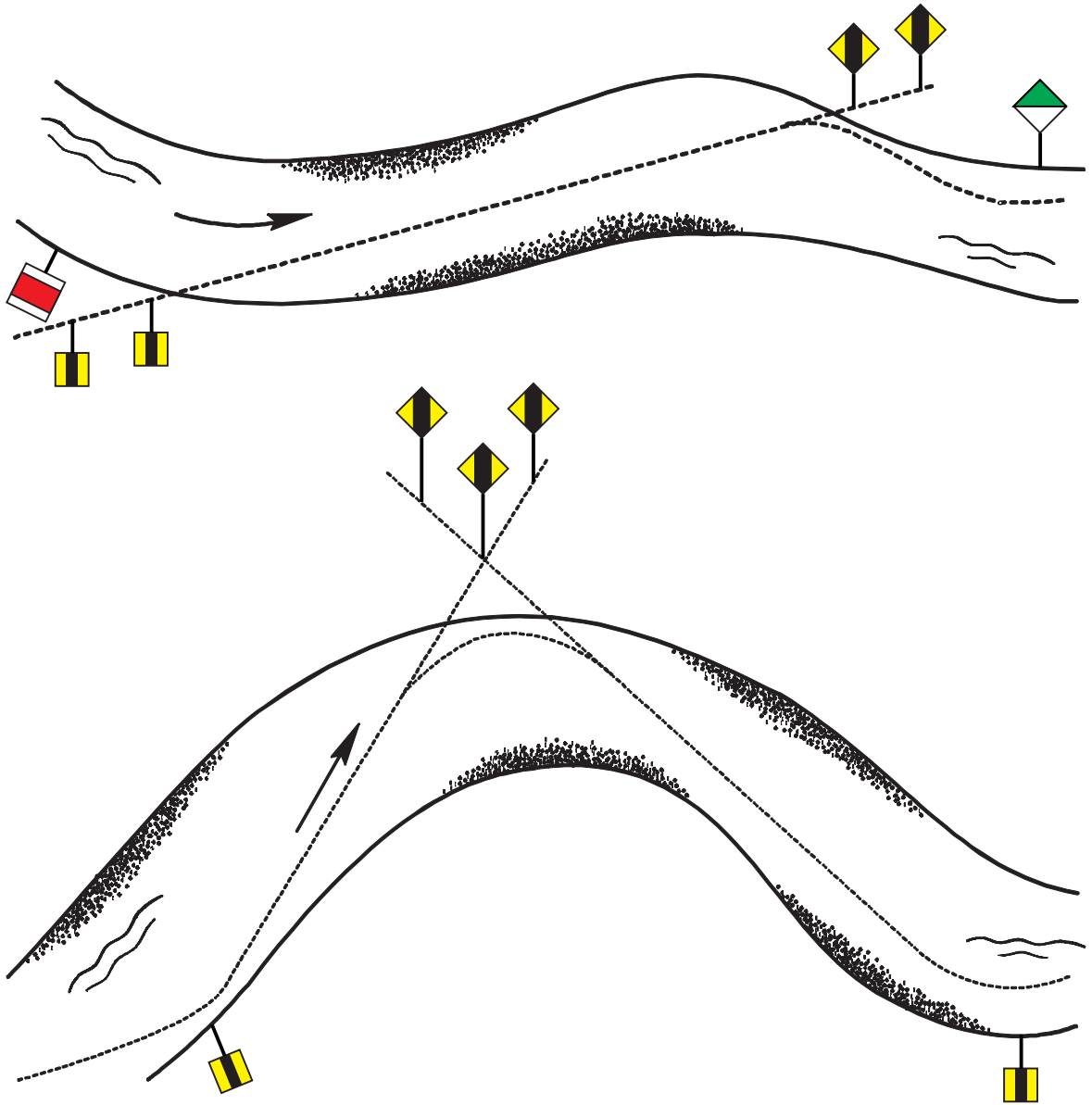
- (ii) Indication of alignment of a cross-over

Where it is desired to indicate the axis of a long cross-over, an alignment may be used, i.e., two identical marks conforming to the above rules and placed one behind the other, the foremost mark being lower than the rearmost mark; the line joining these marks indicates the axis of the cross-over.

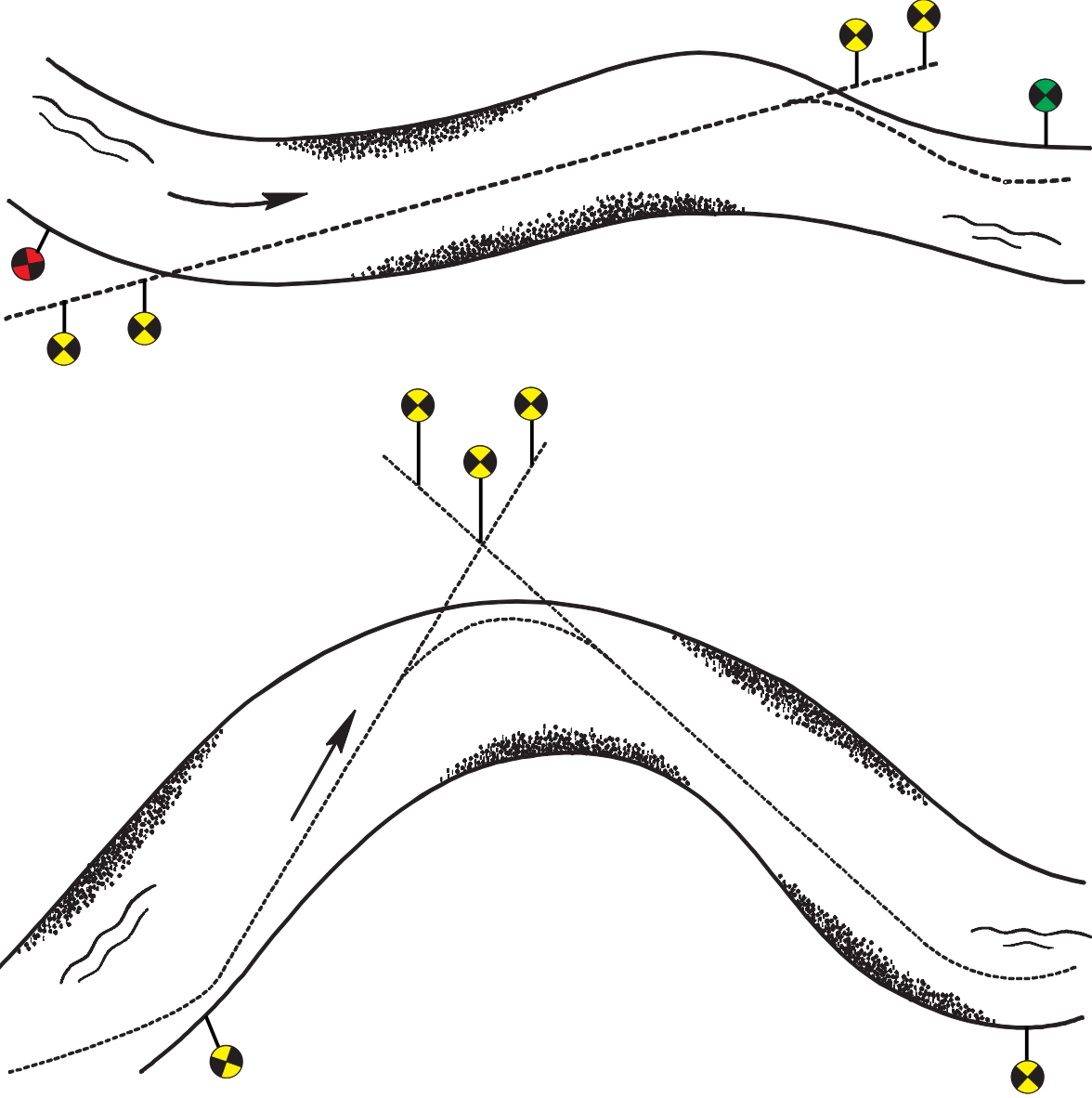
If the yellow boards are replaced by solids of revolution, the latter must exhibit a vertical black stripe visible in the alignment of the marks indicating the cross-over.

The foremost and rearmost lights shall have the same rhythm. This rhythm shall be selected from among the rhythms prescribed above for cross-over marking. However, the rearmost light may be a fixed light.

Examples: By day



By night



2.4 Buoyage and marking of lakes and broad waterways

2.4.1 Subject to the exception referred to in 2.1.3, the provisions of 2.1 to 2.3 above shall apply to lakes and broad waterways.

Additional marks, taken from the “IALA Maritime Buoyage System” may be used if required:

Cardinal marks;

Isolated danger marks;

Safe water marks;

Special marks.

2.4.2 Cardinal marks

2.4.2.1 Definition of cardinal quadrants and marks

The four quadrants (North, East, South and West) are bounded by the true bearings NW-NE, NE-SE, SE-SW, SW-NW taken from the point of interest.

A cardinal mark is named after the quadrant in which it is placed.

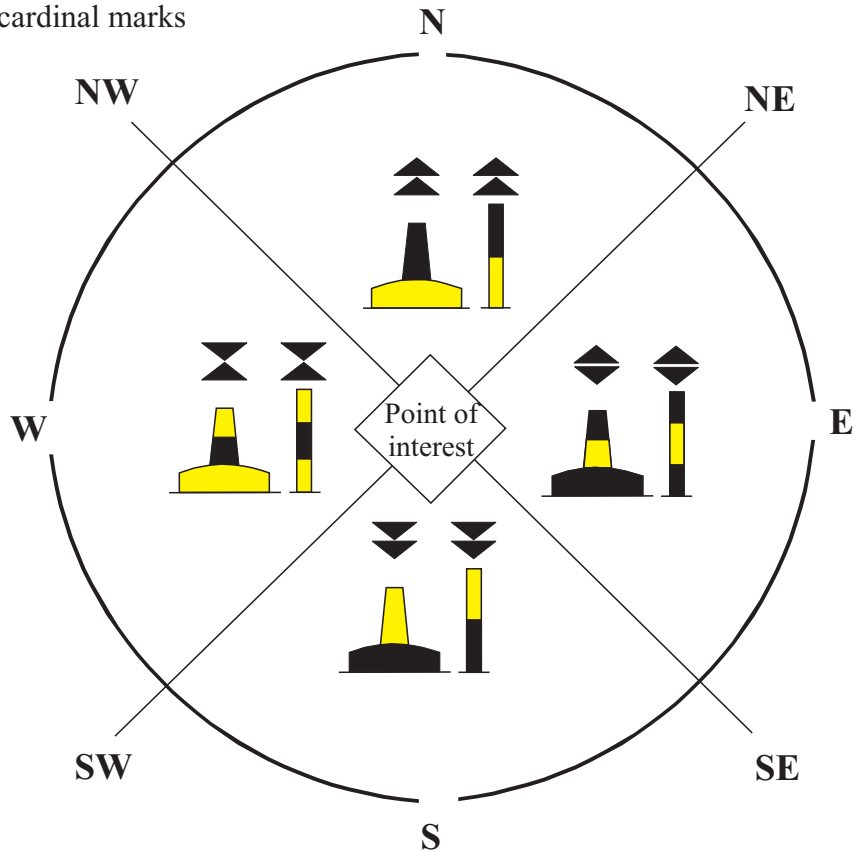
The name of a cardinal mark indicates that the mark should be passed on the side of the quadrant named.

2.4.2.2 Use of cardinal marks

A cardinal mark may be used for example:

- To indicate that the deepest water in that area is on the named side of the mark;
- To indicate the safe side on which to pass a danger;
- To draw attention to a particular feature in a channel such as a bend, a junction, a bifurcation or the extremity of a shoal.

Description of cardinal marks



North cardinal mark

Topmark: two black cones, one above the other, points upward
 Colour: black above yellow
 Shape: pillar or spar
 Light:
 Colour: white
 Rhythm: continuous quick scintillating or continuous scintillating light

East cardinal mark

Topmark: two black cones, one above the other, base to base
 Colour: black with a single broad horizontal yellow band
 Shape: pillar or spar
 Light:
 Colour: white
 Rhythm: group quick scintillating or group scintillating light with a group of three flashes

South cardinal mark

Topmark: two black cones, one above the other, points downward
 Colour: yellow above black
 Shape: pillar or spar
 Light:
 Colour: white
 Rhythm: group quick scintillating or group scintillating light with a group of six flashes followed by a long flash of not less than 2 s duration

West cardinal mark

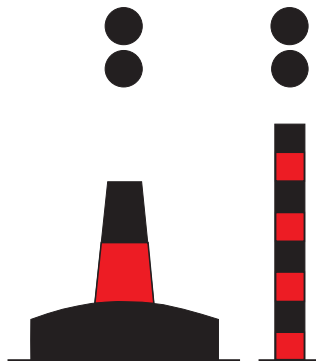
Topmark: two black cones, one above the other, point to point
 Colour: yellow with a single broad horizontal black band
 Shape: pillar or spar
 Light:
 Colour: white
 Rhythm: group quick scintillating or group scintillating light with a group of nine flashes

2.4.3 Isolated danger marks

2.4.3.1 Definition of isolated danger marks

An isolated danger mark is a mark erected on, or moored on or above an isolated danger which has navigable water all round it.

2.4.3.2 Description of isolated danger marks



Topmark: two black spheres, one above the other

Colour: black with one or more broad horizontal red bands

Shape: optional, but not conflicting with lateral marks; pillar or spar preferred

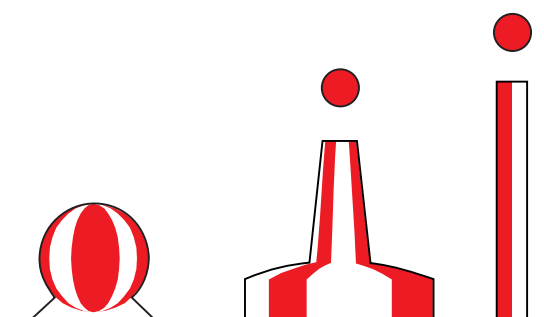
Light:
Colour: white
Rhythm: group flashing (group of two flashes).

2.4.4 Safe water marks

2.4.4.1 Definition of safe water marks

Safe water marks serve to indicate that there is navigable water all round the mark; these include centre line marks and mid-channel marks. Such a mark may also be used as an alternative to a cardinal or lateral mark to indicate a landfall.

2.4.4.2 Description of safe water marks



Colour: red and white vertical stripes

Shape: spherical, pillar or spar with spherical topmark

Topmark
(if any): single red sphere

Light:
Colour: white
Rhythm: isophase, single-occluding, one long flash every 10 seconds or Morse code "A"

2.4.5 Special marks

2.4.5.1 Definition of special marks

Marks not primarily intended to assist navigation but which indicate a special area or feature referred to in appropriate documents, such as:

Military exercise zone marks, recreation zone marks

2.4.5.2 Description of special marks

Colour: yellow

Shape: optional, but not conflicting with navigational marks

Topmark if any: single yellow "X" shape

Light:

Colour: yellow

Rhythm: any, other than those described in 2.4.2, 2.4.3, 2.4.4, or 2.4.6.

2.4.6 Weather signs and signals on lakes

2.4.6.1 "Caution" warning

This signal shall be given by yellow lights producing about 40 flashes per minute.

The "caution" warning indicates the probable onset of a dangerous meteorological phenomenon without specifying its timing. It should be given as early as possible, to warn boatmaster of possible danger.

2.4.6.2 "Imminent danger" warning

The signal shall be given by yellow lights producing about 90 flashes per minute.

*







*

*

Annex 2 illustrates the provisions of this section for lakes and broad waterways and also for sections 6 and 7.

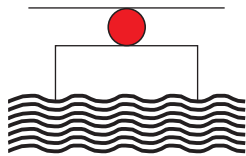
3 MARKING OF PERMANENT STRUCTURES

Note: The following may be replaced:

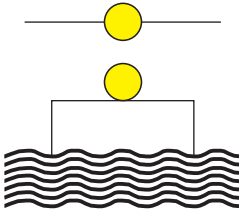
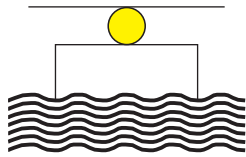
Each fixed red light		by	a rectangular red board with a horizontal white stripe;	
Each fixed green light		by	a rectangular green board with a vertical white stripe; and	
Each fixed yellow light		by	a square yellow board with the diagonals horizontal and vertical	

3.1 Fixed bridges

3.1.1 Channel strictly prohibited



3.1.2 Channel recommended

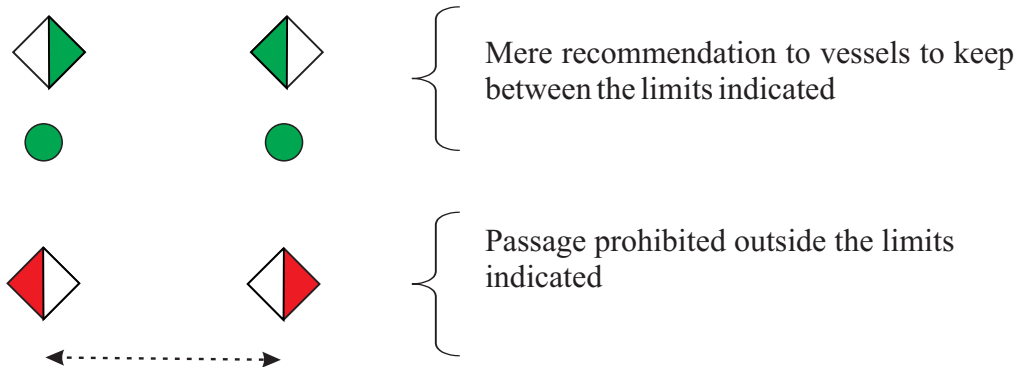


Two-way traffic

One-way traffic (in this case the other face of the bridge must display a red light)

If necessary for practical reasons, the lights may be placed side by side.

To mark the width of the channel by showing the site of the piers, or if appropriate, to show the boundaries between which the channel is normally usable (e.g. where the depth of water or headroom near the piers is insufficient), the following marks may be used as desired:



For the convenience of boatmasters, inverted scales showing the headroom available under the bridge may be affixed to the piers.

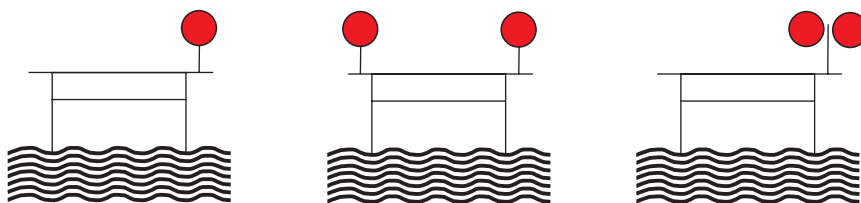
3.1.3 Channel not expressly recommended

Where there are one or more recommended channels, channels which, while not expressly recommended, may be used at the boatmaster's own risk shall either bear no marking or exhibit the restrictive signs prescribed under 5.1C.

3.2 **Movable bridges**

3.2.1 Passage prohibited

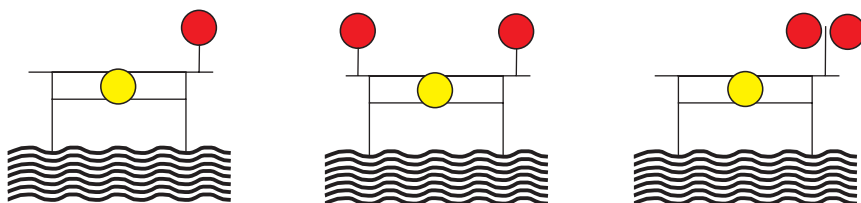
(i) General prohibition



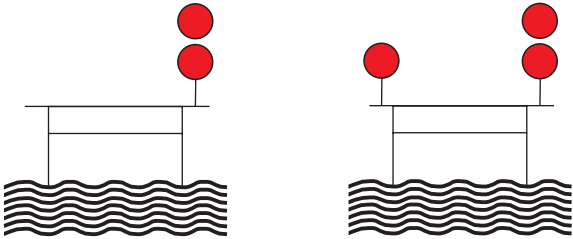
Where there are several red lights side by side the extinction of one of them means:

“Passage prohibited (movable bridge being prepared for opening).”

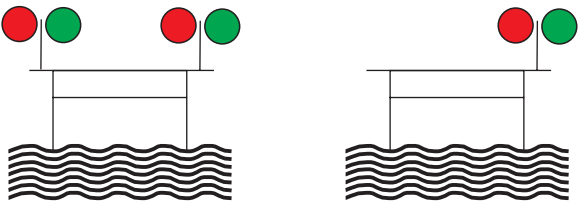
(ii) No passage except for low-built vessels



(iii) Bridge out of service



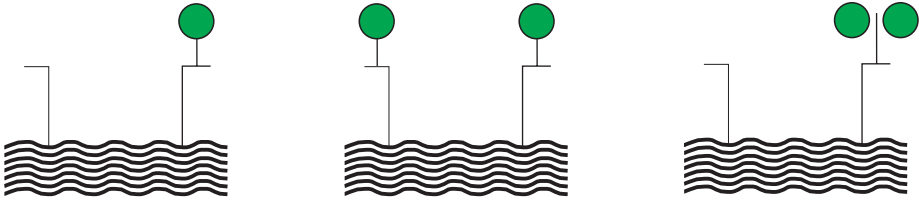
(iv) "No passage now; but stand by to go ahead" (passage will shortly be clear).



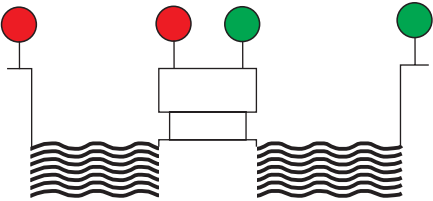
The lights may be either side by side or one above the other

3.2.2 Passage authorized

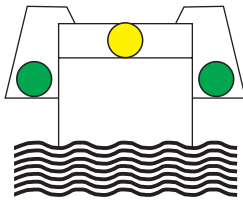
(i) General authorization



(ii) Special cases: i) swing-bridge



ii) lift-bridge



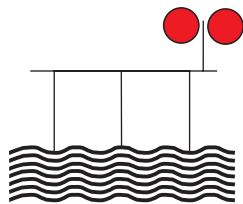
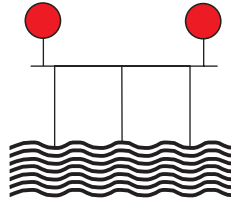
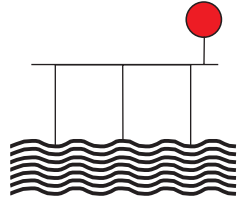
The following may be used:

green lights; or
yellow light; or
green lights combined with yellow light

3.3 Locks

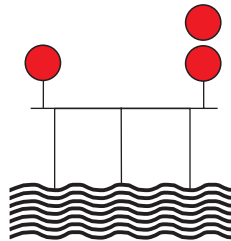
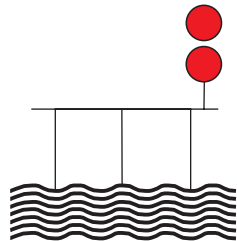
3.3.1 Entry or exit prohibited

(i) General prohibition

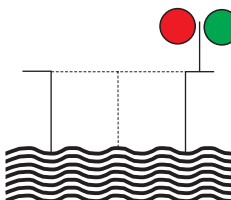
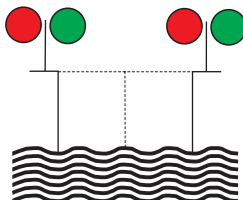


Where there are several red lights side by side, the extinction of one of them means: entry or exit forbidden (gates being prepared for opening)

(ii) Lock out of service

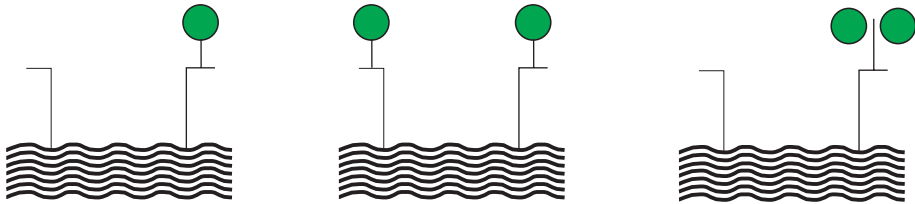


(iii) "Stand by to proceed" (entry or exit will shortly be authorized)

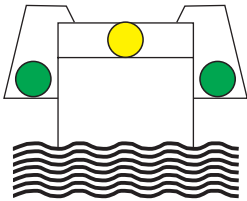


The lights may be either side by side or one above the other

3.3.2 Entry or exit authorized

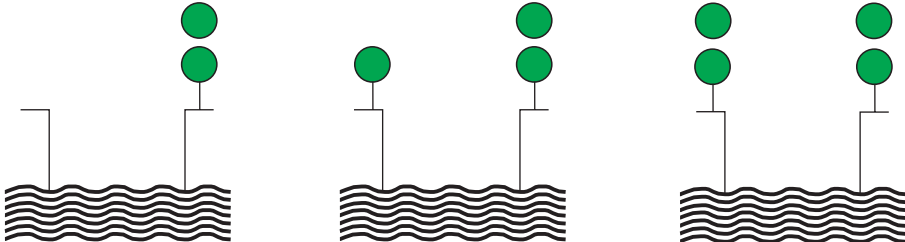


Special case:
lifting gates







The following may be used:
green lights; or
yellow light; or
green lights combined
with yellow light

3.3.3 Passage clear: lock with all gates open



4 BLOCKAGE OF THE WATERWAY

The following may be replaced:

Each fixed red light		by	a rectangular red board with a horizontal white bar	
Each fixed green light		by	a rectangular green board with a vertical white bar	

4.1 Complete and protracted stoppage of navigation

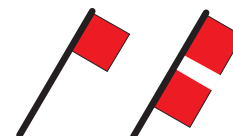
In general



However, a single red light may be used if it is sufficient to clearly indicate the prohibition and cannot be confused with lights extraneous to the waterway marking lights.



In case of emergency, red flags may be used provisionally by day pending marking with the lights or boards prescribed above.



4.2 Temporary stoppage of navigation

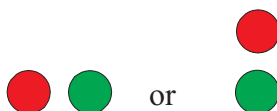
This situation arises, for example, when passage through a narrow section of the waterway is authorized in each direction alternately. The signals are then operable as required.

“Stop”



Where there are several red lights side by side, the extinction of one of them means: “Passage forbidden (passage about to be authorized)”.

“Stand by to proceed”



The lights may be either side by side or one above the other

“Go ahead”



5 WATERWAY SIGNS^{1/}

5.1 Main signs

The main signs given below may be supplemented or clarified by auxiliary signs given in section 5.2.

Boards may be surrounded by a thin white line.

A PROHIBITORY SIGNS

A.1 No entry (general sign)

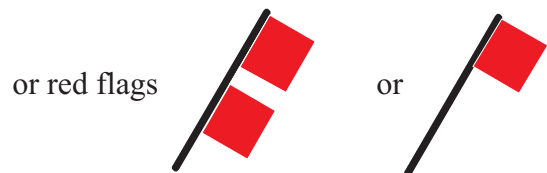
boards



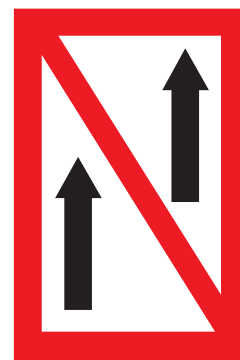
or red lights



Two boards, two lights or two flags, one above the other, indicate a prolonged prohibition

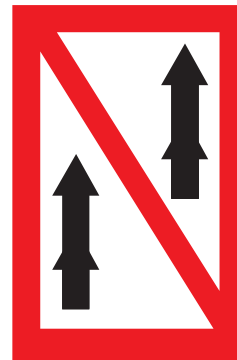


A.2 No overtaking



^{1/} Waterway signs in Belarus, Kazakhstan, the Republic of Moldova, the Russian Federation and Ukraine correspond to national rules.

A.3 No overtaking of convoys by convoys



A.4 No passing or overtaking



A.5 No berthing (i.e. no anchoring or making fast to the bank)



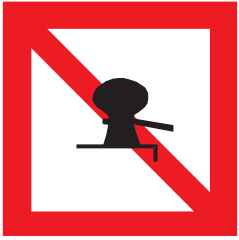
A.5.1 No berthing within the breadth indicated in metres (measured from the sign)



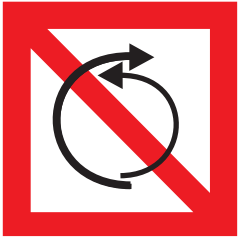
A.6 No anchoring or trailing of anchors, cables or chains



A.7 No making fast to the bank



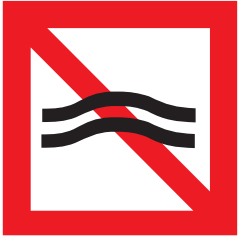
A.8 No turning



A.9 Do not create wash



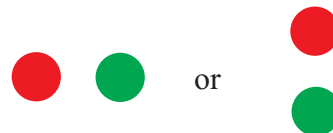
or



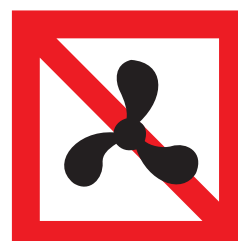
A.10 No passing outside the area marked (in openings of bridges or weirs)



A.11 Entry prohibited, but prepare to get under way



A.12 Motorized craft prohibited



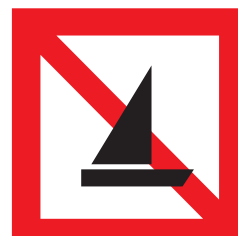
A.13 All sports or pleasure craft prohibited ^{2/}



A.14 Water skiing prohibited



A.15 Sailing vessels prohibited



^{2/} The competent authorities may also use this board to prohibit small craft.

A.16 All craft other than motorized vessels or sailing craft prohibited



A.17 Use of sailboards prohibited



A.18 End of zone authorized for high speed navigation of small sport and pleasure craft



A.19 No launching or beaching of vessels

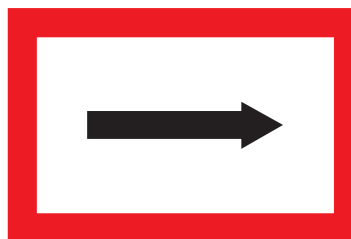


A.20 Water bikes prohibited



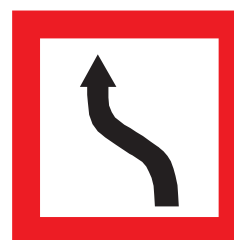
B MANDATORY SIGNS

B.1 Proceed in the direction shown by the arrow

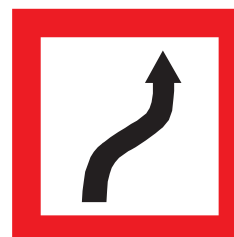


B.2

(a) Move to the side of the channel on your port side

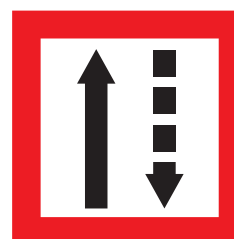


(b) Move to the side of the channel on your starboard side

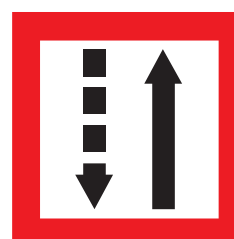


B.3

(a) Keep to the side of the channel on your port side



(b) Keep to the side of the channel on your starboard side



B.4

(a) Cross channel to port



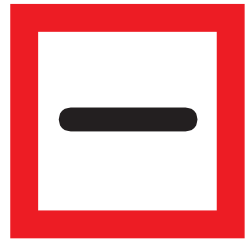
(b) Cross channel to starboard



B5

Obligation to stop in certain circumstances

This sign may be used, for example, before a Customs post or a closed permanent structure. In the latter case, it marks the limit beyond which vessels must not proceed so long as access to the permanent structure is prohibited by the marks prescribed under 3, above.



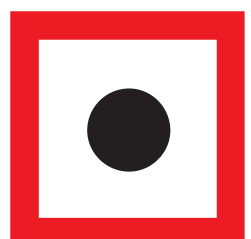
B.6

Do not exceed the speed indicated (in km/h)



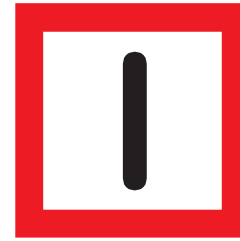
B.7

Give a sound signal



B.8 Keep a particularly sharp lookout

This sign may also be used as an advance warning of the proximity of a prohibitory or restrictive sign or of a further mandatory sign.



B.9 Do not enter or cross the main waterway until certain that this will not oblige vessels proceeding on it to change their course or speed



(a)



(b)



B.10 Vessels proceeding on the main waterway must, if necessary, change course and speed to allow vessels to leave harbours or tributary waterways



B.11

(a) Obligation to enter into a radiotelephone link



(b) Obligation to enter into a radiotelephone link on the channel as indicated on the board



C RESTRICTIVE SIGNS

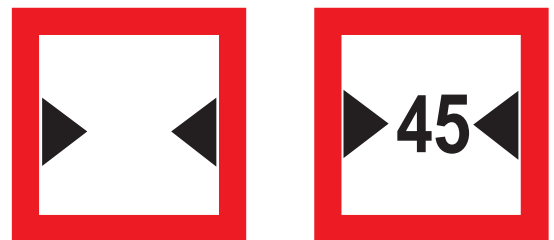
C.1 Depth of water limited



C.2 Headroom limited

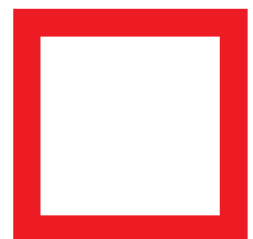


C.3 Width of passage or channel limited



Note: Boards C.1, C.2 and C.3 may carry, in addition, figures indicating in metres the depth of water, the headroom and the width of passage or the channel respectively.

C.4 There are restrictions on navigation: make enquiries



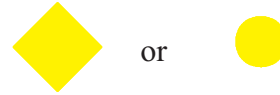
C.5 The channel lies at a distance from the right (left) bank; the figure shown on the sign indicates the distance in metres, measured from the sign, to which vessels should keep



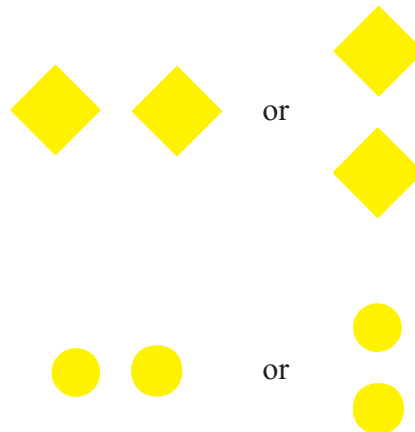
D RECOMMENDATORY SIGNS

D.1 Recommended channel

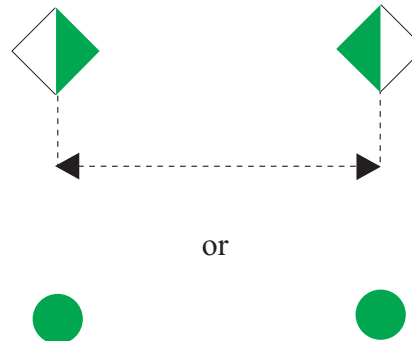
(a) In both directions



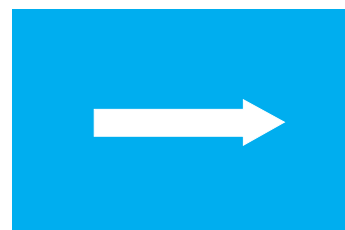
(b) Only in the direction indicated
(passage in the opposite direction prohibited)



D.2 You are recommended to keep within the area indicated (in openings of bridges or weirs)

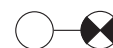


D.3 You are recommended to proceed:
In the direction shown by the arrow



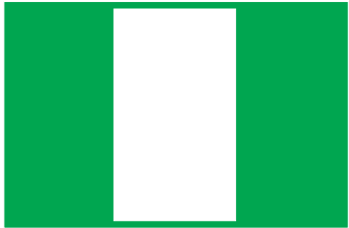
or

In the direction from the fixed light towards
the isophase light

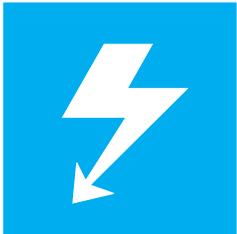


E INFORMATIVE SIGNS

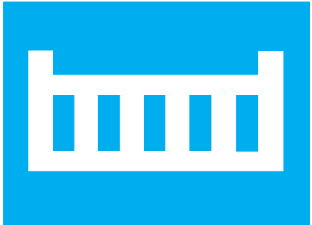
E.1 Entry permitted (general sign)



E.2 Overhead cable crossing

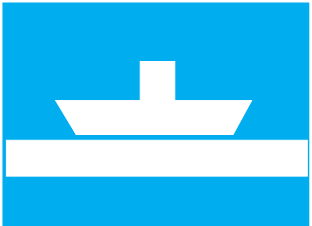


E.3 Weir

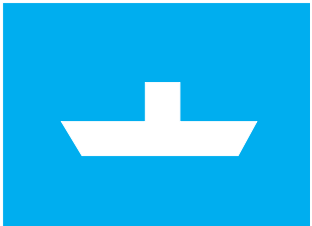


E.4

(a) Ferry-boat not moving independently



(b) Ferry-boat moving independently



E.5 Berthing (i.e. anchoring or making fast to the bank) permitted



E.5.1 Berthing permitted on the stretch of water of the breadth measured from, and shown on the board in metres



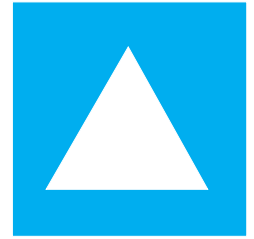
E.5.2 Berthing permitted on the stretch of water bounded by the two distances measured from, and shown on the board in metres



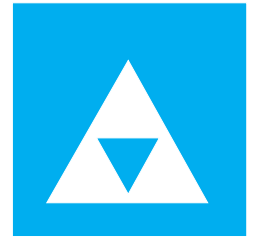
E.5.3 Maximum number of vessels permitted to berth abreast



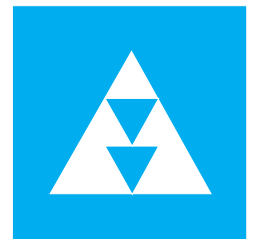
E.5.4 Berthing area reserved for pushing-navigation vessels that are not required to carry additional special signs and signals for vessels carrying dangerous goods



E.5.5 Berthing area reserved for pushing-navigation vessels that are required to carry one blue light or one blue cone



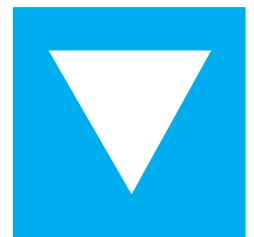
E.5.6 Berthing area reserved for pushing-navigation vessels that are required to carry two blue lights or two blue cones



E.5.7 Berthing area reserved for pushing-navigation vessels that are required to carry three blue lights or three blue cones



E.5.8 Berthing area reserved for vessels other than pushing-navigation vessels that are not required to carry the marking prescribed for vessels carrying dangerous goods



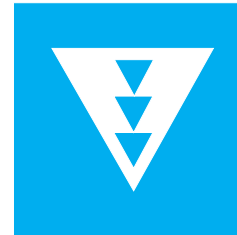
E.5.9 Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry one blue light or one blue cone



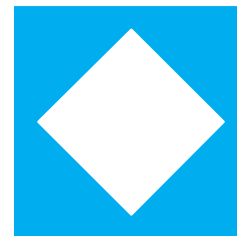
E.5.10 Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry two blue lights or two blue cones



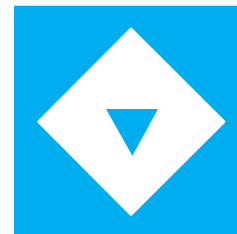
E.5.11 Berthing area reserved for vessels other than pushing-navigation vessels that are required to carry three blue lights or three blue cones



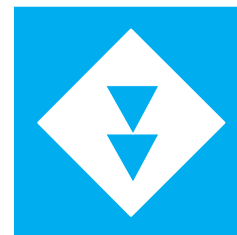
E.5.12 Berthing area reserved for all vessels that are not required to carry the marking prescribed for vessels carrying dangerous goods



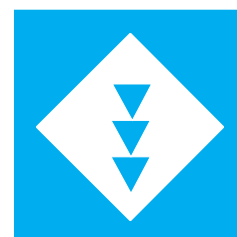
E.5.13 Berthing area reserved for all vessels that are required to carry one blue light or one blue cone



E.5.14 Berthing area reserved for all vessels that are required to carry two blue lights or two blue cones



E.5.15 Berthing area reserved for all vessels that are required to carry three blue lights or three blue cones



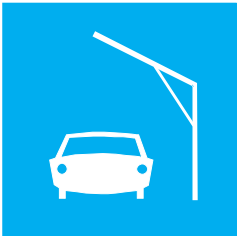
E.6 Anchoring or trailing of anchors, cables or chains permitted



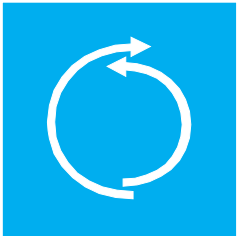
E.7 Making fast to the bank permitted



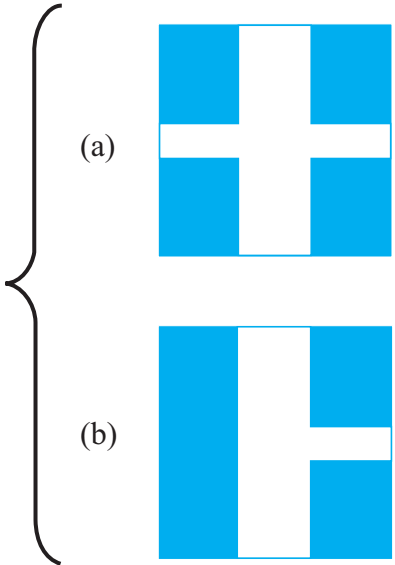
E.7.1 Berthing area reserved for loading and unloading vehicles. (Maximum duration of berthing permitted may be added on an information plate below the board)



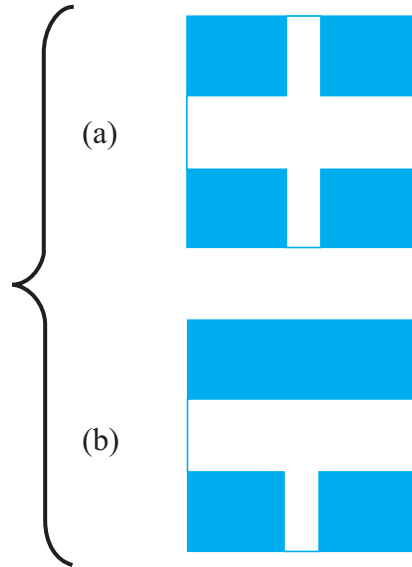
E.8 Turning area



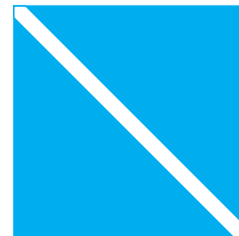
E.9 The waterways being approached are considered to be tributaries of this waterway



E.10 This waterway is considered to be a tributary of the waterway being approached



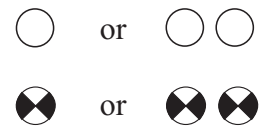
E.11 End of a prohibition or obligation applying to traffic in one direction only, or end of a restriction



E.12 Advance signals: one or two white lights

(a) Fixed light(s): Difficulty ahead - stop if the regulations so require

(b) Isophase light(s): You may proceed



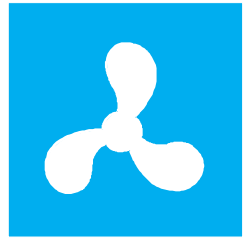
E.13 Drinking-water supply



E.14 Telephone



E.15 Motorized vessels permitted



E.16 Sports or pleasure craft permitted^{3/}



E.17 Water skiing permitted



E.18 Sailing vessels permitted



E.19 Craft other than motorized vessels or sailing craft permitted



^{3/} The competent authorities may also use this board to permit small craft.

E.20 Use of sailboards permitted



E.21 Zone authorized for high speed navigation of small sport and pleasure craft



E.22 Launching or beaching of vessels permitted



E.23 Possibility of obtaining nautical information by radio-telephone on the channel indicated



E.24 Water bikes permitted



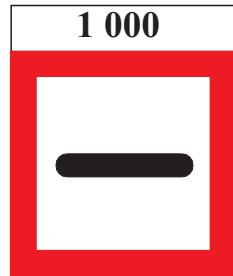
5.2 Auxiliary signs

The main signs (see section 5.1) may be supplemented by the following auxiliary signs:

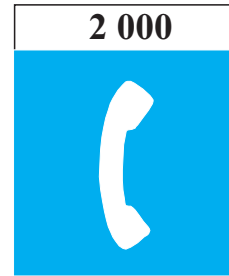
5.2.1 Panels showing the distance at which the regulation applies or the special feature indicated by the main sign is to be found

Note: The panels are placed above the main sign.

Examples:



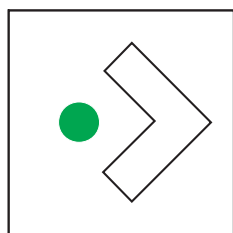
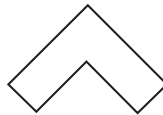
In 1,000 m, stop



Telephone at 2,000 m

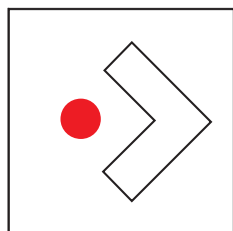
5.2.2 Additional luminous signal

Luminous white arrow combined with certain lights, with the following meanings:



(a) With green light

Example: Permission to enter the basin to which the arrow is pointing

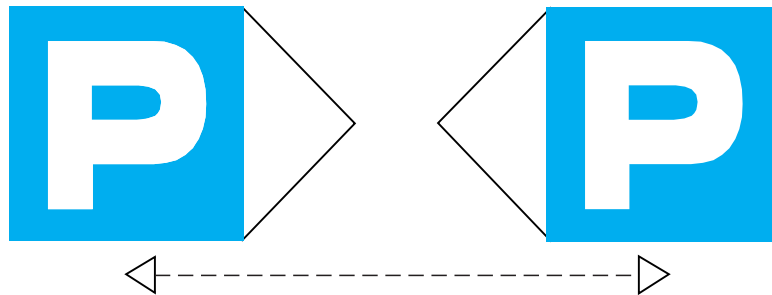


(b) With red light

Example: No entry to the basin to which the arrow is pointing

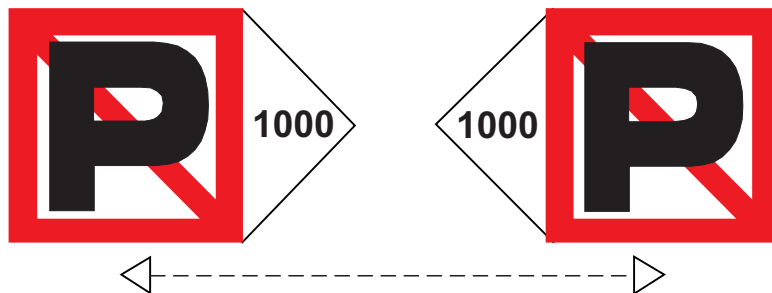
5.2.3 Pointers showing the direction of the section to which the main sign applies

Note: The pointers need not necessarily be white and may be placed beside or below the main sign.



Examples:

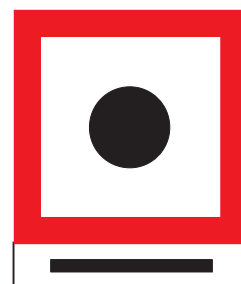
Berthing permitted



Berthing prohibited (over a distance of 1,000 m)

5.2.4 Panels giving explanations or additional information

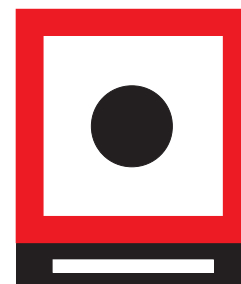
Note: These panels are placed below the main sign.



Examples:



Stop for Customs

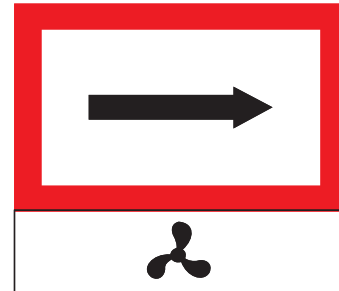


Give one long blast

5.2.5 Panels indicating the type of craft concerned

Where a prohibition, a mandatory requirement or an indication applies only to a particular type of craft or activity, the symbol for such craft or activity shall be shown in black on a white ground on a panel below the sign.

Example:



Mandatory requirement
for motorized craft to take
a specified direction.

6 MISCELLANEOUS

6.1 Entrances to harbours

In this section, the expression “entrances to harbours” also includes entrances to tributary waterways, entrances to secondary arms of waterways and entrances to docks.

6.1.1 If day marking at the harbour entrance is necessary, the entrance shall be marked:

To port of a vessel entering: by painting the light pillar, preferably cylindrical, red; or by means of a cylindrical red topmark; or by painting red rectangles on the jetty;

To starboard of a vessel entering: by painting the light pillar, preferably conical, green; or by means of a conical green topmark; or by painting green triangles, point upwards, on the jetty.

6.1.2 At night, for small harbours, it shall be sufficient to illuminate the day markings described above.

If lights are considered necessary, the entrance shall be marked:

To port of a vessel entering: by a red light, preferably rhythmic;

To starboard of a vessel entering: by a green light, preferably rhythmic.

In the case of a narrow or specially shaped entrance, one of these lights may be sufficient to help a boatmaster to enter the harbour. Such a single light shall be rhythmic.

Annex 2 illustrates the provisions of this section for lakes and broad waterways.

- 6.1.3 The same rules shall apply to the colours and shapes of buoys and marks on channels leading into the harbour.

It is recommended that lights of the same colour used for signalling the entrance to the harbour and buoying the channel should have different rhythms to permit differentiation.

The installation of the above lights for marking the entrance to the harbour does not preclude the installation of fixed lights having the meaning attached to them in 1.3 above, with a view to regulating navigation. In such cases, the lights marking the entrance to the harbour shall be rhythmic.

6.2 Distance marks

It may be advisable to place kilometre markings along an inland waterway, and possibly to mark off each hectometre as well.

7 MARKING OF PROHIBITED OR RESTRICTED ZONES

- 7.1 If the limits of prohibited or restricted zones need to be indicated, the special marks prescribed in 2.4.5. shall be used. The nature of the prohibition or restriction shall so far as possible be notified to users in writing (for instance, in charts) and by local information.

This information shall preferably be given by means of boards on the bank showing one of the prohibitory or informative signs prescribed in 5.1A or 5.1E, or by means of the red rectangular board with a white horizontal bar. Such boards shall if necessary be supplemented by an arrow showing the direction of the area to which the sign prescribed in 5.2.3. applies.

Alternatively, the local information may be carried on the yellow buoys of 2.4.5. It may also be given by means of topmarks placed on the buoys in lieu of a topmark as prescribed in 2.4.5. For example, buoys at the edge of a zone where navigation is totally prohibited may carry a staff with a rigid triangular red pennon. If other topmarks are used, they shall be clearly different from this red pennon and from the topmarks prescribed in chapter 2.

- 7.2 If a shore zone in which one or more types of craft or activity are prohibited or restricted is crossed by a channel in which one such kind of craft or activity is not prohibited or restricted (except as regards an entrance to a harbour to which section 2.1 applies), the sides of the channel also shall be marked by yellow buoys. The two buoys at the entrance shall be twice the size of the other buoys, and if necessary their upper parts shall be painted red on the right-hand side and green on the left-hand side for a boatmaster leaving the channel.

On the bank, boards as prescribed in 5.1E shall indicate the type of craft or activity permitted (e.g., the “water skiing” permission sign to indicate a water-skiing channel across an area where all navigation, or only water skiing, is prohibited); the markings may be supplemented by the arrow prescribed in 5.2.3 above.


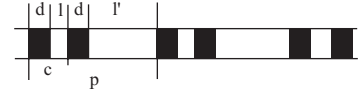

Where a zone open for more than one activity is crossed by a channel in which only one activity is permitted, the sides of the channel shall be marked as in the above case. If possible, a board on the bank shall indicate the activity permitted.


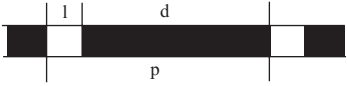
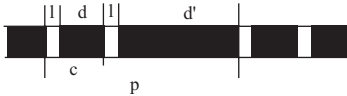
7.3 Annex 2 illustrates the provisions of this section as applied to lakes and broad waterways.

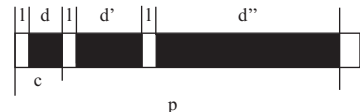

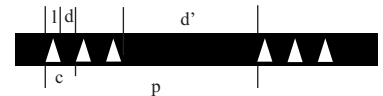
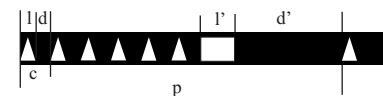
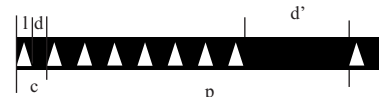
8 BUOYS FOR MISCELLANEOUS PURPOSES

Buoys required for purposes other than those referred to above shall be predominantly white, to avoid confusion with red, green or yellow buoys. They may carry pictograms.

Annex 1 : RHYTHMIC LIGHTS

CLASS	ABBREVIATION	GENERAL DESCRIPTION	SPECIFICATION	PARTICULAR USE
1. OCCULTING LIGHTS		A light in which the total duration of light in a period is clearly longer than the total duration of darkness and all the intervals of darkness (eclipses) are of equal duration.		
1.1. Single-occluding light	Oc	An occulting light in which an eclipse is regularly repeated.	<p>The duration of an appearance of light should not be less than three times the duration of an eclipse. The duration of an eclipse should preferably be between 0.5 s and 1 s. The period should not be less than 2 s.</p>  <p style="text-align: center;">Example : l = 3 s ; d = 1 s ; p = 4 s</p> $1 \geq 3 d$ $0.5 \text{ s} \leq d \leq 1 \text{ s}$ $p \geq 2 \text{ s}$	<p>A single-occluding white light indicates: a safe-water mark.</p> <p>A single-occluding yellow light indicates: a cross-over mark.</p>
1.2 Group-occluding light	Oc ()	An occulting light in which a group of eclipses, specified in number, is regularly repeated.	<p>The appearances of light between the eclipses in a group are of equal duration, and this duration is clearly shorter than the duration of the appearance of light between successive groups. The duration of an appearance of light between groups should not be less than three times the duration of an appearance of light within a group. The duration of an appearance of light within a group should not be less than the duration of an eclipse. The duration of an eclipse should preferably be between 0.5 s and 1 s. In a group of two eclipses, the duration of an eclipse together with the duration of an appearance of light within the group should not be less than 1 s. In a group of three or more eclipses, the duration of an eclipse together with the duration of an appearance of light within the group should not be less than 2 s. The number of eclipses in a group should not be greater than four in general.</p>  <p style="text-align: center;">Example : l' = 6 s ; l = 2 s ; d = 1 s ; c = 3 s ; p = 10 s</p> $l' \geq 3 l$ $l \geq d$ $0.5 \text{ s} \leq d \leq 1 \text{ s}$ $c \geq 1 \text{ s}$	<p>A group-occluding yellow light may indicate: a special mark; a cross-over mark.</p>
2. ISOPHASE LIGHT	Iso	A light in which all the duration of light and darkness are clearly equal.	<p>The period should not be less than 4 s.</p>  <p style="text-align: center;">Example : l = d = 2 s ; p = 4 s</p> $l = d$ $p \geq 4 \text{ s}$	<p>An isophase white light may indicate: a safe-water mark; a bifurcation mark; a mark outside the channel indicating obstacles and danger points; if they can be passed on either side ; an advance signal.</p>

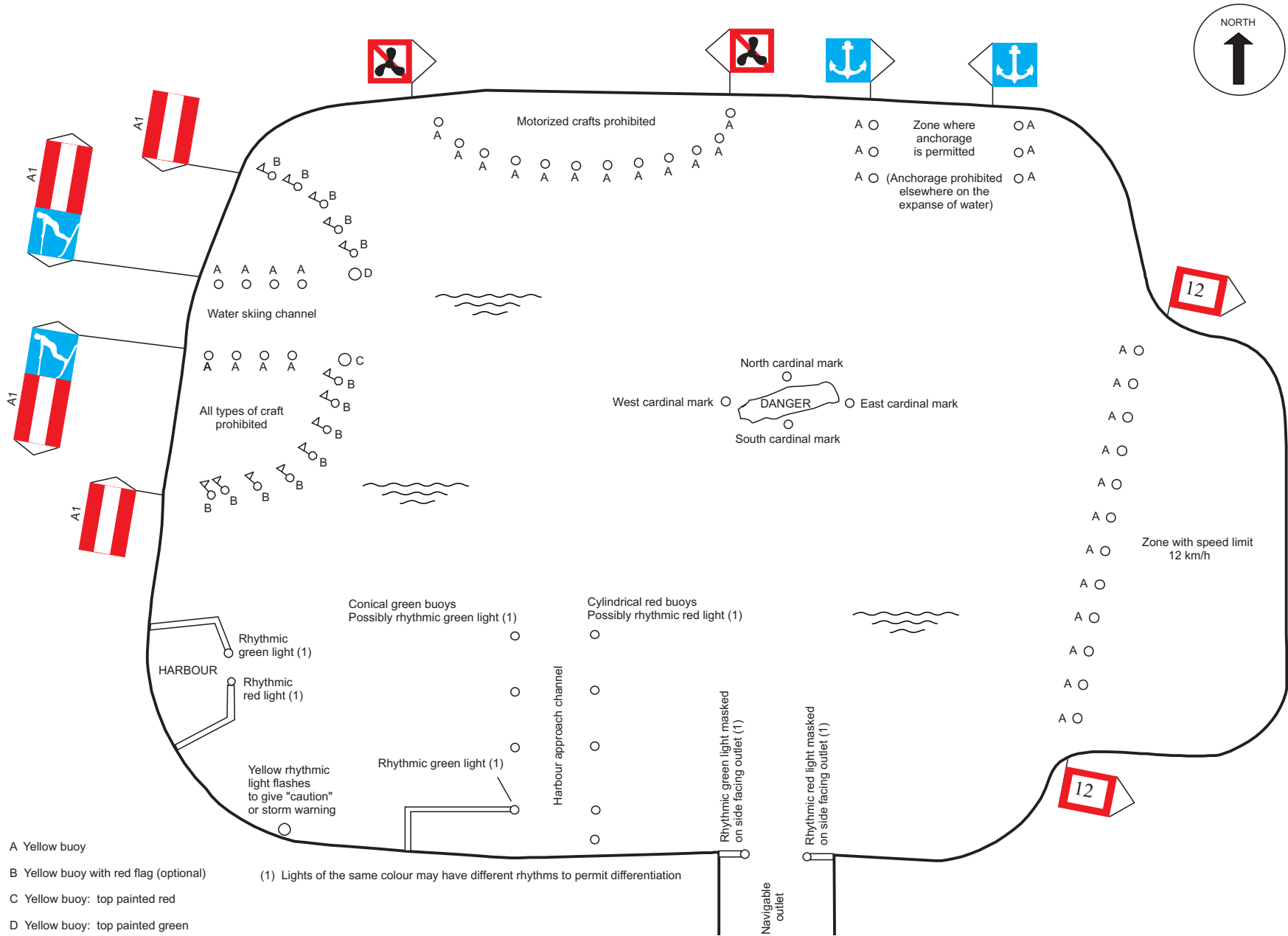
CLASS	ABBREVIATION	GENERAL DESCRIPTION	SPECIFICATION	PARTICULAR USE
3. FLASHING LIGHT		A light in which the total duration of light in a period is clearly shorter than the total duration of darkness and all the appearance of light (flashes) are of equal duration.		
3.1. Single-flashing light	FI	A flashing light in which a flash is regularly repeated at a rate of 30 or less flashes per minute.	<p>The duration of the interval of darkness (eclipse) between two successive flashes should not be less than three times the duration of a flash. The duration of a flash should not be longer than 1 s. The period should not be less than 2 s.</p>  <p style="text-align: right;">$d \geq 3 l$ $l \leq 1 \text{ s}$ $p \geq 2 \text{ s}$</p> <p>Example : $d = 3 \text{ s}$; $l = 1 \text{ s}$; $p = 4 \text{ s}$</p>	A single-flashing yellow light may indicate: a special mark ; a cross-over mark.
3.2. Long-flashing light	LFI	A single-flashing light in which an appearance of light of not less than 2 s duration (long flash) is regularly repeated.	 <p style="text-align: right;">$d \geq 3 l$ $l \geq 2 \text{ s}$ $p = 10 \text{ s}$</p> <p>Example : $d = 8 \text{ s}$; $l = 2 \text{ s}$</p>	A long-flashing white light with a period of 10 s indicates : a safe-water mark.
3.3 Group-flashing light	FI ()	A flashing light in which a group of flashes, specified in number, is regularly repeated.	<p>The eclipses between the flashes in a group are of equal duration, and this duration is clearly shorter than the duration of the eclipse between successive groups. The duration of an eclipse between groups should not be less than three times the duration of an eclipse within a group. The duration of an eclipse within a group should not be less than the duration of a flash. The duration of a flash should not be longer than 1 s. In a group of two flashes, the duration of a flash together with the duration of the eclipse within the group should not be less than 1 s. In a group of three or more flashes, the duration of a flash together with the duration of an eclipse within the group should not be less than 2 s. The number of flashes in a group should not be greater than five in general.</p>  <p style="text-align: right;">$d' \geq 3 d$ $d \geq l$ $l \leq 1 \text{ s}$ $c \geq 1 \text{ s}$</p> <p>Example : $d' = 6 \text{ s}$; $d = 2 \text{ s}$; $l = 1 \text{ s}$; $c = 3 \text{ s}$; $p = 10 \text{ s}$</p>	<p>A group-flashing white light with a group of two flashes, in a period of 5 s or 10 s, indicates :</p> <p style="padding-left: 20px;">an isolated-danger mark.</p> <p>A group-flashing white light with a group of three flashes indicates: a bifurcation mark.</p> <p>A group-flashing yellow light with a group of four, five or (exceptionally) six flashes may indicate : a special mark ; a cross-over mark.</p>

CLASS	ABBREVIATION	GENERAL DESCRIPTION	SPECIFICATION	PARTICULAR USE	
3.4. Composite group-flashing light	Fl (+,.)	A light similar to a group-flashing light except that successive groups in a period have different numbers of flashes.	<p>The duration of the eclipse after the single flash should not be less than three times the duration of the eclipse after the group of flashes.</p> <p>Light characters should be restricted to (2+1) flashes in general, and should be (3+1) flashes only as an exception.</p> <p>Fl (2+1)</p>  <p>Example : $d'' = 9 \text{ s}$; $d' = 3 \text{ s}$; $d = 1 \text{ s}$; $l = 1 \text{ s}$; $c = 2 \text{ s}$; $p = 16 \text{ s}$</p>	A composite group-flashing yellow light indicates : a special mark.	
4. SCINTILLATING LIGHT		A light in which identical flashes are repeated at a rate between 50 and 60 flashes ^l per minute.	The duration of an eclipse should not be less than the duration of a flash.		
4.1. Continuous scintillating light	Q	A scintillating light in which a flash is regularly repeated.	 <p>Example : $l = d = 0.5 \text{ s}$; $p = 1 \text{ s}$</p>	$d \geq l$ $1 \text{ s} \leq p \leq 1.2 \text{ s}$	A continuous scintillating white light may indicate: a north cardinal mark ; a bifurcation mark ; a mark outside the channel indicating obstacles and danger points, if they can be passed on either side.
4.2. Group scintillating light	Q ()	A scintillating light in which a specified group of flashes is regularly repeated.	<p>The number of flashes in a group should be three or nine.</p> <p>An exceptional light character is reserved to indicate a south cardinal mark.</p> <p>The duration of the long eclipse should not be less than 3 s.</p> <p>Q(3)</p>  <p>Example : $d' = 7.5 \text{ s}$; $l = d = 0.5 \text{ s}$; $c = 1 \text{ s}$</p>	$d' \geq 3 \text{ s}$ $d \geq l$ $1 \text{ s} \leq c \leq 1.2 \text{ s}$ $p = 10 \text{ s}$	A group scintillating white light with a group of three flashes, in a period of 10 s, indicates: an east cardinal mark.
			<p>Q(6) + LFI</p>  <p>Example : $d' = 7 \text{ s}$; $l' = 2 \text{ s}$; $l = d = 0.5 \text{ s}$; $c = 1 \text{ s}$</p>	$d' \geq 3 \text{ l}'$ $l' \geq 2 \text{ s}$ $d \geq l$ $1 \text{ s} \leq c \leq 1.2 \text{ s}$ $p = 15 \text{ s}$	A group scintillating white light with a group of six flashes followed by a long flash of not less than 2 s duration, in a period of 15 s, indicates : a south cardinal mark.
			<p>Q(9)</p>  <p>Example : $d' = 6.5 \text{ s}$; $l = d = 0.5 \text{ s}$; $c = 1 \text{ s}$</p>	$d' \geq 3 \text{ s}$ $d \geq l$ $1 \text{ s} \leq c \leq 1.2 \text{ s}$ $p = 15 \text{ s}$	A group scintillating white light with a group of nine flashes, in a period of 15 s, indicates : a west cardinal mark.

*/ The competent authorities should choose the rates for all their scintillating lights and all their quick scintillating lights : either 60 and 120 flashes per minute or 50 and 100 flashes per minute.

CLASS	ABBREVIATION	GENERAL DESCRIPTION	SPECIFICATION	PARTICULAR USE
5. QUICK SCINTILLATING LIGHT		A light in which identical flashes are repeated at a rate between 100 and 120 flashes ² per minute.	The duration of an eclipse should not be less than the duration of a flash.	
5.1. Continuous quick scintillating light	VQ	A quick scintillating light in which a flash is regularly repeated.		A continuous quick scintillating white light indicates : a north cardinal mark.
5.2. Group quick scintillating light	VQ ()	A quick scintillating light in which a specified group of flashes is regularly repeated.	Identical with group scintillating light except for the frequency of the flashes $0.5 \leq c \leq 0.6s$ ² and the period.	A group quick scintillating white light with a group of three flashes in a period of 5 s, indicates: an east cardinal mark. A group quick scintillating white light with a group of six flashes followed by a long flash of not less than 2 s duration, in a period of 10 s, indicates : a south cardinal mark. A group quick scintillating white light with a group of nine flashes, in a period of 10 s, indicates a west cardinal mark.
6. MORSE CODE LIGHT	Mo ()	A light in which appearances of light of two clearly different durations are grouped to represent a character or characters in the Morse Code.	Light characters should be restricted to a single letter in the Morse Code in general, and should be two letters only as an exception. The duration of a "dot" should be about 0.5 s, and the duration of a "dash" should not be less than three times the duration of a "dot".	A Morse Code white light with the single character "A" indicates : a safe-water mark. A Morse Code yellow light, but not with the single character "A" or "U" indicates: a special mark.
			<p style="text-align: center;">Mo(A)</p> <p style="text-align: center;">Example : l' = 1.5 s ; l = 0.5 s ; d = 0.5 s ; d' = 4.5 s ; p = 7 s</p>	

*/ The competent authorities should choose the rates for all their scintillating lights and all their quick scintillating lights : either 60 and 120 flashes per minute or 50 and 100 flashes per minute.



Annex 2 : Buoyage and marking of lakes and broad waterways