Secondary ports made easy
by Alex. Dunn, Chief Instructor at HPSS

"Let's be honest, the easiest way to find the height of tide in one of the Solent's many harbours is to use an app. For those who prefer to take the more traditional approach, or those on a training course or exam, the good old tidal curve is needed.

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Secondary ports are?
I've assumed that you already know about secondary ports but there is an explanation on the RYA website for help

If you're visiting one of the Solent's many anchorages or rivers then you're also likely to need a secondary port calculation before you have the information needed to complete the tidal curve: the time of high or low water, the height of high water and the height of low water.

Below, I explain my quick method to calculate secondary port info … and there's not a crocodile tooth in sight!"

Secondary port grids

Below is a grid that I've created to help calculate the time difference for high water at the entrance to Beaulieu River (Stansore Point). Portsmouth is the Standard Port for Stansore Point so we also need an extract from a tide table such as those found in Reeds Nautical

9	0235	4.2
	0750	1.3
SU	1510	4.3
	2009	1.5
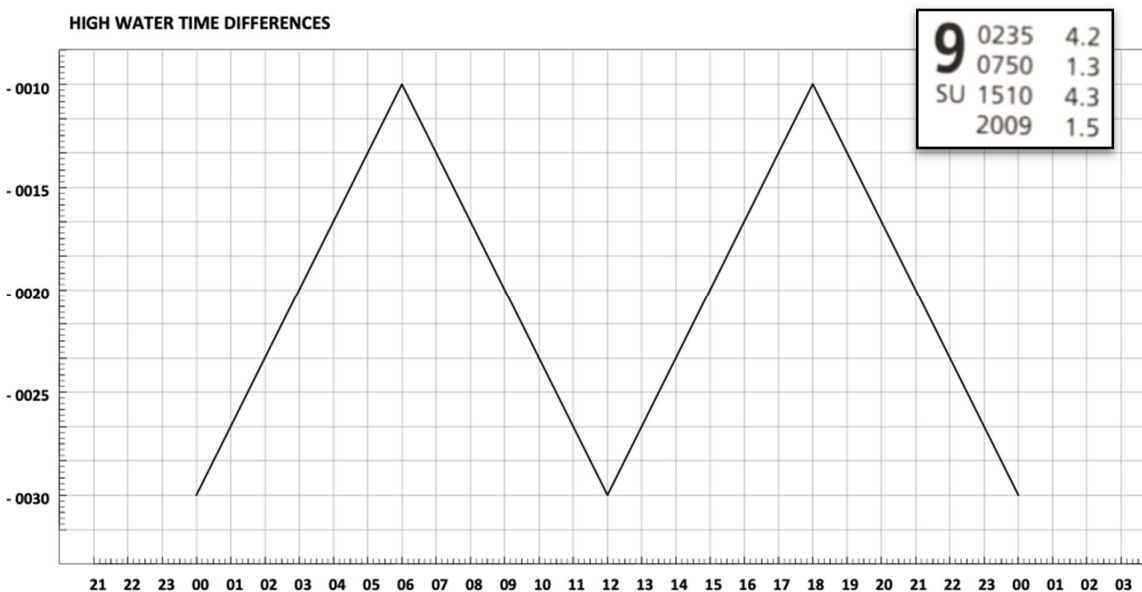
Almanac.

How was the grid was created?
The numbers on the horizontal axis are the hours. vertical axis show the range of High Water differ

The zigzag line marks the differences at the times 0600 UT (-0010), 1200 UT (-0030) and 1800 UT (-0010).

Standard Port PORTSMOUTH (→); Tidal Curve see 9.2.17 (→)

| Times				Height (metres)			
High Water		Low Water		MHWS	MHWN	MLWN	MLWS
0000	0600	0500	1100	4·7	3·8	1·9	0·8
1200	1800	1700	2300				
BUCKLERS HARD							
0040	0010	+0010	−0010	−1·0	−0·8	−0·2	−0·3
STANSORE POINT							
−0030	−0010	−0005	−0015	−0·7	−0·5	−0·3	−0·3

Step-by-step

1. Mark the time of Portsmouth HW on Sunday 9th August, (1510 UT) along the bottom axis of the **High Water Time Differences** grid.

2. Draw a vertical line upwards from this mark.

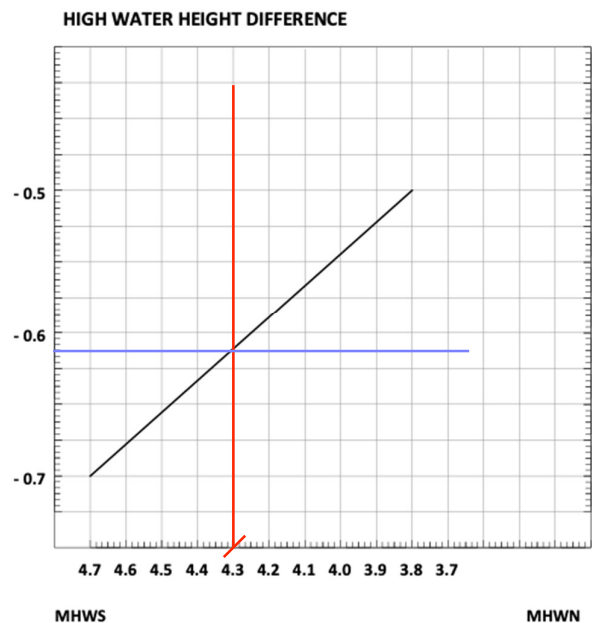**HIGH WATER TIME DIFFERENCES**
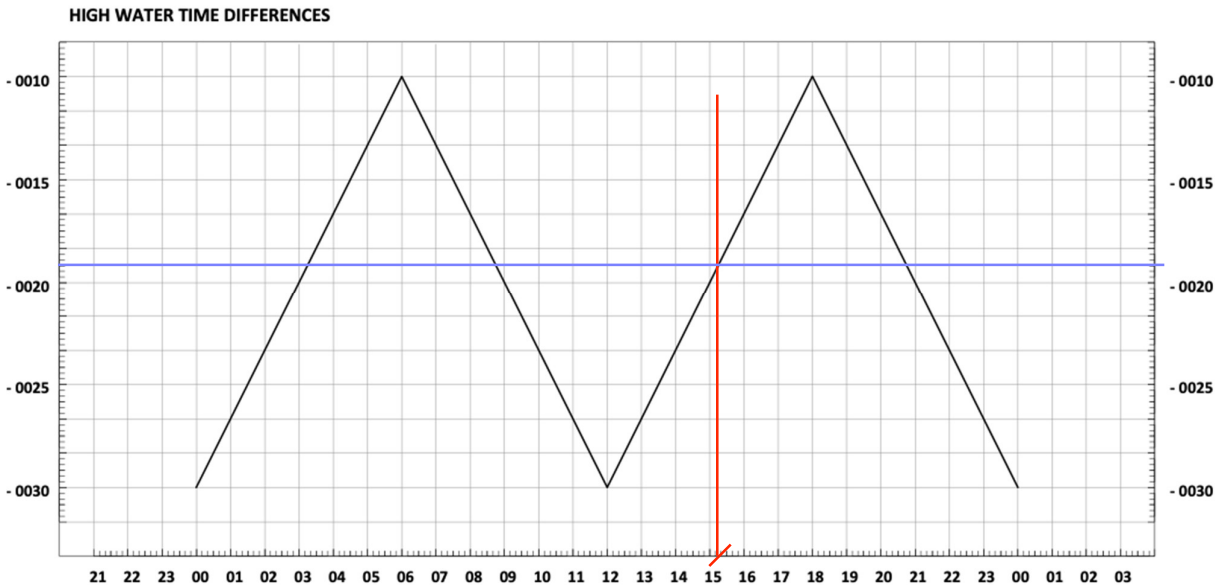
3. Draw a horizontal line from the point where the vertical line and the zigzag line meet.
4. Read the time difference from the vertical axis and round this up or down to the nearest whole minute. This is -19 minutes in the example. Therefore the afternoon HW at the entrance to Beaulieu River on will occur at 1451 UT (1510 UT - 19 minutes).

5. Follow the same process to find the **Low Water Time Difference** for Stansore Point. This requires the Portsmouth low water time of either 0750 or 2009 UT. The example uses the
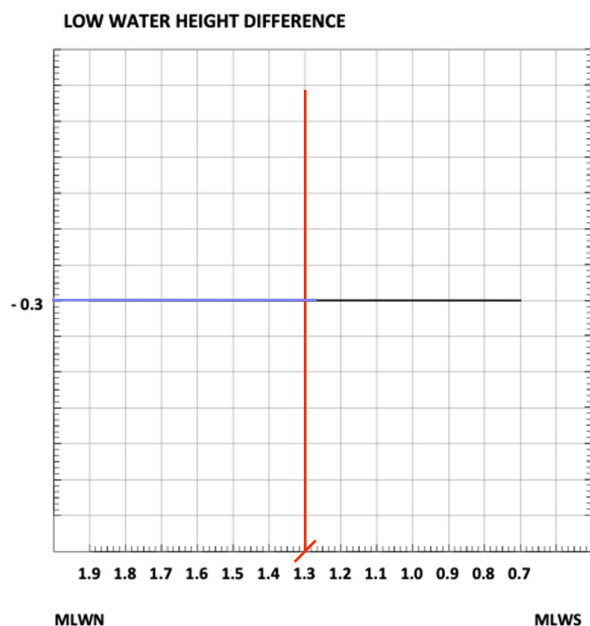
0750 UT low water and shows that low water at Stansore Point will happen at 0740 UT,

LOW WATER TIME DIFFERENCES
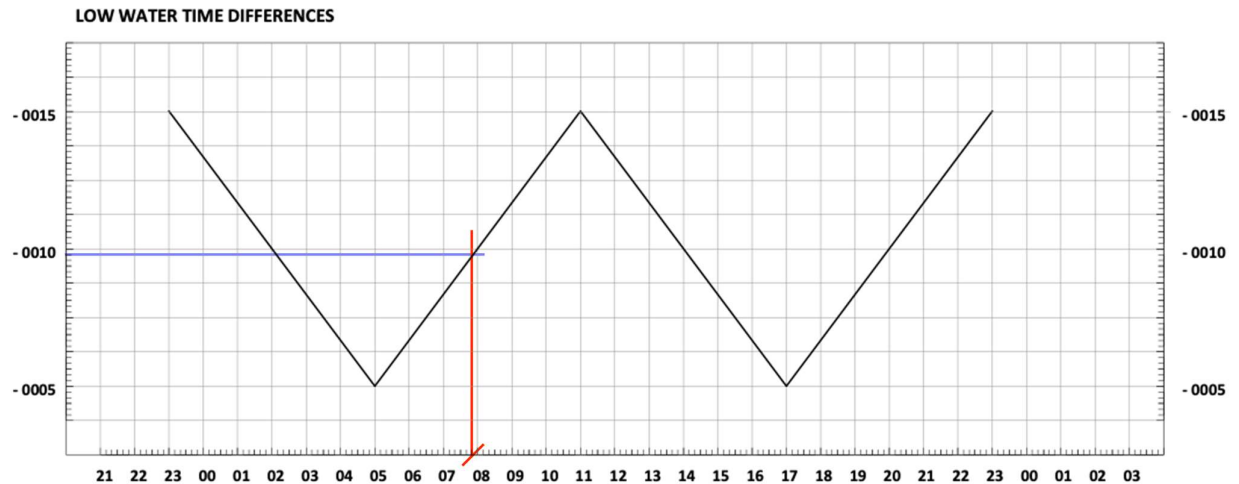
10 minutes earlier than in Portsmouth.

6. Use the **High Water Height Differences** grid and follow the same process to calculate the difference for the height of high water.

7. The height of HW in Portsmouth at 1510 UT is 4.3m. Mark this along the bottom axis then draw a vertical line upwards.

8. Draw a horizontal line from where the vertical line meets the diagonal line and read the height difference from the vertical scale. In the example, the difference is - 0.6m. This means that the height of high water at Stansore Point will

HIGH WATER HEIGHT DIFFERENCE

LOW WATER HEIGHT DIFFERENCE

be 0.6m less than in Portsmouth. (4.3m - 0.6m = 3.7m)

9.   The final step is to find the l**ow water height difference**. This one is easy as the differences table tell us that regardless of the height of low water in Portsmouth it will be 0.3m less at Stansore Point.

10.   Therefore the height of low water at Stansore Point is 1.0m (1.3m - 0.3m)

You now have the data needed to complete a tidal curve. Download copies of the tidal curves for Portsmouth and Southampton.

Download secondary port grids
A selection of pre-prepared secondary port grids in PDF format are available to download:

- Beaulieu River entrance (Stansore Point)
- Yarmouth & Newtown Creek
- Itchenor

Download a blank template so that you can create your own grids for other ports.

Tip!
Print then laminate the grids for the ports that you visit regularly. Then use a thin marker pen to draw the lines and nail polish remove to remove them.