



RYA

#DigitalFirst – Putting it in to practice &
action mapping student application

What?

- Direction of travel
- APEM
- How might we teach it?
 - What has changed?

#DigitalFirst: Action Mapping teaching

The flow from upstream – as it stands

- UKHO to phase out printed chart publication no earlier than 2030
- IMRAY to phase out printed raster chart publication from end of 2025
- MCA Small vessel ECS performance standard (SV-ECS) introduced November 2024 along side MGN 319 (M+F) Amendment 2 – effective 1st June 2025
- UKHO leading IHO working group to find cartography solution for vessels sub 24m



UK Hydrographic
Office

SIMRAD

Raymarine

GARMIN

FURUNO

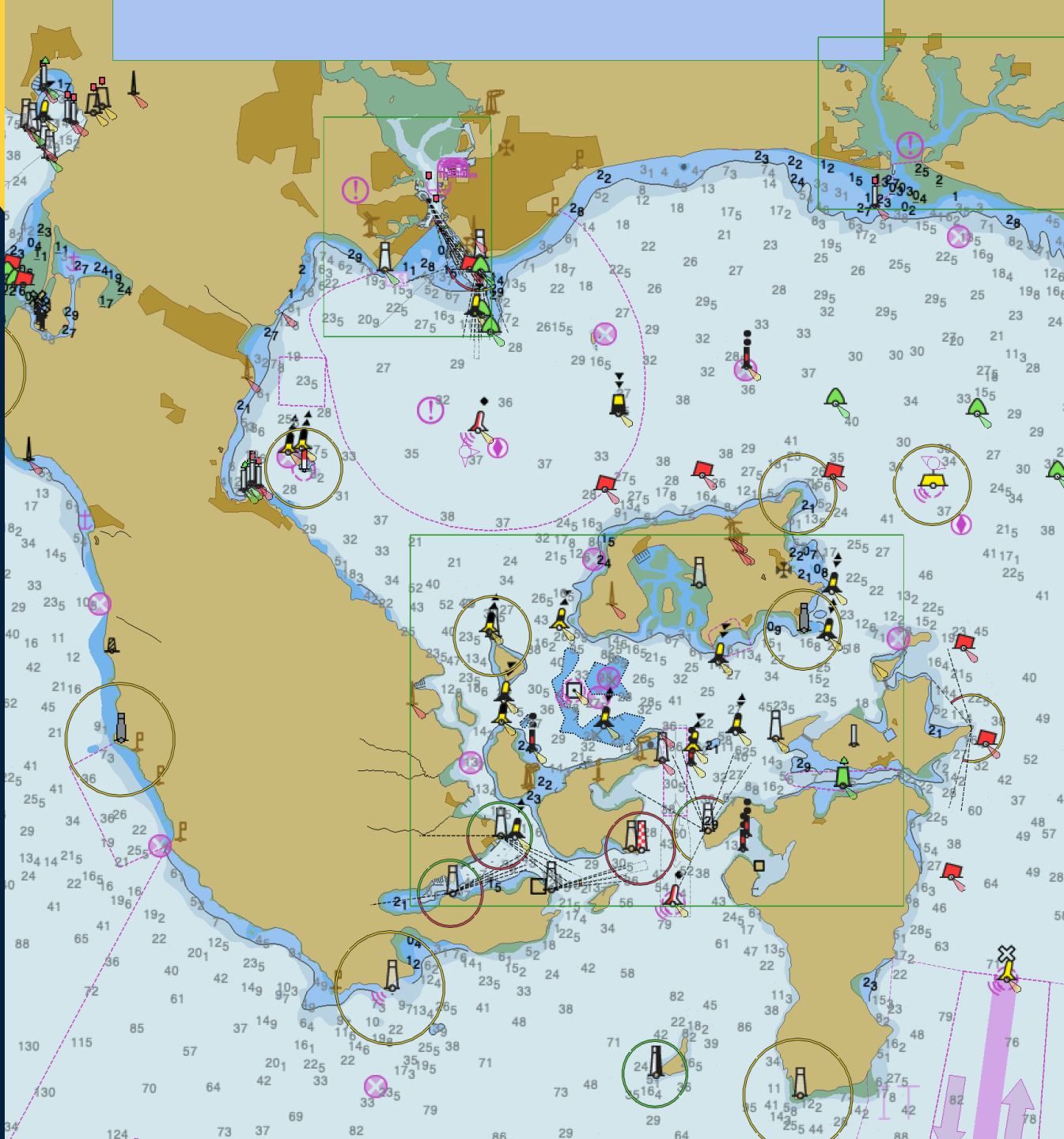
Imray



RYA



You know
RYA #DigitalFirst

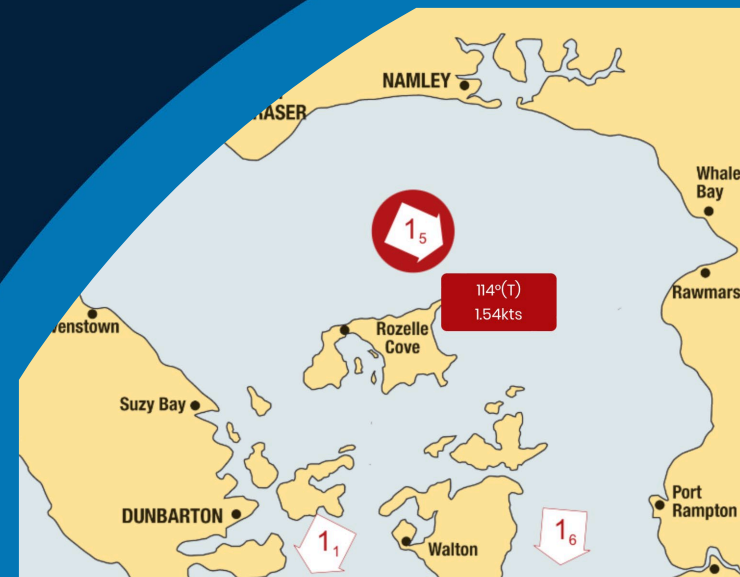




RYA

~~Digital Only~~
~~Digital Always~~
~~Digital Never~~

#DigitalFirst

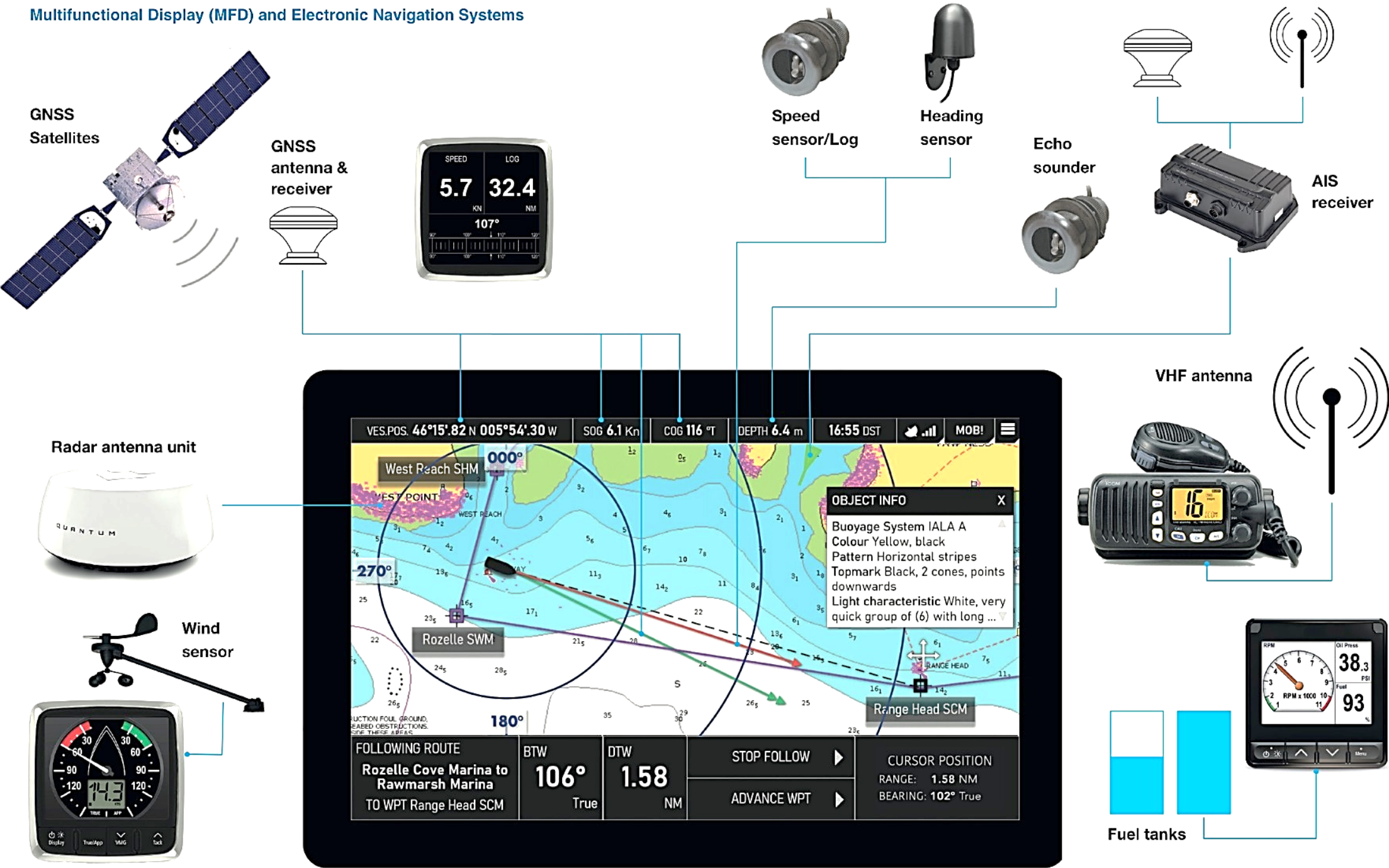




Technology...



...the science





Human Beings



...does the art



Technology

What does this mean?

- Don't try and replace human functions (art) with technology...
- ...but let it do the heavy lifting (science) where it can



#DigitalFirst

ECDIS



REALITY



SV-ECS



What actions might these boaters take?



ALEX & REMI

Motor Cruiser
Coastal Passage
Leisure Boaters



LEAH & 6 GUESTS

Sail Cruising
Yacht
Inshore Passage
Corporate
Charter



ASH & FAMILY

Open Powerboat
Family Day out
Leisure Boaters



JO, SOREN & CLUB MEMBERS

Dinghy Sailors
Club 'Fun' Session
Group activity

Appraise



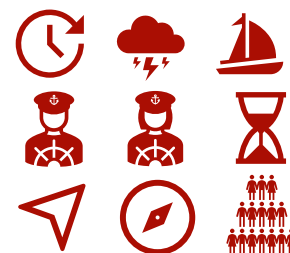
Plan



Execute



Monitor



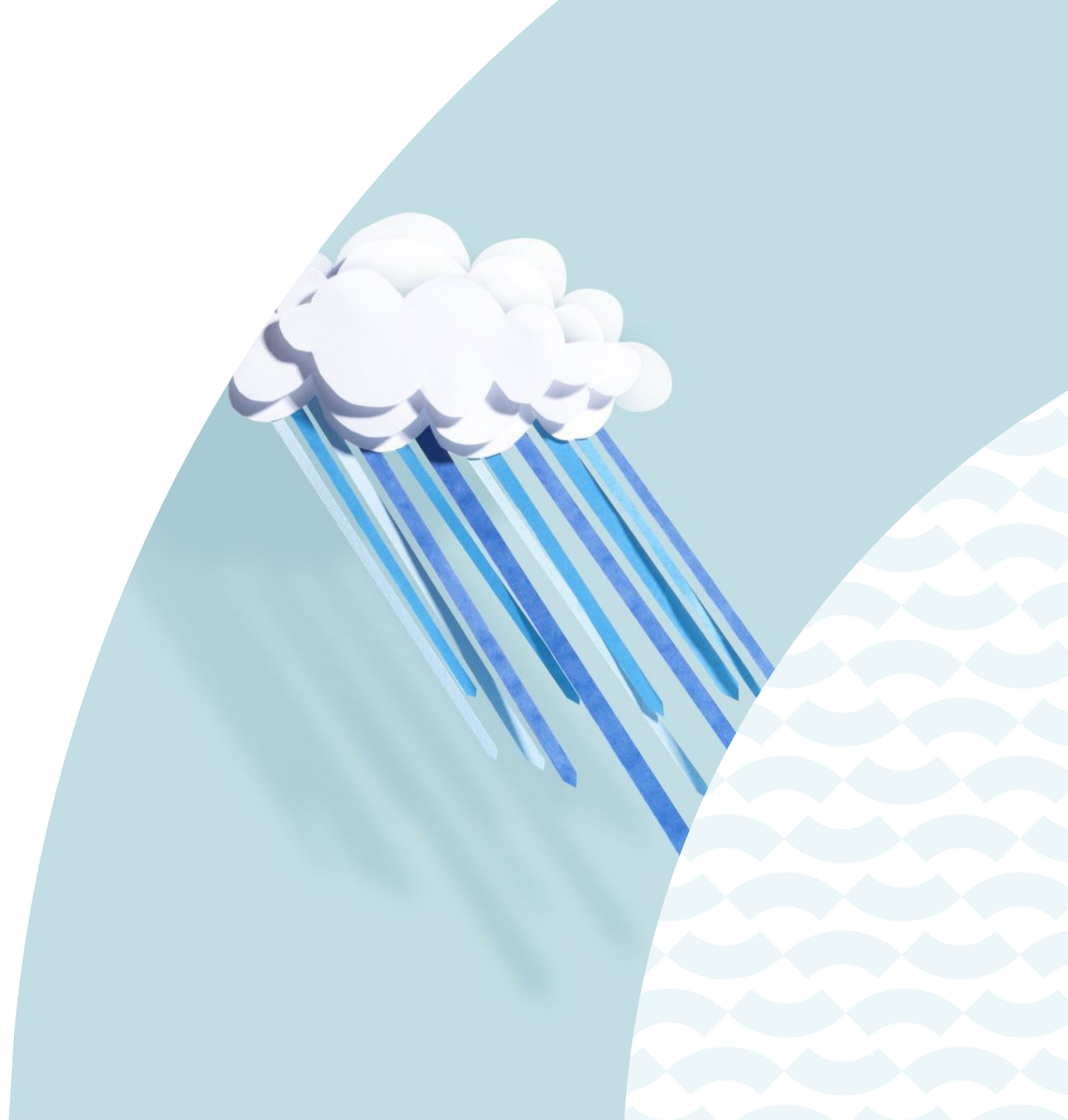


ASH & FAMILY

WEATHER FORECASTS

ACTIONS:

- Obtain a forecast
- Interpret a forecast
- Appraise any impact on the plan



ACTION: Obtain a forecast



Unofficial (Trusted?) Apps

#DigitalFirst
User friendly
Limited user-forecasting needed



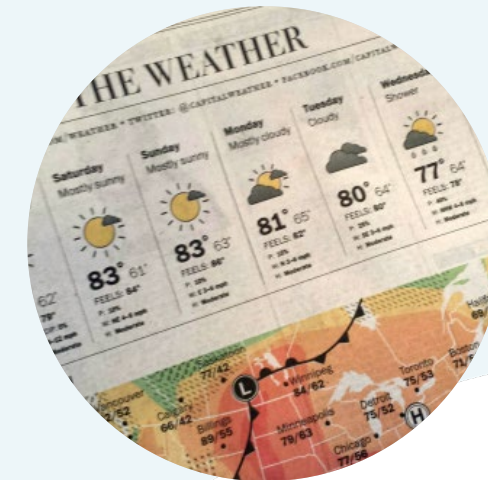
Official (Web) Sources

#DigitalFirst
Official
Big Picture Overview
Limited user-forecasting needed



Chartplotter/MFD/ECS

Requires internet on the MFD
May be an unknown source
High convenience



A newspaper

...well it might help?
Weather is weather!





ACTION: Interpret a forecast

What will we teach them?

- Screen to scene
- Where has it come from
- A different presentation isn't necessarily a different forecast
- Time and prediction are not absolute
- Variations/ranges of values



EXPERT



SAIL



KITE

PROFILE PREVIEW

🕒	←	←	←	←	←	←	←	←	←	←	←
🕒 °	86	82	83	85	90	90	91	92	91	89	89
m/s	2.8	2.9	3.8	4.8	5.5	7.5	9.2	9.6	8.7	6.8	7.1
m/s	5	5	8	9	11	13	13	13	12	12	13
✓	4	4	3	5	5	7	8	7	8	7	7
🌡 °C	17°	14°	12°	12°	12°	13°	14°	16°	16°	13°	13°
hPa	1021	1020	1021	1021	1020	1019	1020	1020	1019	1018	1020
mm	-	-	-	-	-	-	-	-	-	-	-
	→	→	→	←	→	→	→	←	→	→	→
	7	1	0.3	0.4	0.6	1.2	0.5	0.4	0.3	0.9	0.3
	←	←	←	←	←	←	←	←	←	←	←

ACTION: Weather impact on the plan

What are we teaching them?

- Where will we go?
- What do we need to take?
- Are the crew up to it?

...nothing new in teaching!



Country to Teignmouth



LEAH & 6 GUESTS





TIDES

ACTIONS:

- Obtain best tidal predictions
- Interpret tidal predictions
- Appraise any impact on the plan

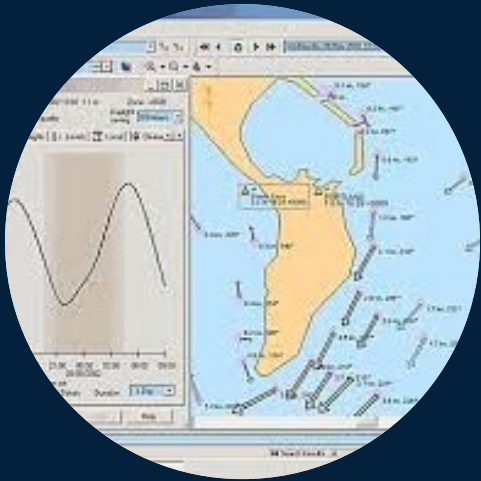
TRUSTWORTHINESS IS SUBJECTIVE



A

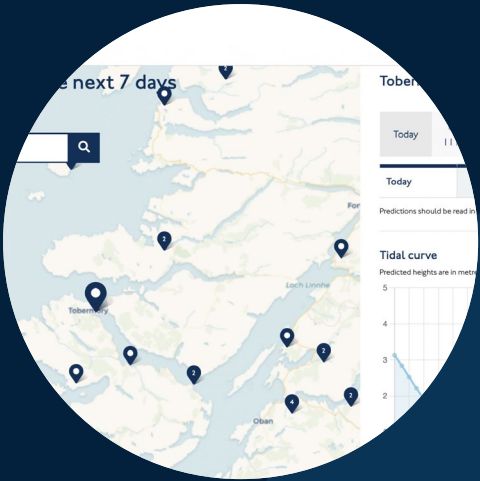


ACTION: OBTAIN TIDAL PREDICTIONS



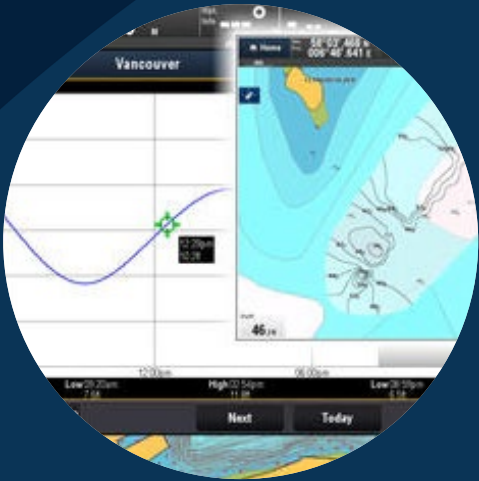
**Admiralty
TotalTide**

#DigitalFirst
Official
Inaccessible



**Admiralty
EasyTide**

#DigitalFirst
Unofficial (!!)
Trusted
From a good source
Free
Requires internet



App/MFD/ECs

#DigitalFirst
Unofficial – Trusted
Source data could
be unknown



**Nautical
Almanac**

Unofficial – Trusted
Requires manual
calculation
Requires manual
drawing
Works offline...!



ACTION: Tidal impact on the plan

- When can we get in?
- When can we leave?
- Where are our hazards?
- Wind & tide/current?

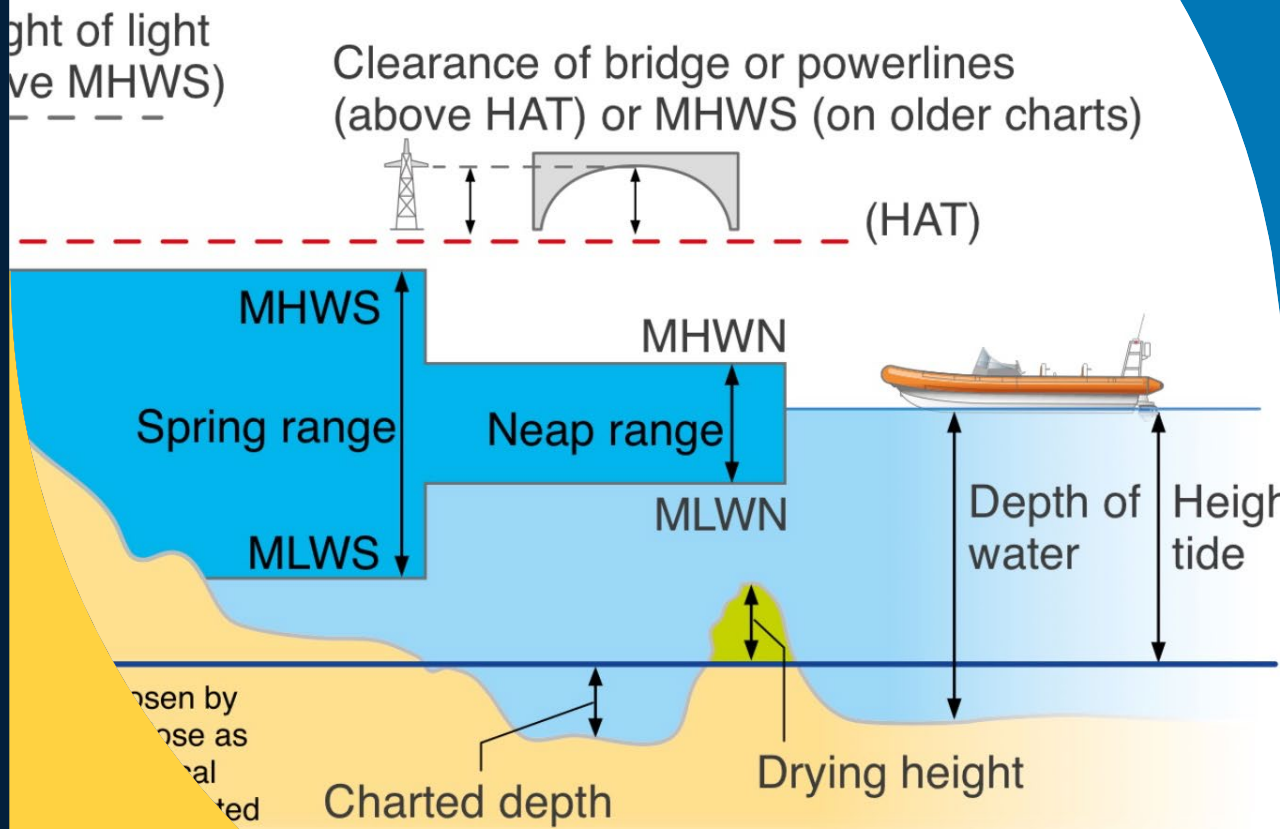


A

What will we teach them?

ACTION: Interpret Tidal Prediction

- Where measurements are from
- Ebb & Flood
- Surges & Pressure



MHWS as the reference level for clearances
 'high tide and therefore the least

ALEX & REMI





CUSTOMS PROCEDURES

ACTIONS

- Can identify customs procedures
- Carry correct ships papers
- Carry correct personal documents



Port d'entrée pour plaisanciers artisans de Pays Tiers (et notamment pour les plaisanciers britanniques)

- Search online for entry/exit procedures
- Consult resources such as forums, pilot books, cruising groups
- Obtain information from other boaters

Le propriétaire doit remplir ce formulaire et l'envoyer à l'arrivée **et** au départ de Cherbourg à l'adresse e-mail de la PAF figurant sur le formulaire. Un seul formulaire est nécessaire par bateau.

- Le propriétaire doit également appeler la PAF (+33 (0)2 33 88 72 20) pour le compostage du passeport de chaque membre de l'équipage. La PAF pourra alors décider de se déplacer directement sur le bateau ou demander à tout l'équipage de se rendre dans ses locaux au 27 rue Dom Pedro.

Planifier vos activités et visites à Cherbourg-en-Cotentin

Envie de découvrir les sites touristiques principaux de la Ville comme la Citadelle Emmanuel-Liaïs ou le musée Thomas-Henry ou de faire coïncider vos animations proposées par Cherbourg-en-Cotentin, comme l'arrivée Art'z'imités...? Alors préparez votre escale à Cherbourg en consultant activités touristiques en suivant ce lien



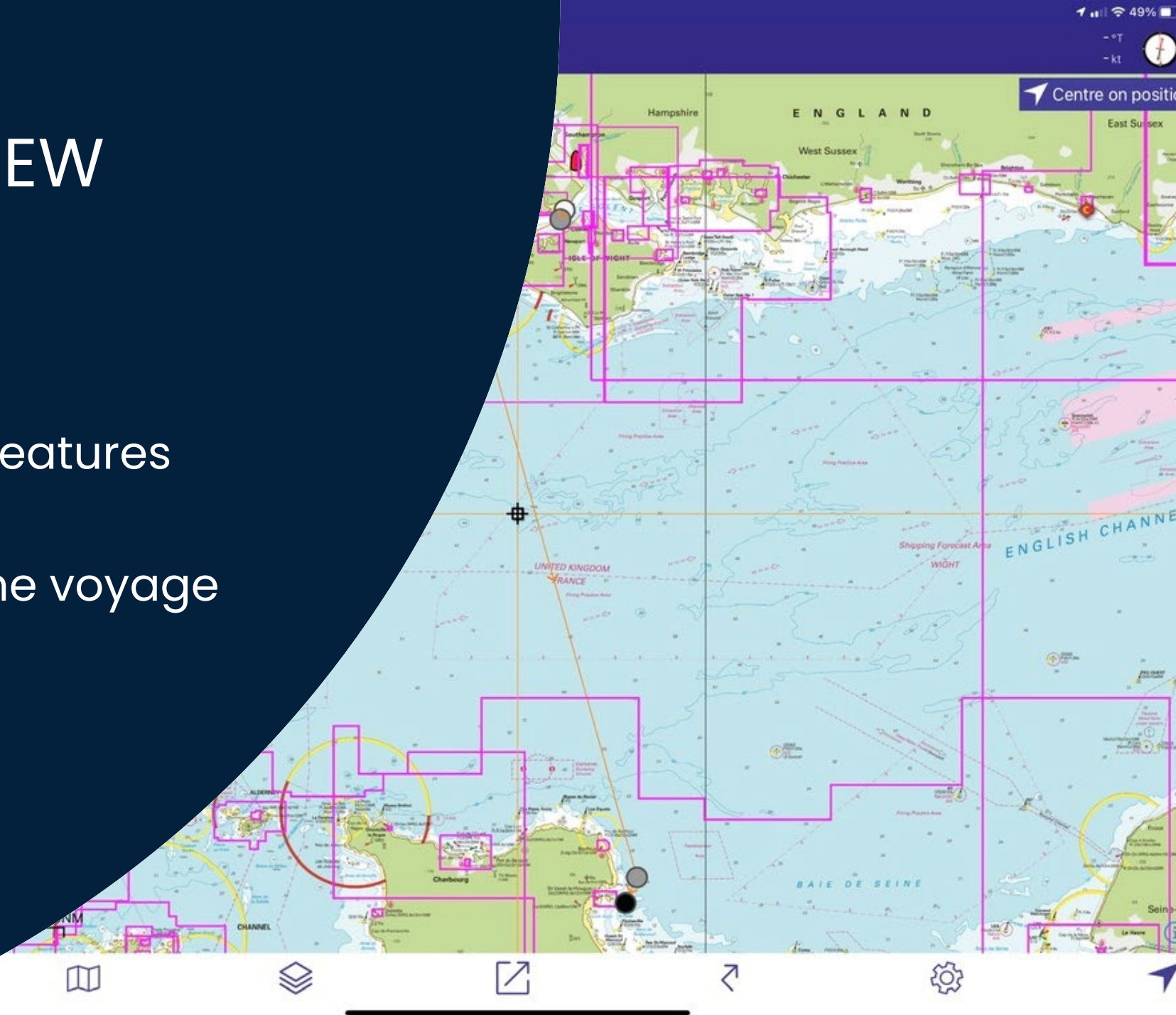
VOYAGE OVERVIEW

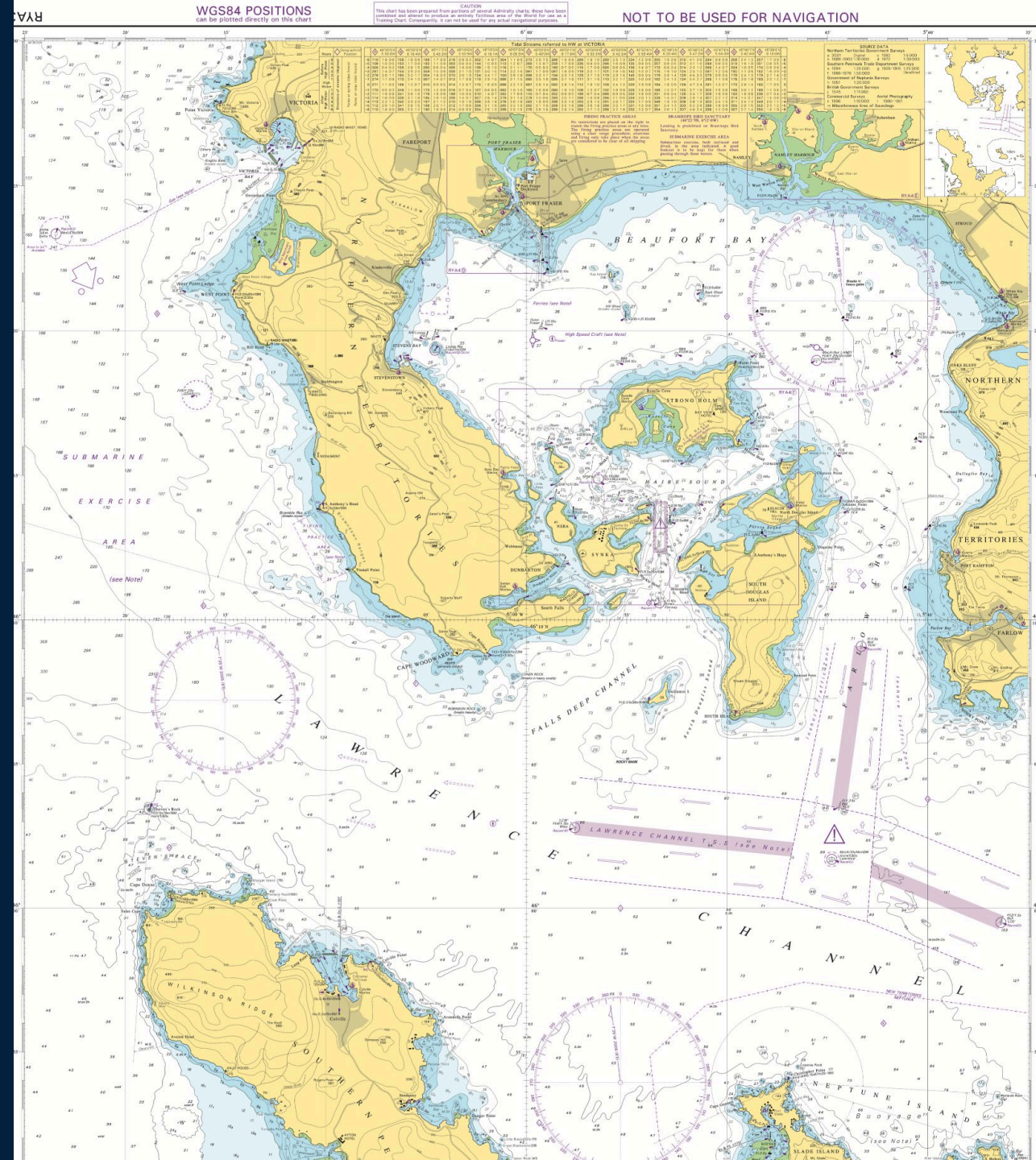
ACTIONS

- Can identify charted features
- Use an official chart
- Assess the scope of the voyage

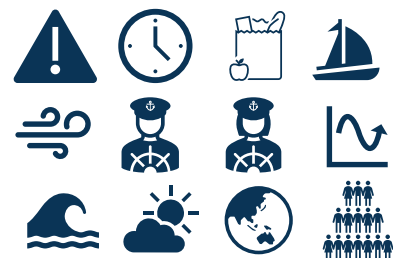


A





Appraise



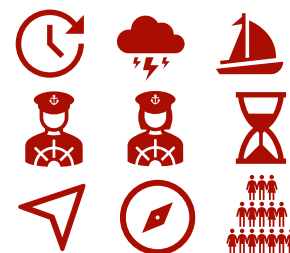
Plan



Execute



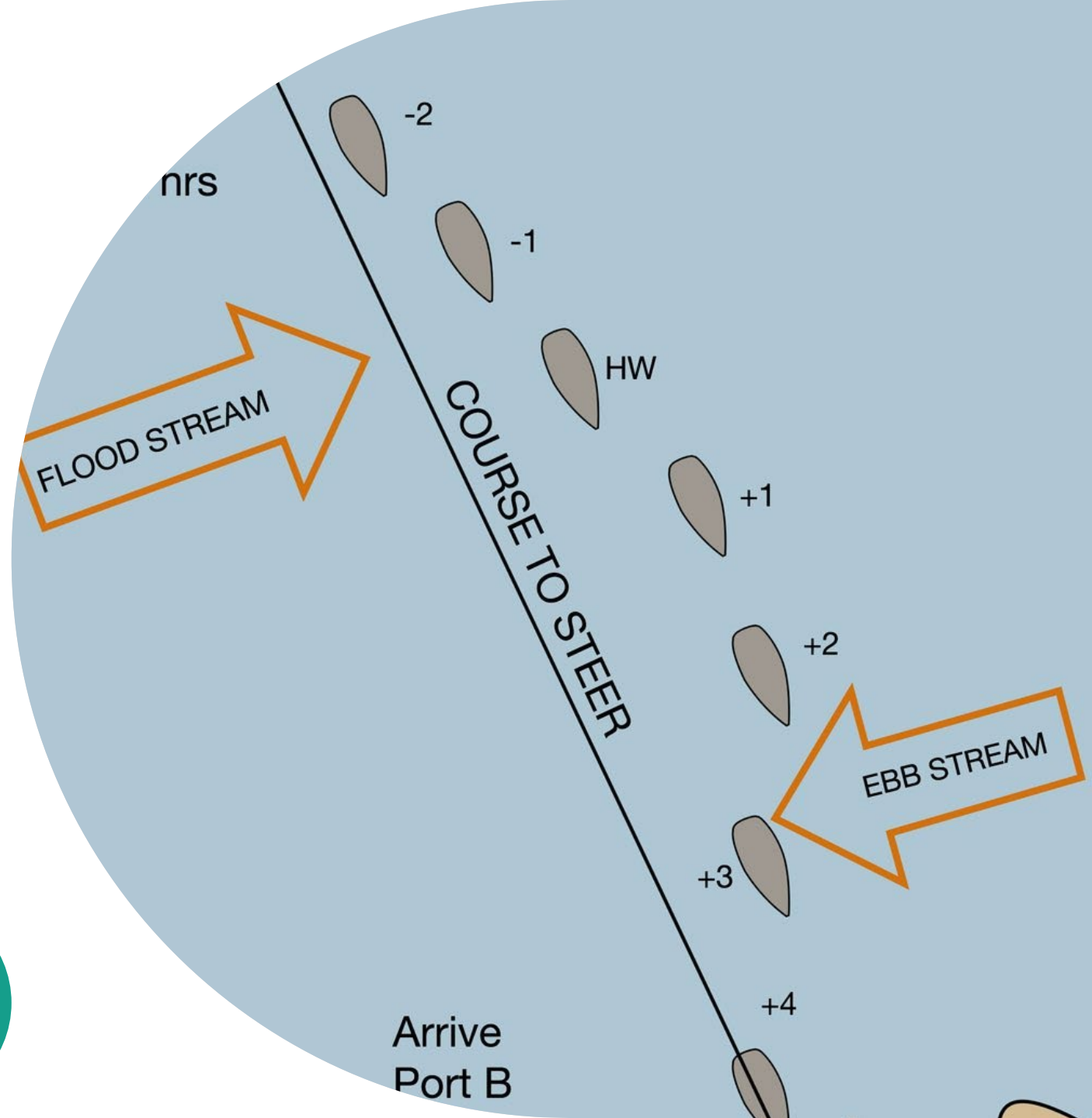
Monitor



COURSE SHAPING

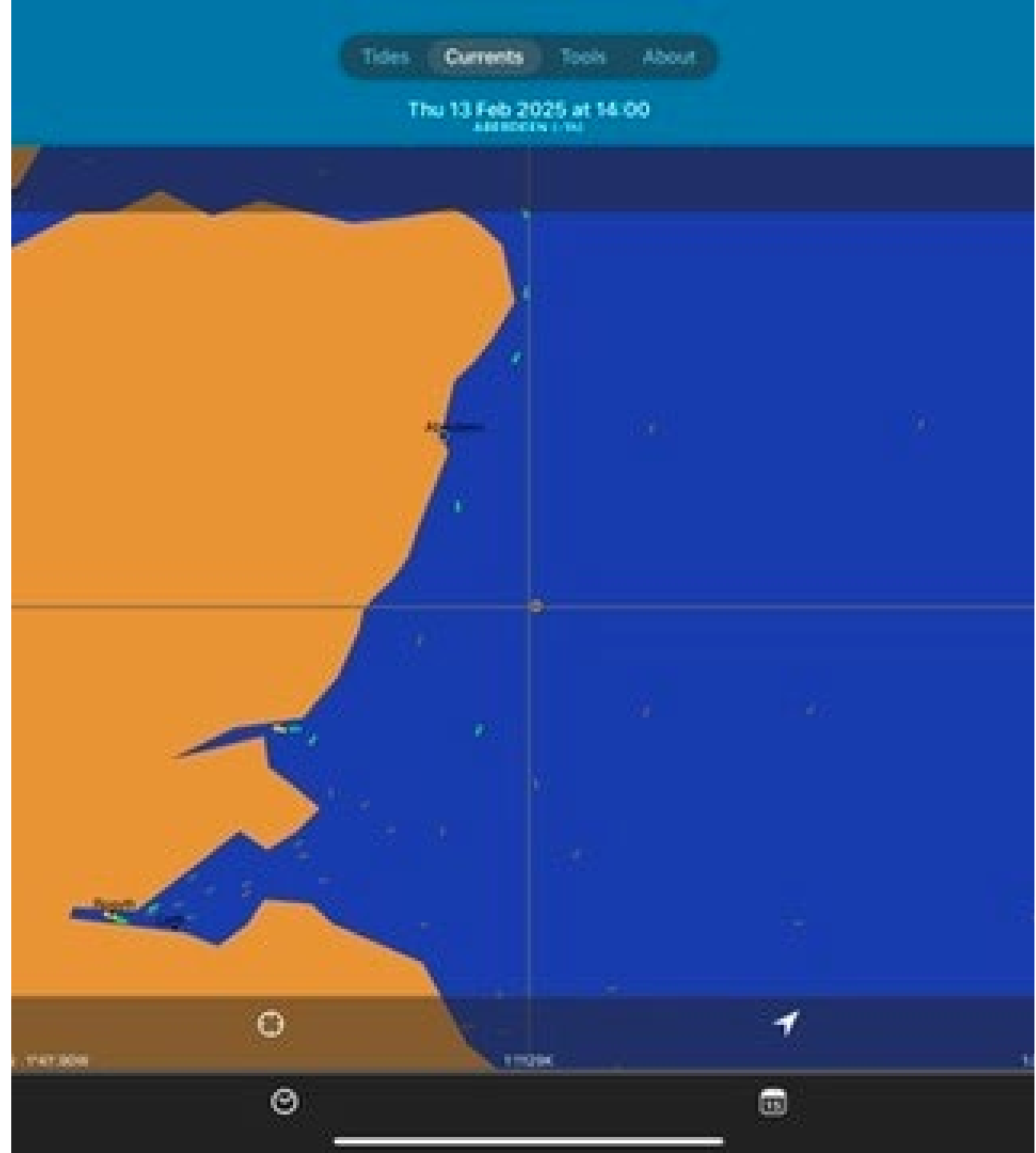
ACTIONS

- Informed choice on when to Depart
- Good choice on when/where to arrive
- Shapes a course to allow for tide
- Knows likely XTD in advance



ACTION:
INFORMED CHOICE
ON WHEN TO
DEPART

ACTION: GOOD
CHOICE ON
WHEN/WHERE TO
ARRIVE

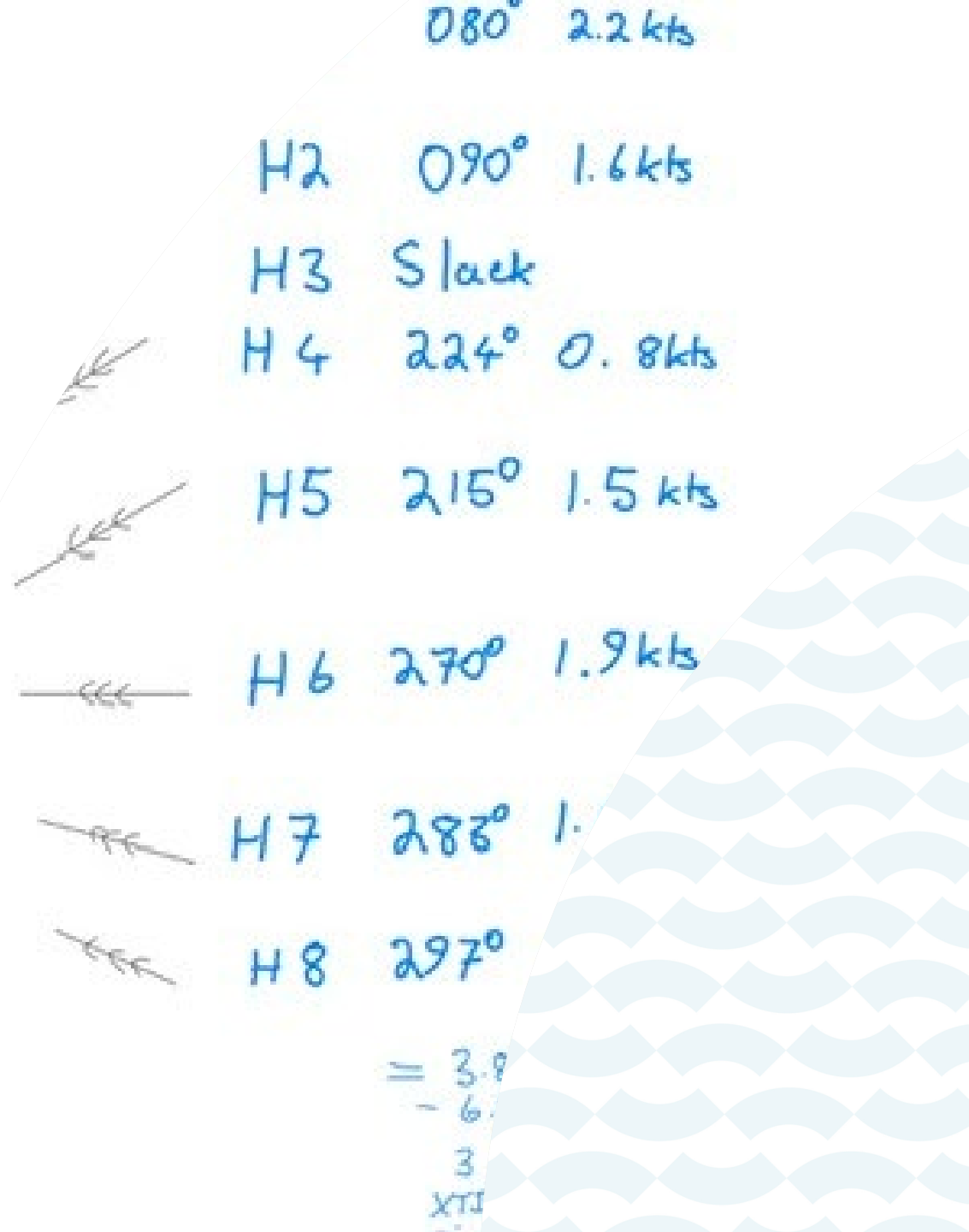




WHAT WILL WE TEACH THEM?

ACTION: SHAPING A COURSE

- This is more than just a vector drawing
- Could be an aggregate
- Could be simply understanding SOG vs STW, COG vs HDG

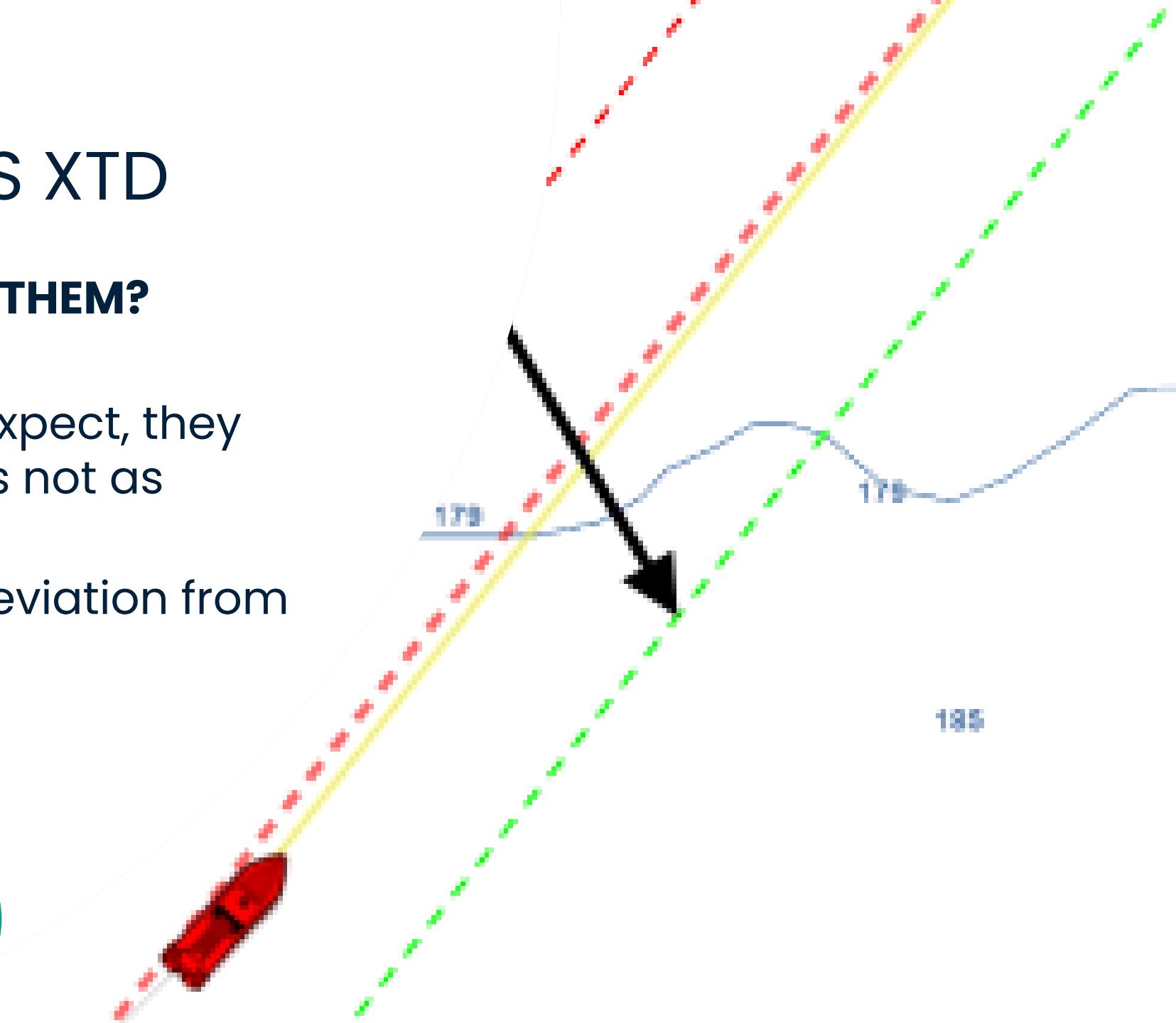




ACTION: KNOWS XTD

WHAT WILL WE TEACH THEM?

- If they plan what to expect, they can identify when it is not as planned
- This also allows for deviation from a route



RADAR NAVIGATION

ACTIONS

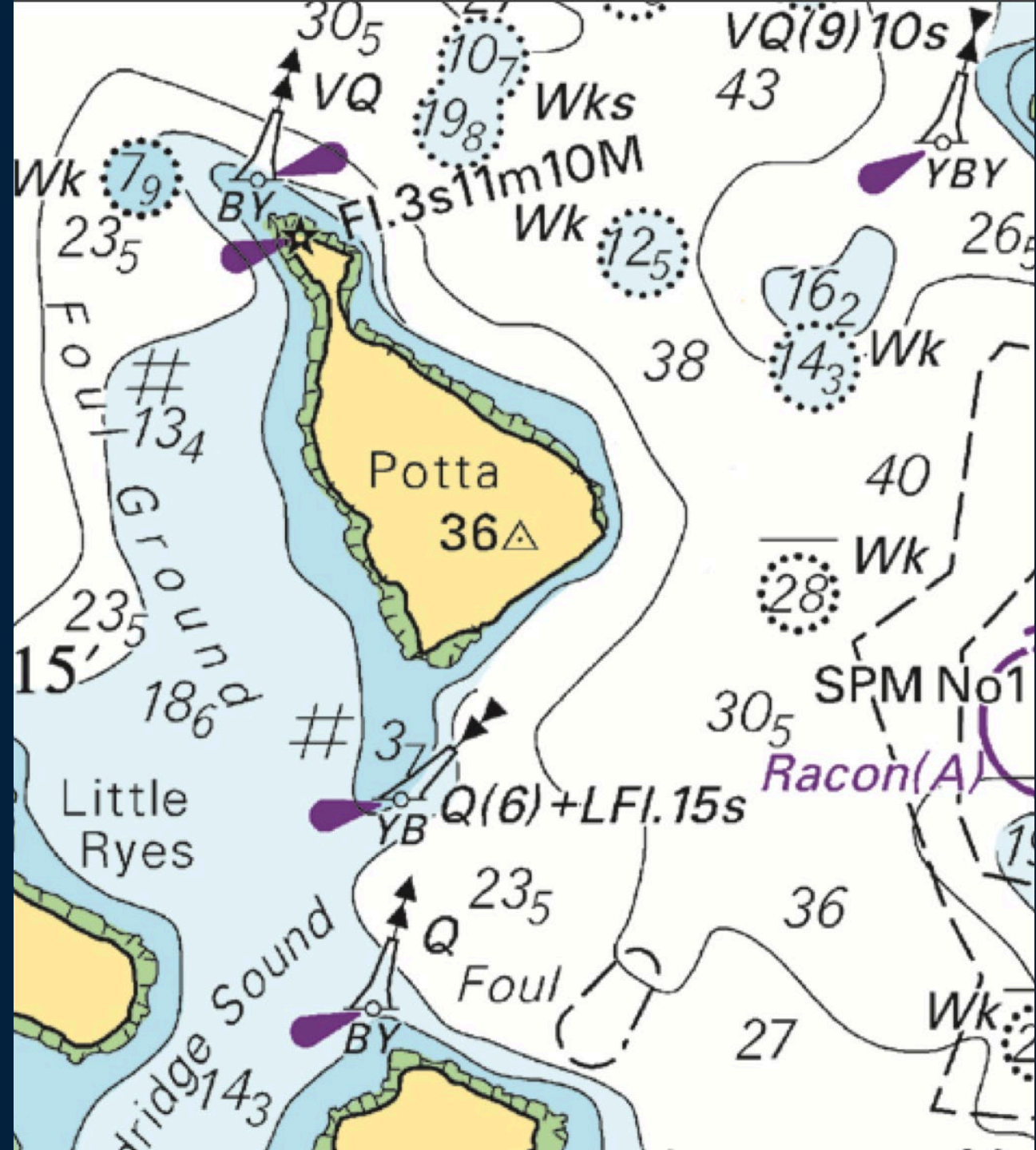
- Identify where RADAR is likely to give a good or poor return
- Identify RADAR conspicuous features



P

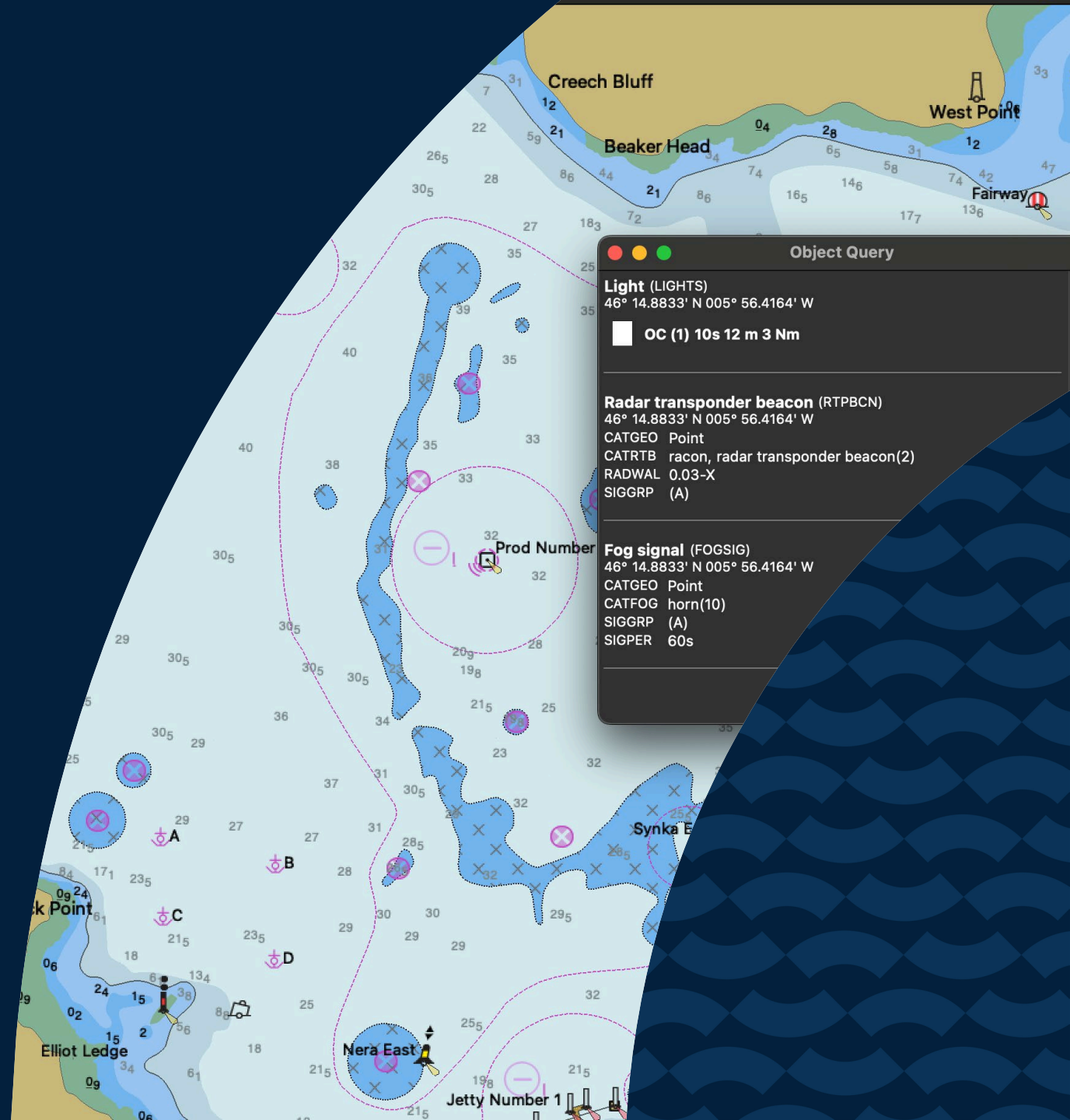


P





ACTION: IDENTIFY RADAR CONSPICUOUS FEATURES



Appraise



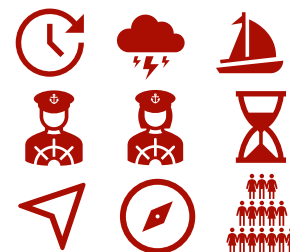
Plan



Execute



Monitor



JO, SOREN & CLUB MEMBERS



CHECKLISTS & SHORE CONTACT

ACTIONS

- Check everything is set up for their trip
- Ensure they have a shoreside contact
- Manage risk of incidents





RYA

ACTION: CHECKS & CONTACTS

What will we teach them? RYA SafeTrX

- Uses technology to log vessel and trip details
- Set up a pre departure checklist
- Can allow group activities
- Linked to UK Coastguard for SAR



RYA

SAFETRAX

LEAH & 6 GUESTS





SITUATION AWARENESS

ACTIONS:

- Set Instruments up as aids
- Sense check appraisal values along the route –
 - Depth
 - XTD/XTE
 - Speed
 - Distance/Time



E





ACTION: SET INSTRUMENTS

What will we teach them?

- Value of alarms
- Importance of knowing parameters
- Methods of sense checking (live observations)



ALEX & REMI

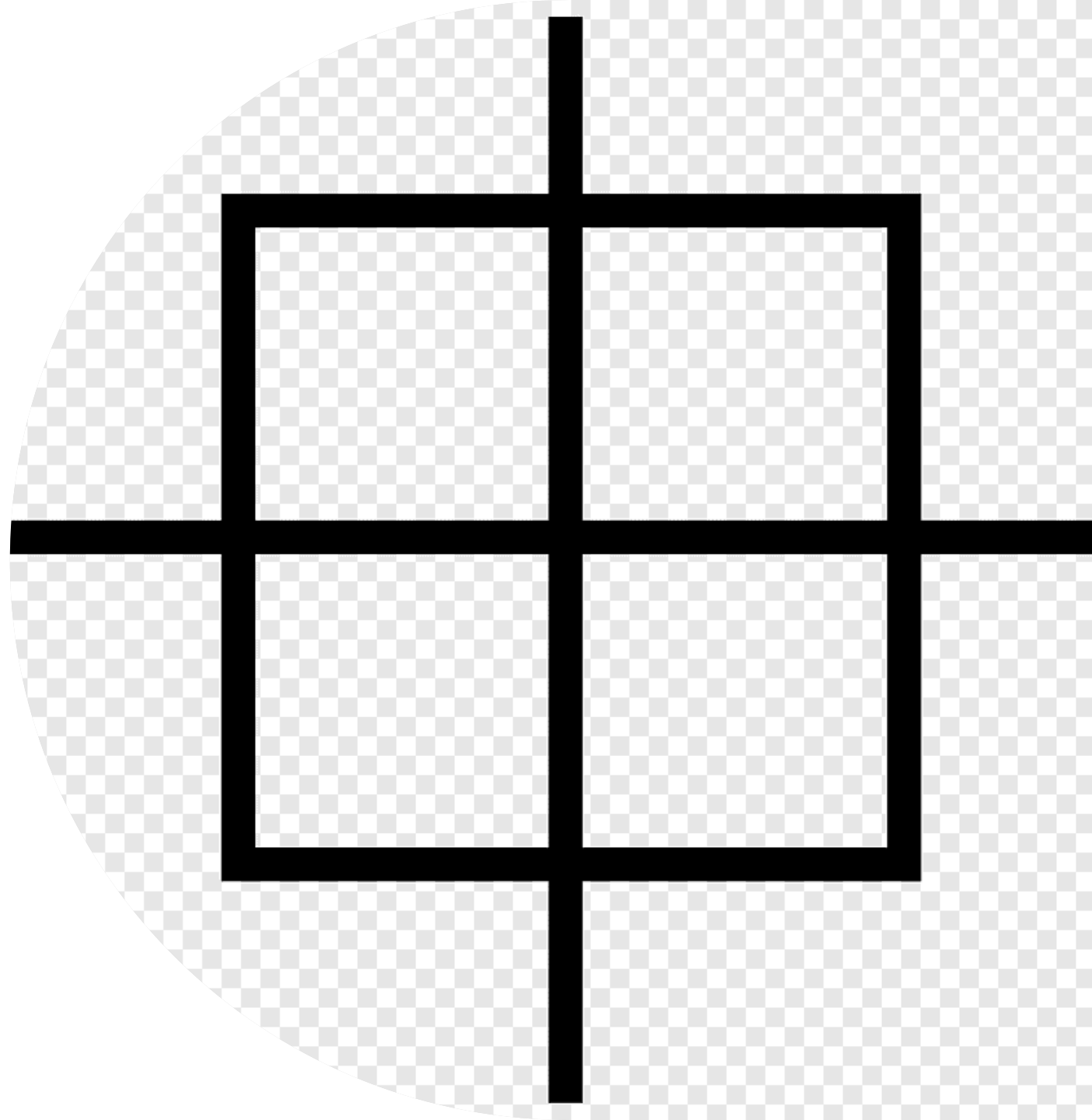




WAYPOINTS

ACTIONS

- Transfer Waypoints from plan to plotter
- Use the best of situation awareness





ACTION: WAYPOINT TRANSFER

What are we teaching them?

- Value of WPTs/Route in ECS for Situation Awareness
- Methods of transfer:
 - Digital (preferred)
 - Manual (efficient enough!)
- Backups





RYA

ACTION: WAYPOINT USE

• What are we teaching them?

- Useful names
- Verifiable positions (independent means)
- Logical legs
- Arrival and Departure Waypoints

...no different on a paper raster chart



Yellow Buoy - increase to 20 kts. Course 20

50°46'.57N 1°21'.51W

0.0NM (0.0NM) -> 1.0NM 204.417052°



West of East Lepe (Course 245)

50°45'.63N 1°22'.19W

1.0NM (1.0NM) -> 6.1NM 244.117794°



Lymington Bank (course 239).

50°42'.99N 1°30'.77W

6.1NM (7.1NM) -> 1.4NM 238.924962°



Hurst Castle (course 226) (tide 1/2 kt on bo

50°42'.28N 1°32'.61W

1.4NM (8.5NM) -> 3.8NM 226.300187°



Needles WCB (Change to ET (+1) (course 16

50°39'.64N 1°36'.97W

3.8NM (12.3NM) -> 65.0NM 164.222667°



Point de Saire (Course 204) (curtesy flag) (

49°37'.11N 1°9'.72W

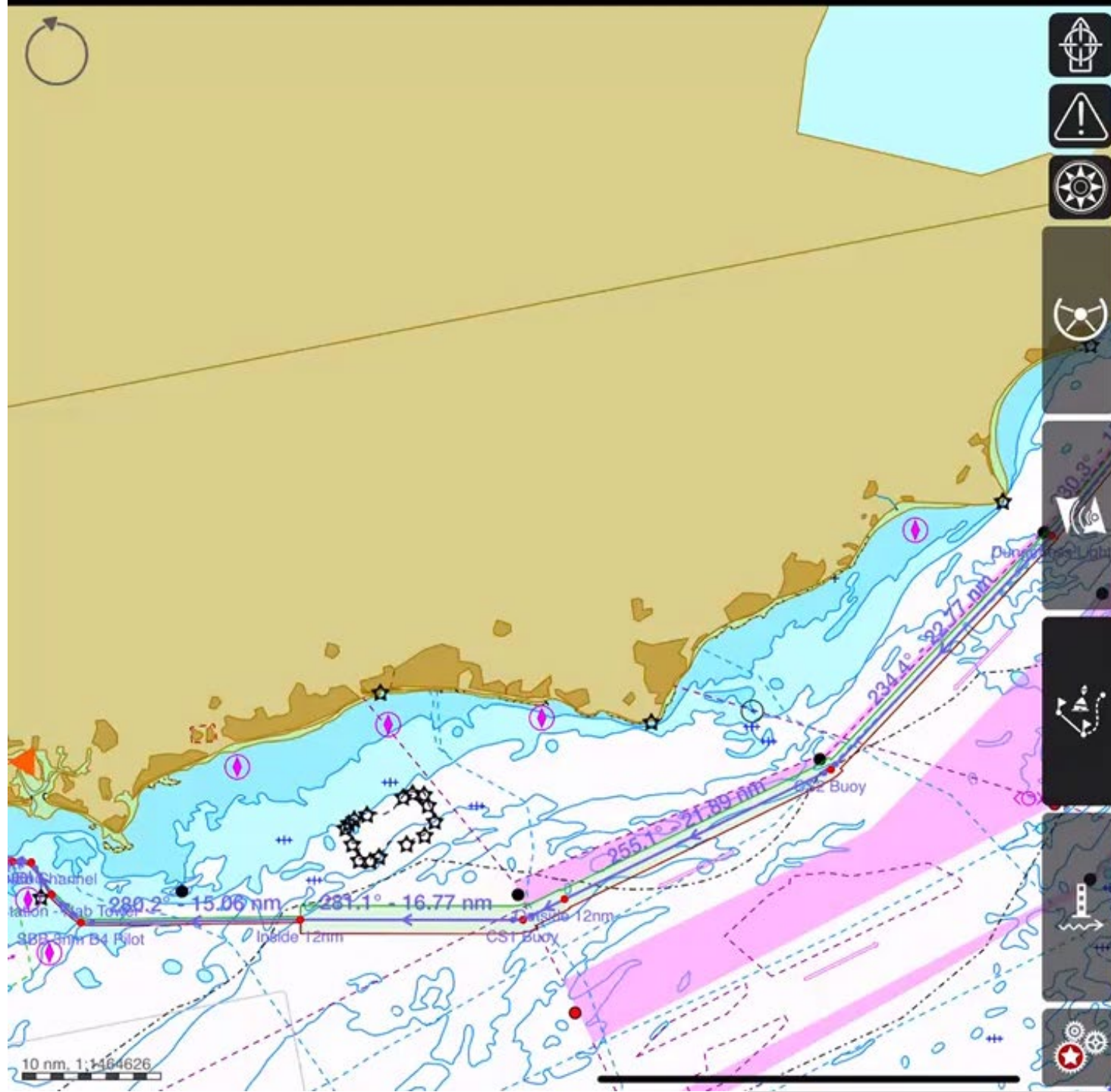
65.0NM (77.3NM) -> 3.0NM 204.153337°



Gravendest Approach (Course 276] (call ma

49°34'.40N 1°11'.60W

3.0NM (80.3NM)



Routes

Tracks

Objects

Back

Hamburg to Southampton M407

WP0: Hamburg Cruise Centre

LAT:53° 32.241' N

LON:009° 59.866' E

CRS:-

DIST:-

XTD PORT:-

XTD STBD:-

RAD:-

SPD:-

WP1: Swing Basin

LAT:53° 32.237' N

LON:009° 59.481' E

CRS:269.0°

DIST:206 m

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP2: Passing Elbe 17 Dry Dock

LAT:53° 32.647' N

LON:009° 58.043' E

CRS:295.6°

DIST:1776 m

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP3: Floating Dry Dock 10

LAT:53° 32.656' N

LON:009° 57.527' E

CRS:271.7°

DIST:585 m

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP4: Container Terminal

LAT:53° 32.500' N

LON:009° 56.798' E

CRS:250.2°

DIST:872 m

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP5: Athabaska Container Terminal

LAT:53° 32.480' N

LON:009° 54.447' E

CRS:269.2°

DIST:1.47 nm

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP6: Port VTS Centre

LAT:53° 32.537' N

LON:009° 52.396' E

CRS:272.7°

DIST:1.18 nm

XTD PORT:46 m

XTD STBD:46 m

RAD:0.50 nm

SPD:20.0 kt

WP7: Change Pilots

LAT:53° 32.902' N

LON:009° 50.323' E

CRS:286.5°

DIST:1.35 nm

XTD PORT:92 m

XTD STBD:92 m

RAD:0.50 nm

SPD:20.0 kt



ASH & FAMILY



LIVE OBSERVATIONS

ACTIONS

- Obtain live observations
- COMPARE them against expectations



E



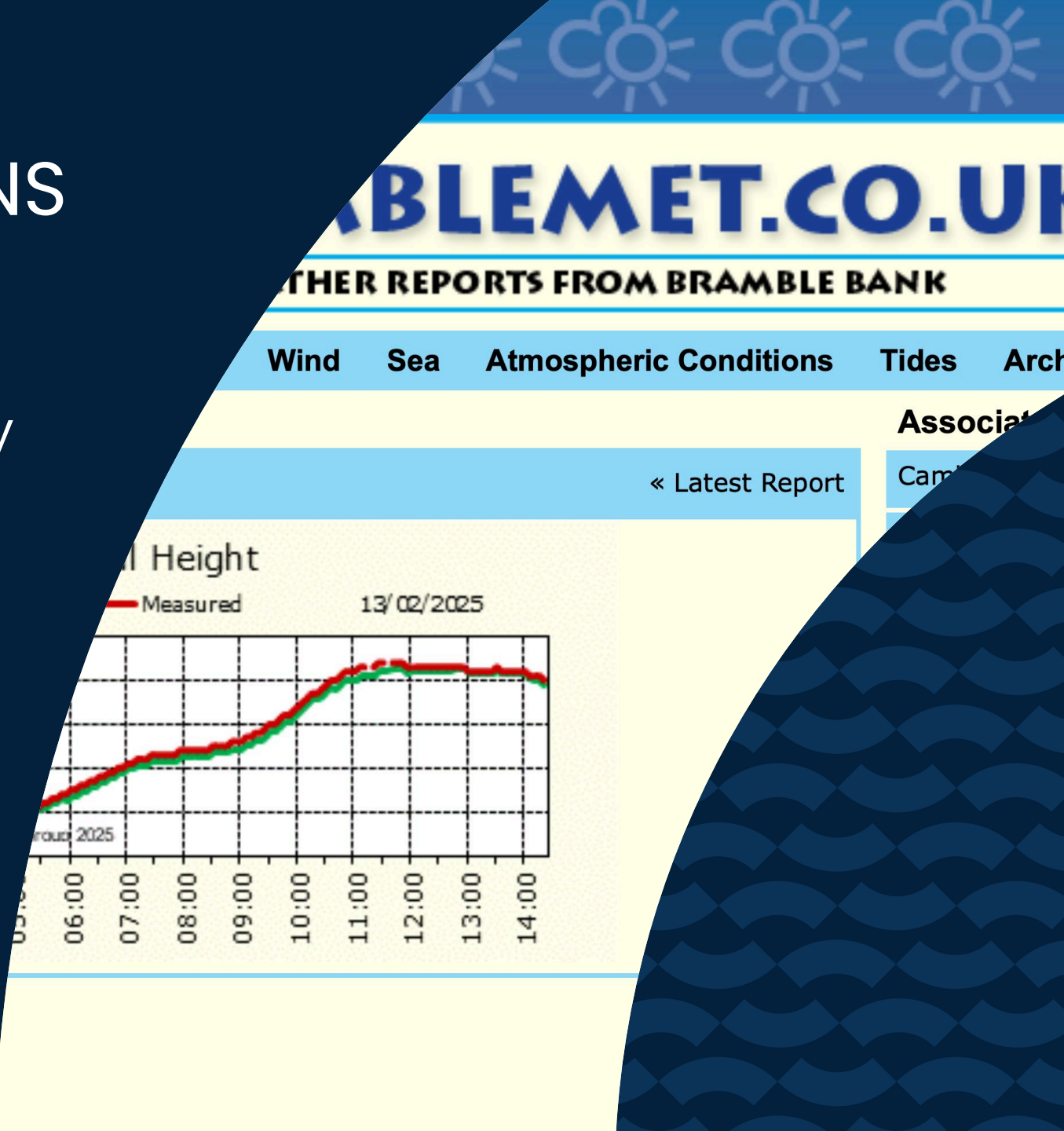
ACTION: OBSERVATIONS

What are we teaching them?

- An observation can be primary
- But it could be digital
- There must be something to compare it against



E



Appraise



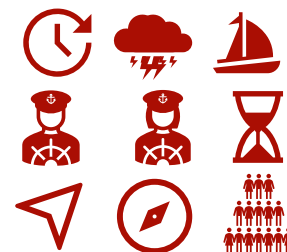
Plan



Execute



Monitor





ASH & FAMILY



PROJECTING AHEAD

ACTIONS

- Can project forward position
- Understands what that means on the voyage

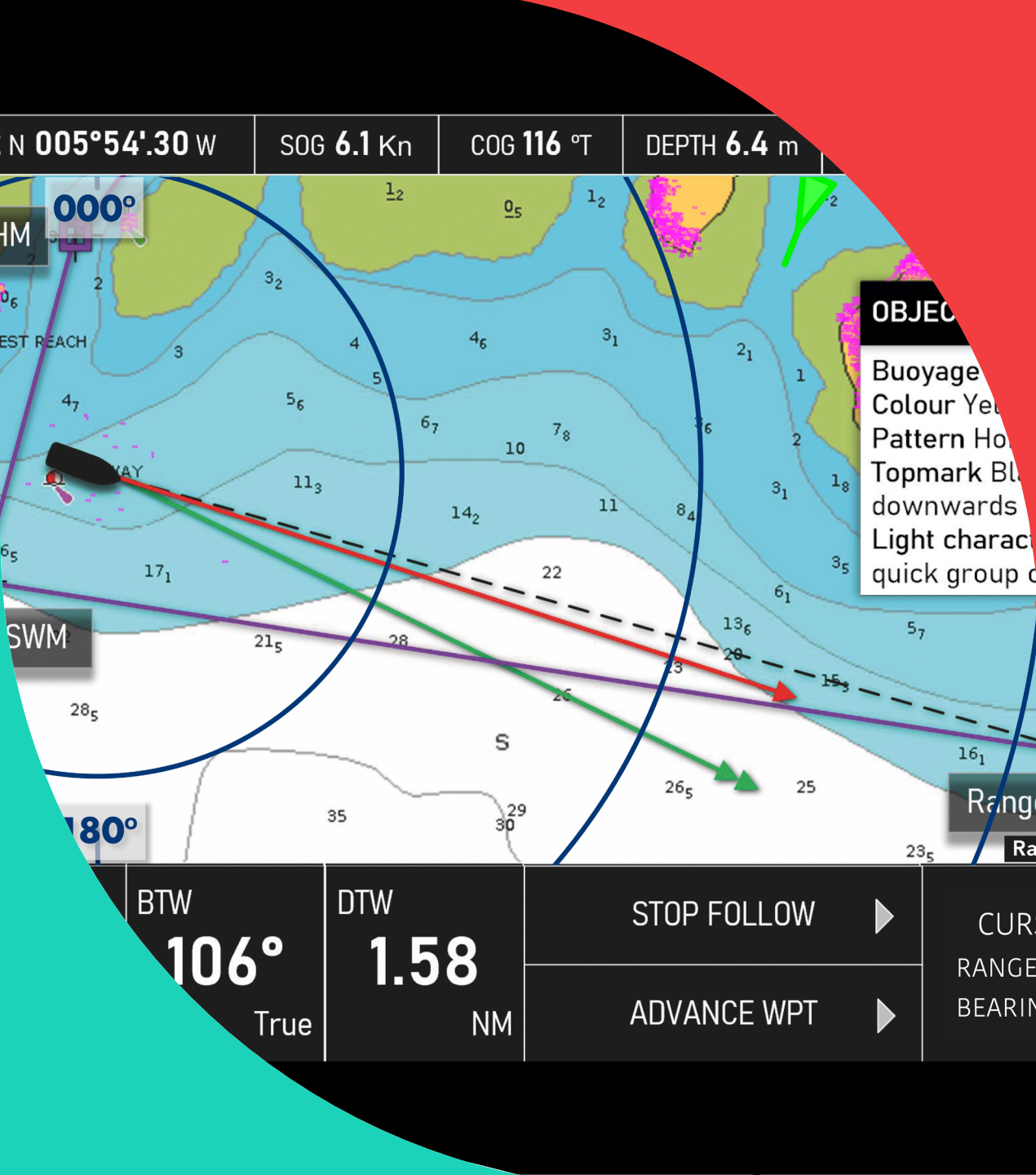


ACTION: Project Position

What will we teach them?

- Put the route from the **plan** on the screen
- Verify the GNSS **position** from time to time
- **Project** where you might be – vectors can do this
 - Projected DR (HDG & STW)
 - Projected EP (COG & SOG)

PLAN | POSITION | PROJECT



ALEX & REMI



POSITION: VERIFYING

ACTIONS

- Regularly & efficiently checks GNSS position

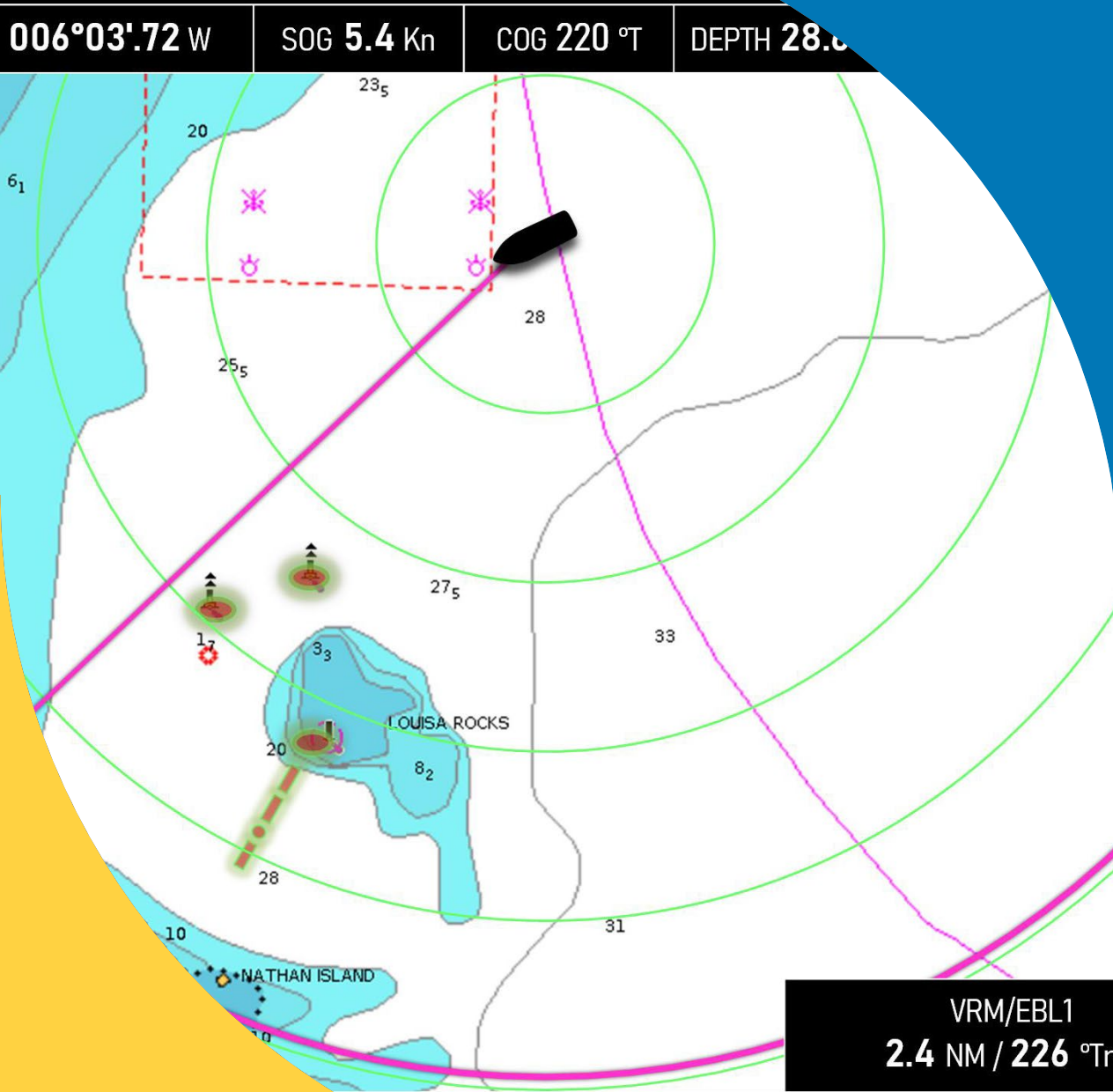


ACTION: VERIFY POSITION

WHAT ARE WE TEACHING THEM?

- We know where we think we are...
- One position line crossing a GNSS fix can confirm or deny
 - RADAR (instant overlay)
 - Compass
 - Transit
 - Visual Fix
 - Contour

YOU CAN'T VERIFY GNSS WITH GNSS!



JO, SOREN & CLUB MEMBERS



Monitor progress and maintain awareness

ACTIONS

- Monitor progress along intended route
- Maintain awareness of other vessels
- Aware of changing conditions



LEAH & 6 GUESTS





IRPCS & TRAFFIC

ACTIONS:

- Maintain lookout by all available means
- Obtain early warning of potential risks





ACTION: COLLISION WARNING

What will we teach them?

- AIS – Lag & Limitations
- RADAR – Doppler, Guard Zones, target tracking
- Technology can do automation, so more time is available for observation



Appraise



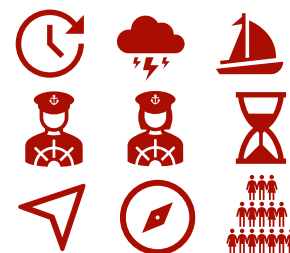
Plan



Execute



Monitor





ALEX & REMI The next step

Certificate
of
Competence

RYA

Pass Practical Examination

Actions –

- Manage the vessel and crew safely and efficiently
- Use all equipment on board effectively
- Navigate in open water and in/out of port
- Awareness of progress along intended route at all times
- Situational awareness of other vessels and dangers they may encounter













Not a lot has changed




...we just do #DigitalFirst




RYA DigitalFirst (official)




Private group · 476 members



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 Reel
  Photo/video
  Poll

Get started as a group expert

0 of 3 steps completed

Share your expertise and build your reputation in the community.



RYA – passage planning in
the digital age



Facebook – RYA DigitalFirst
(official)



#DigitalFirst

The image features the RYA logo in a bold, white, sans-serif font. Below the logo is the tagline "Together on Water" in a smaller, white, sans-serif font. The background is a dark blue gradient with large, abstract, curved shapes in a lighter blue and a vibrant teal color, creating a dynamic and modern feel.

RYA

Together on Water