

ДЕРЖАВНИЙ УНІВЕРСИТЕТ ІНФРАСТРУКТУРИ ТА ТЕХНОЛОГІЙ

STEADY AS SHE GOES

STUDENT'S BOOK

PART 2



Київ
2019

*Рекомендовано до друку кафедрою іноземних мов
за професійним спрямуванням
Державного університету інфраструктури та технологій
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Посібник розрахований на 90 аудиторних годин.

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INTRODUCTION

Speaking English (both General and Maritime) is an essential condition for all seafarers to get a job. The objective of the module is to develop communicative skills at Maritime English.

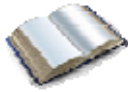
This Student's Book is designed for the second year students of Navigation Department. It consists of four units and appendix.

Each unit has the following parts:

Target language

This part provides the individual items of language that the students should learn.

Reading



Reading is an essential part of language learning at every level because it supports learning in multiple ways. The students' purpose for reading is to obtain information about a subject they are studying. After-reading tasks are designed to develop reading comprehension.

Speaking

The goal of language is communication and the aim of speaking in a language context is to promote communicative efficiency. There are activities for group and pair work.

Watching



References to video resources.

Some units suggest project or research work and brainstorming.

Approximate study time is 90 hours.

UNIT 1

BUOYAGE SYSTEM

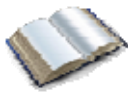
Target language

alternating light
beacon
buoy
cardinal mark
duration
fixed light
IALA
isophase light

lateral mark
lighthouse
lightship
occulting light
pattern
pillar
spar
top mark

Task 1.

1. Give your definitions of the words: buoy, beacon, lighthouse and lightship.
2. Why do seamen use these aids to navigation?
3. Are the rules for safe navigation the same in the world?



Ever since the Egyptians lit the first beacons to warn mariners of rocks, navigation marks have been keeping mariners safe over the centuries. Indeed, the Pharos lighthouse of Alexandria was one of the seven wonders of the ancient world, with a height of 117 metres, it used a mirror to focus the light of a wood burning fire. Returning to the modern day, lights and buoyage have developed considerably, and it's fair to say that an understanding of buoyage is pretty important when you're heading out to sea.



America, South America, the Philippines, Japan and Korea.

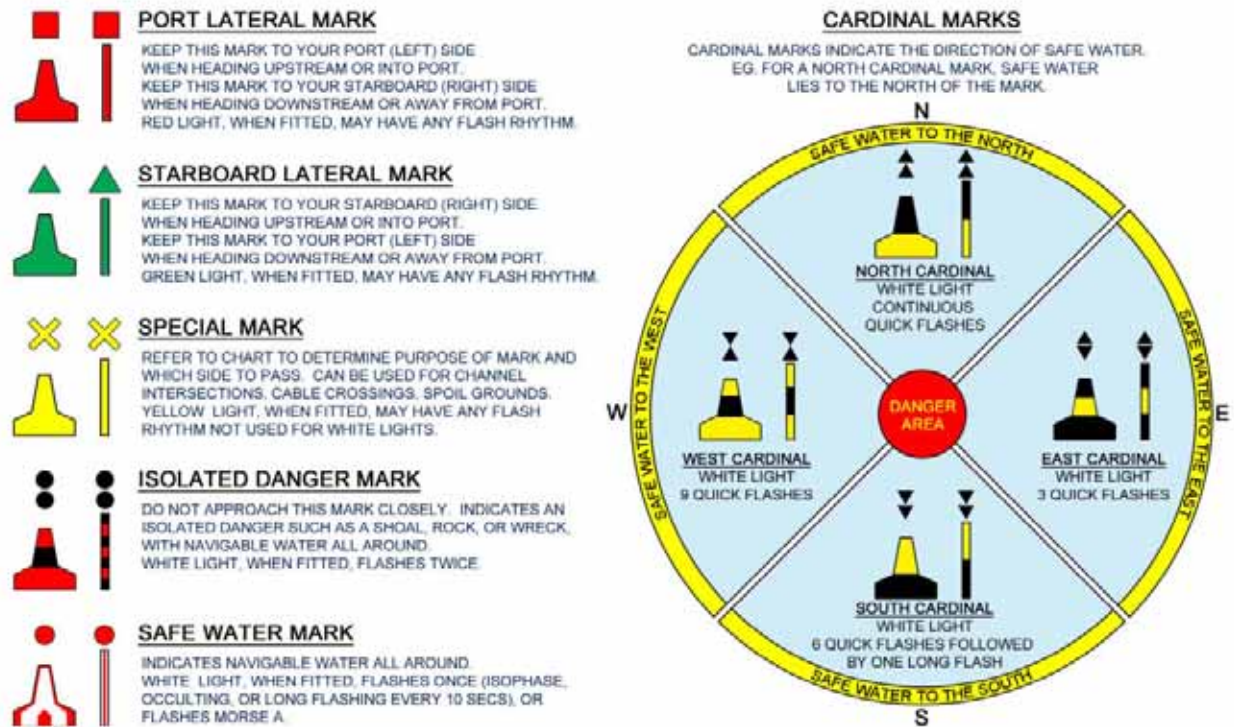
The International Association of Lighthouse Authority Buoyage System is used in most parts of the world. It covers Europe, Africa, the Middle East, Asia, Australia and New Zealand. It is known as **IALA System A** with port shown by the colour red and starboard by green. **IALA System B**, with port shown by the colour green and starboard by red, covers North America, Central

There are only five types of marks you have to learn for safe coastal navigation. All these marks can be buoys, piles or beacons. The system of buoyage has five types of marks that may be used in different combinations. They are: Lateral, Cardinal, Isolated Danger, Safe Water and Special.

At day time the meaning of a mark depends on colour, shape and top mark. By night: colour and rhythm of light.

The first are Lateral marks which indicate the port and starboard sides of channels. The second are Cardinal marks which indicate the safe side to pass any danger such as rocks or a bend in the channel. The third are Special marks which indicate a special area which will be mentioned on

the chart. The fourth are the Isolated Danger marks which indicate dangerous submerged objects. The fifth are Safe Water marks which indicate that the water all around is navigable.

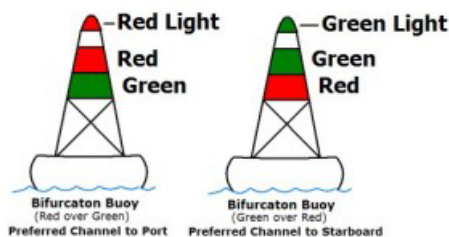


Task 2. Watch and discuss the video https://www.youtube.com/watch?v=Dm_S6-Po7gg.

Let's study five types of marks in detail.



There are two Lateral marks: one red the other green. They can be buoys, piles and lights. Heading upstream or away from the sea is called the direction of voyage. When coming into port the red marks are always on the port side that is the left hand side of your vessel. Port Lateral marks are always colored red and if they have a top the shape is a can. When coming into port the green marks are always on the starboard that is the right hand side. Starboard marks are always colored green and if they have a top the shape is a cone. The reason the tops are of different shape is so you can tell with your looking at the port or starboard mark if poor light makes it impossible to tell the color. Remember port marks are red with can tops and starboard marks are green with cone shape tops. If lit at night port marks have red flashing lights and starboard marks have green flashing lights.



A bifurcation buoy is used to mark the point where a channel is divides into branches. You may pass this buoy on either side (port or starboard side) when moving upstream. It's coloured with red and green bands. The main or preferred channel is shown by the color of the top band. Bifurcation buoys are used at junctions (where one channel splits into two channels).

Naturally, one of the two channels will be wider, deeper, and safer; it is the main channel. The purpose of the bifurcation junction buoy is to indicate which channel is the main channel.

There are four Cardinal marks: North, East, South and West. They are used in conjunction with your compass. Each Cardinal mark indicates where the safest water is found so you can pass by the mark safely. All four Cardinal marks comprise two black cones mounted on the black and yellow buoy or pile. North Cardinal marks indicate that the safe water is at the North of the mark, the two black cones pointed up, the black band is above the yellow band. East Cardinal marks indicate that the safe water is east of the mark, the two black cones pointed outward, there are two black bands; one above and one below the yellow band. As you might expect the South Cardinal mark is opposite to the North one. The safe water is south of the mark, the two black cones point down, the yellow band is above the black one. And the West Cardinal mark indicate safe water to the west of side of the mark, the two cones point inward, there is one black band between two yellow ones. If lit at night the North mark exhibits continuous Flashing light. Similar to the numbers on the clockface the East mark flashes in group of three flashes. The South mark flashes in group of six flashes followed by one long flash and the West - in group of nine flashes.

Special marks are always yellow. They indicate special features of the areas which will be shown on the chart; these could be a spoilt ground, a channel for deepdraft boats, a recreational area, underwater pipes or a mooring area buoys. If lit at night the special mark light will also be yellow.

A mark with two separated black spheres above horizontal red and black bands is an Isolated Danger mark. It is on or more above the isolated danger such as a submerged object which is surrounded by navigable water. The mark indicates that you should not pass too closely. If lit at night Isolated Danger marks have a white light showing a group of two flashes.

Safe Water marks can be spherical, pillar or spar shaped buoys. They are always red and white in vertical stripes. They indicate there is safe navigable water all around the mark. The top mark if fitted is a red sphere. If lit at night a single long flashing white light or an isophase flashing light when the duration of light and darkness are equal or an occulting flashing white light when the duration of light is longer than the darkness is exhibited.



Emergency wreck marking buoys. The authorities use these to warn shipping of a recent wreck. Later, if the wreck is not cleared away, it will either be allocated cardinal marks or an isolated danger mark. A wreck marking buoy carries blue and yellow stripes, with a cross for the top mark. At night it will have a blue and yellow alternating light.

Task 3. Highlight name of buoys, their colours and lights in the text above.

Task 4. Define the functions of buoys.

Buoy	Function
Lateral	
Cardinal	
Isolated danger	
Safe water	

Special	
Emergency wreck	

Task 5. Say if the sentences are true or false.

1. It is known as IALA System A with port shown by the colour green and starboard by red.
2. IALA System B covers Europe, Africa, the Middle East, Asia, Australia and New Zealand.
3. At day time the meaning of a mark depends on colour, shape and top mark.
4. Port marks are red with diamond tops and starboard marks are green with ball shape tops.
5. Each Cardinal mark indicates where the safest water is found so you can pass by the mark safely.
6. The South mark flashes in group of 9 flashes followed by one long flash and the West - in group of 6 flashes.
7. Special marks indicate special features of the areas which will be shown on the chart.
8. If lit at night Isolated Danger marks have a yellow light showing a group of two flashes.
9. Safe Water marks can be oval, square or round shaped buoys.
10. A wreck marking buoy carries blue and yellow stripes, with a cross for the top mark.

Task 6. Label the continents and countries that establish regions A and B.



Task 7. Beacons may be painted with the following color combinations. Identify the type of mark.

lateral marks	safe-water marks	cardinal marks	lateral marks
isolated danger marks	emergency wreck marking buoys		special

1. complete red or red with an horizontal green band	
2. yellow	
3. vertical red - white stripes	
4. black with an horizontal red band	
5. complete green or green with an horizontal red band	
6. blue and yellow stripes with a cross for the top mark	
7. a combination of horizontal yellow and black bands	

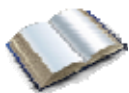
Task 8. Fill in the table.

Name of the mark	Function	Colour	Shape	Topmark	Light signal
<i>Port Lateral mark</i>					
<i>Starboard Lateral mark</i>					
<i>North Cardinal Buoy</i>					
<i>West Cardinal Buoy</i>					
<i>South Cardinal Buoy</i>					
<i>East Cardinal Buoy</i>					
<i>Special Marks</i>					
<i>Isolated Danger Mark</i>					
<i>Safe Water Mark</i>					
<i>Emergency wreck marking buoys</i>					

Task 9. Match the synonyms.

1. pile	a. crosscurrent
2. buoy	b. along with
3. lighthouse	c. to direct inside
4. to pass	d. immersed
5. upstream	e. float
6. in conjunction with	f. debris
7. to mount	g. pharos
8. submerged	h. to install
9. wreck	i. stilt
10. to point inwards	j. to clear

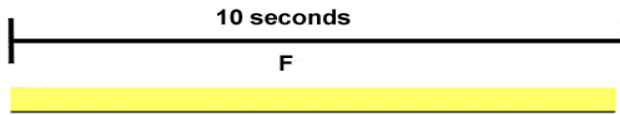
Phase Characteristics



One of the principal characteristics of a light is the duration of the characteristic sequence. The sequence duration or period is expressed in seconds and is the first identification characteristic. The period of a light should be measured with a stop watch to get a reliable identification.

The characteristic sequence of a light consists of an alternating pattern of light and dark intervals or phases. Depending on the ratio of light to dark phases, lights are distinguished in:

- **fixed lights (F)** : they are always on and have no dark phase;



- **occulting lights (Oc)**: the duration of light phases is *greater* than the duration of the dark phases;