Section VII: Part A – Seamanship: Charts, Tides, & Currents

Sail Canada Basic Cruising Standard

Lesson Outline

- Lesson objectives
- Introduction
- Navigation charts
- Tide & current tables
- Chart symbols
- Summary
- Quiz

Lesson Objectives

- In this lesson you will learn about the value of charts – how to read and use them properly.

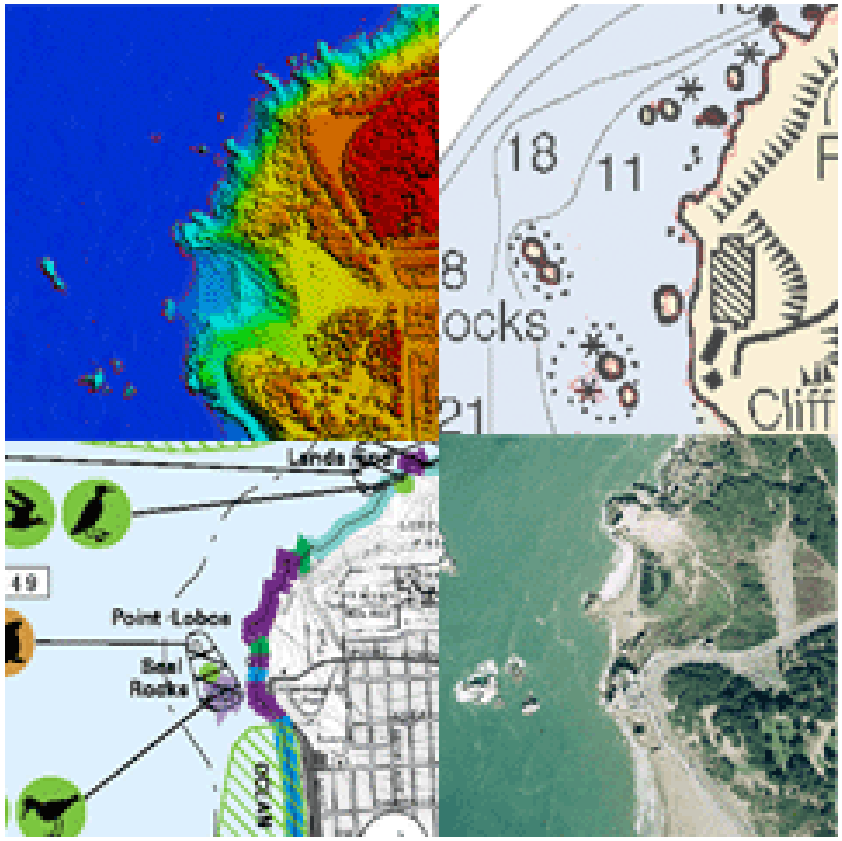
- Being able to navigate properly is an important skill to have while heading out the harbour to your next destination.

Introduction

- Seamanship encompasses the knowledge and skill pertaining to the navigation, safety, and maintenance of your vessel.

- Good seamanship and safety go hand in hand!

Tides & Charts



What is a chart used for?

- *To show the depth of water, aids to navigation, underwater hazards type of bottom and other pertinent information for safe navigation.*

Navigation Charts

Sounding of depth in metres

Scale: 1 ft = 40000 feet which is fairly small scale

Type of projection means that longitude measures change with latitude

DEPTHS are in metres and are reduced to Lowest Normal Tide, which at Alert Bay is 2.9 metres below Mean Water Level.

ELEVATIONS and clearances are in metres above Higher High Water, Large Tide. Underlined figures on drying banks or in brackets against drying rocks are in metres above chart datum. Topographic contours and spot elevations are in metres above Mean Sea Level. Topographic contour interval is 30 metres.

LES PROFONDEURS sont en mètres et sont réduites à la marée normale la plus basse, laquelle à Alert Bay est de 2.9 mètres au-dessous du niveau moyen de l'eau.

LES ALTITUDES et les hauteurs libres sont en mètres au-dessus de la Pleine Mer Supérieure, Grande Marée. Les chiffres soulignés sur les bancs asséchants ou entre parenthèses contre les rochers qui découvrent sont en mètres au-dessus du zéro des cartes. Les courbes topographiques et les points cotés sont en mètres au-dessus du niveau moyen de la mer. L'équidistance des courbes topographiques est de 30 mètres.

Charts: Latitude & Longitude

Longitude

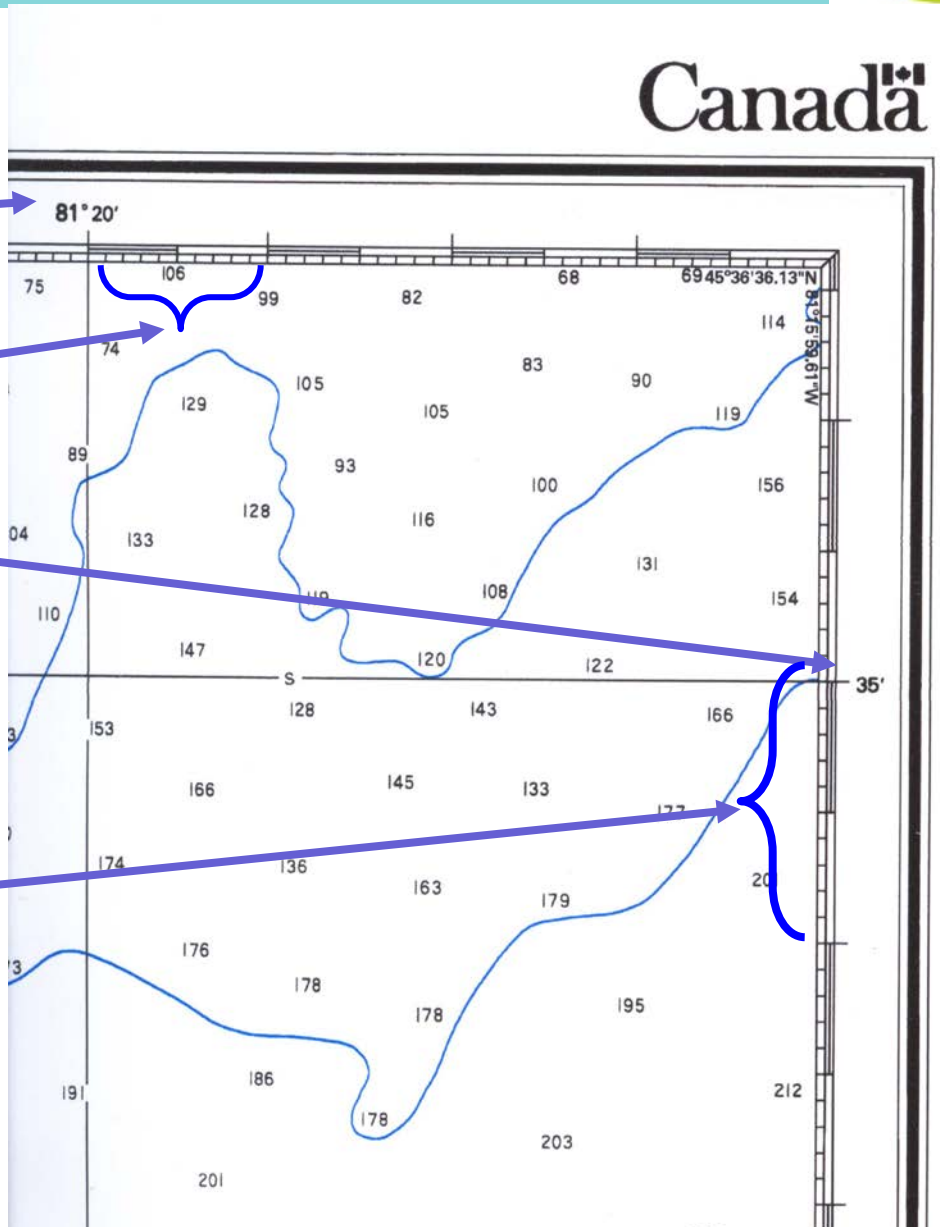
081 ° 20 ‘ W

1 minute of Longitude

Latitude

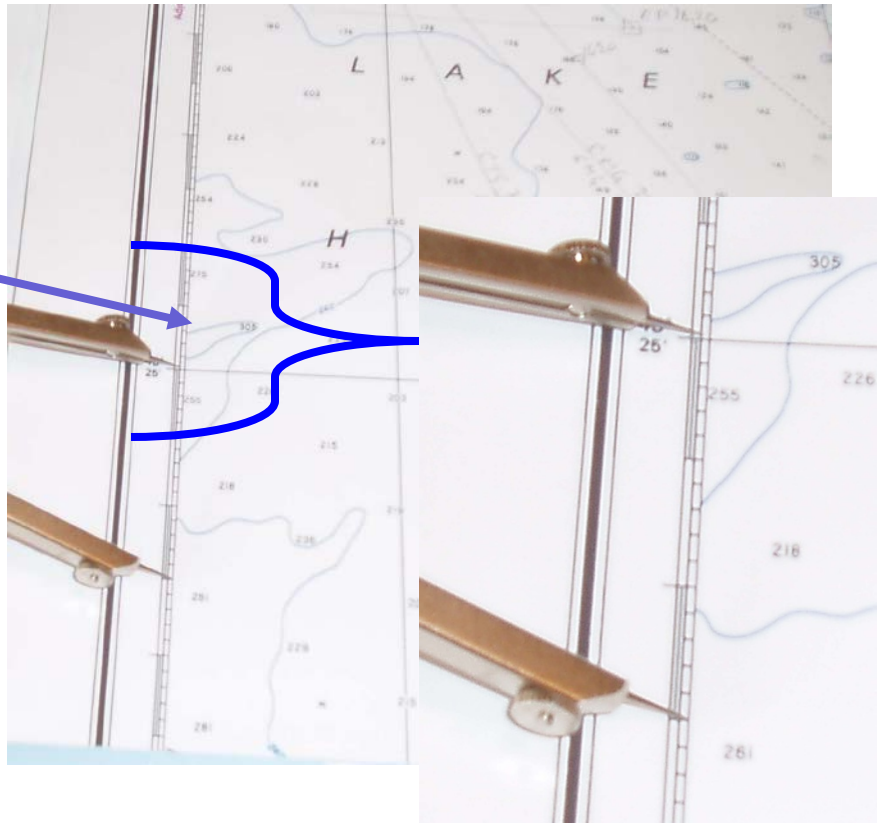
45° 35’ N

I minute of Latitude = 1 nautical mile



Charts: Latitude & Longitude

Applying dividers to the Latitude scale to measure distance in nautical miles

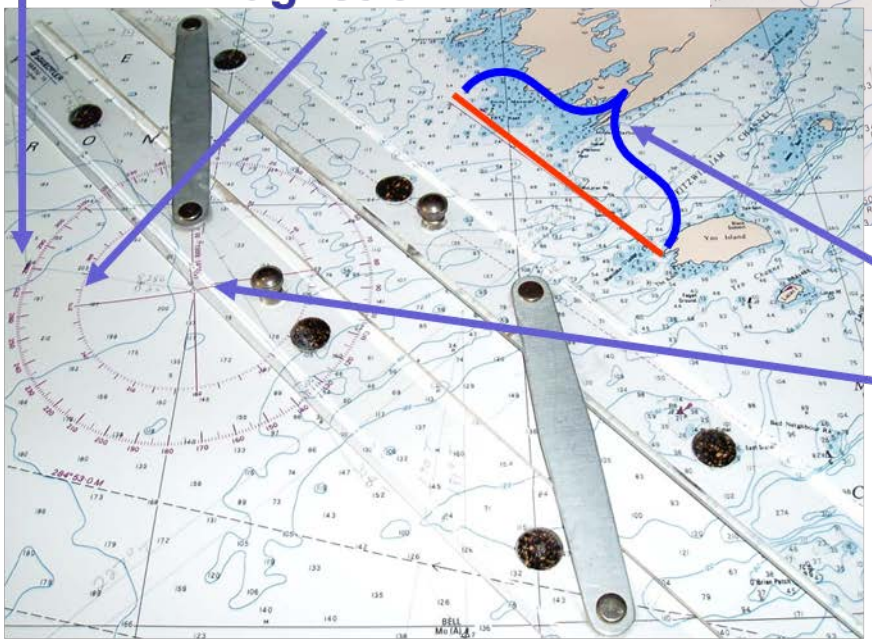


Charts: Latitude & Longitude

Transferring measured distance to chart from latitude scale

Outer ring degrees True

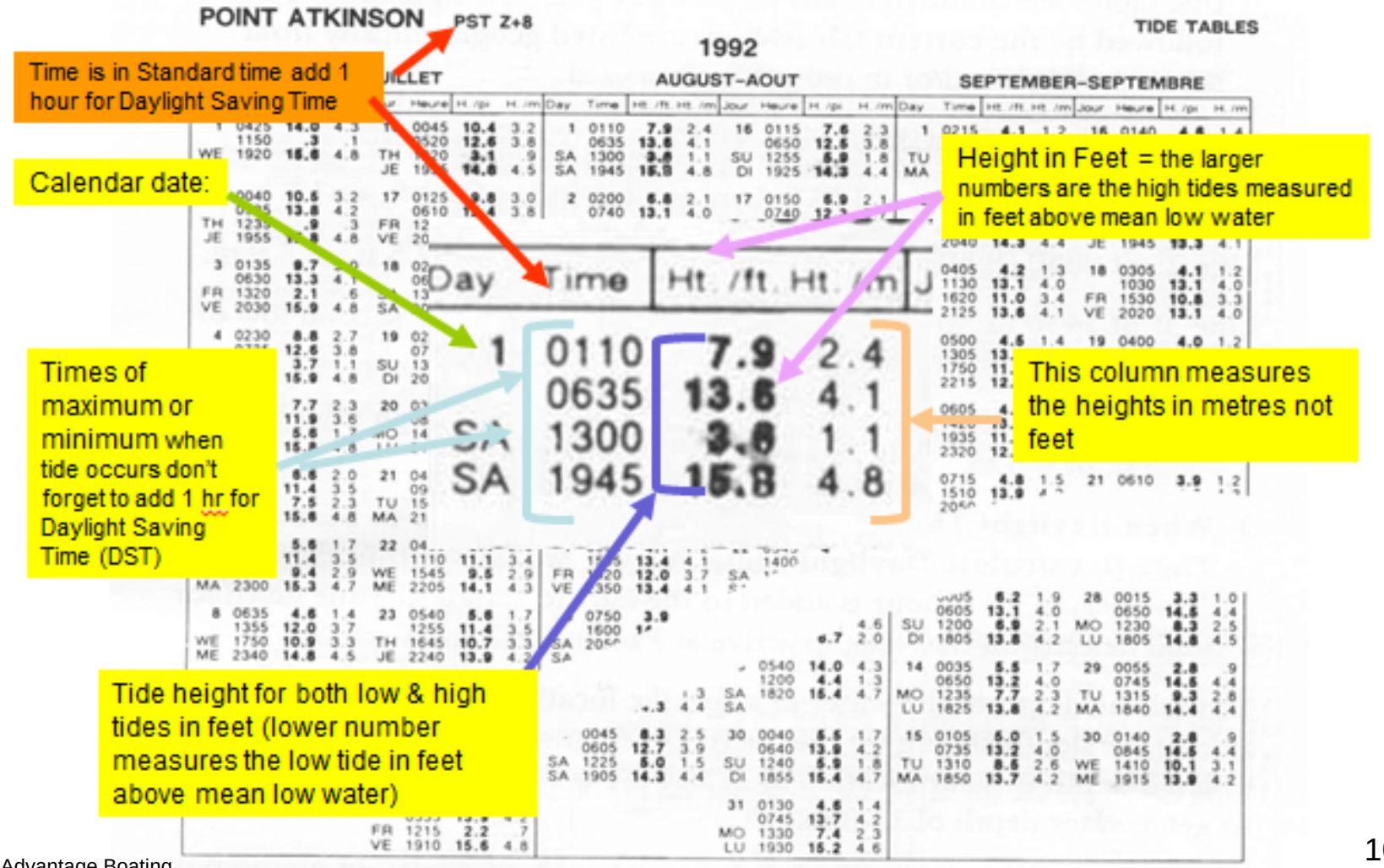
Inner ring degrees Magnetic



Transfer compass direction from compass rose to chart

Tide Tables

Typical Tide Table



Current Tables

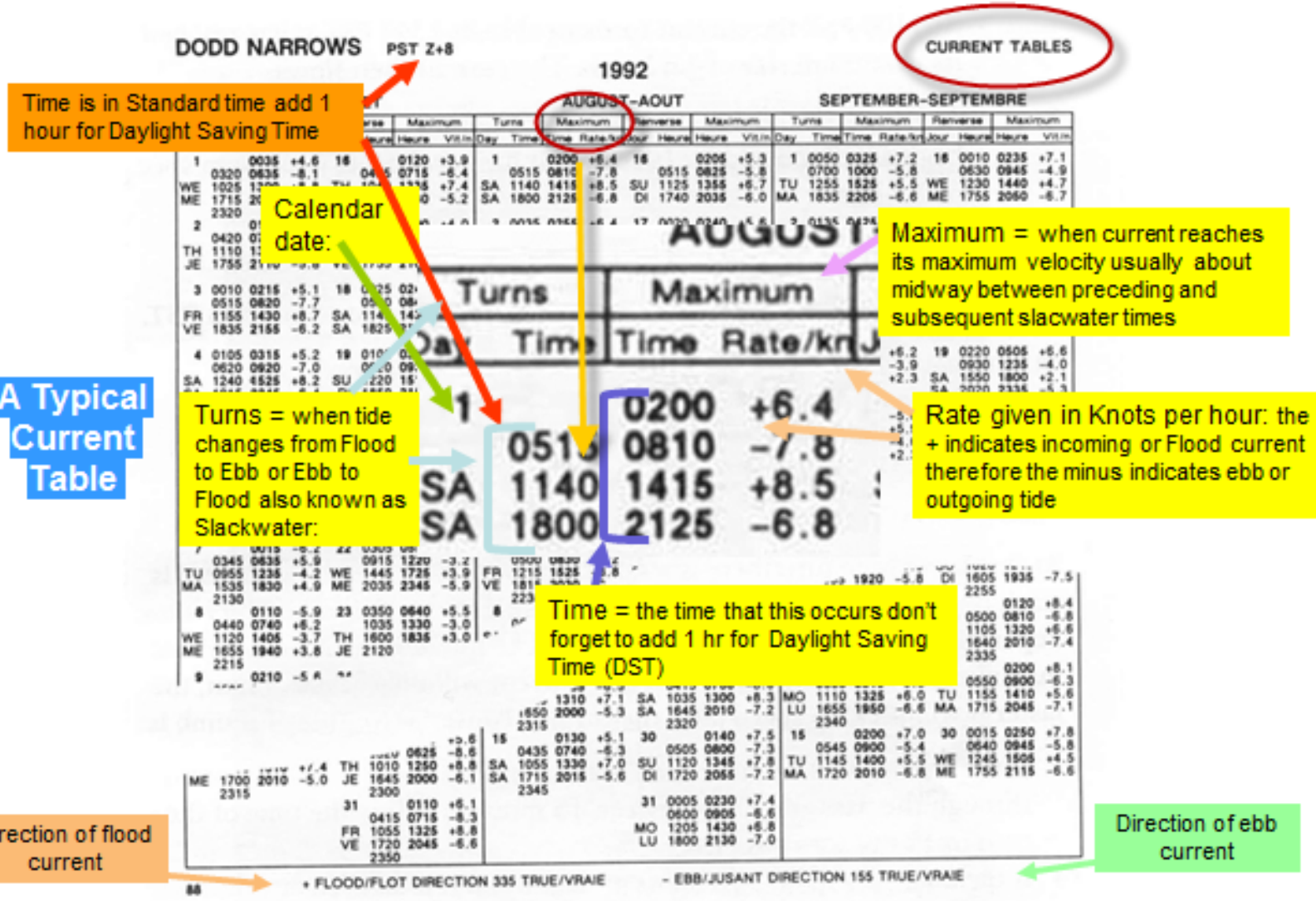
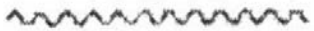


Chart Symbols

Rock awash at chart datum

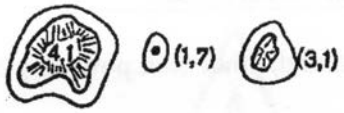
Rock which covers and uncovers with drying height

Dangerous underwater rock of 2 m or less

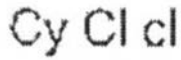


Submarine cable

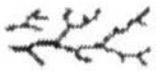
Wreck showing any portion of hull



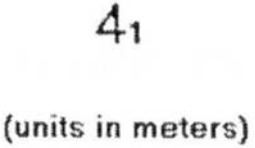
Rock which does not cover



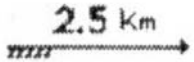
Clay bottom



Kelp



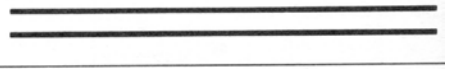
Water depth in meters at chart datum



Direction of 2.5 knot flood current

Weeds

Chart Symbols

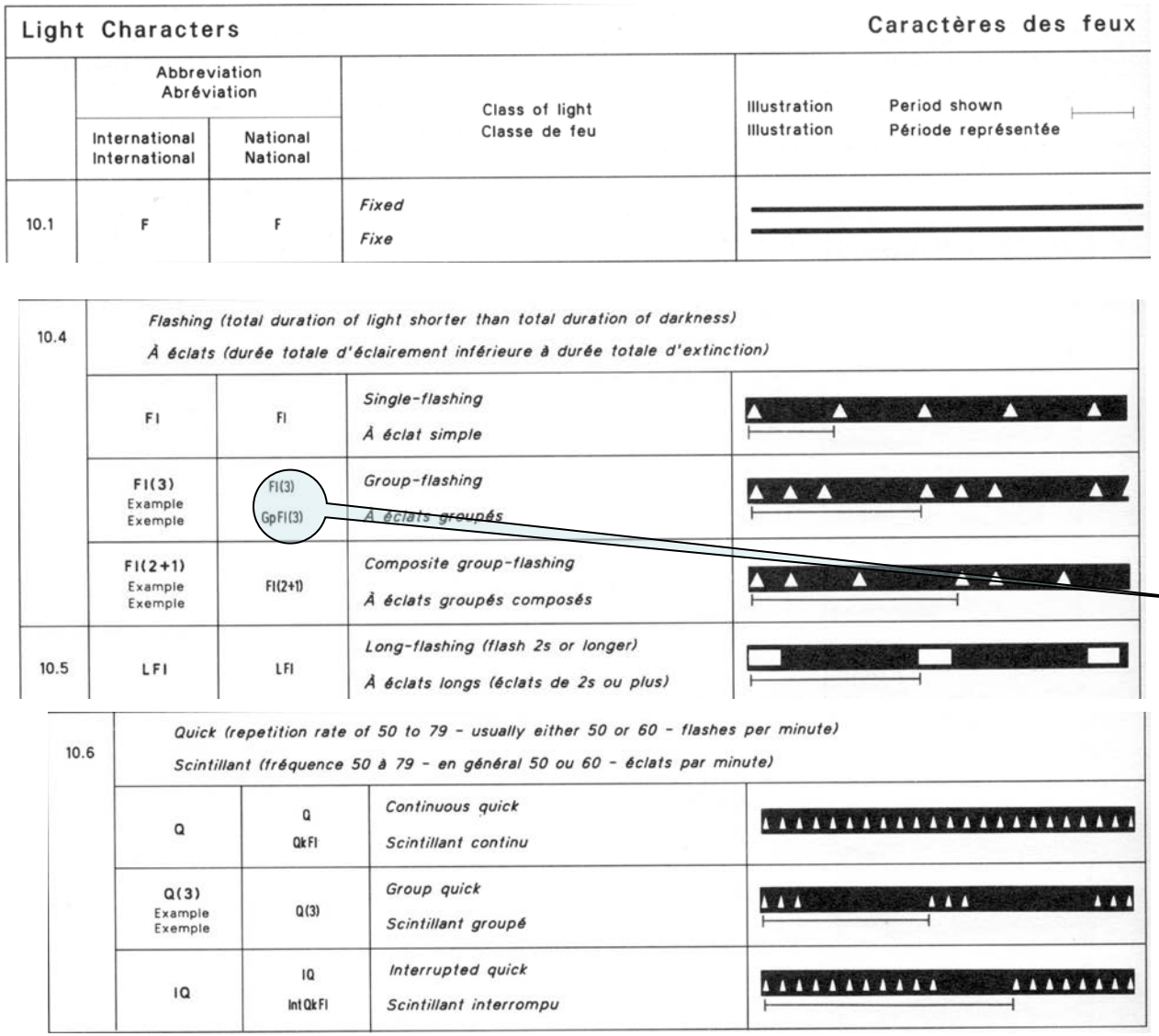
Light Characters			Caractères des feux	
	Abbreviation Abréviation		Class of light Classe de feu	Illustration Illustration — Period shown Période représentée
	International International	National National		
10.1	F	F	*Fixed* *Fixe*	
10.2	*Occulting (total duration of light longer than total duration of darkness)* *À occultations (durée totale d'éclairement supérieure à durée totale d'extinction)*			
	Oc	Oc Occ	*Single-occulting* *À occultation simple*	
	Oc(2) Example Exemple	Oc(2) GpOcc(2)	*Group-occulting* *À occultations groupées*	
	Oc(2+3) Example Exemple		*Composite group-occulting* *À occultations groupées composées*	
10.3	*Isophase (duration of light and darkness equal)* *Isophase (durées égales d'éclairement et d'extinction)*			
	Iso	Iso Elnt	*Isophase* *Isophase*	

Terminology

Occulting light patterns

Isophase light patterns

Chart Symbols



Light Characters			Caractères des feux	
	Abbreviation Abréviation		Class of light Classe de feu	Illustration Illustration — Period shown Période représentée
	International International	National National		
10.1	F	F	*Fixed* *Fixe*	
10.4	*Flashing (total duration of light shorter than total duration of darkness)* *À éclats (durée totale d'éclairement inférieure à durée totale d'extinction)*			
	Fl	Fl	*Single-flashing* *À éclat simple*	
	Fl(3) Example Exemple	Fl(3) Gp Fl(3)	*Group-flashing* *À éclats groupés*	
	Fl(2+1) Example Exemple	Fl(2+1)	*Composite group-flashing* *À éclats groupés composés*	
10.5	LFl	LFl	*Long-flashing (flash 2s or longer)* *À éclats longs (éclats de 2s ou plus)*	
10.6	*Quick (repetition rate of 50 to 79 - usually either 50 or 60 - flashes per minute)* *Scintillant (fréquence 50 à 79 - en général 50 ou 60 - éclats par minute)*			
	Q	Q Qk Fl	*Continuous quick* *Scintillant continu*	
	Q(3) Example Exemple	Q(3)	*Group quick* *Scintillant groupé*	
	IQ	IQ Int Qk Fl	*Interrupted quick* *Scintillant interrompu*	

Terminology

Flashing light patterns

Fl(3)

Gp Fl(3)

Typical as seen on chart

Quick light patterns

Summary

- In this module we learned what kind of information is contained on a nautical chart including different symbols to indicate different types of information.
- We also learned how to read a tide and current table.
- A prudent navigator makes for a safe boater!

Next Steps!

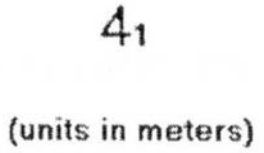
- In the next lesson, you will learn about different types of anchors and what makes for a good anchorage.

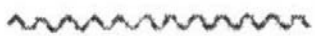
Let’s practice!

- Complete the following quiz to test your knowledge about navigational charts.

Quiz

- Identify these symbols:



- Fill in the blanks: Navigation charts show the ____ of water, provide aids to _____, show underwater _____, type of bottom and other pertinent information for safe navigation.