

# Cockpit Intake Test

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This is a means of rating the potential ease of recovery of sea kayaks by measuring the water remaining in a cockpit after a controlled capsize. The method uses empty boats and flat water, and therefore does not take varying loads and sea conditions into account, but provides an informative baseline measure for comparison.

## Equipment and site

You will need flat water, 50 – 60 cm deep. Put a pole or stake at a convenient point, ensuring that it is vertical (plumb lines are an easy way to sight the pole vertical). You will also need bucket, sponge and measuring container.

Tie a loose line under the kayak, from one side to the other, at the cockpit. (Attach to deckline, cockpit handrail, or cockpit rim.)

## Method

1. Capsize the kayak
2. Using the underhull line, roll the kayak on to its side, with the cockpit rim against the pole to maintain the attitude. Brace it with one knee if necessary, but avoid lifting or pressing down.
3. Only when the water is no longer flowing into or out of the cockpit, roll the kayak quickly upright and take it to the bank or shore.
4. Measure the amount of water remaining in the cockpit.
5. Repeat the procedure so that you have at least five measurements for each side.
6. Calculate the average (and other statistics if you wish).

If you wish please send your result to either Peter Carter <[pcarter@acslink.net.au](mailto:pcarter@acslink.net.au)> or Peter Lamont <[info@windslicer.co.uk](mailto:info@windslicer.co.uk)> and we will be pleased to publish the result online.

**\*\*All measurements below are in litres\*\***

Sea Tiger (Peter Lamont)



*Sea Tiger inverted in a Scottish mill pond (freshwater)*

Integrated cockpit (= minimum volume, c95 litres) with buoyancy block footrest at the front of the cockpit but otherwise standard trim with no load.

Measurement accuracy + or - 0.1 litres.

Port: 2.3, 2.8, 4.2, 2.8, 2.4

Starboard: 2.5, 4.1, 4.5, 3.8, 3.6

Combined	
Mean	<b>3.3</b>
Median	3.2
Standard Deviation	0.83
Sample Variance	0.69
Range	2.2
Minimum	2.3
Maximum	4.5
Sum	33
Count	10
Confidence Level (95.0%)	0.59



*Sea Tiger against a vertical pole fixed in the pond*

Platypus 5 (Peter Carter)



*Platypus 5 on its side (seawater)*

In this case the pole is attached across the boat in place of the underhull line, The pole is not fixed in the lake bottom

Starboard: 5.00, 5.80, 5.60, 6.00, 6.00  
 Port: 3.75, 4.75, 4.20, 4.50, 4.50  
 Overall average: **5.01**



*Platypus 5 cockpit*

The aluminium tube is fixed across with shock cord. The tube is used to hold the boat on its side as alternative to fixed pole. Vertical is not difficult to judge, but plumb line could be added

	Starboard	Port
Mean	5.7	4.3
Median	5.8	4.5
Standard Deviation	0.4	0.4
Sample Variance	0.2	0.1
Range	1.0	1.0
Minimum	5.0	3.8
Maximum	6.0	4.8
Sum	28.4	21.7
Count	5.0	5.0
Confidence Level (95.0%)	0.5	0.5

The port/starboard discrepancy is because the cockpit in this boat is not fitted straight.

Voyager 3 (Peter Carter)



*Voyager 3 on its starboard side*

The pole is attached to boat, not bed of Barker Inlet  
 Integrated cockpit (minimum volume)

Starboard: 4.90, 5.05, 4.50, 5.00, 5.00 = 24.45  
 Port: 4.50, 5.10, 5.00, 5.00, 4.75 = 24.35  
 Average: **4.88** (i.e. about 5 litres)

	Starboard	Port
Mean	<b>4.9</b>	<b>4.9</b>
Median	5.0	5.0
Standard Deviation	0.2	0.2
Sample Variance	0.1	0.1
Range	0.6	0.6
Minimum	4.5	4.5
Maximum	5.1	5.1
Sum	24.5	24.4
Count	5.0	5.0
Confidence Level (95.0%)	0.3	0.3



*Voyager 3 integrated cockpit  
 (= minimum volume)*

## Nordkapp (Peter Carter)



*Nordkapp on its side, held against pole*

This kayak is fitted with a curved third bulkhead close behind the seat and additional buoyancy material along cockpit sides.

Starboard: 14.6, 13.5, 14.8, 13.4, 14.7  
 Port: 14.8, 14.3, 15.8, 16.0, 16.0  
 Average: **14.8**  
 Median: 14.8,  
 StDev: 0.93



*Nordkapp cockpit.*

Buoyancy material can be seen along port side and there is more beneath the seat. A curved bulkhead is close behind seat and is difficult to see in this image

Skerray<sub>RM</sub> (Peter Lamont)

This Skerray test was conducted BDP - in the days before digital photography and no photographs are available.

The kayak is a plastic rotomoulded standard model with fore and aft bulkheads.

A thick, buoyant foam pad attached to the seat made a noticeable difference when it was omitted. The figures below are with the foam seat attached.

Port: 35.65, 36.20, 36.90, 36.30, 36.75  
 Starboard: 38.90, 36.20, 36.60, 36.40, 36.70

Mean: **36.66** +/-0.62