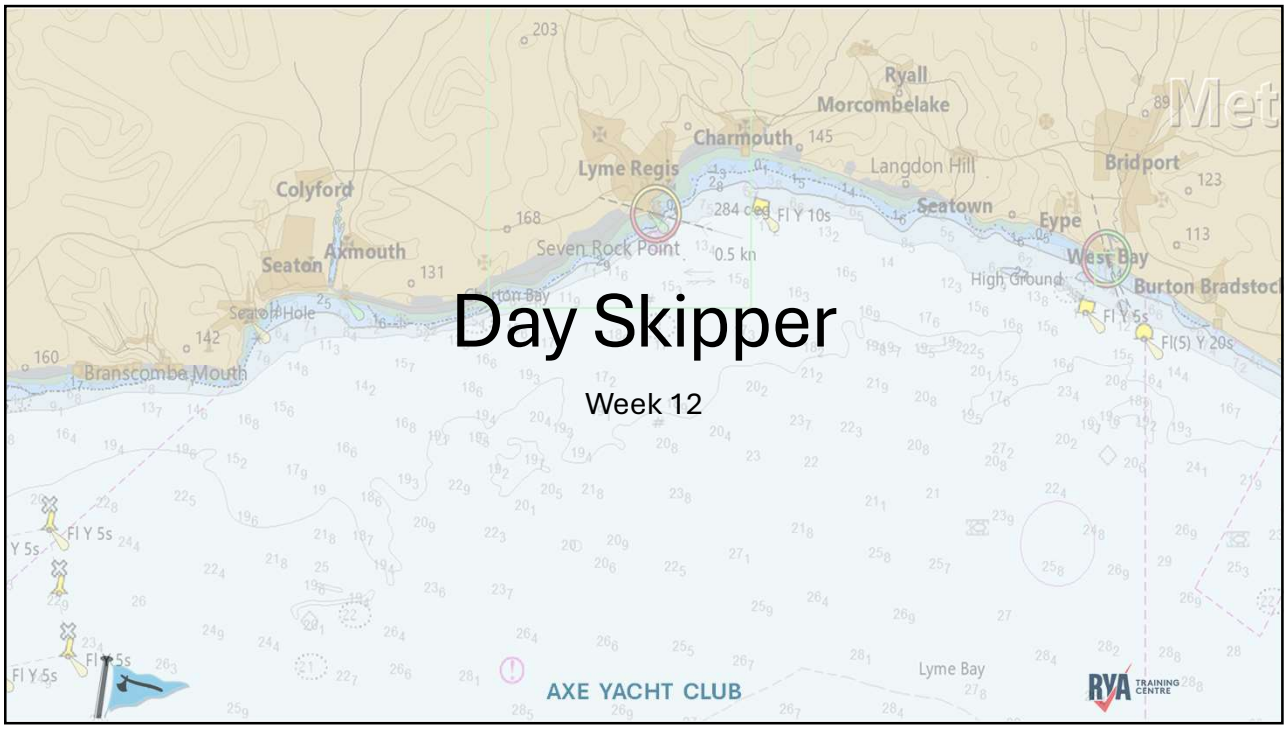
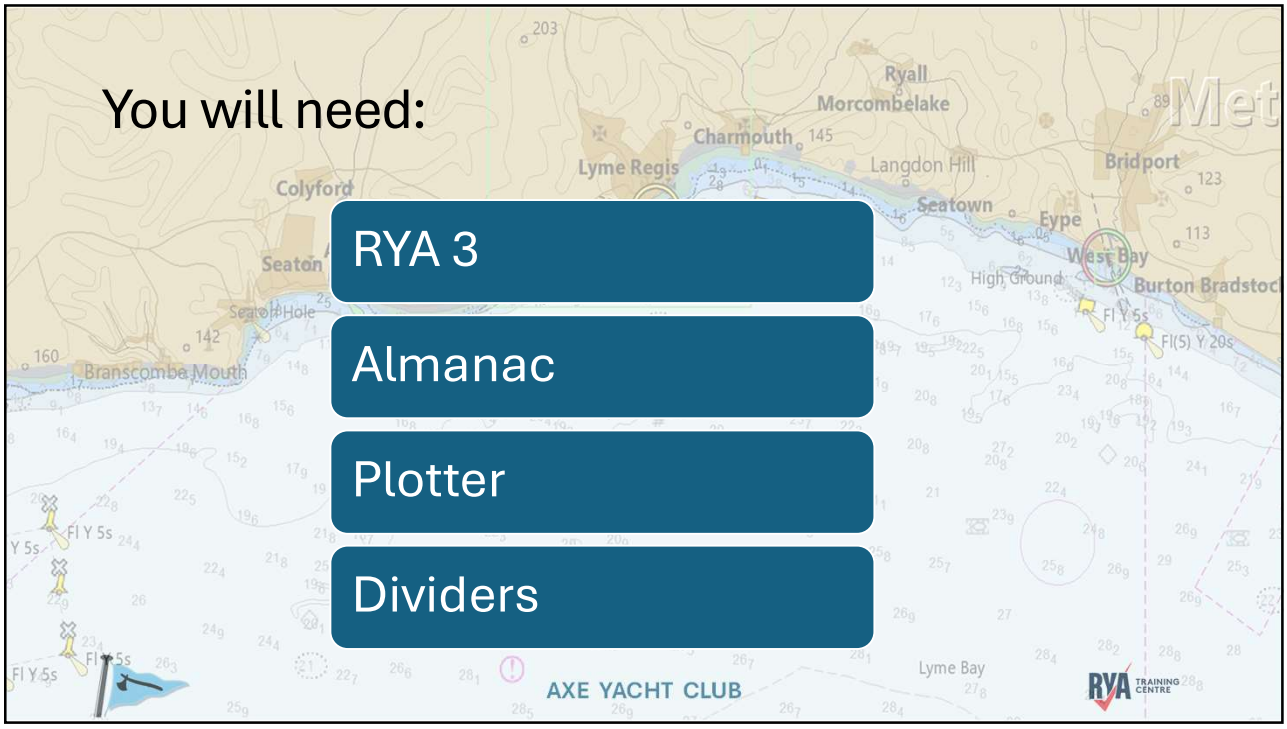
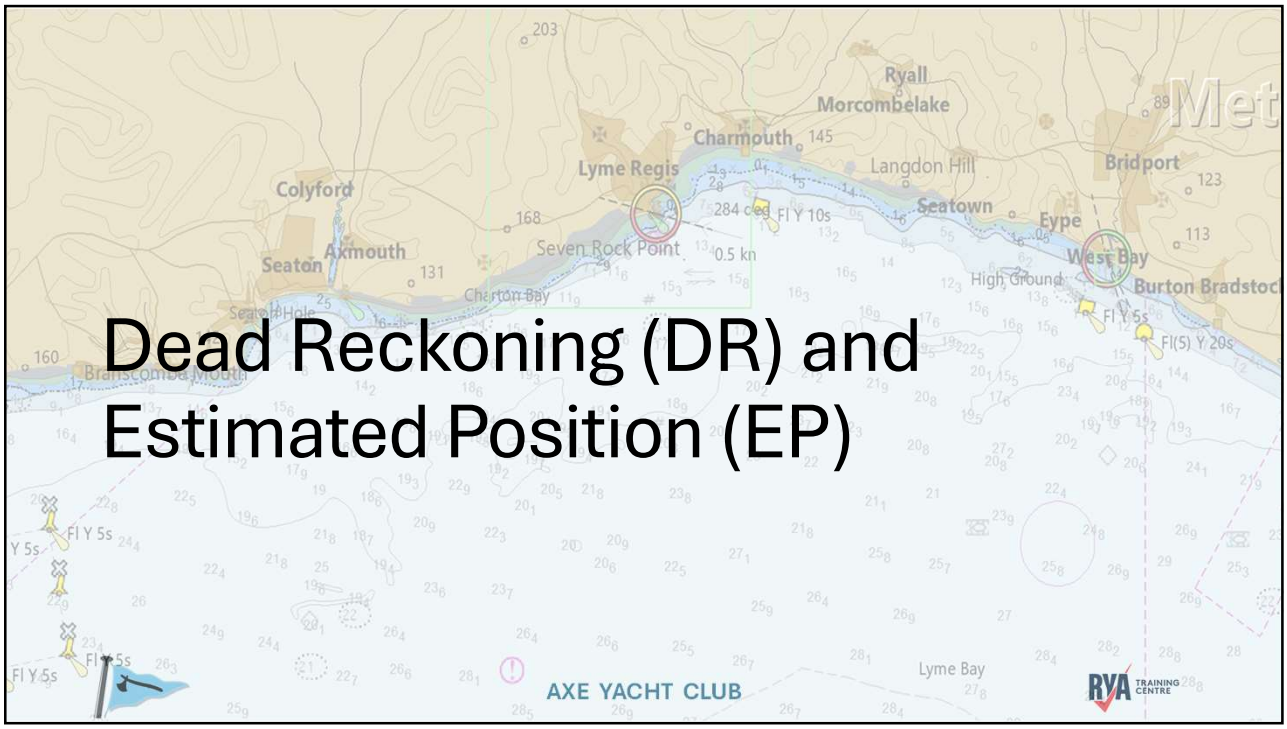

Day Skipper
Week 12
AXE YACHT CLUB
RYA TRAINING CENTRE

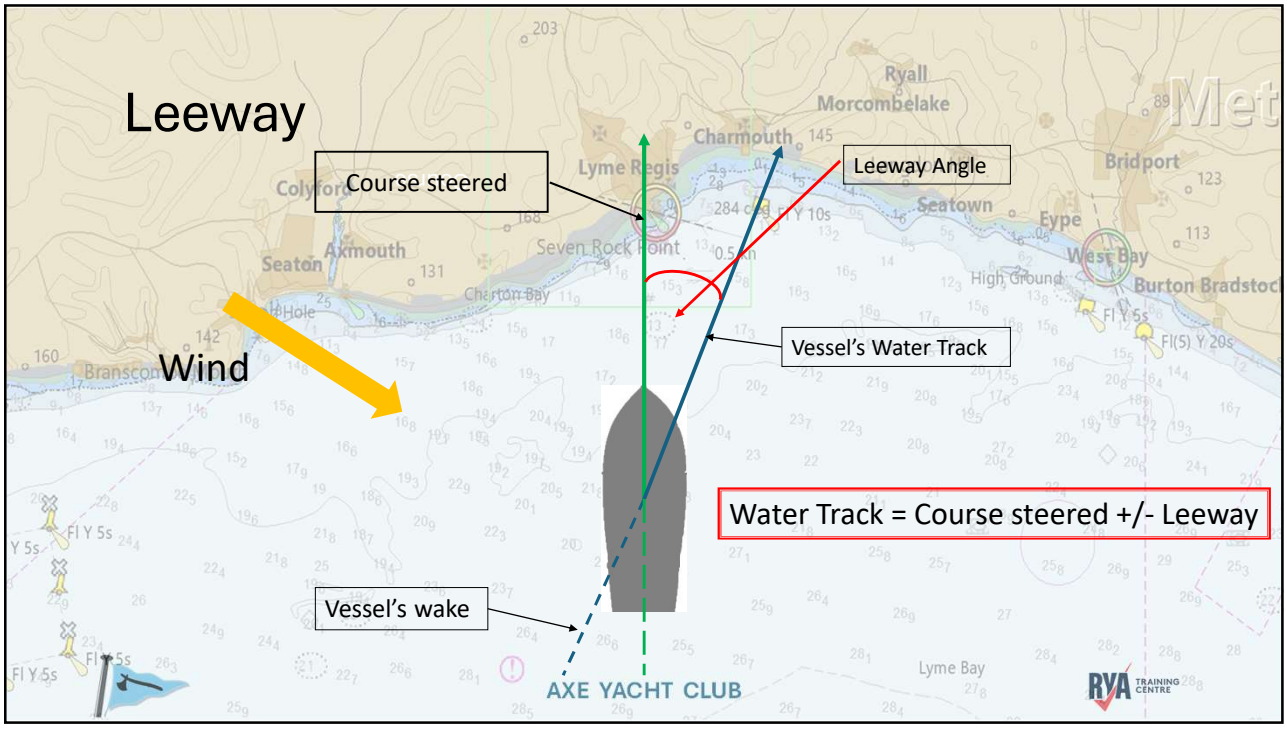
1


You will need:
RYA 3
Almanac
Plotter
Dividers
AXE YACHT CLUB
RYA TRAINING CENTRE

2


Dead Reckoning (DR) and
Estimated Position (EP)
AXE YACHT CLUB

3


Leeway
Course steered
Leeway Angle
Wind
Vessel's Water Track
Water Track = Course steered +/- Leeway
Vessel's wake
AXE YACHT CLUB

4

Taken from a yacht's log

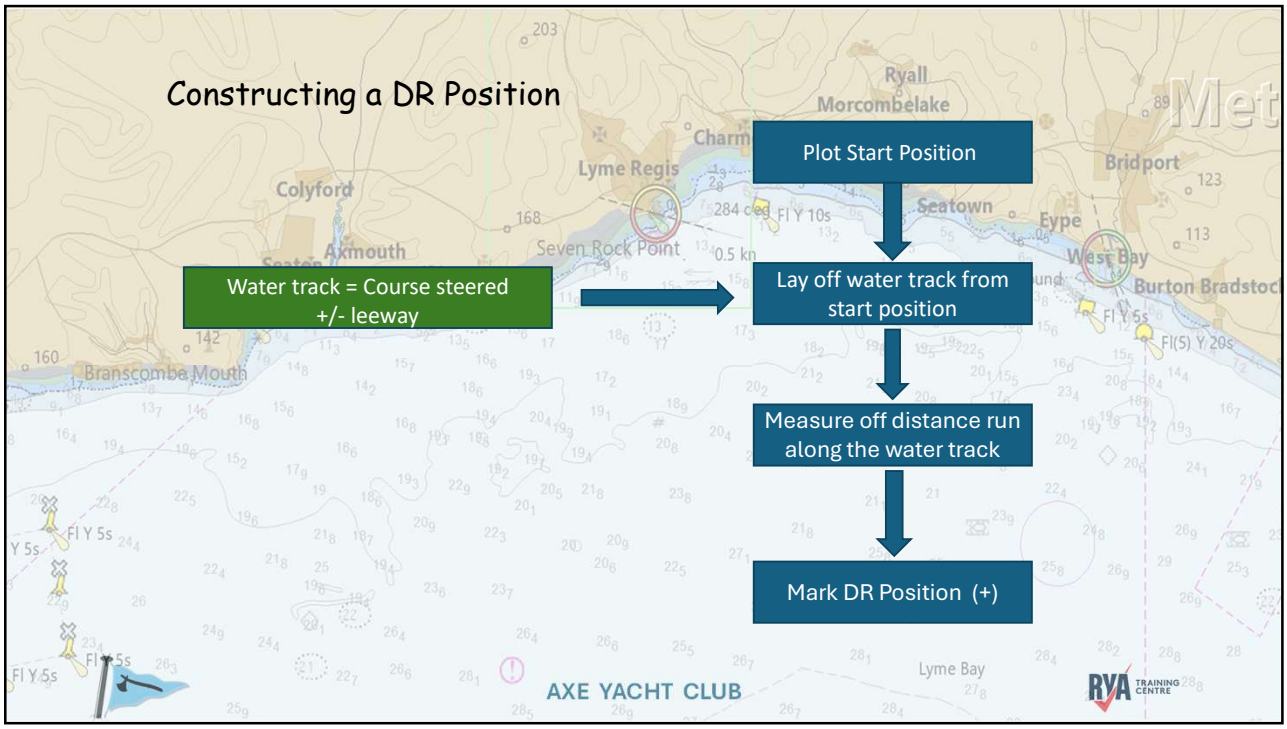
Time	Log	Course (°T)	Wind	Leeway°	Narrative
0920	12.4	085	W4	0	Alongside BB5 buoy (46° 20.6N / 005° 48.5W)
1020	17.2	085	W4	0	*Find the boat's position at 1020.*

5

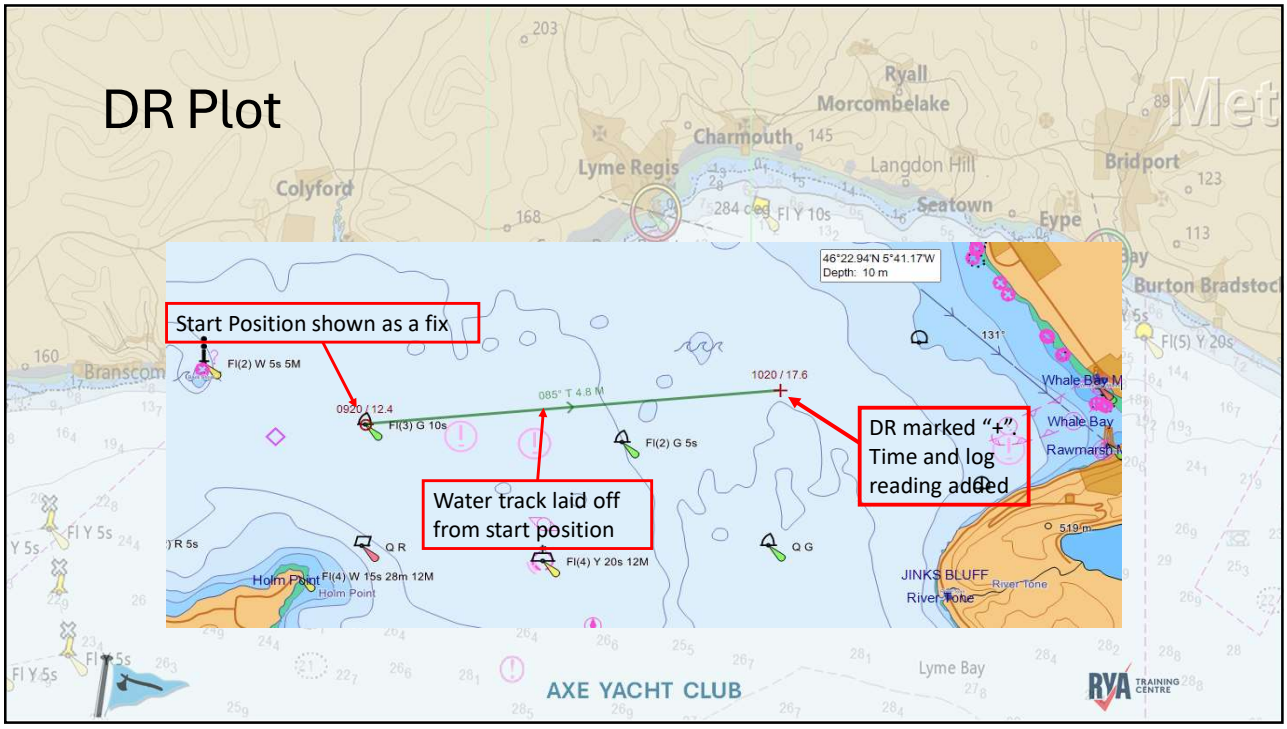
Dead Reckoning (DR) Position

- Need to know:
  - Starting position
  - Course steered
  - Leeway
  - Distance travelled

6


Constructing a DR Position
Plot Start Position
Lay off water track from start position
Water track = Course steered +/- leeway
Measure off distance run along the water track
Mark DR Position (+)
AXE YACHT CLUB
Lyme Bay
Lyme Regis
Charmouth
Ryall
Morcombelake
Colyford
Seaton
Axmouth
Seven Rock Point
Bridport
Seatown
Eype
West Bay
Burton Bradstock
Branscombe Mouth

7

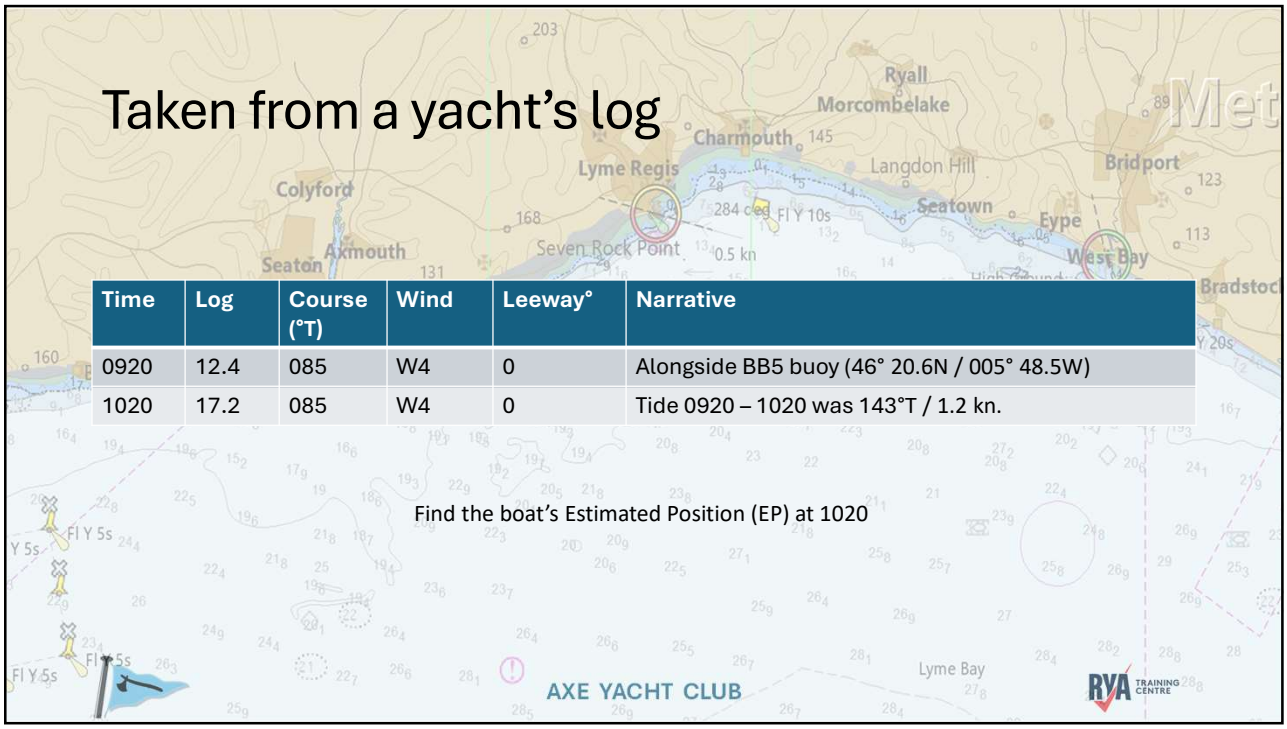

DR Plot
Start Position shown as a fix
Water track laid off from start position
DR marked "+". Time and log reading added
0920 / 12.4
1020 / 17.6
085° T 4.8 M
Fl(2) W 5s 5M
Fl(3) G 10s
Fl(2) G 5s
Fl(4) Y 20s 12M
Fl(4) W 15s 28m 12M
Holm Point
JINKS BLUFF
River Tone
Whale Bay
AXE YACHT CLUB
Lyme Bay
Lyme Regis
Charmouth
Ryall
Morcombelake
Colyford
Seaton
Bridport
Langdon Hill
Eype
Burton Bradstock

8

Taken from a yacht's log

Time	Log	Course (°T)	Wind	Leeway°	Narrative
0920	12.4	085	W4	0	Alongside BB5 buoy (46° 20.6N / 005° 48.5W)
1020	17.2	085	W4	0	Tide 0920 – 1020 was 143°T / 1.2 kn.

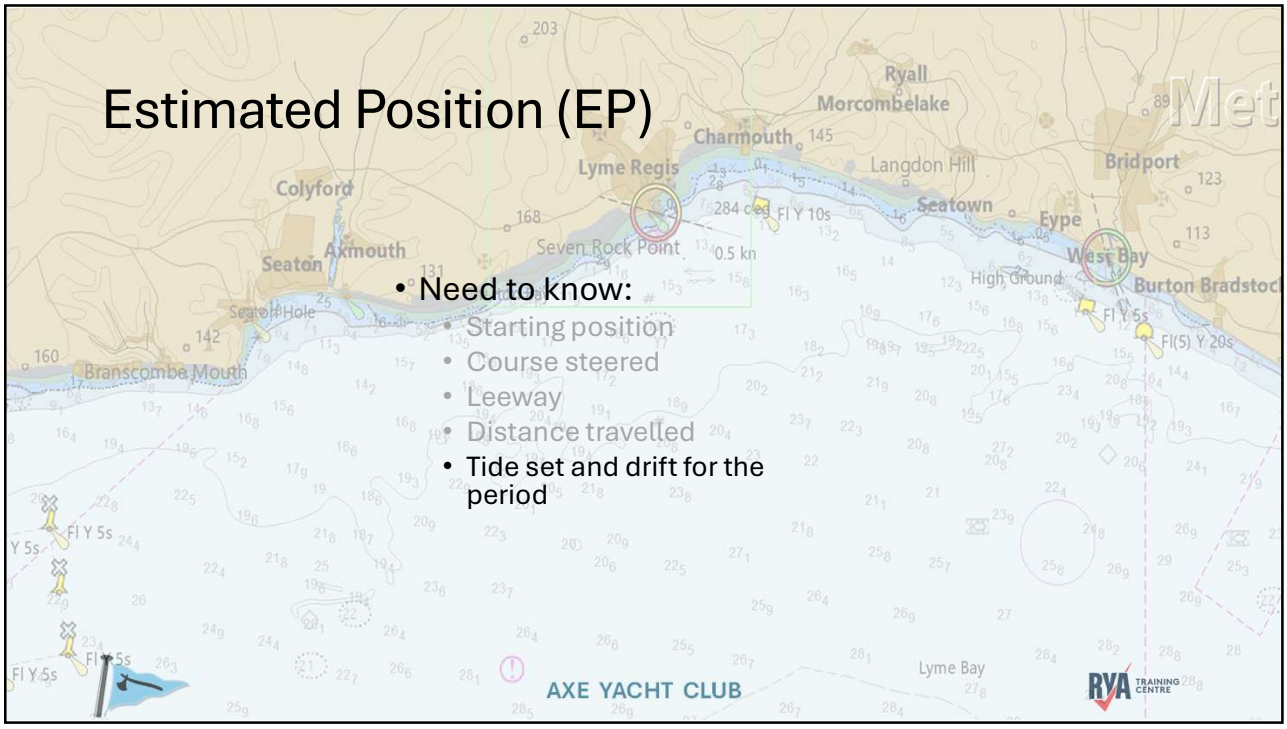
Find the boat's Estimated Position (EP) at 1020



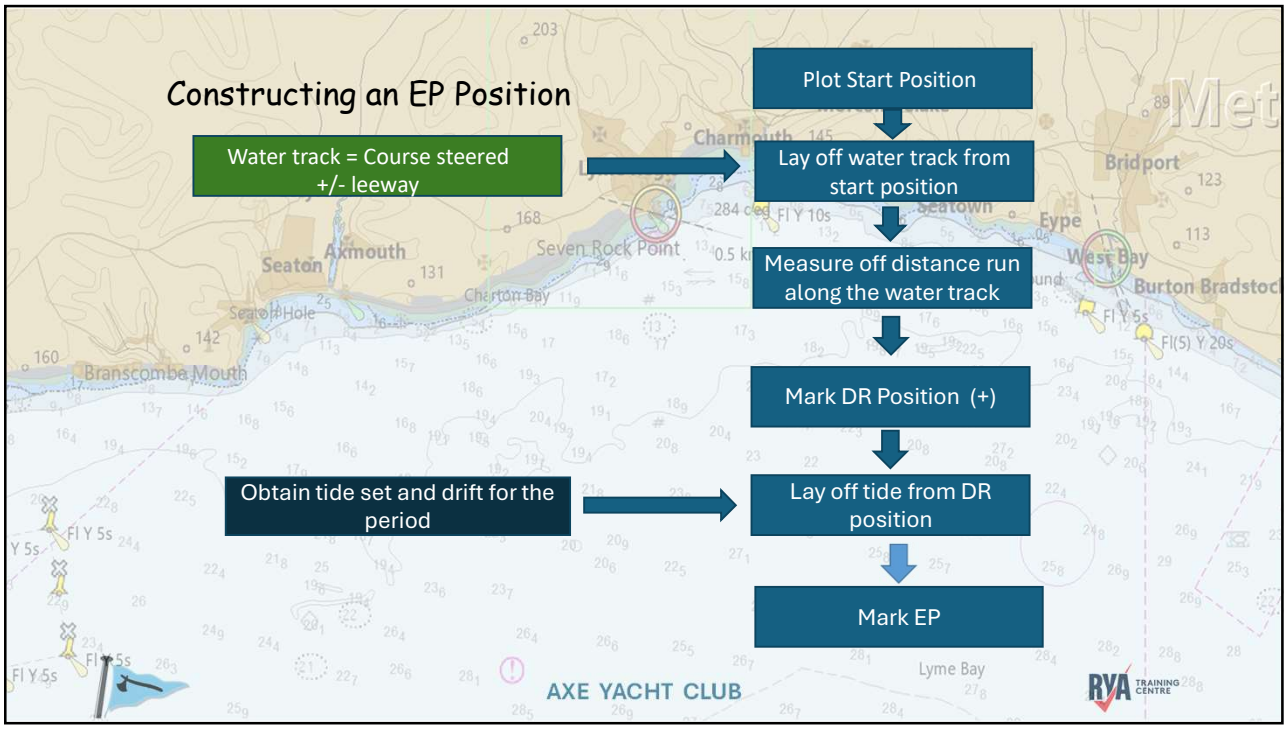
9

Estimated Position (EP)

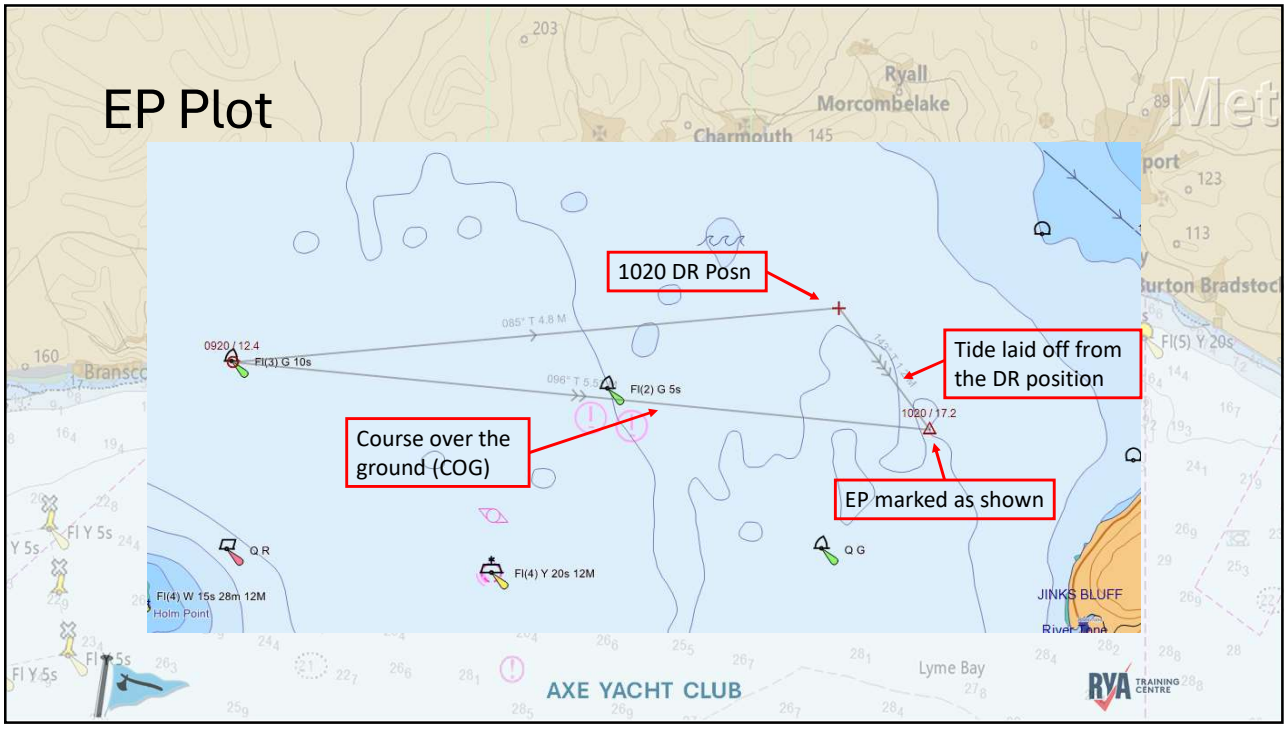
- Need to know:
  - Starting position
  - Course steered
  - Leeway
  - Distance travelled
  - Tide set and drift for the period



10


Constructing an EP Position
Water track = Course steered +/- leeway
Plot Start Position
Lay off water track from start position
Measure off distance run along the water track
Mark DR Position (+)
Obtain tide set and drift for the period
Lay off tide from DR position
Mark EP
AXE YACHT CLUB
Lyme Bay

11


EP Plot
1020 DR Posn
Tide laid off from the DR position
Course over the ground (COG)
EP marked as shown
0920 / 12.4
Fl(3) G 10s
Fl(2) G 5s
1020 / 17.2
Q R
Fl(4) Y 20s 12M
Q G
Fl(4) W 15s 28m 12M
Holm Point
JINKS BLUFF
AXE YACHT CLUB
Lyme Bay

12

Speed over the ground (SOG)

For a one-hour triangle, the SOG is the distance between the starting position and the EP measured along the COG.



AXE YACHT CLUB

13

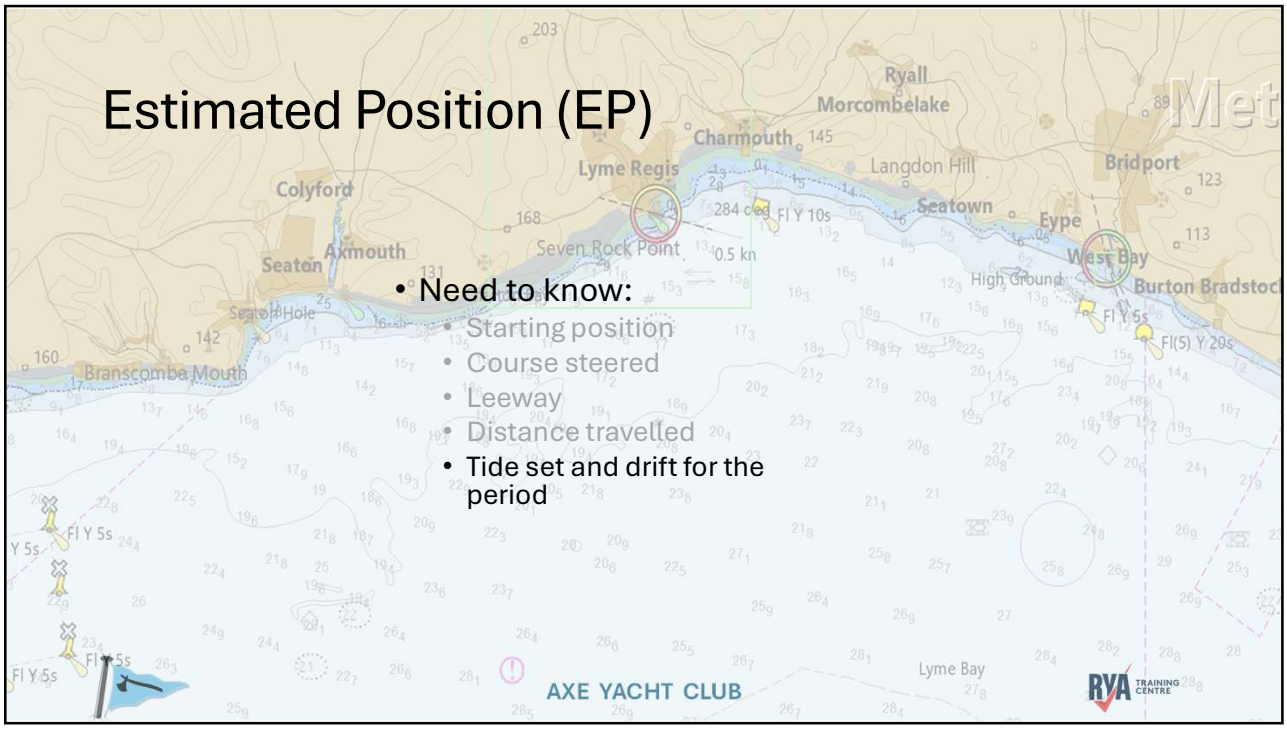
Taken from a yacht's log

Saturday 5 October

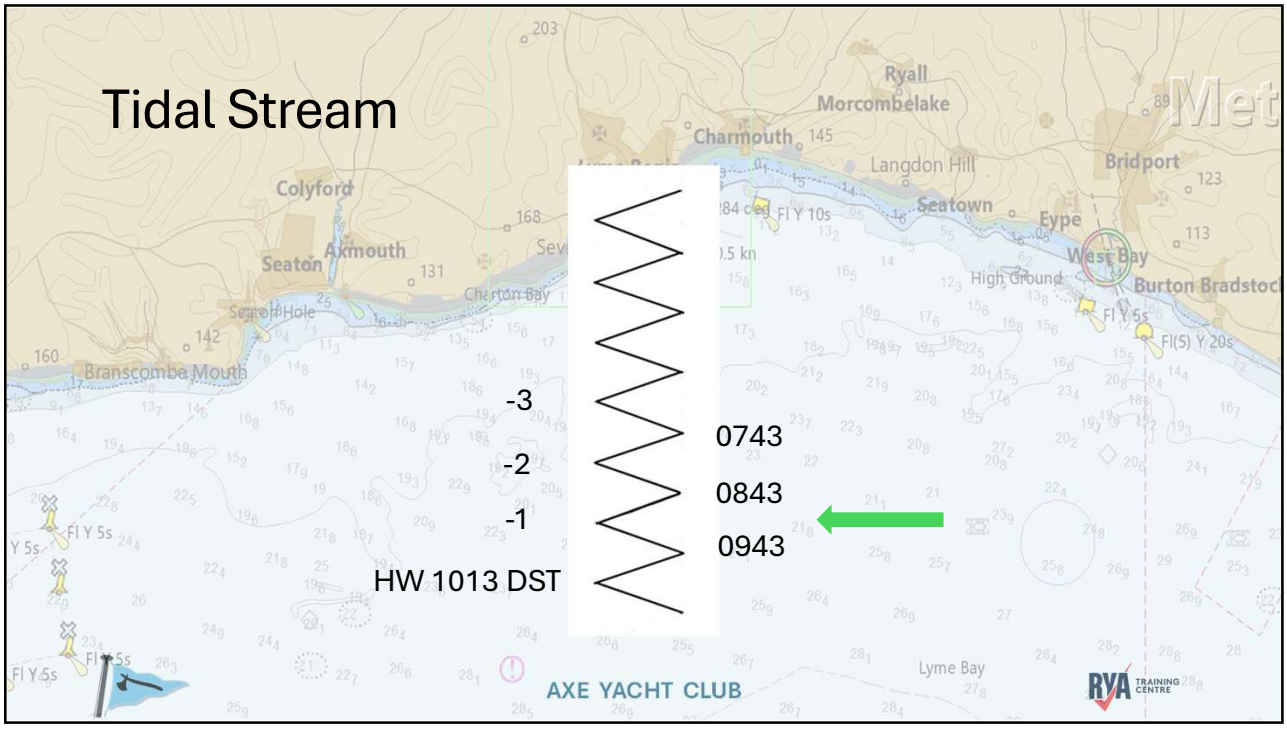
Time	Log	Course (°T)	Wind	Leeway°	Narrative
0843	20.3	000	WNW 3	5	North Potta Cardinal Mark bears 127°T distance 0.51nm by radar.
0943	25.0	000	WNW 3	5	GPS has failed, visibility now poor – find estimated position (EP) at 0943 using tidal diamond (<>) A.

AXE YACHT CLUB

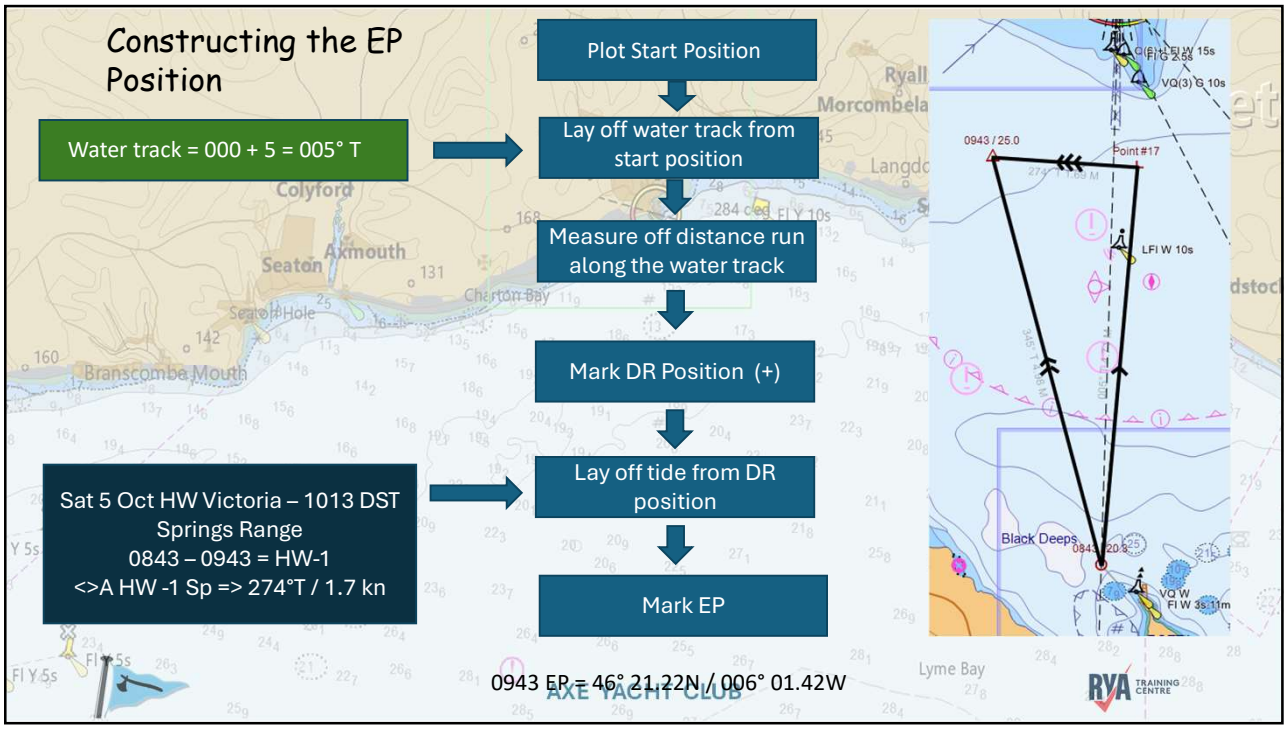
14


Estimated Position (EP)
• Need to know:
• Starting position
• Course steered
• Leeway
• Distance travelled
• Tide set and drift for the period
Ryall
Morcombelake
Charmouth
Lyme Regis
Langdon Hill
Bridport
Colyford
Seatown
Eype
Axmouth
Seaton
Seven Rock Point
West Bay
High Ground
Burton Bradstock
Branscombe Mouth
Lyme Bay
AXE YACHT CLUB
RYA TRAINING CENTRE

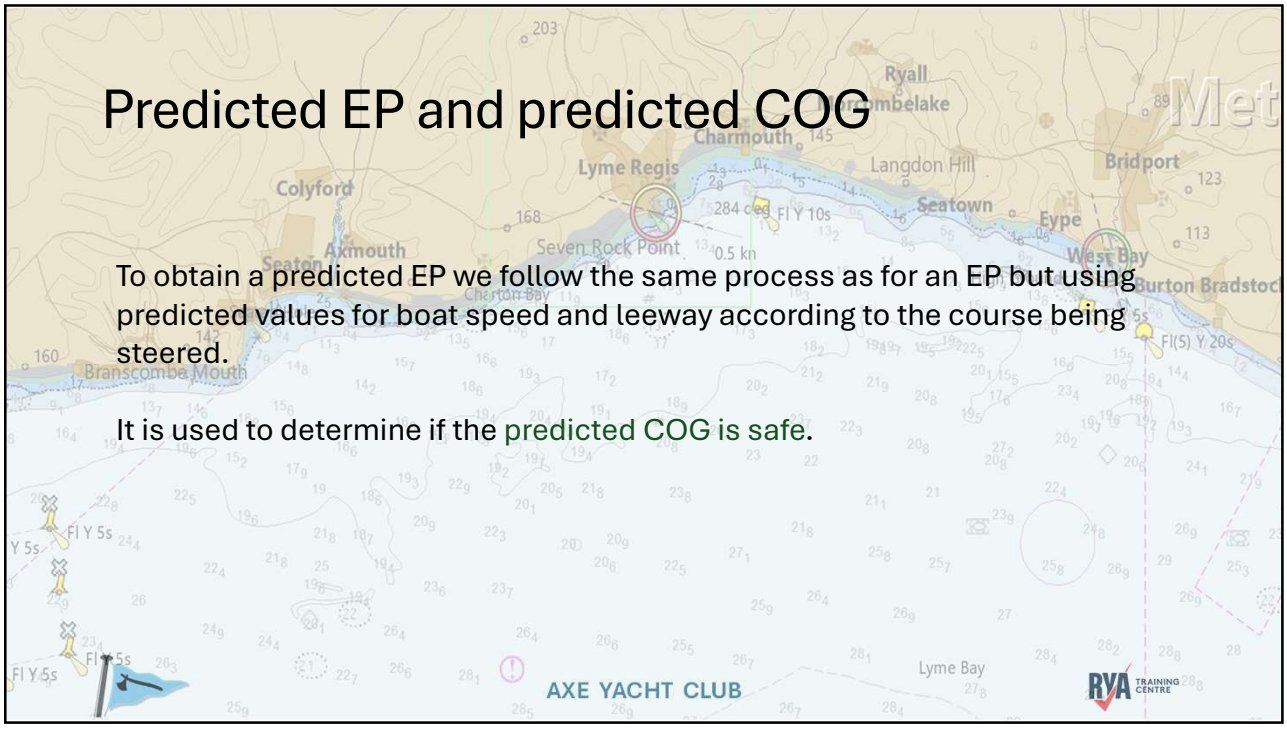
15


Tidal Stream
-3
-2
-1
HW 1013 DST
0743
0843
0943
Ryall
Morcombelake
Charmouth
Langdon Hill
Bridport
Colyford
Seatown
Eype
Axmouth
Seaton
Charton Bay
West Bay
High Ground
Burton Bradstock
Branscombe Mouth
Lyme Bay
AXE YACHT CLUB
RYA TRAINING CENTRE

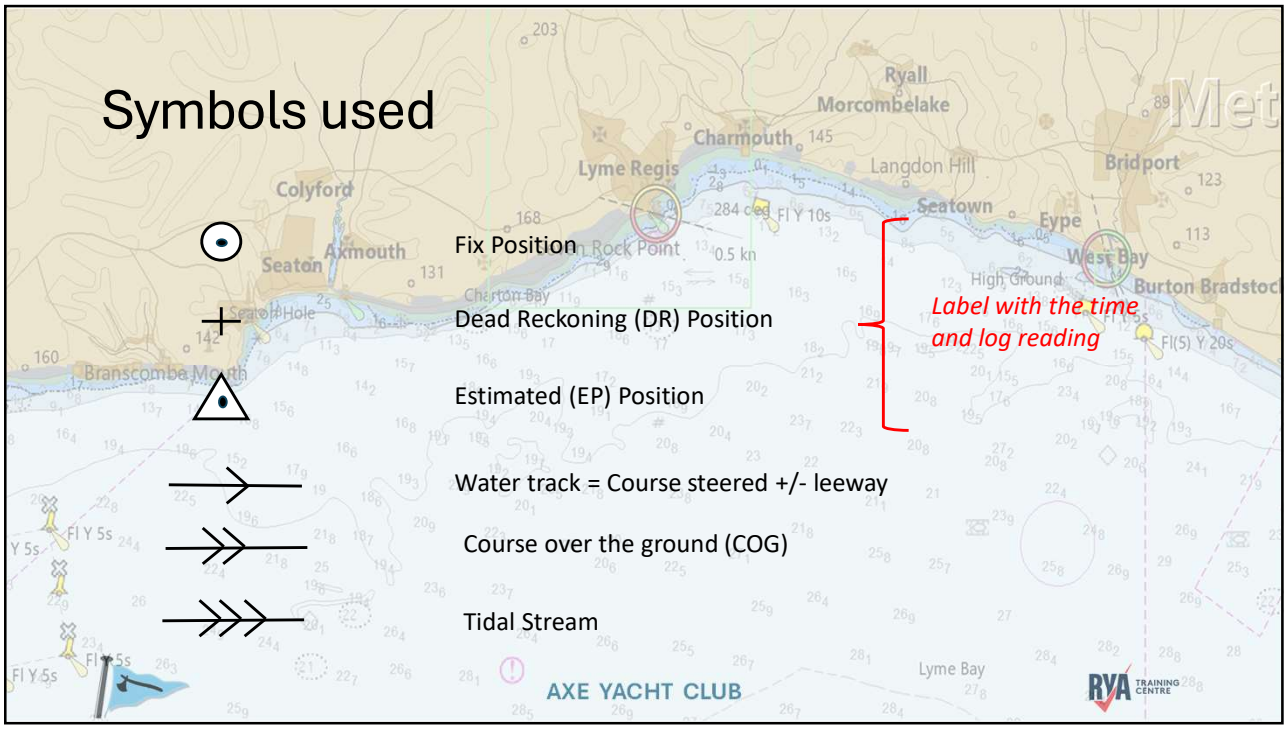
16


Constructing the EP Position
Water track = 000 + 5 = 005° T
Plot Start Position
Lay off water track from start position
Measure off distance run along the water track
Mark DR Position (+)
Lay off tide from DR position
Mark EP
Sat 5 Oct HW Victoria – 1013 DST
Springs Range
0843 – 0943 = HW-1
<>A HW -1 Sp => 274°T / 1.7 kn
0943 EP = 46° 21.22N / 006° 01.42W
0943 / 25.0
Point #17
LFl W 10s
Black Deeps
AXE YACHT CLUB
Lyme Bay

17


Predicted EP and predicted COG
To obtain a predicted EP we follow the same process as for an EP but using predicted values for boat speed and leeway according to the course being steered.
It is used to determine if the predicted COG is safe.
AXE YACHT CLUB
Lyme Bay

18


Symbols used
Fix Position
Dead Reckoning (DR) Position
Estimated (EP) Position
Water track = Course steered +/- leeway
Course over the ground (COG)
Tidal Stream
Label with the time and log reading
Ryall
Morcombelake
Charmouth
Lyme Regis
Langdon Hill
Bridport
Colyford
Seaton
Axmouth
Seatown
Eype
West Bay
Burton Bradstock
Branscombe Mouth
Lyme Bay
AXE YACHT CLUB
RYA TRAINING CENTRE

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