

Table 1: Weather conditions encountered during the survey. Values for beaufort sea state and glare are the mean of the modes for each transect with range in parentheses. Glare is measured as: 0, none; 1, <25% of field of view affected; 2, 25-50%, 3, >50%.

(values for SGBR for 1987 and 1992 are taken from the 1992 report)

Variable	SGBR			Hervey Bay	
	1987	1992	1994	1993	1994
Wind Speed (km h ⁻¹)	<37	<37	≤15	<20	≤10
Cloud cover (oktas)	0-4	0-5	0-5	1-4	1-3
Minimum Cloud height (m)	300	2500	2000-5000	460-1800	2000-5000
Beaufort sea state	1.0 (0-3)	1.0 (0-4)	1.87 (0-4)	1.2 (0-3)	1.94 (1-3)
Glare North			1.44 (0-3)		0.92 (0-2)
Glare South			1.29 (0-3)		1.08 (0-2)
Glare Overall	2.0 (0-3)	2.0 (0-3)	1.36 (0-3)	1.4 (0-3)	
Visibility (km)	>20	N/A	≥ 15	N/A	≥20

Table 2: Areas of survey blocks and sampling intensities

Block	Area (km ²)	Sampling %
Mackay-Capricorn Section		
1	1390	9.6
2	836	9.8
3	1021	16.4
4	3242	11.4
5	1347	16.0
6	6498	8.4
7	1567	9.4
8	796	9.3
Central Section		
1	371	11.9
2	665	9.7
3	2048	13.2
4	466	17.0
5	2087	8.0
6	244	18.0
7	579	18.6
8	620	18.8
9	3829	8.1
10	288	20.0
11	746	16.9
Total GBRMP	28564	10.9
Hervey Bay		
1	512	19.63
2	1402	16.09
3	1222	8.75
4	1235	8.66
5	621	7.4
Total	4992	11.74

Table 3: Details of group size estimates and correction factors used in the population estimates for dugongs in the 1994 survey of southern Great Barrier Reef Marine Park and Hervey Bay

Due to the high number of sightings in Hervey Bay, separate availability correction factors and mean group sizes were calculated.
 Perception correction factors were the same for the entire survey except where teams changed.

Blocks: Transects	Group size (C.V)	Numbers of observers		Perception Correction factor Estimate (C.V)		Availability correction factor estimate (C.V.)
		Port	Starboard	Port	Starboard	
<u>SGBR</u> Southern All blocks and transects	1.3077 (0.0640)	2	2	1.0342 (0.0072)	1.0860 (0.0160)	2.4706 (0.1563)
Central 3; 180-188, 4, 5, 6, 7, 8, 9, 10, 11; 283					1.0860 (0.0160)	
Central 1, 2, 3; 157-179	1.3077 (0.0640)	1	2	1.1746 (0.0072)	1.3833 (0.0160)	2.4706 (0.1563)
Central 11; 294-284	1.3077 (0.0640)	2	1	1.0342 (0.0072)	1.0860 (0.0160)	2.4706 (0.1563)
<u>Hervey Bay</u> All Blocks and Transects	1.4904 (0.1509)	2	2	1.0342 (0.0072)		0.8903 (0.2178)

Table 4a: Estimates of dugong numbers for each survey block in the southern Great Barrier Reef marine Park and in Hervey Bay in three aerial surveys. Areas referred to by block numbers are shown in Figure 1. se = standard error

Block	1987		1992		1994	
	Population	se	Population	se	Population	se
Population						
Mackay-Capricorn Section						
1	48	46	122	71	0	
2	0		94	50	0	
3	301	95	91	60	104	56
4	51	48	42	40	67	44
5	765	161	566	185	406	78
6	542	293	34	33	82	60
7	0		0		0	
8	240	104	24	22	38	37
Central Section						
1	31	35	70	59	0	
2	65	69	0		0	
3	0		35	27	27	21
4	173	77	40	24	20	17
5	312	122	0		44	38
6	171	87	91	46	19	19
7	136	120	58	50	54	38
8	360	92	106	56	183	29
9	0		257	105	157	77
10	184	110	141	89	377	154
11	100	71	86	72	107	71
Total	3479	459	1857	292	1682	236
Hervey Bay						
	1992		1993		1994	
1	943	377	168-218	52	287	79
2	71	40	257	85	408	115
3	21	22	22	21	49	50
4	74	50	74	74	31	22
5					32	21
Total	1109	383	579-629	126	807	151

Table 4b: Estimates of dugong densities for each survey block in the southern Great Barrier Reef Marine Park and in Hervey Bay in three aerial surveys. Areas referred to by block number are shown in Figure 1. se = standard error.

Density						
Mackay Capricorn Section						
1	0.03	0.03	0.09	0.05	0.00	0.00
2	0.00	0.00	0.11	0.06	0.00	0.00
3	0.29	0.09	0.09	0.06	0.10	0.05
4	0.02	0.01	0.01	0.01	0.02	0.01
5	0.60	0.13	0.45	0.15	0.32	0.06
6	0.08	0.05	0.01	0.01	0.01	0.01
7	0.00	0.00	0.00	0.00	0.00	0.00
8	0.30	0.13	0.03	0.03	0.05	0.05
Central Section						
1	0.08	0.09	0.19	0.16	0.00	0.00
2	0.10	0.10	0.00	0.00	0.00	0.00
3	0.00	0.00	0.02	0.01	0.01	0.01
4	0.37	0.17	0.09	0.05	0.04	0.04
5	0.15	0.06	0.00	0.00	0.02	0.02
6	0.70	0.36	0.37	0.19	0.08	0.08
7	0.23	0.21	0.10	0.09	0.09	0.07
8	0.58	0.15	0.17	0.09	0.29	0.05
9	0.00	0.00	0.07	0.03	0.04	0.02
10	0.64	0.38	0.49	0.31	1.31	0.53
11	0.13	0.10	0.12	0.10	0.14	0.10
Total GBRMP	0.12	0.02	0.07	0.01	0.06	0.01
Hervey Bay						
1	1.66	0.66	0.30-0.38	0.09	0.50	0.14
2	0.05	0.03	0.17	0.05	0.26	0.07
3	0.02	0.02	0.02	0.02	0.04	0.04
4	0.05	0.04	0.05	0.05	0.02	0.02
5	0.00	0.00	0.00	0.00	0.05	0.04
Total					0.15	0.03

Table 5: Summary of analysis of variance comparing observed dugong density in the southern GBR in 1986/87, 1992 and 1994. (1) Without covariates (2) Without Beaufort sea state as a covariate. Data were transformed by log (x+1).

Sources of Variation	DF		F		Significance of F	
	1	2	1	2	1	2
Blocks**	18	18	7.55	7.15	>0.0001	>0.0001
Time*	2	2	18.33	13.97	>0.0001	>0.0001
Transect nested in Block*	282	282	1.45	1.45	>0.0001	>0.0001
Block by Time*	36	36	1.34	1.34	0.095	0.093
Residual	562	561				
Regression*		1		1.6		0.207

* Tested against Residual

** Tested against Transect nested in Block

Table 6: Summary of analysis of variance comparing observed dugong density in the southern GBR in 1986/87, 1992 and 1994 (without Beaufort sea state as a covariate). Data were transformed by log (x+1) Shoalwater Bay is omitted from the dataset.

Sources of Variation	DF	F	Significance of F
Blocks**	17	6.97	<0.0001
Time*	2	12.94	<0.0001
Transect nested in Block*	257	1.36	0.002
Block by Time*	34	1.14	0.278
Residual	513		
Regression*			

* Tested against Residual

** Tested against Transect nested in Block

Table 7: Details of shark nets set for bather protection in GBR region.

Region ¹	No. of Locations	Net Length (m)	No. of days set per year	km net days/yr
Cairns	5	3 x 68	365	372.3
	1	1 x 68	365	24.82
Magnetic Island	2	3 x 68	365	148.92
Mackay	2	3 x 68	365	148.92
	1	3 x 68 ²	184	37.54
TOTAL				732.5

¹ Data provided to GBRMPA by Baden Lane, Senior Project-Officer Sharks, QDPI.

² Eimio Beach net removed 1 September - 1 March to avoid sea turtle activity