Navigation Planning (CLIL)

Classe	Disciplina/e	Durata	Responsabile	Verifiche
5TL	Scienza della navigazione e struttura dei mezzi di trasporto	**08 gennaio – 18 maggio (50 ore)**	**Prof. .....**	**Scritte: test fine modulo**

Competenze (riferimento a direttiva n.4 16/01/2012)	**Abilità**	**Conoscenze**	**Contenuti** (argomenti e approfondimenti)
□ □Utilizzare e produrre strumenti di comunicazione visiva e multimediale, anche con riferimento alle strategie espressive e agli strumenti tecnici della comunicazione in rete	Utilizzare il lessico tecnico specifico di settore, anche in lingua inglese.	□ Lessico e fraseologia tecnica di settore, anche in lingua inglese.	UD3 Sailing Management Passage planning Appraisal Planning Monitoring
□ Gestire l'attività di trasporto tenendo conto delle interazioni con l'ambiente esterno (fisico e delle condizioni meteorologico) in cui viene espletata	Pianificare il viaggio con criteri di sicurezza ed economicità.	□ Pianificazione degli spostamenti. □ Lessico e fraseologia tecnica di settore, anche in lingua inglese.	

Attività/ASL/Spazi:
Esperienze di lavoro in laboratorio….

Strategie/Strumenti
Metodologia CLIL.
Strumenti: multimediali, informatici, strumenti professionali, materiale didattico tradizionale.
Libro di testo: Appunti del docente. R.Antola- Fondamenti di navigazione e meteorologia nautica Vol. 1 Ed. Simone da pag.331 a pag. 344; appunti del docente.

CLIL

CONTENT and LANGUAGE INTEGRATED LEARNING

APPRENDIMENTO INTEGRATO DI CONTENUTI DISCIPLINARI IN LINGUA STRANIERA VEICOLARE

Navigational Science

Passage planning

The Dictionary of English Nautical Language

http://www.seatalk.info/

Passage planning or **voyage planning**

- …. is a procedure to develop a complete description of a vessel's voyage from start to finish.
- The plan includes:

- leaving the dock and harbor area,
- *en route* portion of a voyage, approaching the destination,
- mooring….

the industry term for this is 'berth to berth‘

VIDEO What is berth?
https://www.youtube.com/watch?v=nM8EdhaNr3U

Passage planning

https://en.wikipedia.org/wiki/Passage_planning

VIDEO
https://www.youtube.com/watch?v=IN_3zDLYFj8
https://www.youtube.com/watch?v=fzXw4pTiPmc

TEST on drive
TASK 1

Passage planning or **voyage planning**

- According to international law, a vessel's captain is legally responsible for passage planning.
- The duty of passage planning is usually delegated to the ship's navigation officer, typically the second officer on merchant ships.
- Studies show that human error is a factor in 80 percent of navigational accidents and that in many cases the human making the error had access to information that **could have prevented** the accident.
- The practice of voyage planning has **evolved** from penciling lines on nautical charts to a process of risk management. (?)

IMO
International Maritime Organization

- **… is the United Nations specialized agency with responsibility for the safety and security of shipping and the prevention of marine pollution by ships.**
- **…** is the global standard-setting authority for the safety, security and environmental performance of international shipping.
- … its role is to create a level playing-field so that ship operators cannot address their financial issues by simply cutting corners and compromising on safety, security and environmental performance. This approach also encourages innovation and efficiency.

IMO for passage planning

- … it considered passage planning into the following pubblications:

✓ SOLAS … **Safety of Life At Sea**

✓ STCW … **International Convention on Standards of Training, Certification and Watchkeeping for Seafarers**

✓ IMO Resolution A.893(21)

SOLAS

- *1. Prior to proceeding to sea, the master shall ensure that the intended voyage has been planned using the appropriate nautical charts and nautical publications for the area concerned, taking into account the guidelines and recommendations developed by the Organization.*

- **2.***The voyage plan shall identify a route which:*

  2.1 *takes into account any relevant ships' routeing systems*
  2.2 *ensures sufficient sea room for the safe passage of the ship throughout the voyage*
  2.3 *anticipates all known navigational hazards and adverse weather conditions; and*
  2.4 *takes into account the marine environmental protection measures that apply, and avoids, as far as possible, actions and activities which could cause damage to the environment*

SOLAS Ch V – Regulations
https://mcanet.mcga.gov.uk/public/c4/solas/solas_v/Regulations/regulation01.htm

Exercise about SOLAS document

- Each student chooses one paragraph about:

  SOLAS Ch V – Regulations

  https://mcanet.mcga.gov.uk/public/c4/solas/solas_v/Regulations/regulation01.htm
- After reading, students write a short summary on a paper by word program
- Students deliver own work to classroom

STCW

- … sets qualification standards for masters, officers and watch personnel on seagoing merchant ships.
- … was adopted in 1978 by conference at the IMO in London, and entered into force in 1984.
- The Convention was significantly amended in 1995.

Exercise about STCW document

- Each student chooses one paragraph about:

  STCW Section A - VIII/2

  https://d3n8a8pro7vhmx.cloudfront.net/torontobrigantine/pages/51/attachments/original/1436196906/03_-_STCW_Code_Section_A-VIII.pdf?1436196906
- After filling the right word in the blanks (Document: 26.1 PART 2 STCW Exercise), students deliver own work to classroom

IMO Resolution A.893(21)

INTERNATIONAL MARITIME ORGANIZATION

IMO

E

RESOLUTION A.893(21)

ASSEMBLY
21st session
Agenda item 9

A 2/Res.893
4 February 2000
Original: ENGLISH

RESOLUTION A.893(21)
adopted on 25 November 1999

GUIDELINES FOR VOYAGE PLANNING

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,

RECALLING ALSO section A-VIII/2, Part 2 (Voyage planning) of the Seafarers' Training, Certification and Watchkeeping Code,

RECALLING FURTHER the essential requirements contained in the International

IMO Resolution A.893(21)

ANNEX

Draft Guidelines For Voyage Planning

- **1.) Objectives**
- **1.1)** omissis
- **1.2)** omissis
- **1.3)** Voyage and passage planning includes appraisal, i.e. gathering all information relevant to the contemplated voyage or passage; detailed planning of the whole voyage or passage from berth to berth, including those areas necessitating the presence of a pilot; execution of the plan; and the monitoring of the progress of the vessel in the implementation of the plan. These components of voyage/passage planning are analysed below.

Planning stages

- ….. Consist(s?) of four stages:

1. appraisal
2. planning
3. execution
4. monitoring.

What/where are these STAGES?

- These stages are specified in *International Maritime Organization Resolution A.893(21), Guidelines For Voyage Planning,* which are, in turn, reflected in the local laws of IMO signatory countries.
- The *Guidelines* specify fifty elements of passage planning, some of which are only applicable in certain situations.
- The *Guidelines* specify three key items to consider in the practice of voyage planning:

Advice

- having and using a voyage plan is "of essential importance for safety of life at sea, safety and efficiency of navigation and protection of the marine environment,
- voyage planning is necessary for all types of vessels on all types of voyages, and
- the plan's scope should be based on all information available, should be "berth to berth," including when under pilotage, and the plan includes the execution and the monitoring of progress.

Stage 1 - appraisal

- Voyage planning starts with the appraisal. Before each voyage begins, the navigator should develop a detailed mental model of how the entire voyage will proceed. The appraisal stage consists of gathering and contemplating all information relevant to the voyage. Much of this appraisal is done by consulting nautical charts, nautical publications and performing a number of technical tasks such as weather forecasting, prediction of tides and currents, and checks of local regulations and warnings.
- Nautical publications are a valuable guide to local conditions and regulations, but they must be updated and actually read to be of any use. These publications could include Sailing Directions and Coast Pilots or similar texts produced by other authorities.

Stage 2 - planning

- Once information is gathered and considered, the navigator can begin the process of actually laying out the voyage. The process involves projecting various future events including landfalls, narrow passages, and course changes expected during the voyage. This mental model becomes the standard by which the navigator measures progress toward the goal of a safe and efficient voyage, and it is manifested in a passage plan.
- A good passage plan will include a track line laid out upon the best-scale charts available. This track is judged with respect to at least nine separate criteria given in the *Guidelines* including under-keel clearance, safe speed, air draft, the use of routing and reporting services (TSS and VTS), and the availability of contingencies in case of emergency.
- The navigator will draw and redraw the track line until it is safe, efficient, and in line with all applicable laws and regulations. When the track is finished, it is becoming common practice to also enter it into electronic navigation tools such as an Electronic Chart Display and Information System, a chartplotter, an ARPA system, or a GPS unit.
- When working in a team environment, the passage plan should be communicated to the navigation team in a pre-voyage conference in order to ensure that all members of the team share the same mental model of the entire trip.

Stage 3 - execution

- The IMO was careful to include execution as part of the process of passage planning. This underscores the fact that the *Guidelines* list a number of tasks that are to executed during the course of the voyage.
- It also reiterates the captain's responsibility to treat the plan as a "living document" and to review or change it in case of any special circumstances that should arise.

Stage 4 - monitoring

- Once the voyage has begun the progress of the vessel along its planned route must be monitored. This requires that the ship's position be determined, using standard methods including dead reckoning, celestial navigation, pilotage, and electronic navigation.
- According to the *Guidelines,* the passage plan should always be available to the officer on watch on the bridge.
- The *Guidelines* also specify that deviations from the plan should be clearly recorded and be consistent with other provisions of the *Guidelines.*

Computer aids

- In modern times, computer software can greatly simplify the passage planning process and ensure that nothing important is overlooked.
- Passage planning software may include functions such as waypoint management, distance calculators, tide and tidal current predictors, celestial navigational calculators, consumables estimators for fuel, oil, water, and stores, and other useful applications.

Exercise about
IMO Resolution A.893(21)

- See the text 26.1 RESOLUTION A.893(21)
- Read and summarize it using Word program
- The file has to be sent to classroom

What is it?

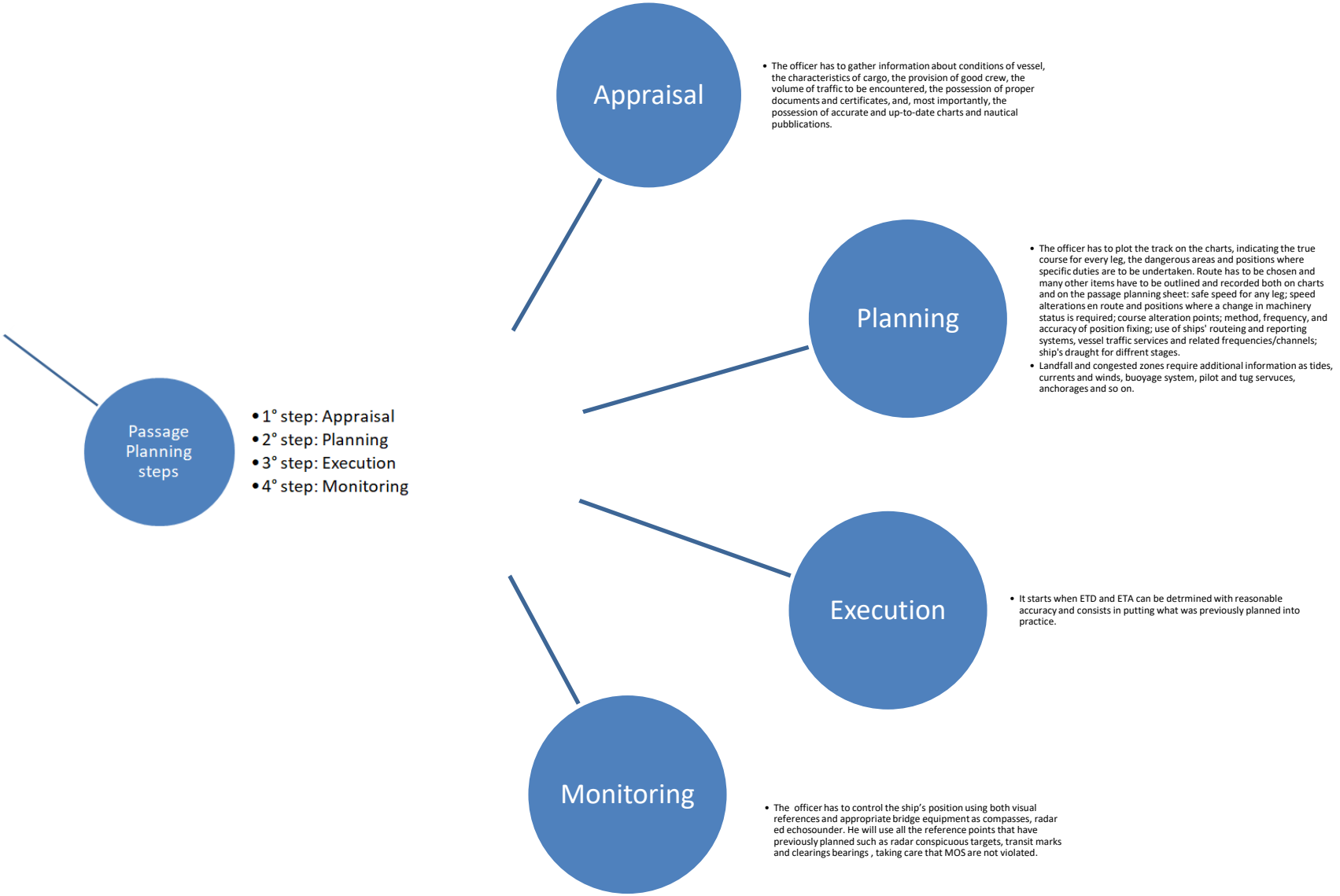
- Passage Planning is the sum of all operations that the master and the Deck Officer have to carry out in order to organize the entire upcoming navigation, from berth to berth.

International Regulations about Passage Planning

- Passage Planning is regulated by SOLAS and STCW, but only IMO resolution A.893 (21) contains very precise practical requirements.

Passage Planning steps

- 1° step: Appraisal
- 2° step: Planning
- 3° step: Execution
- 4° step: Monitoring


Passage Planning steps
•1° step: Appraisal
•2° step: Planning
•3° step: Execution
•4° step: Monitoring
Appraisal
• The officer has to gather information about conditions of vessel, the characteristics of cargo, the provision of good crew, the volume of traffic to be encountered, the possession of proper documents and certificates, and, most importantly, the possession of accurate and up-to-date charts and nautical pubblications.
Planning
• The officer has to plot the track on the charts, indicating the true course for every leg, the dangerous areas and positions where specific duties are to be undertaken. Route has to be chosen and many other items have to be outlined and recorded both on charts and on the passage planning sheet: safe speed for any leg; speed alterations en route and positions where a change in machinery status is required; course alteration points; method, frequency, and accuracy of position fixing; use of ships' routeing and reporting systems, vessel traffic services and related frequencies/channels; ship's draught for diffrent stages.
• Landfall and congested zones require additional information as tides, currents and winds, buoyage system, pilot and tug servuces, anchorages and so on.
Execution
• It starts when ETD and ETA can be detrmined with reasonable accuracy and consists in putting what was previously planned into practice.
Monitoring
• The officer has to control the ship's position using both visual references and appropriate bridge equipment as compasses, radar ed echosounder. He will use all the reference points that have previously planned such as radar conspicuous targets, transit marks and clearings bearings , taking care that MOS are not violated.

26.2 Appraisal

Test

- Test your knowledge about terms used in this didactical unity.

  TASK 2 on drive

Video Appraisal step on ebook
mailto:https://estensioni.simonescuola.it/?i=11778

Task 3 on drive

IMO guidelines ask for a competent and well-rested crew to be provided

IMO guidelines ask for appropriate scale charts to be selected during the Appraisal step

Appraisal step

- the last items (nautical charts and nautical publications) are probably the most important source of information for a reliable passage plan, indeed guidelines ask to get data about routeing or reporting system, vessel traffic services, notices to mariners, and existing radio navigational warnings, port information, pilotage service, availability of shore-based emergency response arrangements and equipment, availability of services for weather routeing and climatological, hydrographic, meteorological and oceanographic features of the area to be traversed.

All the information to be provided during the Appraisal step can be found on the various nautical publications

Appraisal step

- Any of the above information can be found on the charts and on the nautical publications, as:

Pilot book

/mar_ligure/figure/p1_15_10

MAR LIGURE - ITALIA

●

7.19 - 4-IV-2007
Savona - Fotografia, Rimorchiatori
1) **Sostituire la figura 27 con:**

«

Figura 27b - Porto di Savona *(2007)*.».

2) **Sostituire la riga 7 con:**
«**Rimorchiatori** - Il porto dispone di 6 rimorchiatori da 5510 HP di potenza.».

3) **Sostituire la riga 11 con :**

Signals and lights

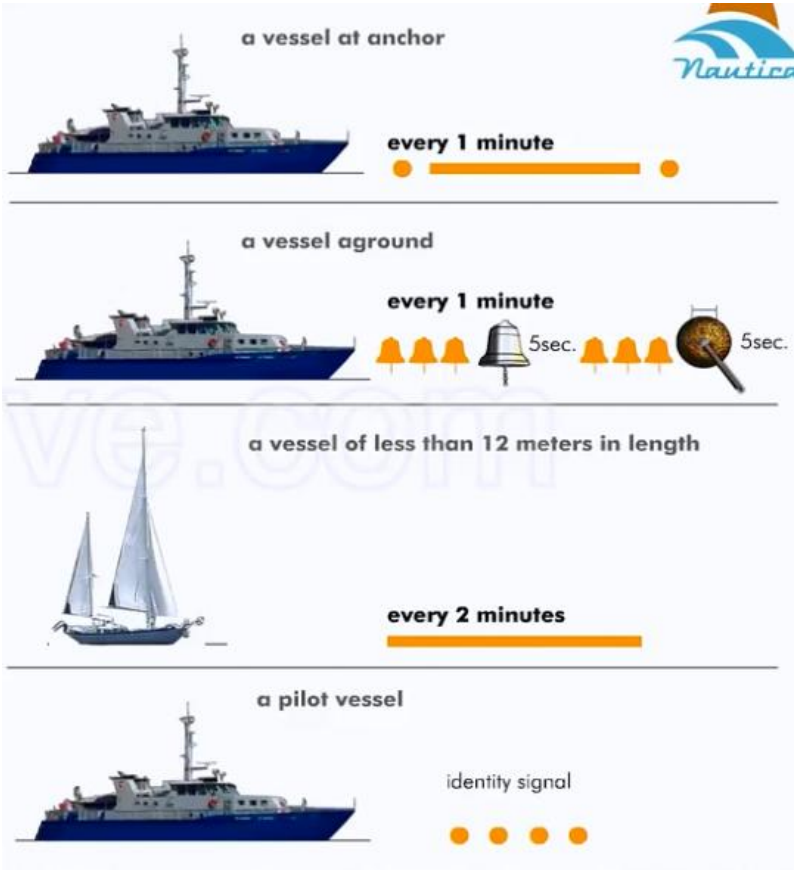
- https://www.youtube.com/watch?v=nmypd2Iq2fc
- https://www.youtube.com/watch?v=IxzCRPxQsSg
- https://www.youtube.com/watch?v=4JhuhDetnfo
- https://www.youtube.com/watch?v=Q2F2X4iZCL8

power-driven vessel means “any vessel propelled by machinery”

underway means “moving through the water”

the **draft** of a ship or boat is the distance between the surface of the water and the lowest point of the vessel.

Signals


a vessel at anchor
every 1 minute
a vessel aground
every 1 minute
5sec.
5sec.
a vessel of less than 12 meters in length
every 2 minutes
a pilot vessel
identity signal

Lights of lighthouses

- https://www.youtube.com/watch?v=x6O9FdyQjPE

List of lighthouses and fog signals

ELENCO DEI FARI E SEGNALI DA NEBBIA

Radio helps to navigation

RADIOSERVIZI PER LA NAVIGAZIONE

Nautical agenda

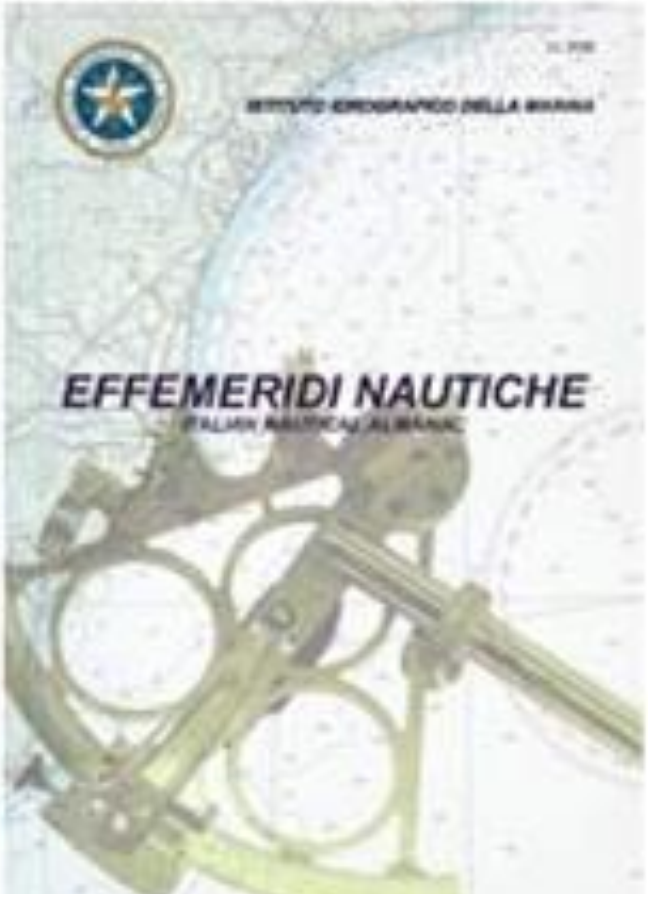
AGENDA NAUTICA

Logbook

GIORNALE DI BORDO

Ephemeris

EFFEMERIDI NAUTICHE



Tide tables

TAVOLE DI MAREA

Appraisal step

- … but old passage plannings can be used too as a source of informations, even if they have to be verified as still valid.

IMO guidelines ask for charts and nautical publications to be updated

Appraisal step

- Finally the IMO guidelines ask to use these sources of informations to identify any:

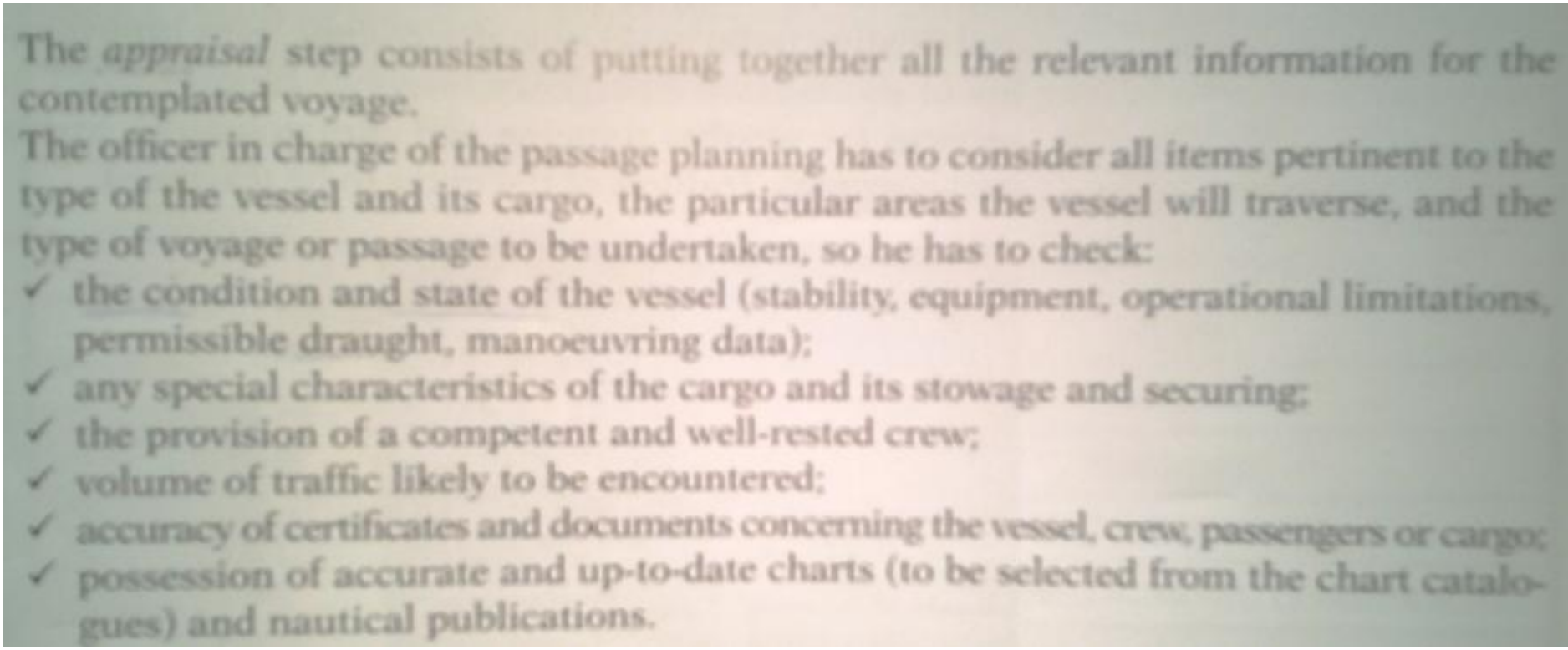
✓ Area of danger (for high traffic density or predicted unfavorable weather including restricted visibility)

✓ Areas where it will be possible to navigate safely

✓ Area where marine environmental protection considerations apply.

TASK 4 - Appraisal

- Work in pair. What do you understand watching the video? Write down a decsription of the appraisal step using your own words and then compare it with the ones of the other parts.


The *appraisal* step consists of putting together all the relevant information for the contemplated voyage.
The officer in charge of the passage planning has to consider all items pertinent to the type of the vessel and its cargo, the particular areas the vessel will traverse, and the type of voyage or passage to be undertaken, so he has to check:

- ✓ the condition and state of the vessel (stability, equipment, operational limitations, permissible draught, manoeuvring data);
- ✓ any special characteristics of the cargo and its stowage and securing;
- ✓ the provision of a competent and well-rested crew;
- ✓ volume of traffic likely to be encountered;
- ✓ accuracy of certificates and documents concerning the vessel, crew, passengers or cargo;
- ✓ possession of accurate and up-to-date charts (to be selected from the chart catalogues) and nautical publications.

APPRAISAL check list

http://secondmates.blogspot.it/2011/12/check-list-for-making-passage-plan.html

- 01 All available charts for passage arranged.
- 02 Requisition for charts / publications has been sent, including approach charts for bunkering and ports of refuge enroute.
- 03 Passage charts checked all corrected to date.
- 04 Sailing directions and supplements and corrections to sailing directions checked.
- 05 Light lists all corrected to date and onboard for areas of voyage.
- 06 ALRS' all onboard and corrected to date.
- 07 Tide tables checked.
- 08 Tidal stream atlases and co-tidal charts checked.
- 09 Routing charts checked.
- 10 IMO routing schemes available and checked.
- 11 Temporary and Preliminary notices checked.
- 12 Climatic data for the passage checked.
- 13 Port circulars file checked.
- 14 Currents for route checked.
- 15 Draught calculated for the various stages of the passage.
- 16 Ocean Passages of the World, checked for passage.
- 17 Sailing Directions checked for the passage.
- 18 Navigation marks and lights checked.
- 19 Radar conspicuous points and coastlines checked.
- 20 Availability of electronic navigational aids checked.
- 21 Navigational warnings on Navtex as well as long-range NAVAREA warnings
- 22 Weather reports taken, fax charts taken and weather routing done.
- 23 Reporting points checked.

26.3 Planning

Test

- Test your knowledge about terms used in this didactical unity.

TASK 5 on drive

Video Planning step

https://estensioni.simonescuola.it/?i=11778

TASK 6 on drive

TASK 7

- Work in pairs.
- What did you understand watching the video?
- Write down a description of a planning step using your own words and then compare it with the ones of the other pairs.

Practical step: planning

- The officer has to plot the track on the charts.
- He indicates:

1. the true course for every leg
2. The dangerous area (NO GO AREA)
3. The areas with restrictions and/or specific duties (e.g., with VTS control, similar to air traffic control)

Long oceanic passage

- …. requires an adeguate route choice
- “Ocean Passages for the World” pubblications help the master
- So many variables have to be taken in account, often of commercial nature but climatological and meteorological ones too.

Plan

- The plan has to cover the entire voyage from berth to berth, including those areas where the service of a pilot will be used, clearly marked and recorded on charts.

Other items to include in the plan

- Safe speed for any leg
- Speed alteration en route and positions where a change in machinery status is required (e.g.: squat effect, landfall, congested zone, change of fuel - MDO, HFO)

Each student has to research and explain:

-what is squat effect?

-what are depth and draught? (Ratio depth/draught less than 1.5)

- change of fuel: when does it happen?

Other items to include in the plan

- Course alteration point: let's study it

  Key words and reflection:

  way point

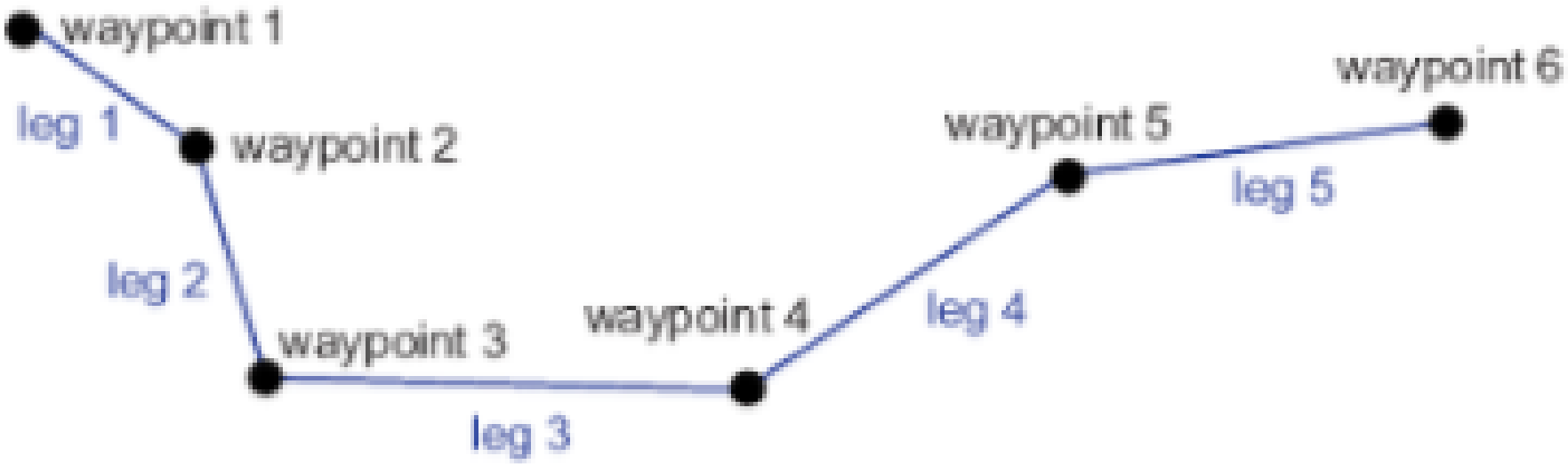
  hard over helm

  advance, transfer

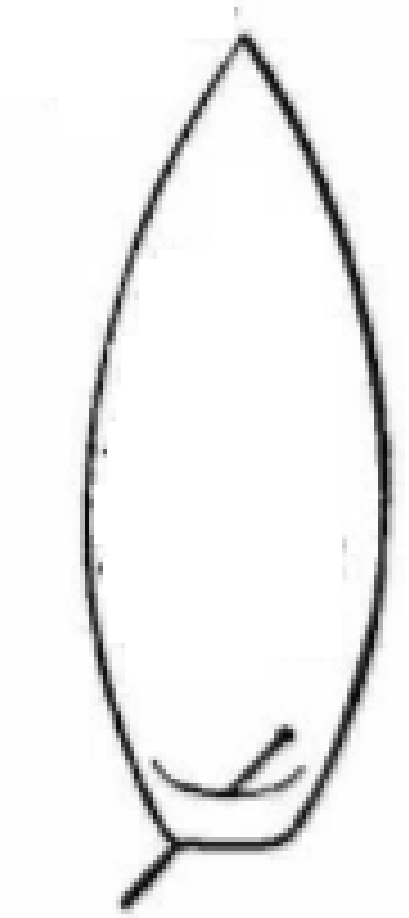
  sea trials

  not possible to change leg immediately for a ship: it takes minutes to respond to an ordered helm; so the manoeuvre starts in advance.

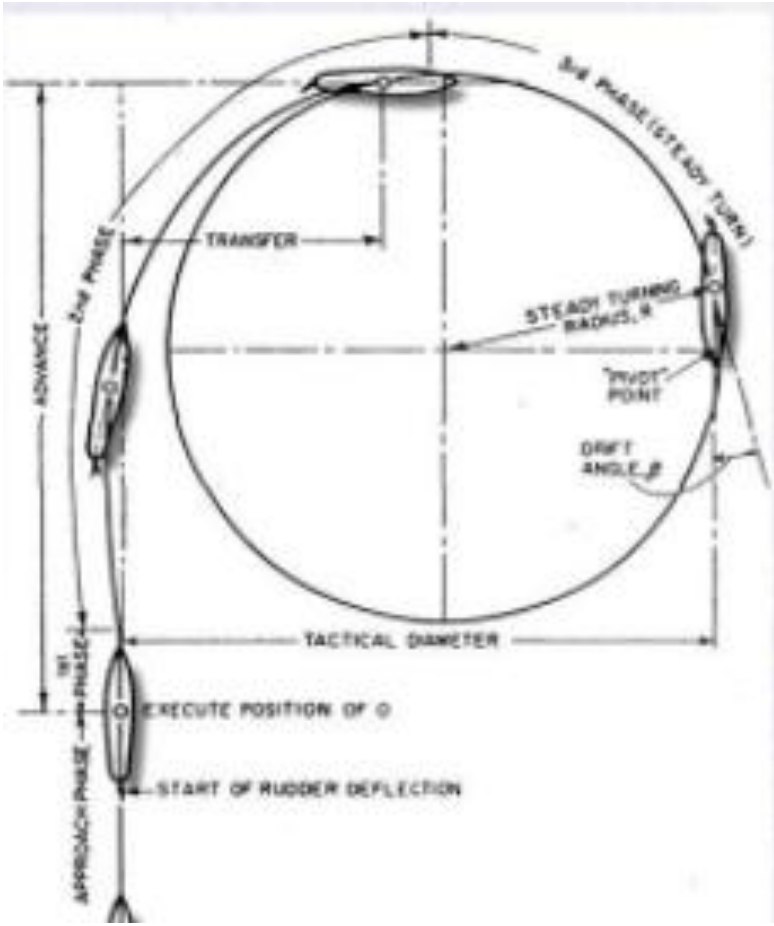
Course alteration point study



HELM (angle)



Advance, transfer



Turning Circle - A ship's turning circle is the path followed by the ship's pivot point when making a 360 degree turn.

Advance - Advance is the amount of distance run on the original course until the ship steadies on the new course. Advance is measured from the point where the rudder is first put over.

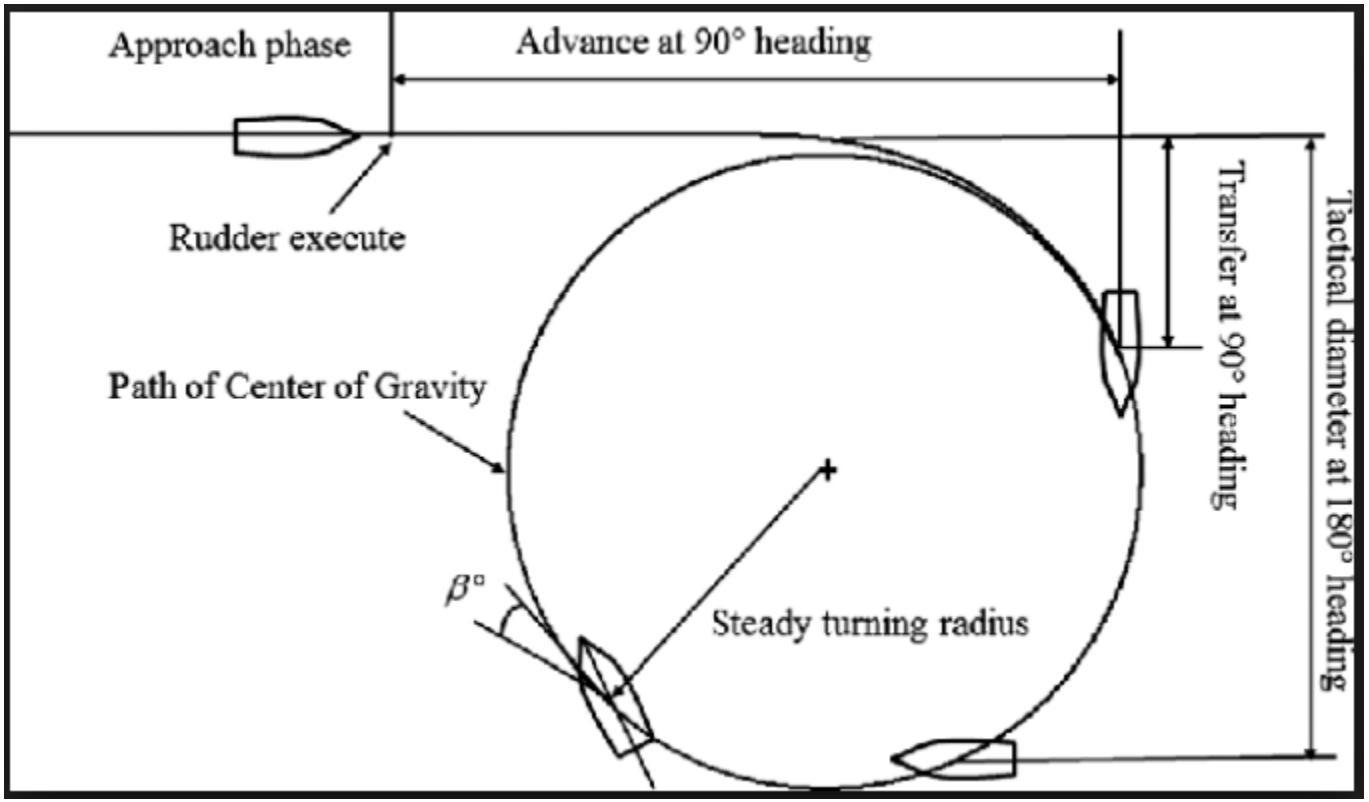
Transfer - Transfer is the amount of distance gained towards the new course (shown here for 90° heading change).

Tactical Diameter - Tactical diameter is the distance gained to the left or right of the original course after a turn of 180° is completed.

Final Diameter - Final diameter is the distance perpendicular to the original course measured from the 180° point through 360° (shown here for steady turning radius, R).

Pivot Point - A ship's pivot point is a point on the centerline about which the ship turns when the rudder is put over.

Tourning circle
(very important as stopping distance)



Other items to include in the plan

- Method, frequency and accuracy of position fixing, including primary and secondary options

https://www.myseatime.com/blog/detail/position-fixing-the-most-important-element-of-passage-planning

It depends on:

- Proximity of hazards (rocks, wrecks, shallow water, ecc.)
- Sea room around the vessel
- Specific local regulations to be applied

Other items to include in the plan (SOLAS)

- To find on line

.2 the main elements to ensure safety of life at sea, safety and efficiency of navigation, and protection of the marine environment during the intended voyage or passage; such elements should include, but not be limited to:

.1 safe speed, having regard to the proximity of navigational hazards along the intended route or track, the manoeuvring characteristics of the vessel and its draught in relation to the available water depth;

.2 necessary speed alterations en route, e.g., where there may be limitations because of night passage, tidal restrictions, or allowance for the increase of draught due to squat and heel effect when turning;

.3 minimum clearance required under the keel in critical areas with restricted water depth;

.4 positions where a change in machinery status is required;

.5 course alteration points, taking into account the vessel's turning circle at the planned speed and any expected effect of tidal streams and currents;

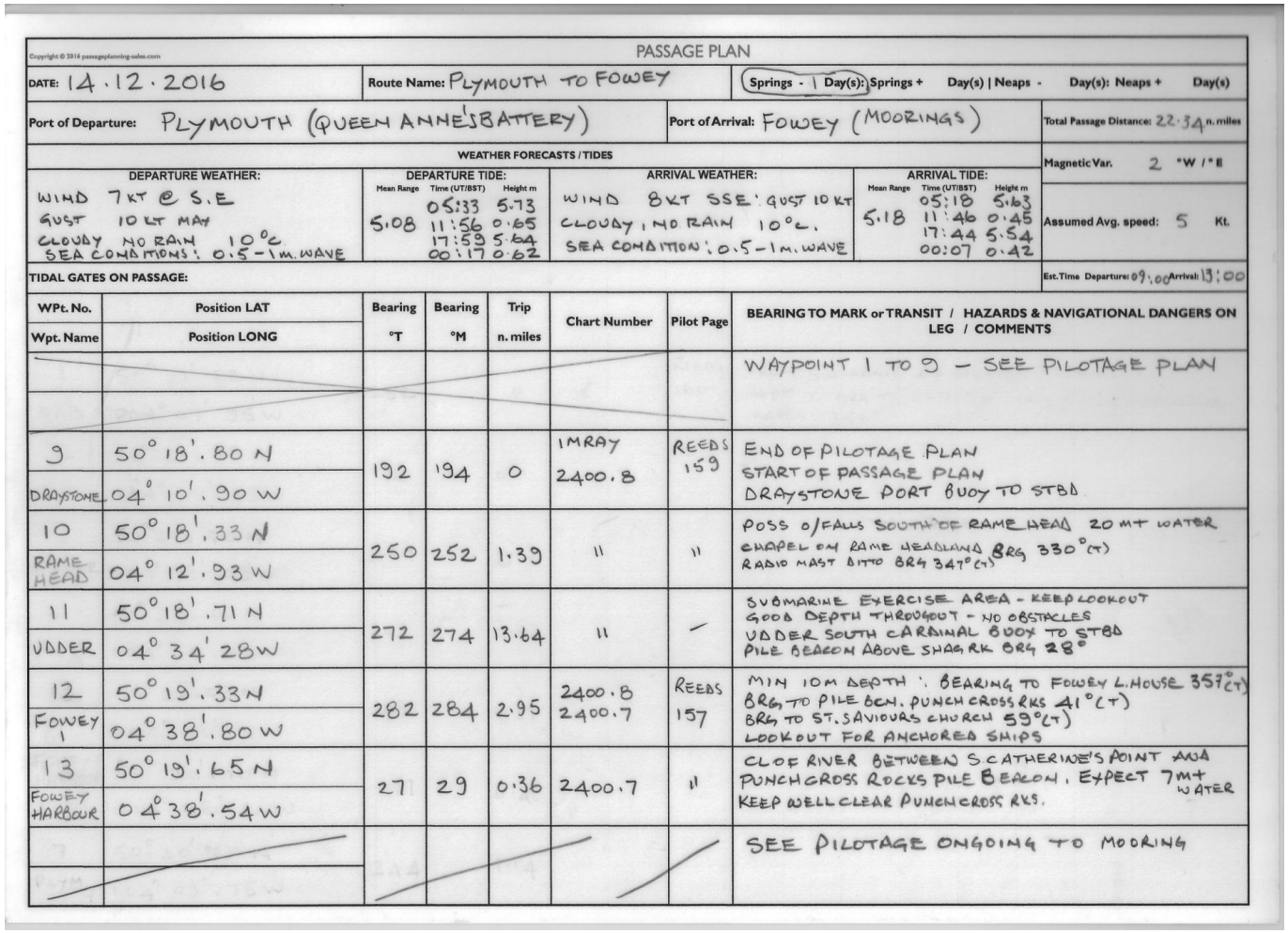
.6 the method and frequency of position fixing, including primary and secondary options, and the indication of areas where accuracy of position fixing is critical and where maximum reliability must be obtained;

.7 use of ships' routeing and reporting systems and vessel traffic services;

.8 considerations relating to the protection of the marine environment; and

.9 contingency plans for alternative action to place the vessel in deep water or proceed to a port of refuge or safe anchorage in the event of any emergency necessitating abandonment of the plan, taking into account existing shore-based emergency response arrangements and equipment and the nature of the cargo and of the emergency itself.

https://www.passageplanning-sales.com/passage_planning_examples.html



PASSAGE PLAN

DATE: 14.12.2016 | Route Name: PLYMOUTH TO FOWEY | Springs - \ Day(s): | Springs + Day(s) | Neaps - Day(s): | Neaps + Day(s)

Port of Departure: PLYMOUTH (QUEEN ANNE'S BATTERY) | Port of Arrival: FOWEY (MOORINGS) | Total Passage Distance: 22.34 n. miles

WEATHER FORECASTS / TIDES

DEPARTURE WEATHER: WIND 7KT @ S.E GUST 10 KT MAX CLOUDY NO RAIN 10°C SEA CONDITIONS: 0.5-1M. WAVE

DEPARTURE TIDE: Mean Range 5.08 | Time (UT/BST) 05:33 11:56 17:59 00:17 | Height m 5.73 0.65 5.64 0.62

ARRIVAL WEATHER: WIND 8KT SSE. GUST 10 KT CLOUDY, NO RAIN 10°C. SEA CONDITION: 0.5-1M. WAVE

ARRIVAL TIDE: Mean Range 5.18 | Time (UT/BST) 05:18 11:46 17:44 00:07 | Height m 5.63 0.45 5.54 0.42

Magnetic Var. 2 °W / °E | Assumed Avg. speed: 5 Kt.

TIDAL GATES ON PASSAGE: | Est. Time Departure: 09:00 Arrival: 13:00

WPt. No. / Wpt. Name	Position LAT / Position LONG	Bearing °T	Bearing °M	Trip n. miles	Chart Number	Pilot Page	BEARING TO MARK or TRANSIT / HAZARDS & NAVIGATIONAL DANGERS ON LEG / COMMENTS
							WAYPOINT 1 TO 9 – SEE PILOTAGE PLAN
9 DRAYSTONE	50° 18'.80 N 04° 10'.90 W	192	194	0	1MRAY 2400.8	REEDS 159	END OF PILOTAGE PLAN START OF PASSAGE PLAN DRAYSTONE PORT BUOY TO STBD
10 RAME HEAD	50° 18'.33 N 04° 12'.93 W	250	252	1.39	〃	〃	POSS O/FALLS SOUTH OF RAME HEAD 20 MT WATER CHAPEL ON RAME HEADLAND BRG 330°(T) RADIO MAST DITTO BRG 347°(T)
11 VADDER	50° 18'.71 N 04° 34'.28W	272	274	13.64	〃	—	SUBMARINE EXERCISE AREA - KEEP LOOKOUT GOOD DEPTH THROUGHOUT - NO OBSTACLES VADDER SOUTH CARDINAL BUOY TO STBD PILE BEACON ABOVE SHAG RK BRG 28°
12 FOWEY 1	50° 19'.33N 04° 38'.80 W	282	284	2.95	2400.8 2400.7	REEDS 157	MIN 10M DEPTH. BEARING TO FOWEY L.HOUSE 357°(T) BRG TO PILE BCN. PUNCHCROSS RKS 41°(T) BRG TO ST. SAVIOURS CHURCH 59°(T) LOOKOUT FOR ANCHORED SHIPS
13 FOWEY HARBOUR	50° 19'.65 N 04° 38'.54 W	27	29	0.36	2400.7	〃	CLOSE OF RIVER BETWEEN S CATHERINE'S POINT AND PUNCHGROSS ROCKS PILE BEACON. EXPECT 7MT WATER KEEP WELL CLEAR PUNCHGROSS RKS.
							SEE PILOTAGE ONGOING TO MOORING

Passage planning sheet on: see on.line section

Planning CHECKLIST

- http://secondmates.blogspot.it/2011/12/check-list-for-making-passage-plan.html

26.4 Execution step

Task 8 – exercise

Before going on be sure you know the meaning of the following words with their correct meaning

- Reasonable
- Accuracy
- Previously
- Arise
- Overcome
- Attempt

Task 8 – exercise

Before going on be sure you know the meaning of the following words with their correct meaning

- Reasonable, accuracy, previously, arise, overcome, attempt

to defeat or succeed in controlling or dealing with something

(of a situation or an event) to have existence or come intoexistence

the fact of being exact or correct

based on or using good judgment and therefore fair and practical

before the present time or the time referred to

to try to do something, especially something difficult

Task 8 – exercise solution

based on or using good judgment and therefore fair and practical — reasonable / ragionevole

the fact of being exact or correct — accuracy / precisione

before the present time or the time referred to — previously / precedentemente

(of a situation or an event) to have existence or come into existence — arise / sorgere

to defeat or succeed in controlling or dealing with something — overcome / sormontare

to try to do something, especially something difficult — attempt / tentare

Task 9 – exercise

Watch the video Execution step and while listening to the commentator voice try to fill in the blanks using the following word.

Ensure, third, deviates, reasonable, master, delays, planned, arise, overcome, visibility, heavy traffic, officer of the watch

Execution is the _____ step of passage planning: it start when the ETD and ETA can be determined with _____ accuracy and consists in putting what was previously planned into practice.

During the execution some complications can _____ such as low visibility conditions, _____ and damage to the ship's equipment and, of course, _____ can be encountered. Each of the listed iusses can be _____by changing something in the intial plan; the _____ can always take immediate action that _____ from what was planned to _____ the safety of navigation, but the master should be informed as soon as possible.

Task 10: work in pair

- What do you understand watching the video?
- Write down a description of the execution step using your own words and then compare it with the ones of the other pairs.

When does Execution step start?

- The E.S. starts when the Estimated time of departure (ETD or TD) Estimated Time of Arrival (ETA) can be determined with reasonable accuracy.

Execution step

- …. Execution consists in putting what was previously planned into practice, bearing in mind that any changes could be possible in the case of receiving new information or the appearance of further complications.

Factors which should be taken into account when executing the plan, or deciding on any departure therefrom include:

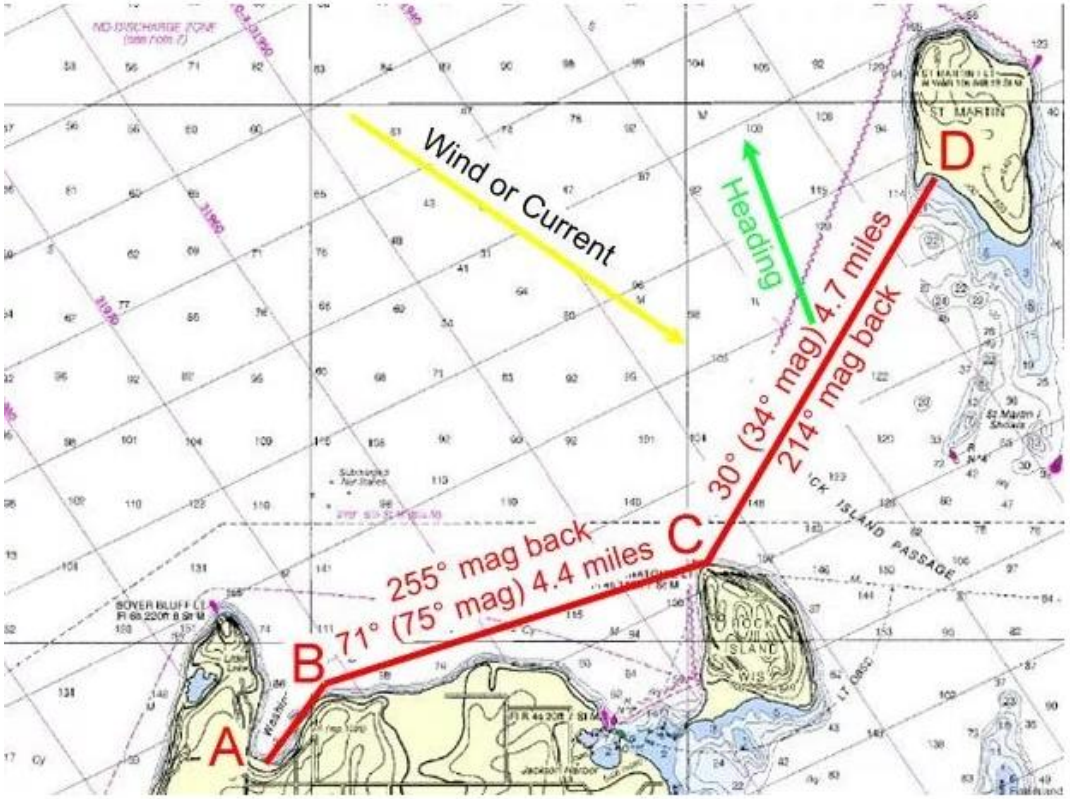
- .1 the reliability and condition of the vessel's navigational equipment;
- .2 estimated times of arrival at critical points for tide heights and flow;
- .3 meteorological conditions, (particularly in areas known to be affected by frequent periods of low visibility) as well as weather routeing information;
- .4 daytime versus night-time passing of danger points, and any effect this may have on position fixing accuracy; and
- .5 traffic conditions, especially at navigational focal points.

Overcome the listed issues

- … by changing something in the initial plan
- The master should assess the new situation which has arisen and decide to change (… speed, track, etc.) or to attempt the passage according to the original plan but using additional dack or engine room personnel.
- OOW (official of the watch) can always take immediate actions that deviate from what was planned to ensure the safety of navigation, but the master should be informed as soon as possible.

Before starting

Navigation: Course, Bearings and Headings



The terms:
course, bearing and heading

- …. it's possible to navigate without knowing the meaning of each term, but having a common language allows us to discuss navigation more effectively.
- …. so, it's best just to take time to memorize and internalize the meanings.

Course

- A course is your planned paddling route.
- It’s usually marked on a map, although you can also just make a mental note.
- A course can be a straight line going from your point of departure to your destination, or it might consist of two or more legs.
- An example course shown in the above image starts in Washington Harbor, turns to the northwest corner of Rock Island and crosses to the South Bay of St. Martin Island.

Bearing

- A bearing is the direction from your location to any distant point given in degrees from north.
- If you point your compass at a distant lighthouse and the compass reads 56 degrees, then the bearing to the lighthouse is 56 degrees.

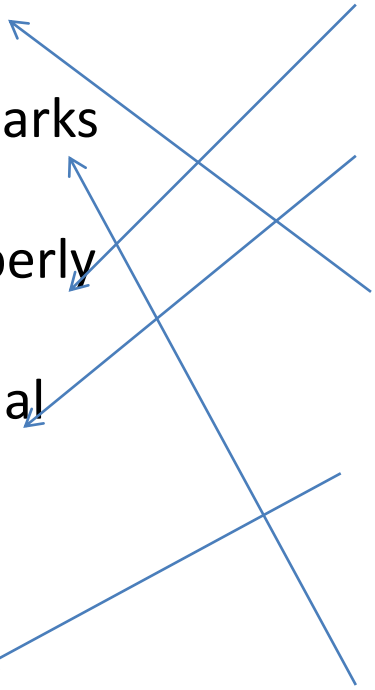
Heading

- Your heading is the direction that your vessel is pointing.
- When traveling a course, your heading usually is the same as the course bearing, but it doesn't have to be.
- In some situations, like when you're dealing with wind or current by *ferrying*, your heading may vary from your course bearing while still staying on course.
- For example, during the 4.7 mile crossing from "C" to "D," a northwest wind or current is pushing us off our course. If we get too far off course, we'll end up in the St. Martin shoals, which we want to avoid. To compensate for the wind or current we turn into it and paddle at an angle to our course bearing. We adjust our heading until we are traveling along the course bearing. In the example, our heading is 343 degrees magnetic. That angle counteracts the wind and allows us to stay on course. Our direction of travel is the same as the course bearing.

26.45 Monitoring

TASK 11:

Before going on be sure you know the meaning of the following words with their correct meaning



- Allow
- Remarks
- Properly
- Actual
- Tool
- Neglected

in a satisfactory way

real, and not guessed or imagined

to say that someone can do something

a piece of equipment that you use with your hands in order to helpyou do something

something that you say

to not give enough attention to something or someone

TASK 12:
Watch the video “Monitoring step” and try to recognize the following items; tick any of them you’ll hear the commentator mention them:

- Visual references
- Bridge equipment
- Logbook
- Radar conspicous targets
- No go area
- Not more than
- Not less than
- Safety margins
- Parallel indexing
- ECDIS
- Hazards
- Echo suonder
- Landfall stage

TASK 13:

- Work in pair
  What did you understand watching the video?
  Write down a description of the monitoring step using your own words and then compare it with the ones of the other pair.

Where is the plan?

- It should be available on the bridge at all times to allow the Officers to have immediate access and reference to its details.

Continuously monitoring

- The progress of vessel in accordance with the voyage and passage plan should be closely and continuously monitored.
- Any changes made to the plane should be made consistent with IMO guidelines and clearly marked and recorded in hte logbook and on the remarks column of the planning sheet.

Main duty of OOW ….

- …. during the monitoring step is to control the ship's position using both visual references and and appropriate bridge equipment.
- Shop's position has to be checked at regular intervals and prior to entering known hazardous areas inorder to keep it always in correct working order.

Monitoring ….

- …. can be executed using all the references previously planned as:

- Radar conspicous target
- Transit marks
- Clearing bearings …. that is, lines drawn tangent to a “no go area” allowing to control if the danger is too close simply by comparing the charted bearing with the actual one.

Clearing bearings (Drawn Exercise)

NMT and NLT

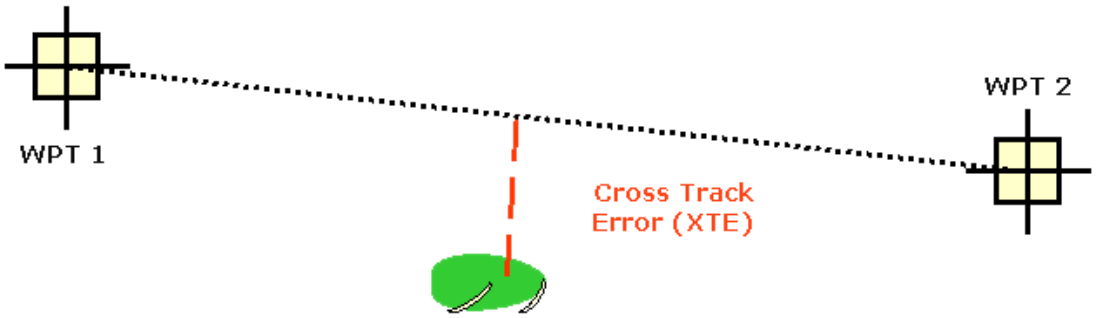
- Measured bearing should be NMT and NLT the charted one.
- This kind of information may have been provided by lighthouses alone when equipped with sector lights that appear in different coulors, indicating safe or dangerous areas, depending on position of the observer.

Radar …

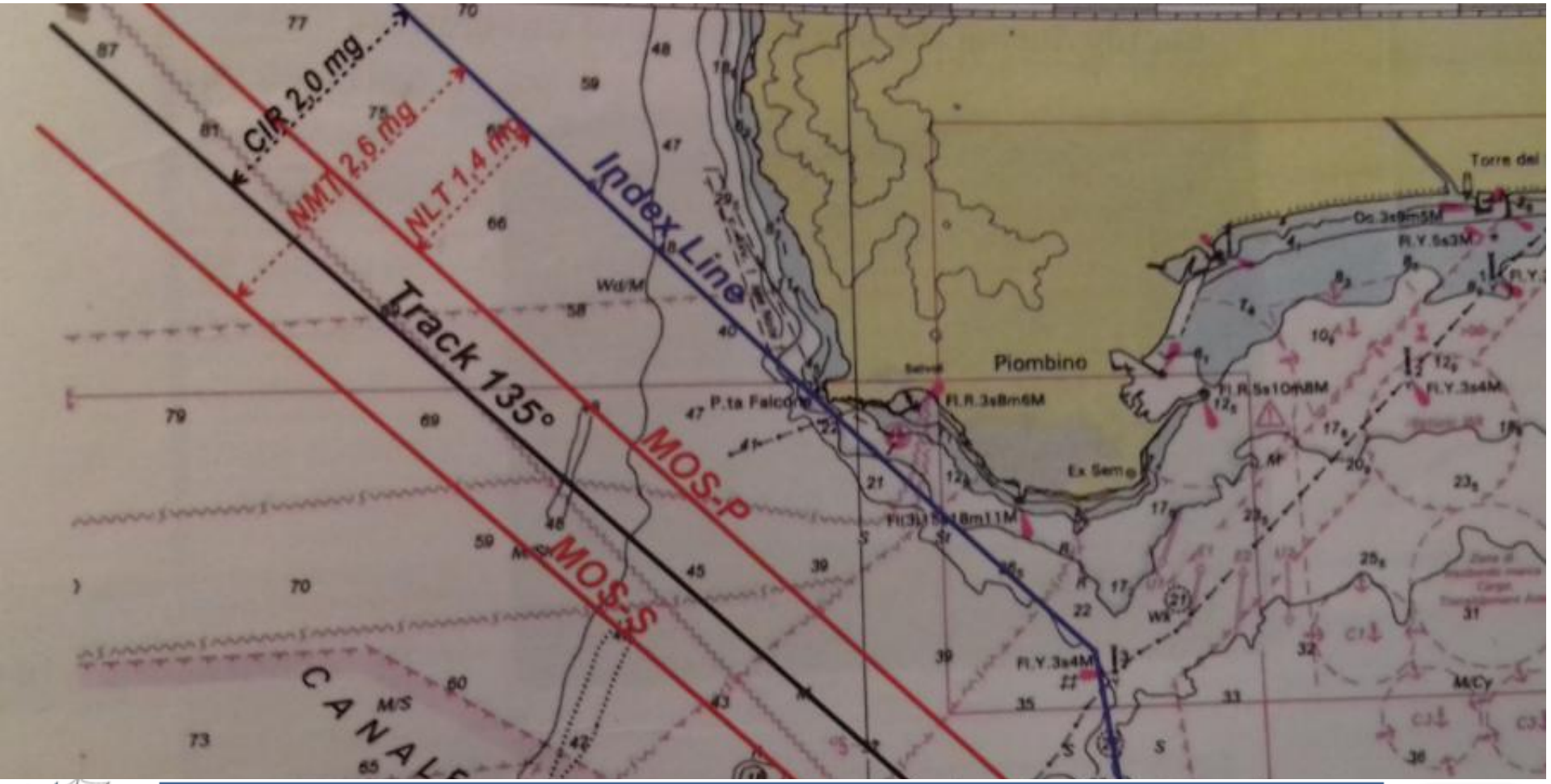
- … is probably the main tool for carrying out a good monitoring of navigation, but more traditional methods have not to be neglected: a very useful radar function is the parallel indexing with which fixed objects are targeted minding that their apparent movement on the PPI (i.e.: radar screen) is parallel and has the opposite direction in respect to the course of the own ship, within certain distance margins

MOS (margin of safety)? …

- …. is the distance set both on the port and on the starboard side of the ship that have to be kept clear of any hazard (set by local or company regulations or form the Master's standing orders, and they'll become the reference for controlling the XTE- Cross track Error).



CIR (Cross Index Range)
Exercise – drawing pag.321 (text)



To obtain a CIR

- Draw a parallel line(Index Line) to the planned track, tangent to the coastal object (a dangerous point)
- CIR is the perpendicular distance between the track and the tangent
- Track NMT (2,6 mn) and NLT (1,4 mn)

The position of the ship is monitored by VRM (radar): it takes care of distance to be respected.

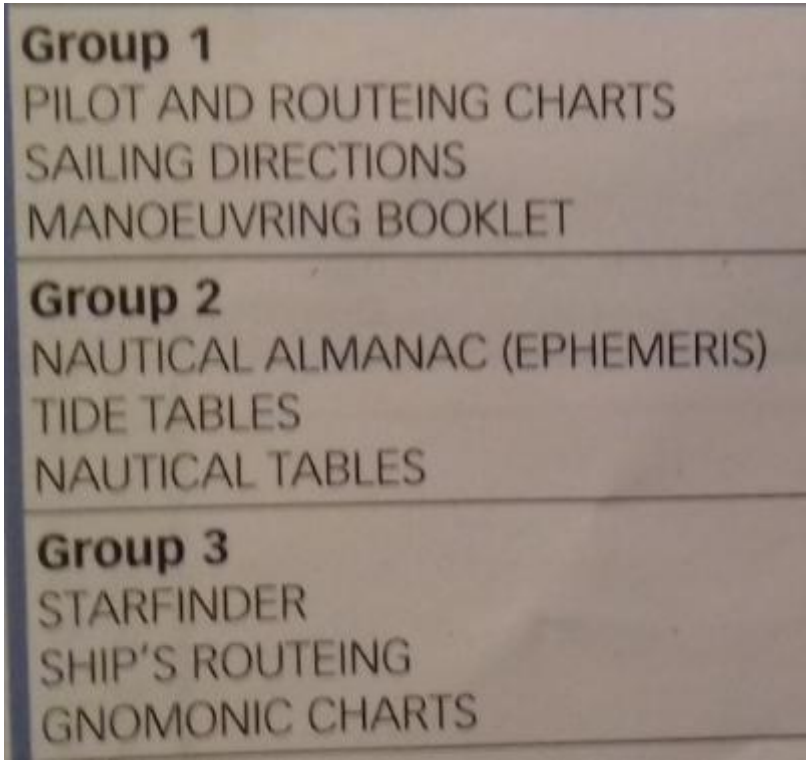
Task 14

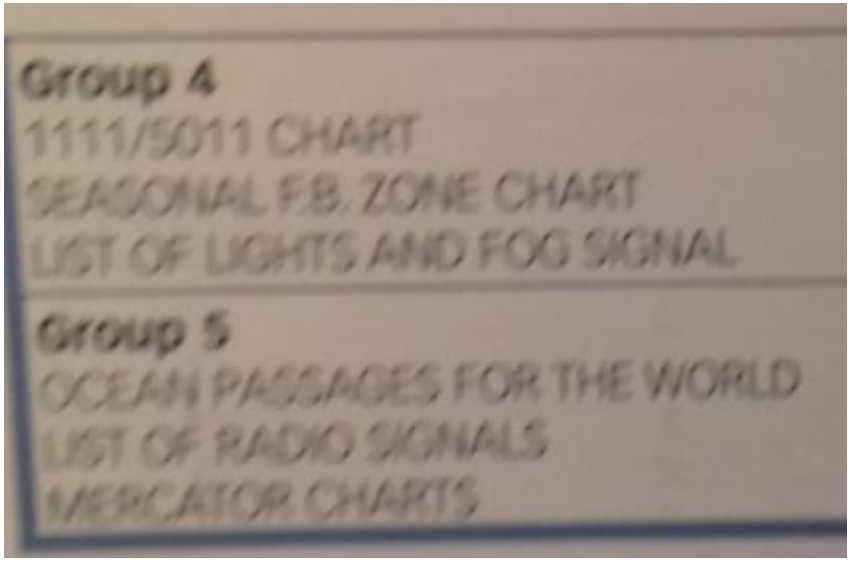
Bearing in mind the content of this chapter, match any the following action with the appropriate voyage planning steps. Mark them using: A for appraisaal, P for planning, E for execution, M for monitoring

- Decide WP and WOP
- Mark VTS channels on the chart
- Mark pilot station position on the chart
- Fill in Passage Planning sheet
- Compare the actual ETA with the planned ETA
- Read manoeuvrability booklet
- Call the pilot
- Recognize a light
- Evaluate the traffic conditions
- Lay down legs on the chart
- Define MOS
- Control MOS is not to be violated
- Be sure to have all the necessary certificates of the ships
- Do the tide calculation
- Consider the freeboard zones
- Make a coastal fix
- Communicate with the VTS
- Ensure crew is rested

TASK 15 - group work

- In the appraisal step the officer must collect many charts, pubblications, books and so on ….
- Here below there are the five groups of the major supports used in the voyage planning
- Let’s find somethings about any of them on the web: you have 30 minutes to produce a report about that.
- Then you’ll explain (using your own words) to your classmates what you’ll have found)


Group 1
PILOT AND ROUTEING CHARTS
SAILING DIRECTIONS
MANOEUVRING BOOKLET
Group 2
NAUTICAL ALMANAC (EPHEMERIS)
TIDE TABLES
NAUTICAL TABLES
Group 3
STARFINDER
SHIP'S ROUTEING
GNOMONIC CHARTS


Group 4
1111/5011 CHART
SEASONAL F.B. ZONE CHART
LIST OF LIGHTS AND FOG SIGNAL
Group 5
OCEAN PASSAGES FOR THE WORLD
LIST OF RADIO SIGNALS
MERCATOR CHARTS

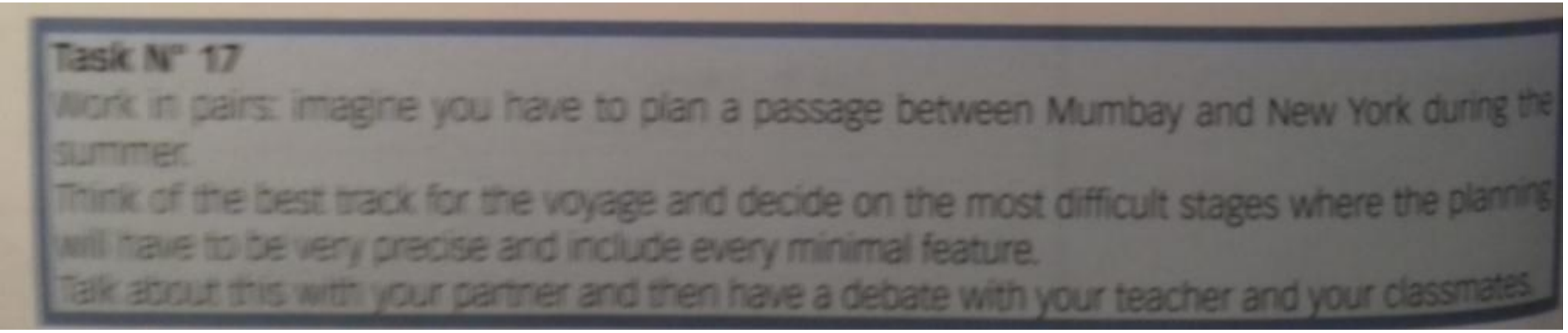
TASK 16 Group work

Ask a question about passage planning of which you know the ansew to a classmate.

If he gives you the right answer you have to think to another question for another classmate and so on until someone gives you a wrong answer. In this case the one who gave the wrong answer will become in charge of asking questions.

Remember the more the technical and difficult the question is, the more you have the possibility to “pass tha ball”

TASK 17

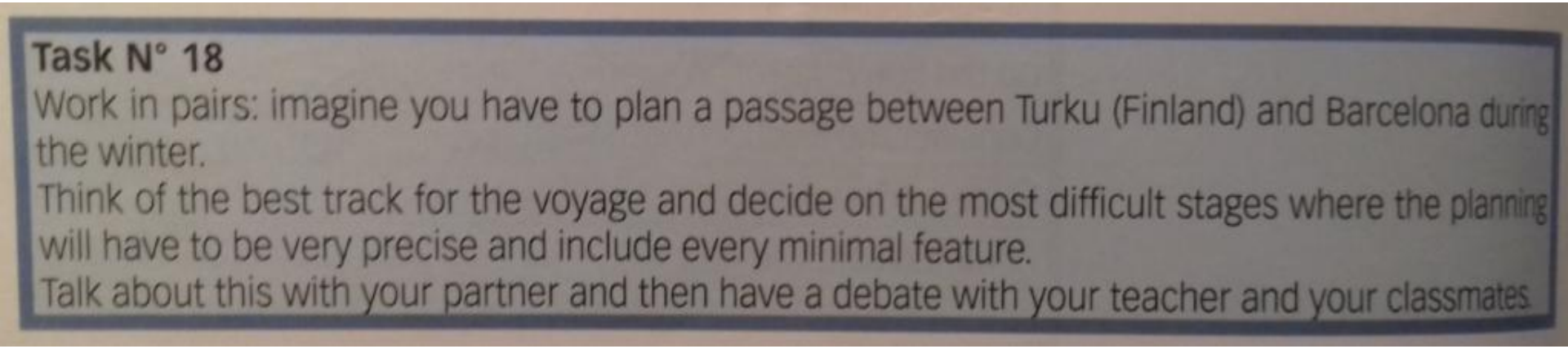

Task N° 17

Work in pairs: imagine you have to plan a passage between Mumbay and New York during the summer.

Think of the best track for the voyage and decide on the most difficult stages where the planning will have to be very precise and include every minimal feature.

Talk about this with your partner and then have a debate with your teacher and your classmates.

TASK 18



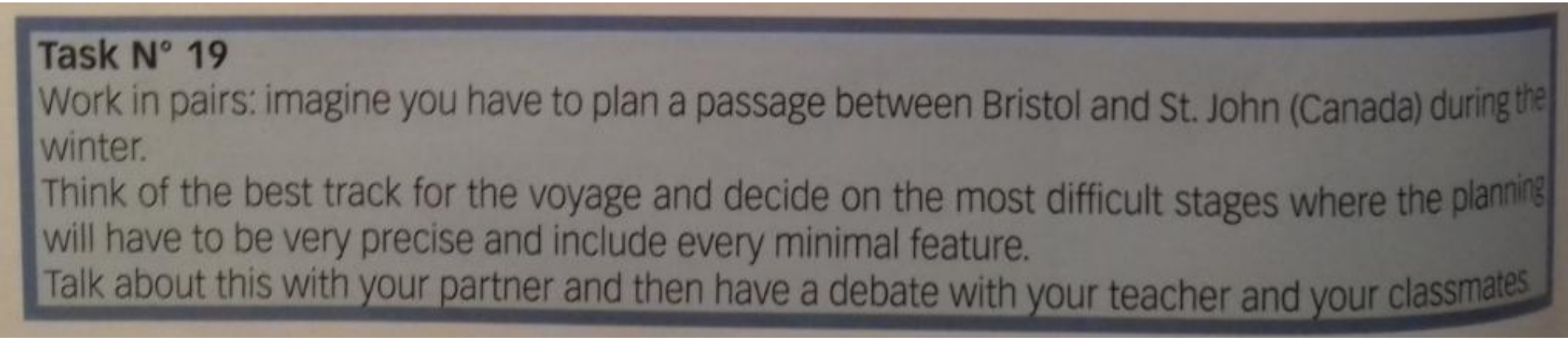
Task N° 18

Work in pairs: imagine you have to plan a passage between Turku (Finland) and Barcelona during the winter.

Think of the best track for the voyage and decide on the most difficult stages where the planning will have to be very precise and include every minimal feature.

Talk about this with your partner and then have a debate with your teacher and your classmates.

TASK 19



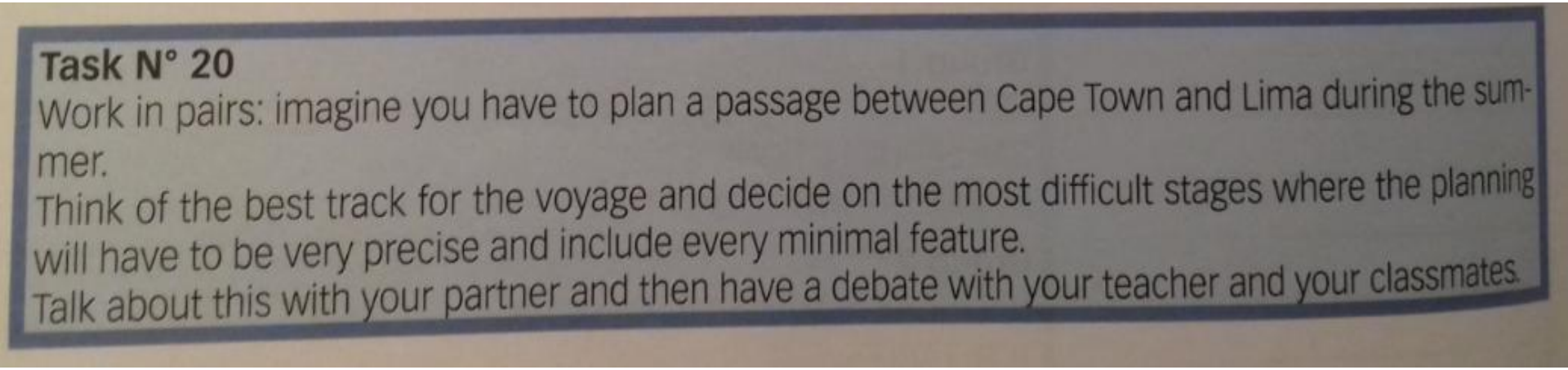
Task N° 19

Work in pairs: imagine you have to plan a passage between Bristol and St. John (Canada) during the winter.

Think of the best track for the voyage and decide on the most difficult stages where the planning will have to be very precise and include every minimal feature.

Talk about this with your partner and then have a debate with your teacher and your classmates

TASK 20



Task N° 20

Work in pairs: imagine you have to plan a passage between Cape Town and Lima during the summer.

Think of the best track for the voyage and decide on the most difficult stages where the planning will have to be very precise and include every minimal feature.

Talk about this with your partner and then have a debate with your teacher and your classmates.