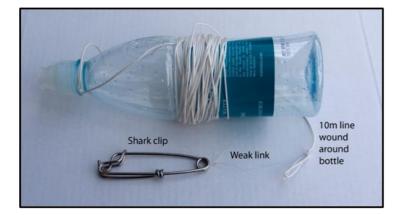
# **Bottle Test Guidelines**

Mitigation Standards call for bottom longline hooks to be at <u>5m depth</u> at the end of your tori line aerial section or <u>10m depth</u> for lines set during high-risk periods. The bottle test is a simple way to immediately measure if this is met.

The idea is to clip a bottle onto the backbone with a pre-measured length of line between the bottle and the clip. The line is wound around the bottle to unwind as the line sinks.

#### To make up a bottle all you need to do is:

- 1. Get a small drink bottle (750ml, water 'pump-bottle', etc)
- 2. Pop open the cap at the end, or if it is a screw cap drill at least a 10 mm hole in the cap. This will let the water in. Drill more holes in the base to let the air out.
- 3. Tie a light line round the neck of the bottle and mark it at 1 m intervals, out to the test depth.
- 4. Tie a weak link to the end of this line for example some light mono, in case the bottle catches on the tori line. Then tie a clip onto the weak link
- 5. Wind the line around the bottle





### To perform a test

- Try to pick a good weather day to help with visibility. If it is dark, add reflective tape or put a lightstick in the bottle.
- Set the length of the bottle-line by tying it off around the neck of the bottle at 5m or 10m (or whatever test depth)
- During setting, clip the bottle-line onto the mainline at the slowest sinking part of the line. This is usually just
  after <u>halfway between 2 weights</u> the angle of the mainline coming off the back of the boat will give you a good
  idea, but you will need to find this out by trying different positions.
- Record the time taken from when the mainline enters the water (at the point where the bottle is clipped), to when the bottle is pulled under. Use the table (on the back) to lookup distance astern the backbone reaches set depth.
- <u>See if the bottle sinks in front of the aerial section of the tori line.</u> If the bottle sinks behind the aerial section of the tori line repeat the test with a progressively shorter rope on the bottle. Trial and error will give a good idea of your mainline depth at the end of the tori line aerial section.
- Record the results on your 'Bottle Test Record Sheet'.
- If you lose sight of the bottle prior to it being dragged underwater and do not re-sight it, draw a line through the row and record the test as null within the comments field.

#### Not sinking fast enough? - There are only really three options:

- 1. Sink the gear faster with larger weights, closer weight spacing, or less floatation.
- 2. Have a longer tori aerial section by lengthening the tori line and adding more drag or running it from a higher pole.
- 3. Slow down, and your gear will sink closer to the boat, but you need to maintain the aerial extent of your tori line.

#### In practice you'll probably need to do all of the above, and may need to avoid 'high-risk periods'.

High risk periods are defined as during daylight hours and during nights three days either side of a full moon (except when there is full cloud cover), and includes periods of high seabird activity.

## Bottle test lookup table to find distance travelled from speed and time taken

Lookup time taken along the top row and follow that column down until it matches speed (through the water) on the left-hand column. The figure in the box gives the distance travelled.

Spe	ed														Tim	ne (se	econ	ds)														
(knots)	(m/s)	0	1	2	3	4	5	6	7	8	9	10	11	12	13	14	15	16	17	18	19	20	21	22	23	24	25	26	27	28	29	30
3	1.54	0	2	3	5	6	8	9	11	12	14	15	17	19	20	22	23	25	26	28	29	31	32	34	35	37	39	40	42	43	45	46
3.5	1.80	0	2	4	5	7	9	11	13	14	16	18	20	22	23	25	27	29	31	32	34	36	38	40	41	43	45	47	49	50	52	54
4	2.06	0	2	4	6	8	10	12	14	16	19	21	23	25	27	29	31	33	35	37	39	41	43	45	47	49	51	54	56	58	60	62
4.5	2.32	0	2	5	7	9	12	14	16	19	21	23	25	28	30	32	35	37	39	42	44	46	49	51	53	56	58	60	63	65	67	69
5	2.57	0	3	5	8	10	13	15	18	21	23	26	28	31	33	36	39	41	44	46	49	51	54	57	59	62	64	67	69	72	75	77
5.5	2.83	0	3	6	8	11	14	17	20	23	25	28	31	34	37	40	42	45	48	51	54	57	59	62	65	68	71	74	76	79	82	85
6	3.09	0	3	6	9	12	15	19	22	25	28	31	34	37	40	43	46	49	52	56	59	62	65	68	71	74	77	80	83	86	90	93
6.5	3.34	0	3	7	10	13	17	20	23	27	30	33	37	40	43	47	50	54	57	60	64	67	70	74	77	80	84	87	90	94	97	100
7	3.60	0	4	7	11	14	18	22	25	29	32	36	40	43	47	50	54	58	61	65	68	72	76	79	83	86	90	94	97	101	104	108
Spe															Tim	ne (se	econ	ds)														
Spe (knots)	(m/s)	30		32	33	34	35	36	37	38	39	40	41	42	43	44	45	ds) 46	47	48	49	50	51	52	53	54	55		57	58	59	60
(knots) 3	(m/s) 1.54	46	48	49	51	52	54	56	57	59	60	62	<b>41</b> 63	65	<b>43</b> 66	<b>44</b> 68	<b>45</b> 69	<b>46</b> 71	73	74	76	77	79	80	82	83	85	86	88	90	91	93
(knots)	(m/s) 1.54 1.80	46 54	48 56	49 58	51 59	52 61	54 63	56 65	57 67	59 68	60 70	62 72	63 74	65 76	<b>43</b> 66 77	<b>44</b> 68 79	<b>45</b> 69 81	<b>46</b> 71 83	73 85	74 86	76 88		79 92	80 94	82 95	83 97			88	90	91 106	93
(knots) 3 3.5 4	(m/s) 1.54 1.80 2.06	46 54 62	48 56 64	49 58 66	51 59 68	52 61 70	54 63 72	56 65 74	57 67 76	59 68 78	60 70 80	62 72 82	63 74 84	65 76 86	<b>43</b> 66 77 88	<b>44</b> 68 79 91	<b>45</b> 69 81 93	<b>46</b> 71 83 95	73 85 97	74	76 88 101	77 90 103	79 92 105	80 94 107	82 95 109	83 97 111	85 99 113	86 101 115	88 103 117	90	91 106 121	93 108 123
(knots) 3 3.5 4 4.5	(m/s) 1.54 1.80	46 54 62 69	48 56 64 72	49 58 66 74	51 59 68 76	52 61 70 79	54 63 72 81	56 65 74 83	57 67 76 86	59 68 78 88	60 70 80 90	62 72 82 93	63 74 84 95	65 76 86 97	<b>43</b> 66 77 88	<b>44</b> 68 79	<b>45</b> 69 81 93 104	<b>46</b> 71 83	73 85 97 109	74 86 99 111	76 88 101 113	77 90 103 116	79 92 105 118	80 94 107 120	82 95 109 123	83 97 111 125	85 99 113 127	86 101 115 130	88 103 117 132	90 104 119	91 106 121	93 108
(knots) 3 3.5 4 4.5 5	(m/s) 1.54 1.80 2.06 2.32 2.57	46 54 62 69 77	48 56 64 72 80	49 58 66 74 82	51 59 68 76 85	52 61 70 79 87	54 63 72 81 90	56 65 74 83 93	57 67 76 86 95	59 68 78 88 98	60 70 80 90 100	62 72 82 93 103	63 74 84 95 105	65 76 86 97 108	<b>43</b> 66 77 88 100 111	<b>44</b> 68 79 91 102 113	<b>45</b> 69 81 93 104 116	<b>46</b> 71 83 95 106 118	73 85 97 109 121	74 86 99 111 123	76 88 101 113 126	77 90 103 116 129	79 92 105 118 131	80 94 107 120 134	82 95 109 123 136	83 97 111 125 139	85 99 113 127 141	86 101 115 130 144	88 103 117 132 147	90 104 119 134 149	91 106 121 137 152	93 108 123 139 154
(knots) 3 3.5 4 4.5	(m/s) 1.54 1.80 2.06 2.32 2.57 2.83	46 54 62 69 77 85	48 56 64 72 80 88	49 58 66 74 82 91	51 59 68 76 85 93	52 61 70 79 87	54 63 72 81 90 99	56 65 74 83 93 102	57 67 76 86 95 105	59 68 78 88 98 108	60 70 80 90 100 110	62 72 82 93 103 113	63 74 84 95 105 116	65 76 86 97 108 119	<b>43</b> 66 77 88 100 111 122	<b>44</b> 68 79 91 102 113 124	<b>45</b> 69 81 93 104 116 127	<b>46</b> 71 83 95 106 118 130	73 85 97 109 121 133	74 86 99 111 123 136	76 88 101 113 126 139	77 90 103 116 129 141	79 92 105 118 131 144	80 94 107 120 134 147	82 95 109 123 136 150	83 97 111 125 139 153	85 99 113 127 141 156	86 101 115 130 144 158	88 103 117 132 147 161	90 104 119 134 149 164	91 106 121 137 152 167	93 108 123 139 154 170
(knots) 3 3.5 4 4.5 5 5.5 6	(m/s) 1.54 1.80 2.06 2.32 2.57 2.83 3.09	46 54 62 69 77 85 93	48 56 64 72 80 88 96	49 58 66 74 82 91 99	51 59 68 76 85 93 102	52 61 70 79 87 96 105	54 63 72 81 90 99 108	56 65 74 83 93 102 111	57 67 76 86 95 105 114	59 68 78 88 98 108 117	60 70 80 90 100 110 120	62 72 82 93 103 113 123	63 74 84 95 105 116 127	65 76 86 97 108 119 130	<b>43</b> 66 77 88 100 111 122 133	<b>44</b> 68 79 91 102 113 124 136	<b>45</b> 69 81 93 104 116 127 139	<b>46</b> 71 83 95 106 118 130 142	73 85 97 109 121 133 145	74 86 99 111 123 136 148	76 88 101 113 126 139 151	77 90 103 116 129 141 154	79 92 105 118 131 144 157	80 94 107 120 134 147 161	82 95 109 123 136 150 164	83 97 111 125 139 153 167	85 99 113 127 141 156 170	86 101 115 130 144 158 173	88 103 117 132 147 161 176	90 104 119 134 149 164 179	91 106 121 137 152 167 182	93 108 123 139 154 170 185
(knots) 3 3.5 4 4.5 5 5.5	(m/s) 1.54 1.80 2.06 2.32 2.57 2.83 3.09 3.34	46 54 62 69 77 85 93 100	48 56 64 72 80 88 96 104	49 58 66 74 82 91 99 107	51 59 68 76 85 93 102	52 61 70 79 87 96 105 114	54 63 72 81 90 99	56 65 74 83 93 102	57 67 76 86 95 105 114 124	59 68 78 88 98 108 117 127	60 70 80 90 100 110 120 130	62 72 82 93 103 113 123 134	63 74 84 95 105 116 127 137	65 76 86 97 108 119 130 140	<b>43</b> 666 777 888 100 1111 122 133	<b>44</b> 68 79 91 102 113 124 136 147	<b>45</b> 69 81 93 104 116 127 139 150	<b>46</b> 71 83 95 106 118 130	73 85 97 109 121 133 145 157	74 86 99 111 123 136	76 88 101 113 126 139 151 164	77 90 103 116 129 141 154 167	79 92 105 118 131 144 157	80 94 107 120 134 147 161 174	82 95 109 123 136 150 164 177	83 97 111 125 139 153	85 99 113 127 141 156 170 184	86 101 115 130 144 158 173	88 103 117 132 147 161 176 191	90 104 119 134 149 164 179	91 106 121 137 152 167 182 197	93 108 123 139 154 170