

## Using the Bridge Gap Calculation Chart

- The '**Height of the Tide at High**' and the '**Height of the Tide at Low**' are based on the heights of the high and low tides **predicted for Auckland**.
- The **Tidal Range** is the Difference in height between high and low water.
- **Movement in 1/12ths:** The 'Rule of Twelfths' has been used to calculate tidal heights on this chart. The rule of twelfths is the movement of the height of the water throughout the tidal range (rise and fall) divided into twelve equal parts. The water will rise 1/12<sup>th</sup> in the first hour, 2/12ths in the second hour 3/12ths in the third hour, 3/12ths in the fourth hour, 2/12ths in the fifth hour and 1/12<sup>th</sup> in the sixth hour.  
(Example: Using a 2.4 tidal range, 2.4m divided by 12 = 0.20m (or 200mm). In the first 1<sup>st</sup> hour the tide will drop 200mm, 2<sup>nd</sup> hour 400mm, 3<sup>rd</sup> hour 600mm, 4<sup>th</sup> hour 600mm, 5<sup>th</sup> hour 400mm, 6<sup>th</sup> hour 200mm. Thus, 200mm+400mm+600mm+600mm+400mm+200mm = 2.4metres)
- The **Height of the Gap** is calculated from the height of the gap at chart datum (the lowest astronomical tide), plus the expected height of the tide on the hours past high water. (You can use the reverse to calculate the height on given hours before the next high tide).

Before using the chart, determine the height of YOUR boat from the waterline to the top extremity. Do this when the vessel is unladen (e.g. low on fuel, water and gear) thus giving the maximum gap required. Write the height of the boat on the chart.

Estimate the gap required using the boat height plus a comfort margin.

Tidal heights can be affected by weather conditions:

The tidal heights and gaps use **predicted astronomical tidal information**. Lower barometric pressure and on-shore winds will both increase the height of the tide. Conversely, High barometric pressure and off-shore winds will lower the tidal height.

## OUTBOARD BOATING CLUB BRIDGE GAP CALCULATION CHART

**Height of gap at Chart Datum = 6.2metres (Based on marked 'IN' and 'OUT' spans, - for 'High' span, add 0.3m**

**Boat Height = \_\_\_\_\_ Metres      Minimum Gap Required = \_\_\_\_\_ Metres**

	<u>Height of Tide at High</u>	<u>Height of Tide at Low</u>	<u>Tidal Range</u>	<u>Movement in 1/12ths</u>	<u>Gap at High Tide</u>	<u>Gap at 1hr past</u>	<u>Gap at 2hrs past</u>	<u>Gap at 3hrs past</u>	<u>Gap at 4hrs past</u>	<u>Gap at 5hrs past</u>	<u>Gap at Low Tide</u>
Tide Height	3.4m	0.4m	3.0	0.25	3.40	3.15	2.65	1.90	1.15	0.65	0.40
Gap					2.80	3.05	3.55	4.30	5.05	5.55	5.80
Tide Height	3.3m	0.5m	2.8	0.23	3.30	3.07	2.60	1.90	1.20	0.73	0.50
Gap					2.90	3.13	3.60	4.30	5.00	5.47	5.70
Tide Height	3.2m	0.55m	2.65	0.22	3.20	2.98	2.54	1.88	1.21	0.77	0.55
Gap					3.00	3.22	3.66	4.33	4.99	5.43	5.65
Tide Height	3.1m	0.6m	2.5	0.21	3.10	2.89	2.48	1.85	1.23	0.81	0.60
Gap					3.10	3.31	3.73	4.35	4.98	5.39	5.60
Tide Height	3.00m	0.65m	2.35	0.20	3.00	2.80	2.41	1.83	1.24	0.85	0.65
Gap					3.20	3.40	3.79	4.38	4.96	5.35	5.55
Tide Height	2.9m	0.7m	2.2	0.18	2.90	2.72	2.35	1.80	1.25	0.88	0.70
Gap					3.30	3.48	3.85	4.40	4.95	5.32	5.50
Tide Height	2.8m	0.8m	2.00	0.17	2.80	2.63	2.30	1.80	1.30	0.97	0.80
Gap					3.40	3.57	3.90	4.40	4.90	5.23	5.40
Tide Height	2.7m	0.9m	1.80	0.15	2.70	2.55	2.25	1.80	1.35	1.05	0.90
Gap					3.50	3.65	3.95	4.40	4.85	5.15	5.30
Tide Height	2.6m	1.0m	1.60	0.13	2.80	2.47	2.20	1.80	1.40	1.13	1.00
Gap					3.60	3.73	4.00	4.40	4.80	5.07	5.20
Tide Height	2.5m	1.1m	1.40	0.12	2.50	2.38	2.15	1.80	1.45	1.22	1.10
Gap					3.70	3.82	4.05	4.40	4.75	4.98	5.10
Tide Height	2.4m	1.2m	1.20	0.10	2.40	2.30	2.10	1.80	1.50	1.30	1.20
Gap					3.80	3.90	4.10	4.40	4.70	4.90	5.00

**This chart uses "typical" Auckland tidal ranges and is based on predicted Astronomical tidal heights.  
Wind direction and Barometric pressure will vary the actual height of the tide.**