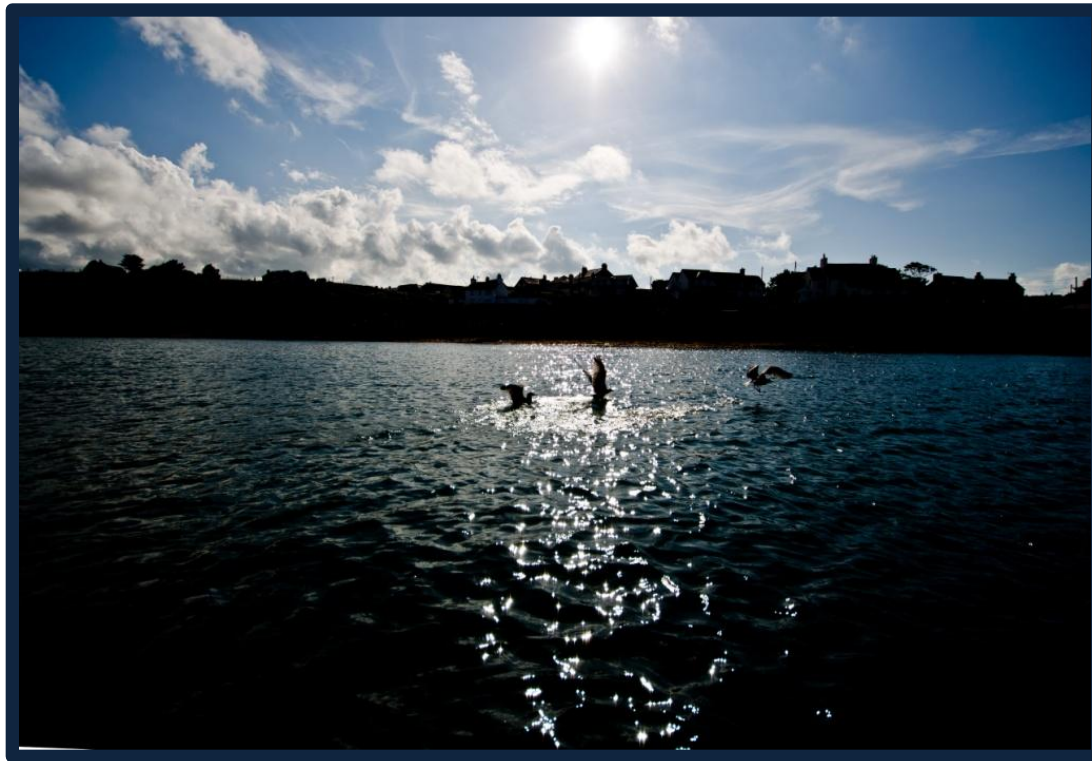




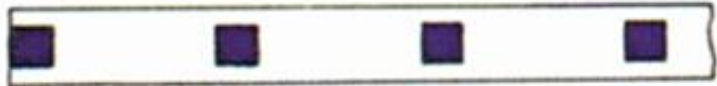
Lights

Introduction

A look at the various light characteristics of navigational marks



Characteristics



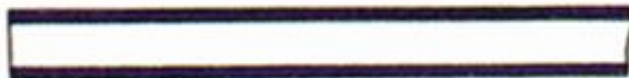
Oc ...occluding



Fl ...single flash



Fl.(3) ...group flashing



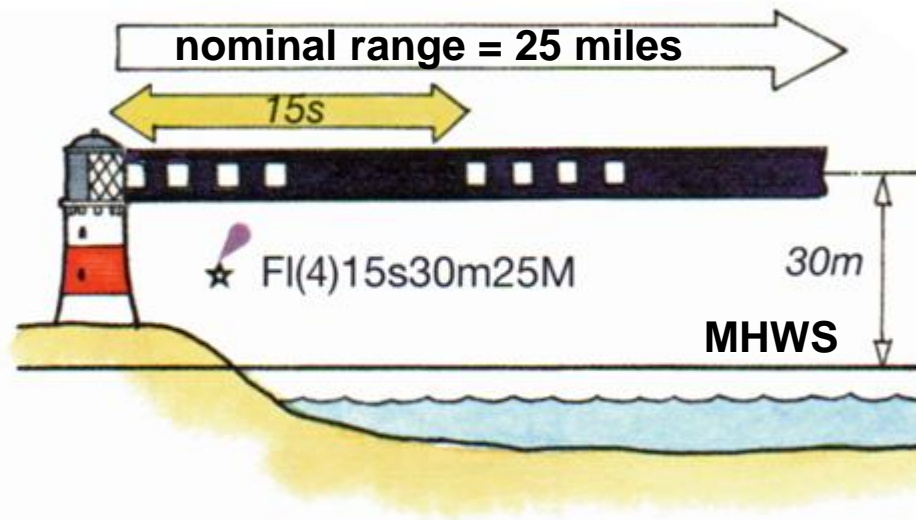
F ...fixed



Iso ...isophase

Nominal Range

The nominal range is a measure of the brightness of a light...



...assuming atmospheric visibility of ten miles

...if visibility is poor you may not see the light until you are much closer

Rising & Dipping Distance

Nominal range does not account for the curvature of the earth...

...you won't be able to see a light unless you have a direct line of sight to it above the horizon

Table 2 (2) Lights - distance off when rising or dipping (M)

Height of light		Height of eye										
		<i>yacht</i>					<i>ship</i>					
metres	feet	metres	1	2	3	4	5	6	7	8	9	10
metres	feet	feet	3	7	10	13	16	20	23	26	30	33
24	79		12.3	13.1	13.8	14.4	14.9	15.3	15.7	16.1	16.4	17.0
26	85		12.7	13.5	14.2	14.8	15.3	15.7	16.1	16.5	16.8	17.2
28	92		13.1	13.9	14.6	15.2	15.7	16.1	16.5	16.9	17.2	17.6

Rising & Dipping Distance

Using a rising and dipping distance table it's possible to find how far away a light is when it's on the horizon

Height of light		Height of eye										
		<i>yacht</i>			<i>ship</i>							
metres	feet	metres	1	2	3	4	5	6	7	8	9	10
		feet	3	7	10	13	16	20	23	26	30	33
24	79		12.3	13.1	13.8	14.4	14.9	15.3	15.7	16.1	16.4	17.0
26	85		12.7	13.5	14.2	14.8	15.3	15.7	16.1	16.5	16.8	17.2
28	92		13.1	13.9	14.6	15.2	15.7	16.1	16.5	16.9	17.2	17.6

Rising & Dipping Distance

Nominal range

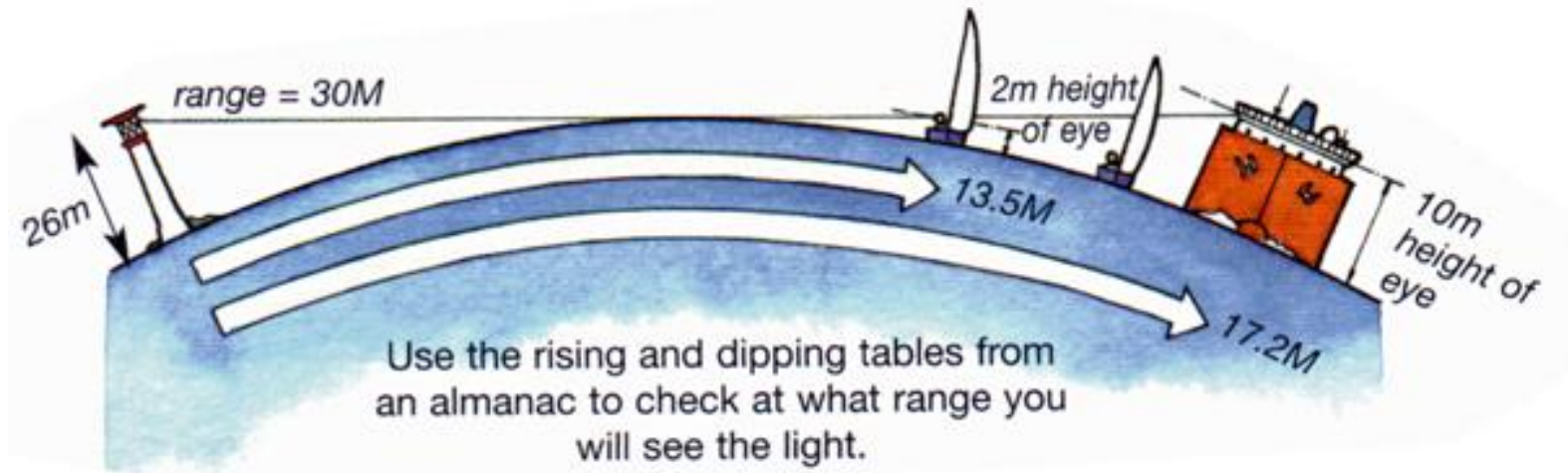


Table 2 (2) Lights - distance off when rising or dipping (M)

Height of light		Height of eye										
		yacht			ship							
metres	feet	metres	1	2	3	4	5	6	7	8	9	10
		feet	3	7	10	13	16	20	23	26	30	33
24	79		12.3	13.1	13.8	14.4	14.9	15.3	15.7	16.1	16.4	17.0
26	85		12.7	13.5	14.2	14.8	15.3	15.7	16.1	16.5	16.8	17.2
28	92		13.1	13.9	14.6	15.2	15.7	16.1	16.5	16.9	17.2	17.6

Rising & Dipping Distance

You need to know the height of the light, for example 26m...

...and the height of eye, say from a yacht, of 2m

...giving a distance of 13.5 miles

Height of light		yacht		
		metres	1	2
metres	feet	feet	3	7
24	79		12.3	13.1
26	85		12.7	13.5
28	92		13.1	13.9

Height of light		yacht				
		metres	1	2	3	4
metres	feet	feet	3	7	10	13
24	79		12.3	13.1	13.8	14.4
26	85		12.7	13.5	14.2	14.8
28	92		13.1	13.9	14.6	15.2

Rising & Dipping Distance

With a greater height of eye, say from a ship, the light will be seen from a greater distance...

...height of eye 10m

...distance 17.2 miles

Table 2 (2) Lights - distance off when rising or dipping (M)

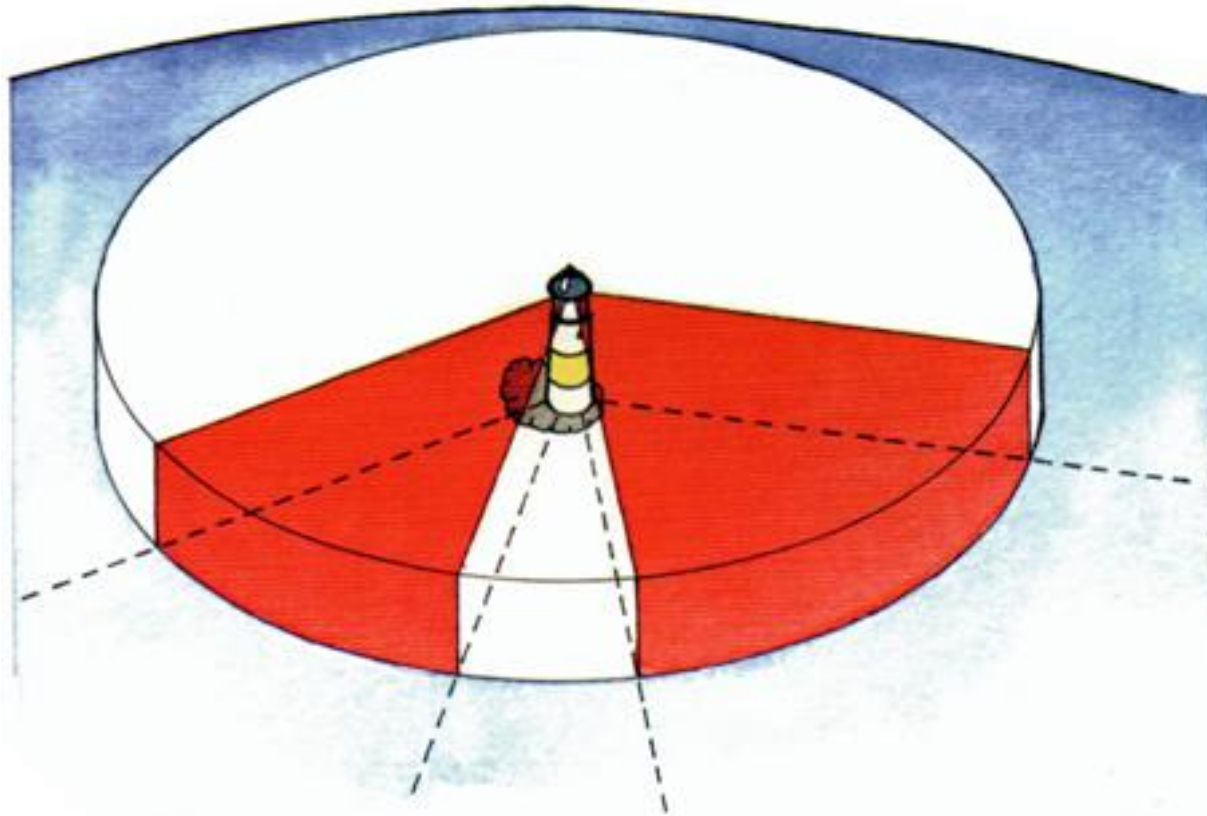
Height of light		Height of eye										
		yacht									ship	
metres	feet	metres	1	2	3	4	5	6	7	8	9	10
		feet	3	7	10	13	16	20	23	26	30	33
24	79		12.3	13.1	13.8	14.4	14.9	15.3	15.7	16.1	16.4	17.0
26	85		12.7	13.5	14.2	14.8	15.3	15.7	16.1	16.5	16.8	17.2
28	92		13.1	13.9	14.6	15.2	15.7	16.1	16.5	16.9	17.2	17.6

			<i>ship</i>		
			8	9	10
			26	30	33
16.1	16.4	17.0			
16.5	16.8	17.2			
16.9	17.2	17.6			



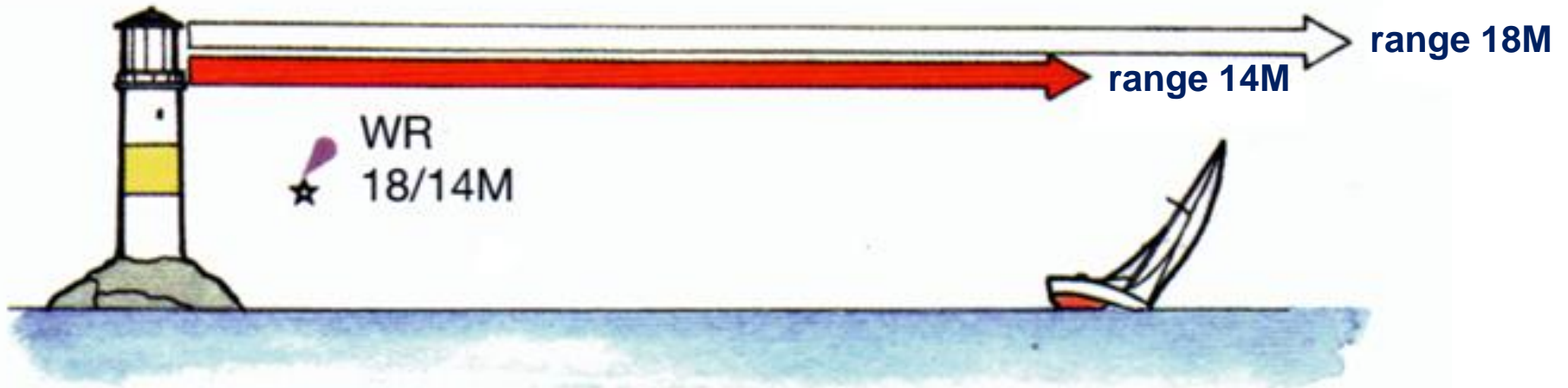
Sector Lights

Designed to help you avoid danger by casting a sector of coloured light over a hazard



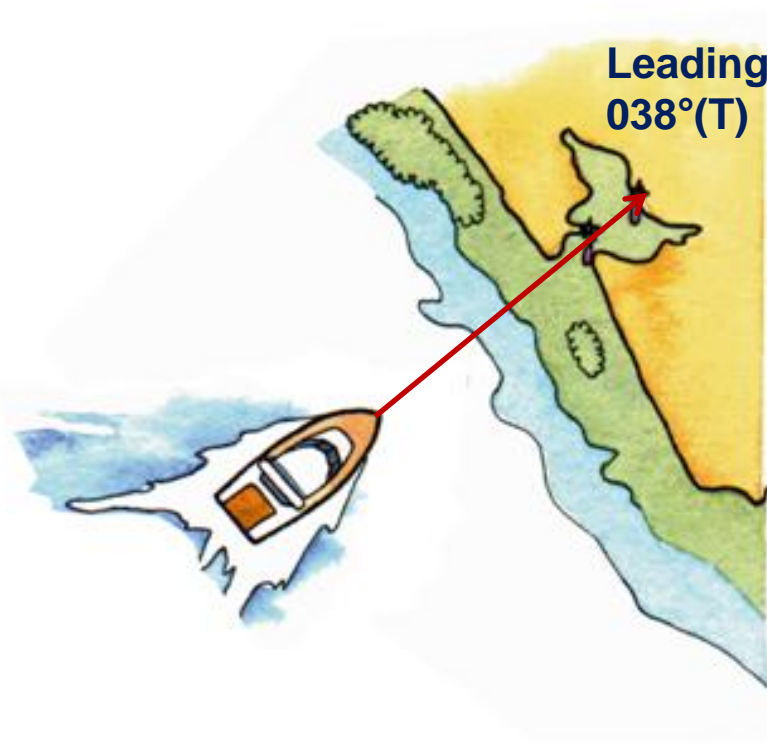
Sector Lights

A single structure may show several lights with different ranges

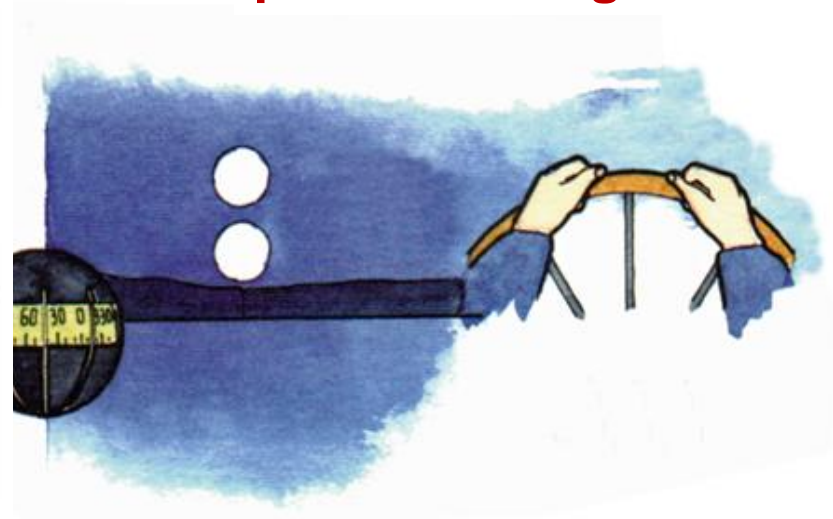


Leading Lights

The orientation of the leading lights guides the vessel through safe water

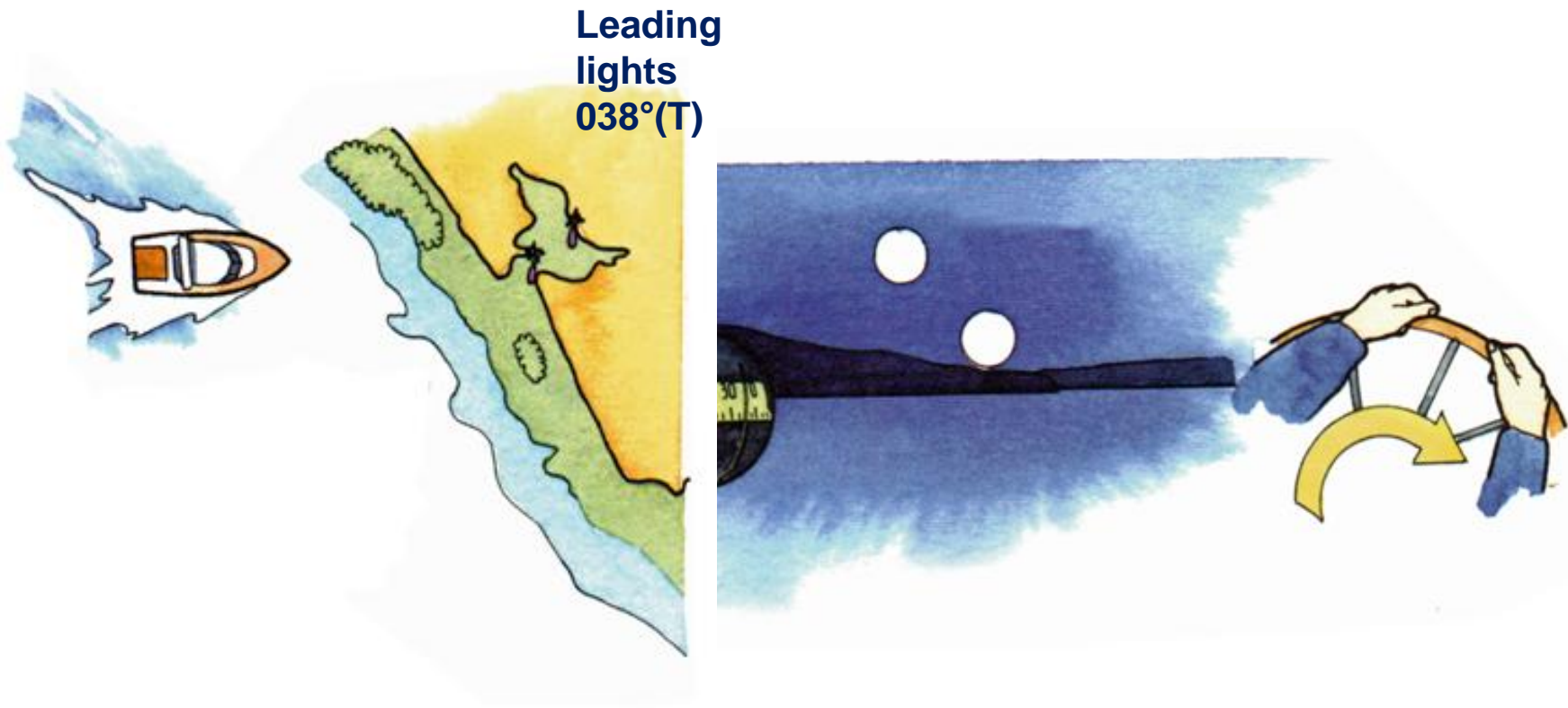


Lights in transit,
proceed straight on



Leading Lights

Too far to port, turn to starboard

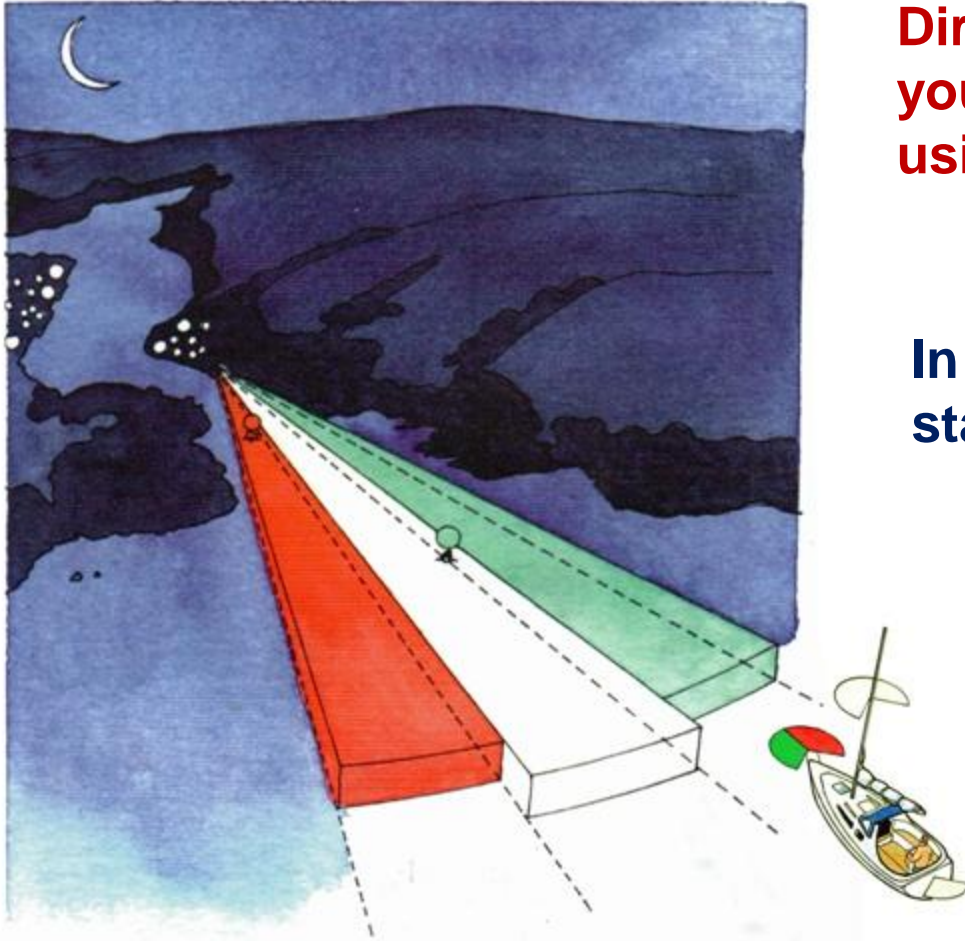


Leading Lights

Too far to starboard, turn to port



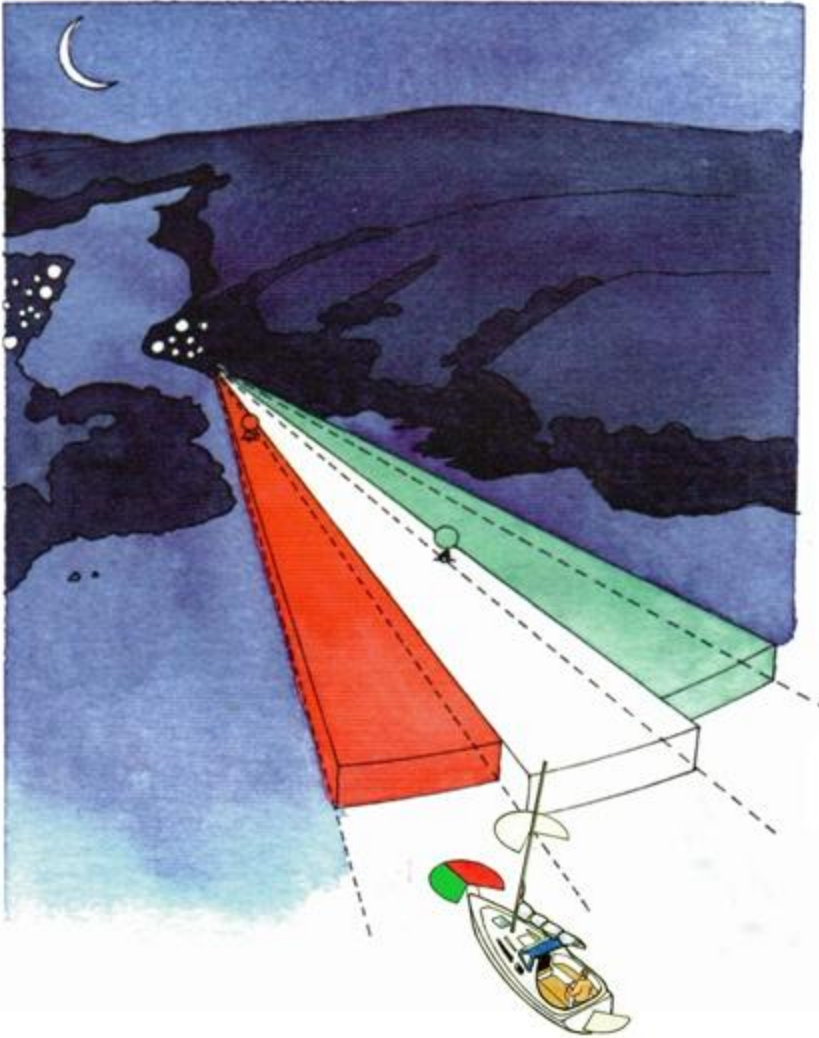
Directional Lights



Directional lights help guide you in and out of harbour by using narrow sectors of colour

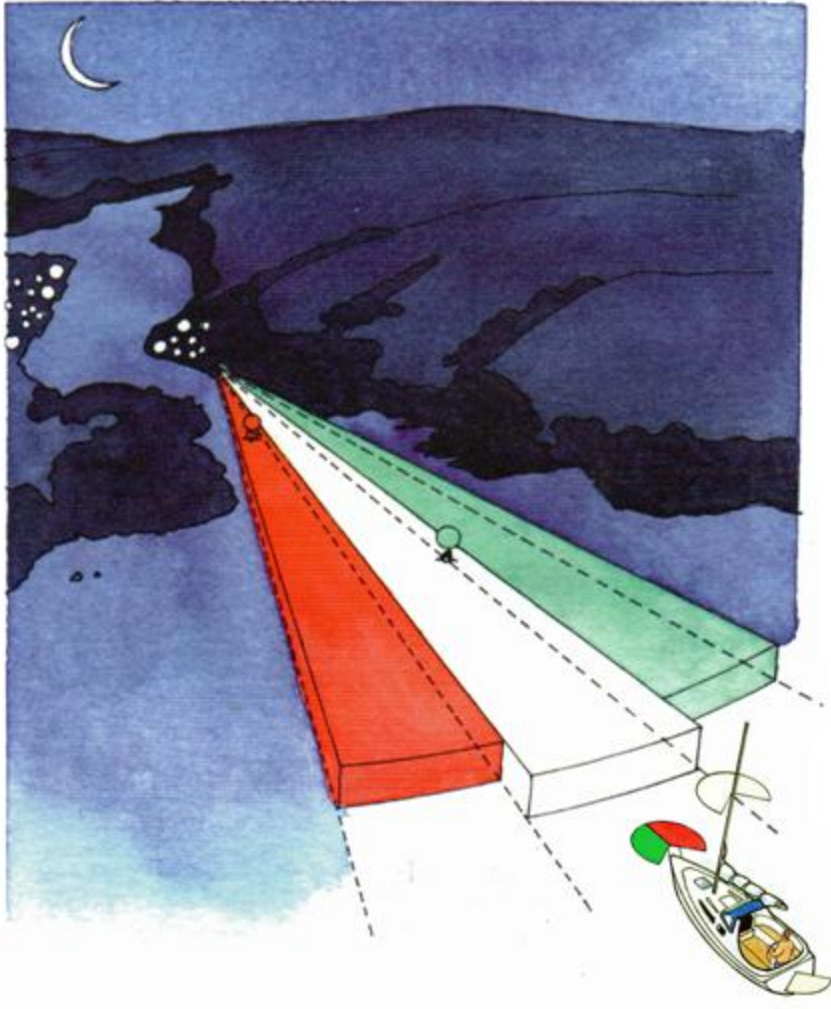
In the green sector – too far to starboard

Directional Lights



In the red sector – too far to port

Directional Lights



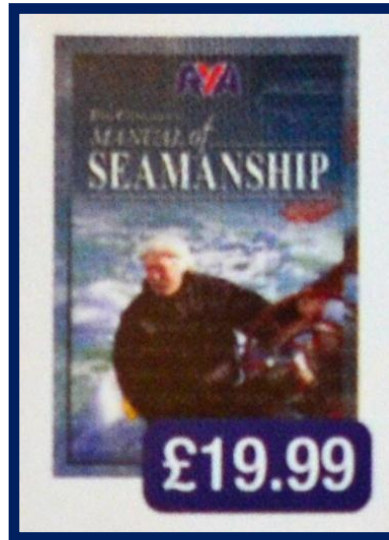
In the white sector – proceed straight on

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Further Reading



We highly recommend Tom Cunliffe's
RYA Seamanship Handbook (G36)

You can buy a copy of this book by visiting our on-line shop

www.penguinsailing.com

