IALA

About IALA

International Association of Marine Aids to Navigation and Lighthouse Authorities

Where does the Academy fit in?

Strategic Vision - Goals for 2026:

Goal 1

Marine Aids to Navigation are developed and harmonized through international cooperation and the provision of standards.

Goal 2

All coastal States have contributed to a sustainable and efficient global network of Marine Aids to Navigation through capacity building and the sharing of expertise.

The Committees

The “Power House” of IALA

- AtoN Requirements and Management (ARM)
- Engineering and Sustainability (ENG)
- Vessel Traffic Services (VTS)
- Digital Technologies (DTEC)

IALA Standards – an integrated framework

S1010
ATON PLANNING AND SERVICE REQUIREMENT

S1020
ATON DESIGN AND DELIVERY

S1030
RADIONAVIGATION SERVICES

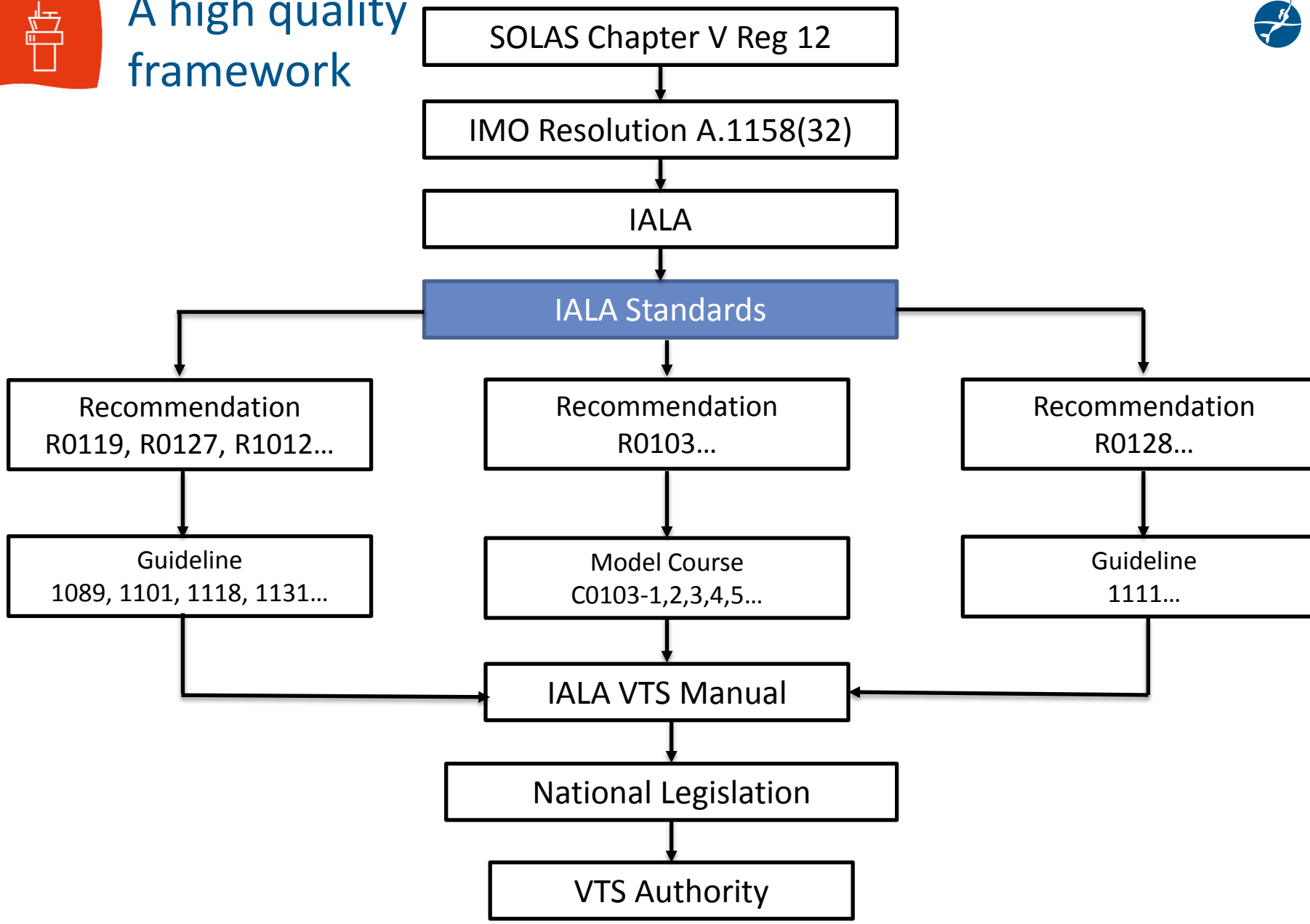
S1040
VESSEL TRAFFIC SERVICES

S1050
TRAINING AND CERTIFICATION

S1060
DIGITAL COMMUNICATION TECHNOLOGIES

S1070
INFORMATION SERVICES

A high quality framework



IMSAS Audit Summary – October 2021

Finding

The State had not taken necessary measures to ensure the availability and maintenance of AtoN in the waters under the jurisdiction of the State. No assessment had been made on the requirement of AtoN based on volume of traffic and degree of risk (SOLAS 1974, regulation V/13; III Code, paragraph 47).

Root cause

There was a lack of financial resources and there was no clear responsibility assigned with regard to the establishment and maintenance of Aids to Navigation (AtoN) services.

Corrective action

The responsible entity will implement the following actions:

1. conduct a comprehensive risk assessment to determine the requirements for all AtoN;
2. based on the aforementioned assessment, install AtoN;
3. create a database to ensure the service and maintenance of AtoN; and
4. establish an AtoN maintenance fund to provide required financial resources.

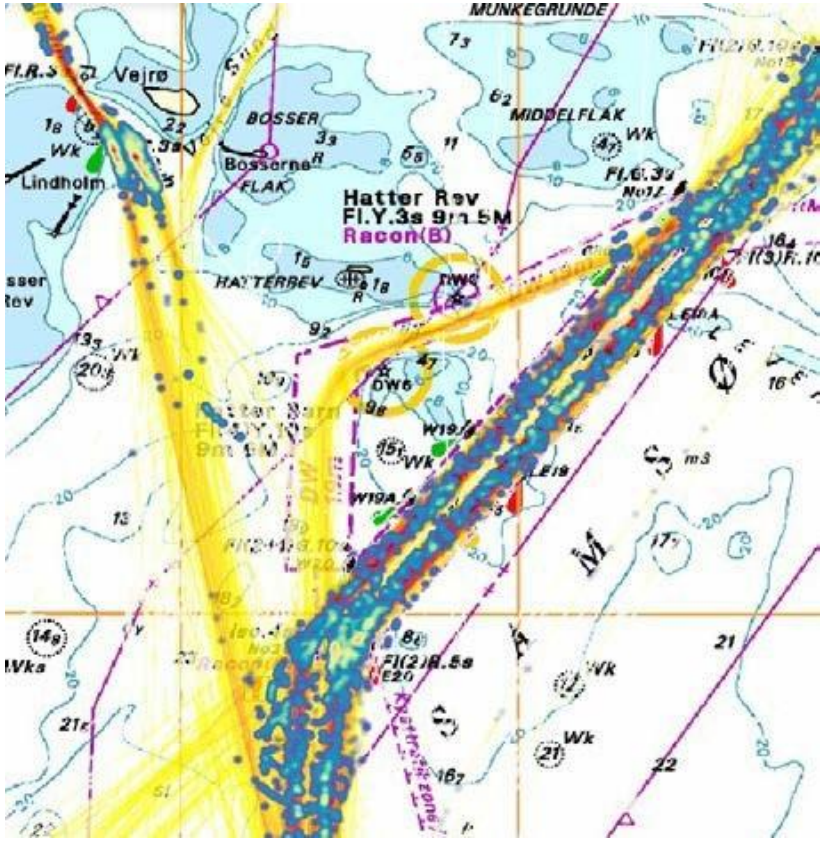
African Great Lakes & Rivers project, IALA risk management toolbox training

Risk management training

The IALA Risk Management Toolbox training is configured for online learning and adopts a new modular approach.

- Concepts of risk management

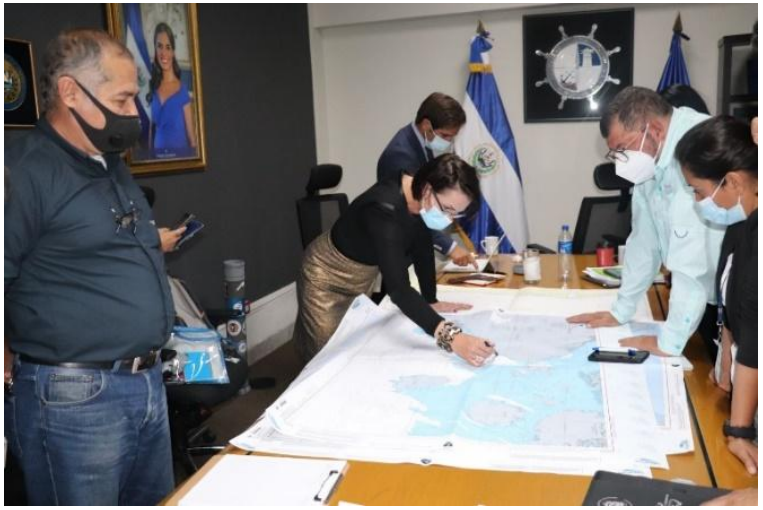
- Risk assessment using SIRA
- Risk assessment using IWRAP Mk2
- Advanced IWRAP MK2 modelling
- Conducting a PAWSA workshop



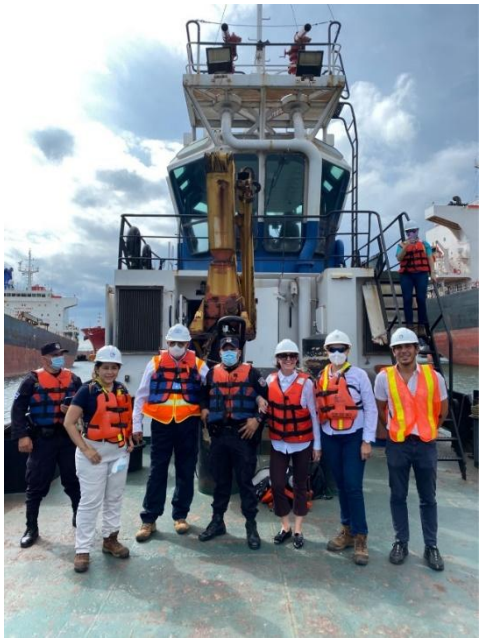
Education and training opportunities

- Vessel Traffic Services
- Aids to Navigation – Management
- Aids to Navigation – Technical

Assisting coastal States worldwide



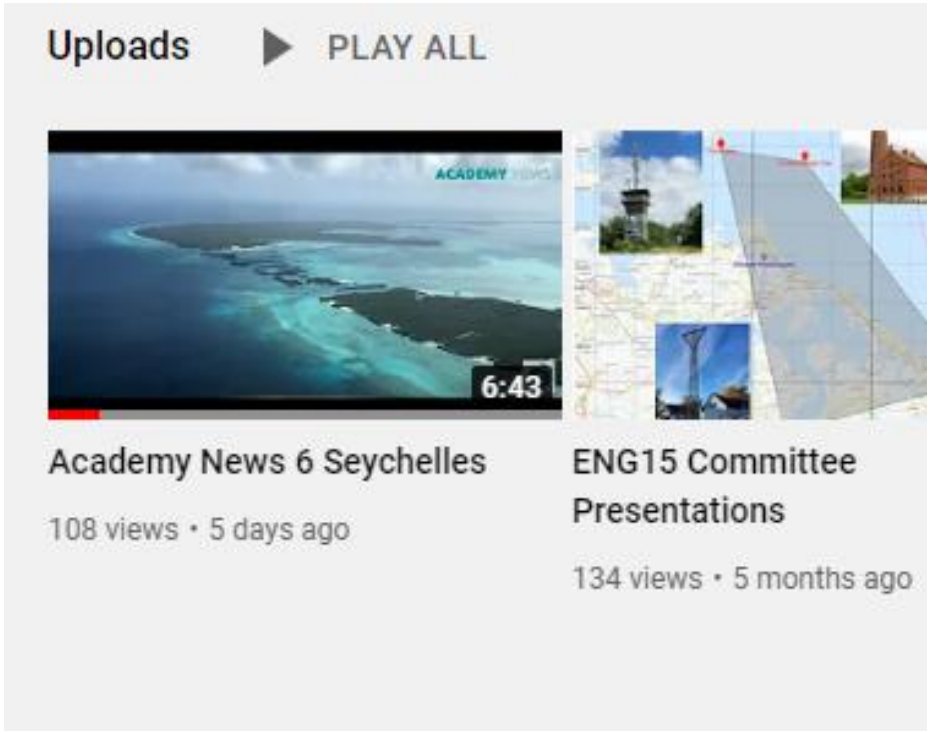
Techncical Cooperation Visit
Risk Assessment,
AtoN planning,
AtoN Governance and policy,

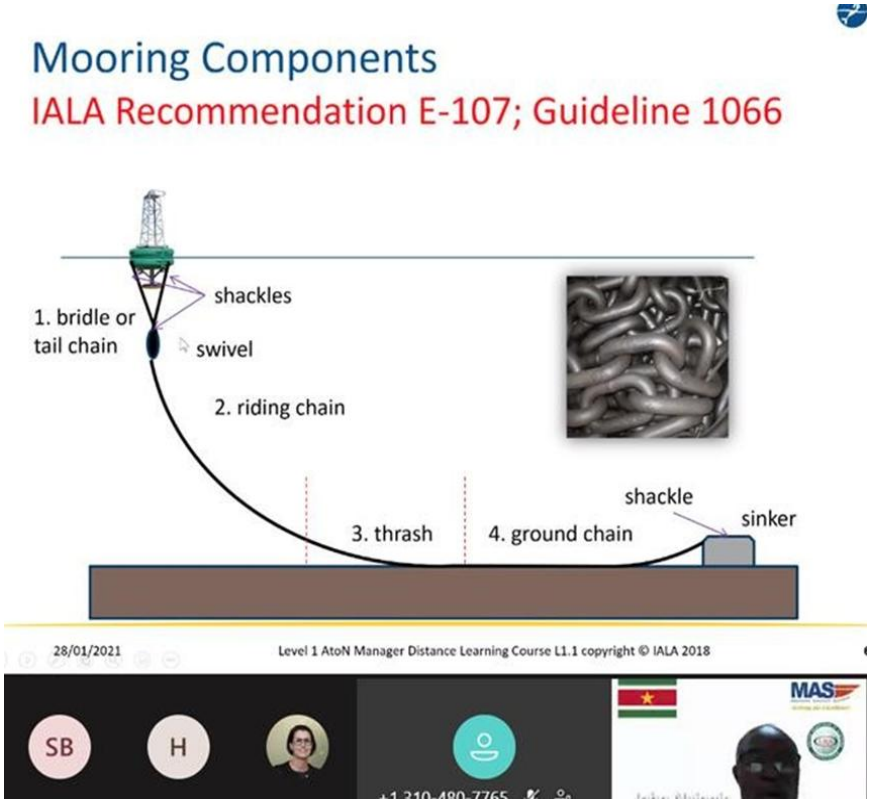


Status SAICH countries

- Angola: ready for a review
- Comoros: mission and review completed
- Kenya: IMO/IALA mission completed
- Mauritius: mission and review completed
- Mozambique: ready for a review
- Madagascar: review mission confirmed for 2024
- Malawi: how can we support you?
- Namibia: mission and review completed
- Tanzania: ready for a mission
- Uganda: how can we support you?
- Seychelles: mission completed
- **France, U.K. and India: deliver AtoN Training**
- Portugal: supports the CB work of the Academy, many thanks

IALA YouTube: technical webinar, Academy News





INTERNATIONAL MARITIME ORGANIZATION

4 ALBERT EMBANKMENT
LONDON SE1 7SR

Telephone: 0171-735 7611
Fax: 0171-587 3210
Telex: 23588 IMOLDN G

IMO

E

A 20/Res.857
3 December 1997
Original: ENGLISH

ASSEMBLY
20th session
Agenda item 9

RESOLUTION A.857(20)
adopted on 27 November 1997

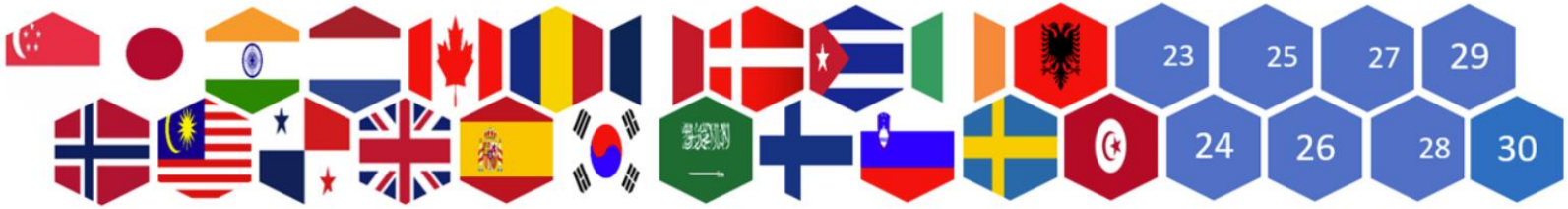
GUIDELINES FOR VESSEL TRAFFIC SERVICES

THE ASSEMBLY,

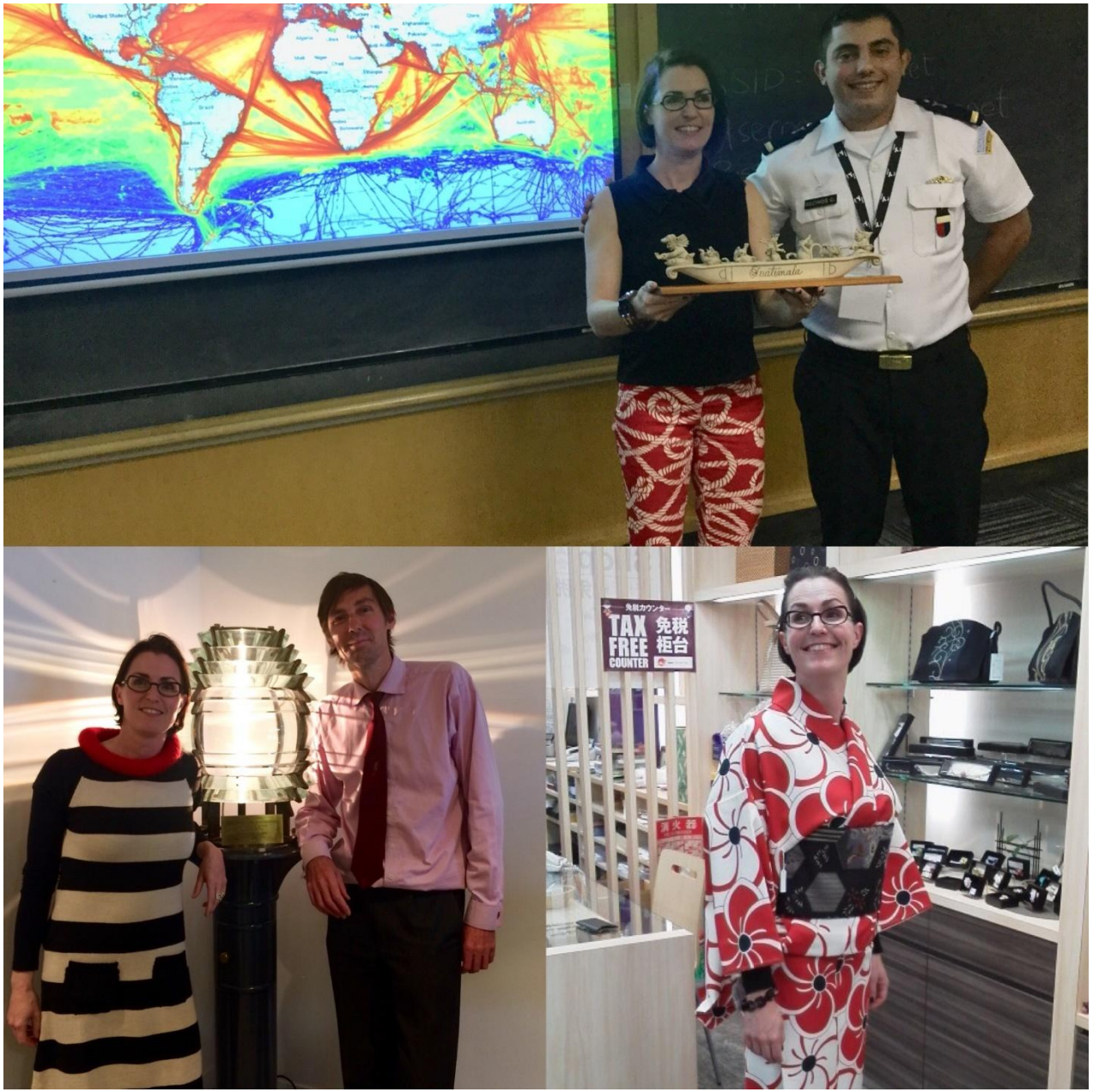
RECALLING Article 15(j) of the Convention on the International Maritime Organization concerning the functions of the Assembly in relation to regulations and guidelines concerning maritime safety and the prevention and control of marine pollution from ships,

Transition to an Inter-Governmental Organization

- Convention was signed by the French Government (depositary) on 27th January 2021
- Open for signature for 12 Months
- 51 signatures by now.
- Now **22 States** have ratified the IALA Convention
- When 30 States have **ratified** the convention, IALA transforms into an **Inter-Governmental Organization**



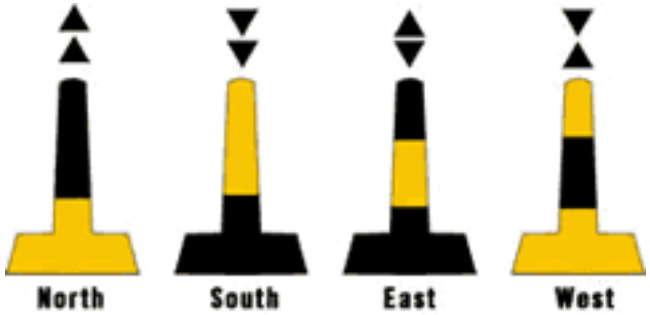
The IALA Maritime Buoyage System and other Aids to Navigation


TAX
FREE
COUNTER
免税
柜台

Stealth designed AtoN

Not detectable by the eye
Not detectable by a ships radar
Constructed on a concrete structure

Pelicans as a topmark

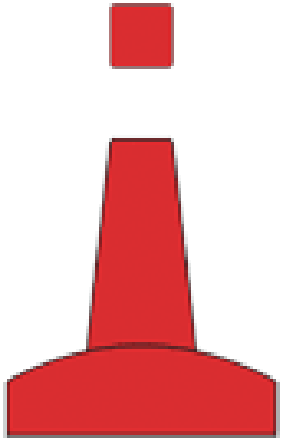


A **RED** lateral mark

IALA WWA Recommendation: to clean the buoys and put bird deterrents on it

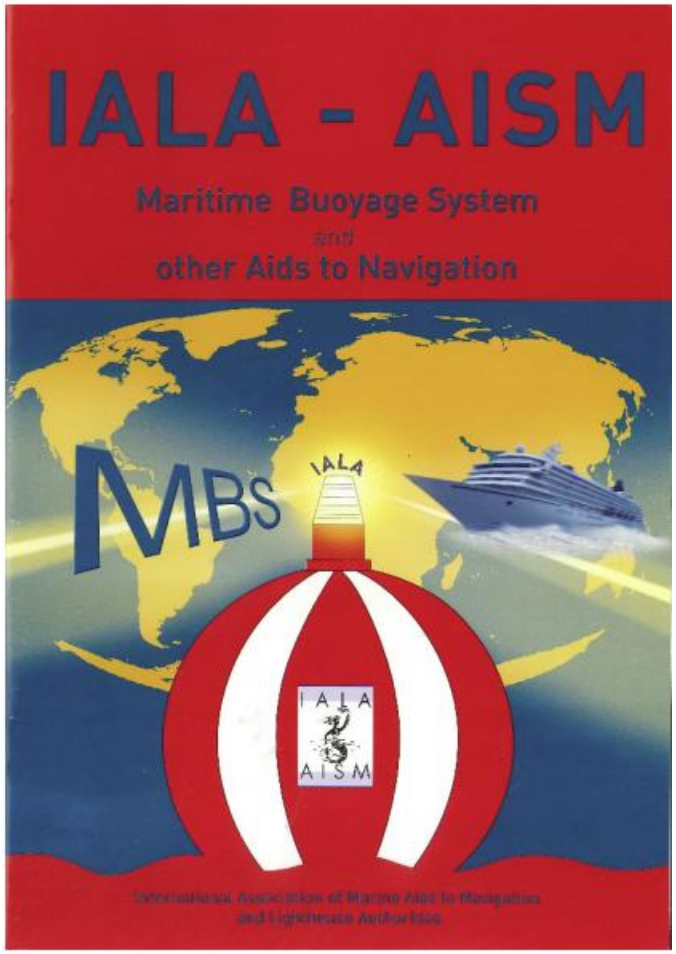
The status after a two years

The red lateral mark turned into a safe water mark after cleaning only half of it!



The IALA Maritime Buoyage System and other Aids to Navigation – R1001

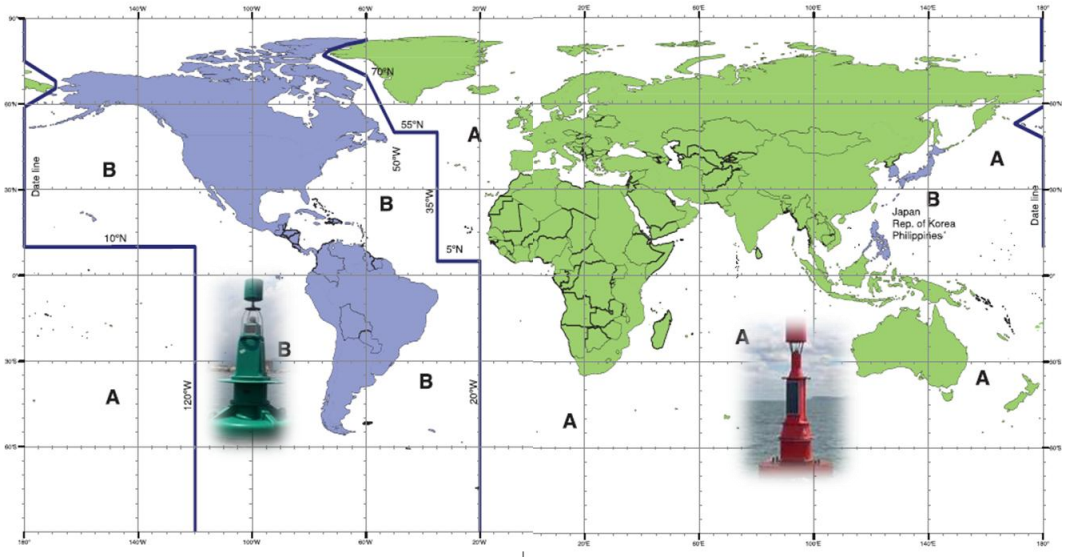
- Originally floating aids to navigation – the Maritime Buoyage System (**MBS**).
- Now also includes **other floating AtoN** e.g., lightships and terrestrial AtoN e.g, lighthouses and beacons and is Recommendation R1001.
- MBS includes rules for **six types of mark** including shape, colour, topmark and light characteristics.
- Rules for other AtoN light characteristics where appropriate.
- Development of **two regions A and B** dependent on choice of colour designation for **port and starboard lateral marks**.

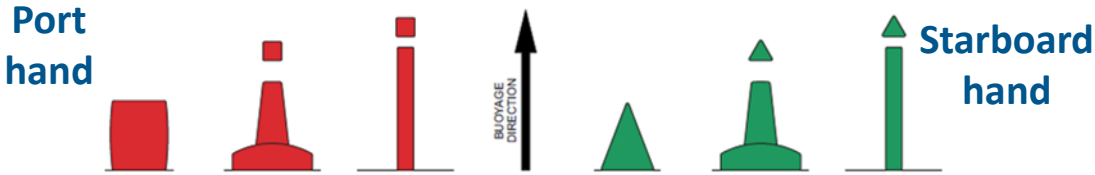


The IALA Maritime Buoyage System floating marks

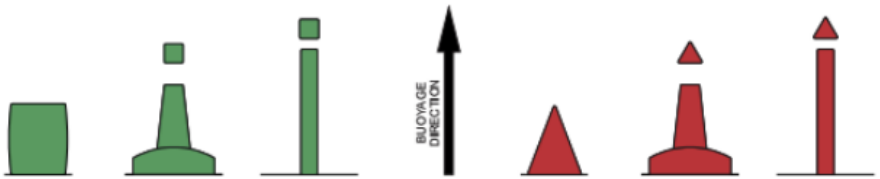
Lateral marks

- Generally denote the **port and starboard sides of a channel** deployed with reference to the conventional direction of buoyage (see MBS 2.1).
- **Regions A and B** differ in designation of port and starboard as red and green respectively.
- Numbered from seaward as **even** numbers on **red** and **odd** numbers on **green** and topmarks are optional.
- Modified red and green buoy may indicate a **preferred route where a channel divides.**





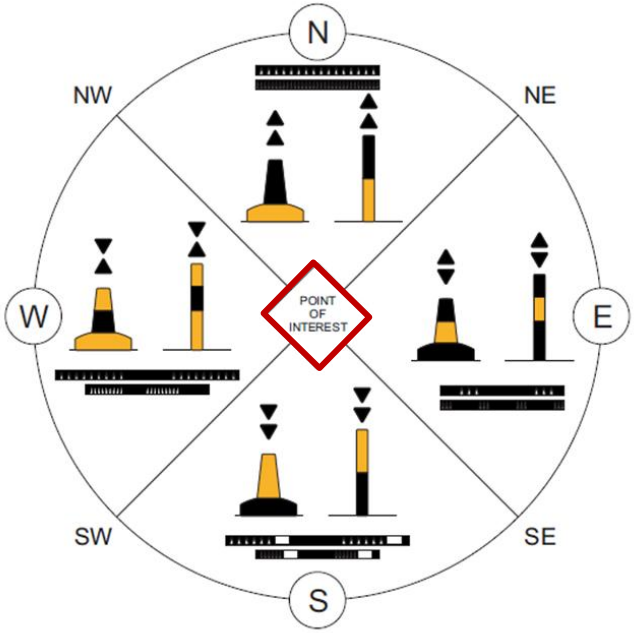
Region A Lateral marks



Region B Lateral marks

Cardinal marks

- **Named after the quadrant** in which it is placed relevant to the point of interest to indicate where the mariner may find navigable water.
- **Shape, colour and topmark** as in diagram opposite. The topmark is an important feature by day and should be included wherever possible.
- Should be **passed to the named side** of the mark.
- **Examples** of use include:
  - Denotes that the **deepest water** in that area is on the named side of the mark.
  - Indicates the **safe side** to pass a danger.
  - Draws attention to a **channel feature** e.g. bend or end of shoal.



Isolated danger mark

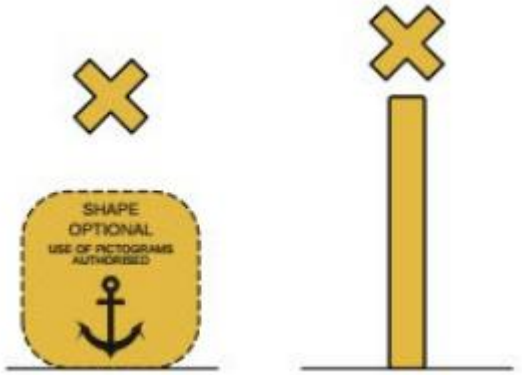
- Erected on or moored on an isolated danger which has **navigable water all around it.**
- **Black** with one or more **red bands.**
- Shape optional but not conflicting with lateral marks. **Pillar or spar** preferred.
- **Double sphere black topmark important feature by day** and should be included wherever possible and made as large as possible with separation between the spheres.

Safe water marks

- Indicate that there is **navigable water all around the mark.**
- Coloured **red and white vertical stripes.**
- Area of deployment **includes centre line and mid channel marks, channel entrance, port approach or landfall.**
- Red sphere topmark is optional.

Special marks

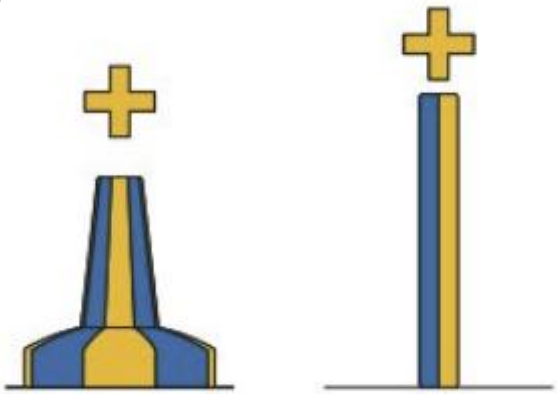
- Indicate a **special area or feature** that may be interpreted from a nautical chart or other publication. Examples include:
  - Spoil grounds
  - Military exercise zones
  - Cables or pipelines
  - Recreation zones
  - Anchorage boundaries
  - Offshore energy structures
- Should not be used in place of more appropriate types of mark. Not generally intended to mark channels or obstructions.
- **Yellow** colour with optional “X” topmark.
- Sometimes include **pictograms.**



New Danger marks

- Newly discovered **man-made or naturally occurring hazards** not yet shown in nautical publications.
- Should be marked using **either Lateral, Cardinal, Isolated Danger** marks or by using the **Emergency Wrecking Buoy** and should be **duplicated** if there is high navigational risk.
- In addition to a light it may be marked by a **Racon** coded Morse D and as a **virtual AtoN.**
- Marking as a New Danger will eventually be removed if hazard has been resolved or information regarding hazard has been sufficiently promulgated.

Emergency wreck marking buoy



- New dangers can be marked using the **Emergency Wreck Marking Buoy.**
- This is always a **blue and yellow** pillar or spar buoy with an **optional yellow cross topmark.**
- There should be a minimum of four stripes and a maximum of eight.
- The buoy should be lit with a **specific blue and yellow alternating pattern.**

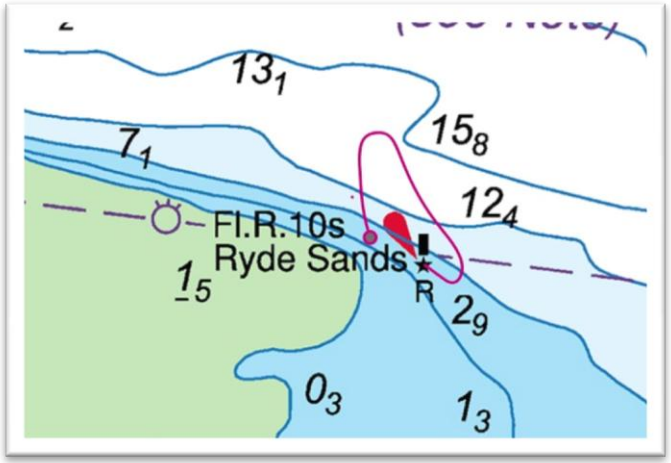
The IALA Maritime Buoyage System light characteristics

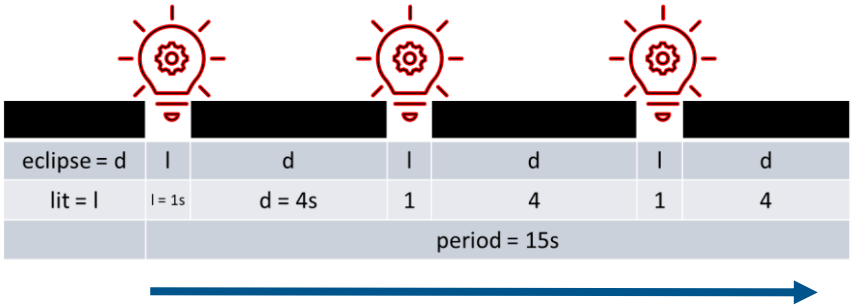
Light characteristics for floating marks

- Lit floating marks listed within the MBS are governed by rules for specific **light characteristics.**
- A light characteristic is a **description using common terminology** of a navigational light sequence and colour e.g.:

  Fl(3) R 15s

  means a red light that flashes 3 times every 15 seconds.
- The first component in the example (**Fl**) is referred to as the light **character** and this also has a recurring **rhythmic** periodicity (3) in this example.
- The third component in the example (**15s**) includes the collective time for the light sequence and is termed the **period**.
- The light period consists of a time when it is lit and a time when it is unlit (also called eclipsed).

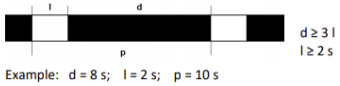
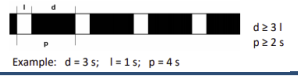
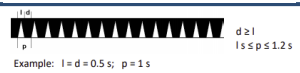
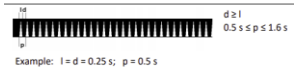
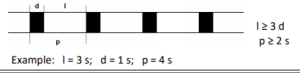
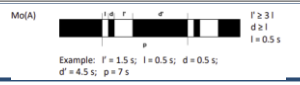
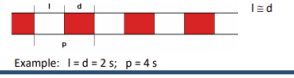




In the example, a single flashing red light Fl(3) R 15s, the eclipsed time is 4s, the lit time is 1s and the period is 15s.

Flash lengths

There are particular terms used to describe varying flash lengths of characters and the relative duration of lit and unlit durations during the flash length. These are summarised in the table below, together with the abbreviation that is used for that flash character.

Flash name	Description	Graphical pattern	Abbreviation
Long	Flash of more than 2 seconds duration		LFl
Single	Flash of about 1 second		Fl
Quick	Period of about 1 second		Q
Very quick	Period of about 0.5 second		VQ
Isophase	Equal lit/unlit		Iso
Occulting	More lit than unlit		Oc
Morse	Morse code character		Mo(x)
Alternating	Alternating colours		Alxx
Fixed (not used)	Constantly lit		F

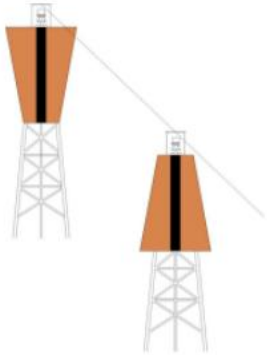
Summary of colour and light characteristics of floating marks

Mark	Colour	Light colour	Character
Lateral	Port (A) Starboard (B) / Port (B) Starboard (A)	As for buoy (red or green).	Any rhythm apart from as for modified lateral.
Modified Lateral	Starboard (A) Port (B) / Port (A) Starboard (B)	Colour as for top band colour (red or green).	Composite group flashing (2+1). (Flashes are combined in successive groups of different numbers of flashes). 
North Cardinal		White	VQ or Q. 
East Cardinal		White	VQ(3) every 5s or Q(3) every 10s. 
South Cardinal		White	VQ(6) + Long flash every 10s or Q (6) + Long flash every 15s. 
West cardinal		White	VQ(9) every 10s or Q(9) every 15s. 
Isolated danger		White	Group flashing (2). (Flashes are combined in groups, each group including the same number of flashes, and in which the groups are repeated at regular intervals). 
Safe water		White	Isophase, occulting, one long flash every 10s or Morse “A”. 
Special		Yellow	Any, other than those reserved for cardinal, isolated danger and safe water marks.
New danger		Yellow and blue alternating	One second of blue light and one second of yellow light with 0.5 sec. of darkness between. 

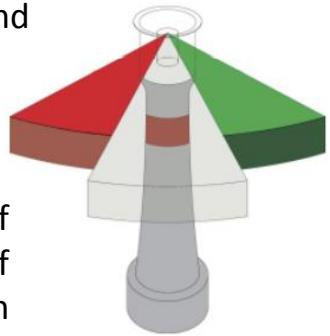
Other Aids to Navigation

Other AtoN

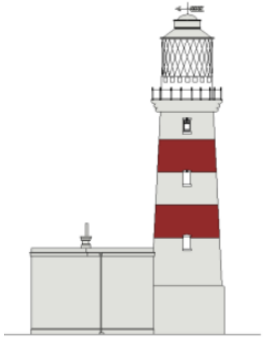
Other marks that are included in R1001 are as shown below:



Leading Lines/Ranges are a group of two or more marks or lights in the same vertical plane for the navigator to follow the leading line on the same bearing. Any colour or shape a long as it is not confused with adjacent structure. Rectangular or triangular figures recommended and fixed lights should be used sparingly to overcome confusion with background light



Sector lights a fixed aid to navigation that displays light of different colours or rhythms over designated arcs. The colour of the light provides directional information. Can indicate direction in a fairway, a turning point, a junction or hazards. Light colour to follow convention for relevant IALA Region.

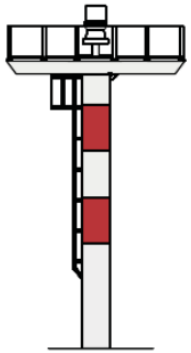


Lighthouses are towers or substantial structure to provide a distinctive daymark or long to medium range light by night, at a designated geographical location. Can also act as a platform for Racon or AIS. Light colours to be white, red or green and any appropriate flash sequence to make the light identifiable.

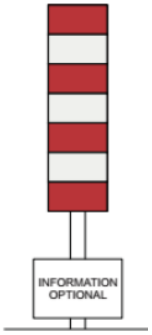
Other AtoN

Other marks that are included in R1001 are as shown below:

Major floating aids deployed at critical locations intended to mark approaches from offshore areas where vessel traffic is concentrated. Include light vessels, light floats and large navigational buoys. Predominantly red in colour, lights when fitted to have appropriate colour and rhythm. Can also act as a platform for Racon or AIS.



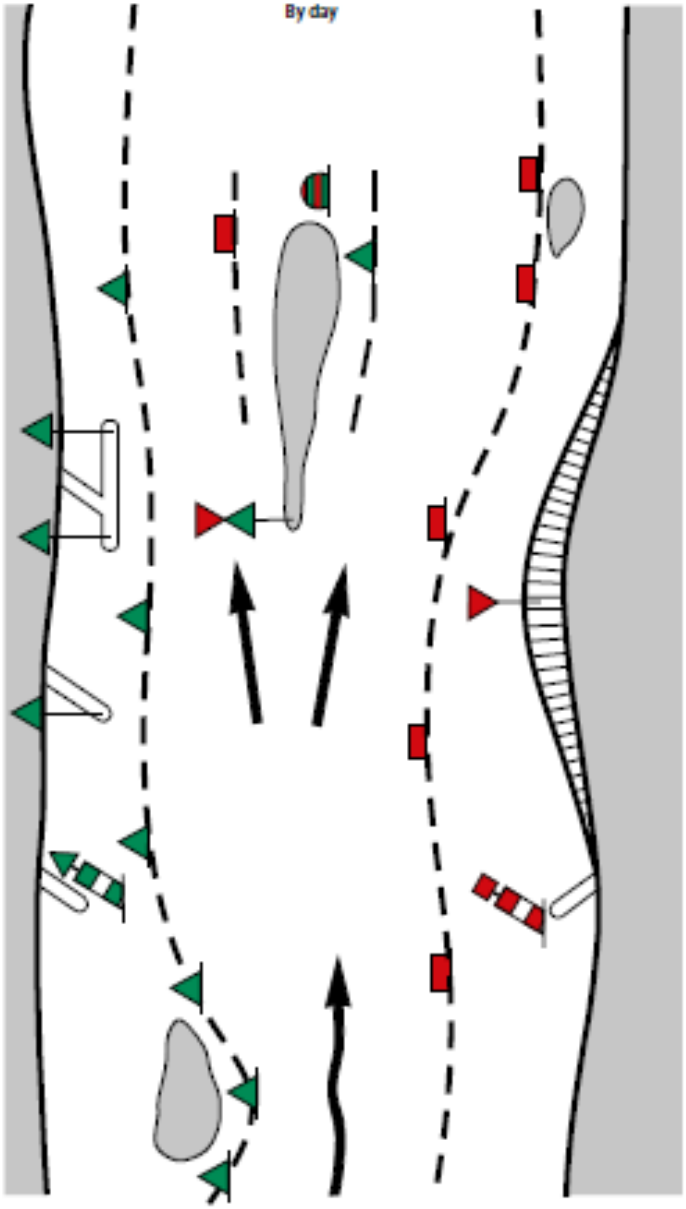
Beacons to provide a fixed navigation mark that can be recognised by combination of shape, colour, pattern, topmark or light character. Topmark and rhythm as appropriate. Can carry a signal light and if so should be white, red or green light. If unlit provides only a daymark. Can be a leading line of conspicuous radar mark and may also carry a topmark.



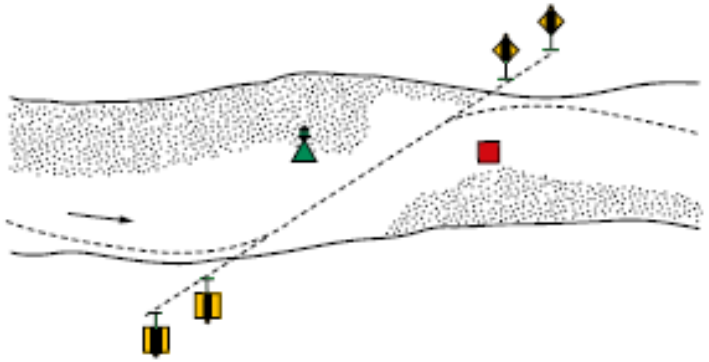
Auxiliary marks are minor aids not described elsewhere. Usually outside of defined channels and generally do not indicate port and starboard sides of the route to be followed or obstructions to be avoided. They also include marks conveying navigational safety information. Should not generally be used if a more appropriate mark in the MBS is not available.

Signs and Signals on Inland Waterways (SIGNI)

Figure 3.11

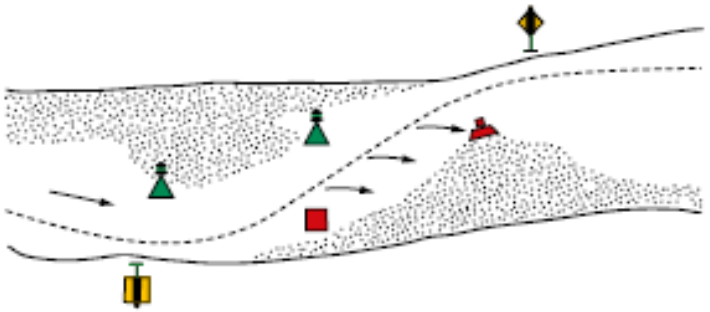


a 6.10



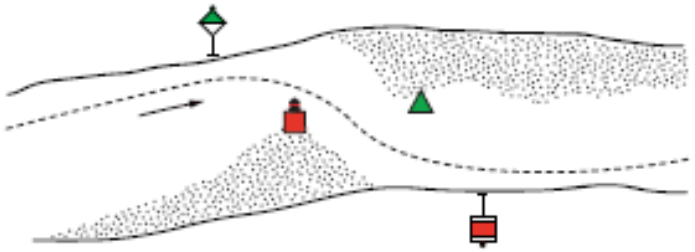
A fairway passing over shoals is usually marked by floating signs (figures 6.10 and 6.11).

a 6.11



If the fairway passes in a straight line between sandbars, reaching far into the river bed, it is necessary to place at least two floating signs at the entry and the exit of such a section: one at the top of the upstream and one on the top of the downstream sandbar (figure 6.12).

a 6.12



QUESTIONS?

QUESTIONS?
MAIL, TEXT OR CALL ME

gerardine.delanoye@iala-aism.org
+ 33 676 45 50 38