

Table 6.1 Mark recovery data used to show the correspondence of successive annuli formed and Dry seasons passed, between initial release and final recovery of mussels, in selected billabongs of the Magela Creek.

Billabong	Time of Release	Length at Release (mm)	Time of Recovery	Length at Recovery	Length at successive annuli upon release	Age at Recovery (years)
Georgetown	18/3/1980	48.0	3/4/1982	61.5	53.0	4
"	"	45.0	"	52.5	49.0	4
"	"	55.0	"	58.5	57.5	8
"	"	60.0	"	63.0	61.0	10
"	"	62.0	"	64.0	62.5	8
"	"	65.5	"	67.0	66.5	15
"	"	70.0	"	71.5	71.0	17
"	3/10/1980	18.0*	3/4/1982	54.0	19.0	2
"	"	24.0*	"	49.5	25.0	2
"	"	26.0*	"	53.0	27.5	2
"	"	26.0*	"	52.5	27.0	2
"	"	30.0*	"	55.0	30.5	2
Mudginberri	4/8/1980	25.5*	27/5/1982	48.0	40.0	2
"	"	24.0*	"	48.5	41.0	2
"	"	30.5*	"	50.0	44.0	2
"	"	35.0*	"	53.5	47.0	2
"	"	36.0*	"	55.0	49.0	2
"	26/9/1980	54.0	"	57.0	54.0	6
"	"	56.0	"	59.0	56.5	8
"	"	61.0	"	62.0	61.0	15
"	"	62.0	"	63.5	62.0	16
"	"	70.0	"	71.0	70.0	19
"	25/10/1980	70.5	"	72.0	70.5	17
Nankeen	20/9/1980	26.0*	29/5/1982	47.0	28.0	2
"	"	30.5*	"	51.5	31.0	2
"	"	25.0*	"	54.0	26.0	2
"	"	31.0*	"	52.0	32.0	2
"	"	30.0*	"	46.0	31.0	2
"	"	45.0	"	57.0	46.0	3
"	"	53.0	"	58.0	53.0	3
"	"	60.5	"	63.0	60.5	8
"	"	67.0	"	68.5	67.0	9
"	"	71.0	"	73.0	71.0	15
"	"	72.0	"	73.5	72.0	18
"	"	63.0	"	65.0	63.0	14

* young-of-year

Table 6.3 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between transects and sexes in Georgetown billabong. Location of the transects is shown in Figure 3.1.

Parameter	TRANSECT A			TRANSECT B		
	males	females	sexes combined	males	females	sexes combined
L_{∞}	64.36 (62.83, 65.89)	65.74 (63.39, 68.08)	64.96 (63.64, 66.27)	63.05 (61.94, 64.16)	66.63 (64.85, 68.42)	64.44 (63.50, 65.39)
K	0.206 (0.169, 0.243)	0.160 (0.213, 0.198)	0.183 (0.157, 0.209)	0.385 (0.333, 0.439)	0.260 (0.213, 0.307)	0.329 (0.293, 0.365)
t_0	-3.613 (-4.479, -2.747)	-5.104 (-6.452, -3.755)	-4.286 (-5.041, -3.531)	-1.493 (-1.860, -1.126)	-2.803 (-3.457, -2.149)	-1.977 (-2.311, -1.644)

Table 6.4 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between sites in Mudginberri billabong. Location of the sites is shown in Figure 3.1.

Parameter	Site				
	1	2	3	4	5
L_{∞}	59.33 (58.39, 60.25)	60.43 (59.40, 61.45)	64.38 (63.44, 65.33)	64.73 (64.01, 65.45)	65.09 (63.68, 66.49)
K	0.309	0.247	0.177	0.216	0.180
t_0	(0.239, 0.380) -3.073 (-4.19, -1.96)	(0.186, 0.308) -4.355 (-5.94, -2.77)	(0.136, 0.218) -5.955 (-7.87, -4.04)	(0.171, 0.252) -4.166 (-5.64, -2.69)	(0.129, 0.231) -6.129 (-8.52, -3.74)

Table 6.5 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between sites in Buffalo billabong. Location of the sites is shown in Figure 3.1.

SITE	Parameter		
	L_{∞}	K	t_0
1	59.74 (58.89, 60.58)	0.309 (0.217, 0.402)	-2.719 (-4.020, -1.411)
2	62.68 (61.61, 63.75)	0.165 (0.120, 0.211)	-6.201 (-8.807, -3.596)
3	57.66 (56.16, 59.17)	0.230 (0.150, 0.310)	-3.740 (-5.815, -1.665)
4	58.47 (57.70, 59.24)	0.266 (0.199, 0.332)	-3.417 (-4.886, -1.949)
5	64.70 (63.37, 66.02)	0.198 (0.141, 0.256)	-4.740 (-6.764, -2.717)
6	63.69 (61.88, 65.51)	0.160 (0.098, 0.223)	-6.318 (-9.725, -2.912)
7	64.58 (63.26, 65.89)	0.212 (0.143, 0.280)	-4.103 (-6.241, -1.964)
8	63.31 (61.77, 64.85)	0.248 (0.158, 0.339)	-3.869 (-6.116, -1.621)
9	62.59 (61.36, 63.82)	0.245 (0.188, 0.301)	-3.224 (-4.521, -1.968)
10	64.95 (63.96, 65.92)	0.293 (0.233, 0.353)	-2.364 (-3.251, -1.477)

Table 6.6 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between different depths in Leichhardt billabong.

Parameter	Depth interval (m)		
	0.0-0.9	1.0-1.9	> 1.9
L_{∞}	101.96 (87.55, 116.37)	88.61 (81.32, 95.90)	79.12 (54.60, 103.64)
K	0.145 (0.072, 0.218)	0.181 (0.107, 0.254)	0.172 (-0.163, 0.507)
t_0	-3.930 (-5.72, -2.14)	-3.692 (-5.43, -1.96)	-5.461 (-16.74, 5.82)

Table 6.7 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between different depths in Nankeen billabong.

Parameter	Depth interval (m)		
	0.0-0.9	1.0-1.9	> 1.9
L_{∞}	69.69 (68.81, 70.58)	70.85 (69.69, 72.00)	72.42 (68.27, 76.57)
K	0.357 (0.301, 0.414)	0.249 (0.206, 0.291)	0.202 (0.109, 0.295)
t_0	-1.628 (-2.14, -1.11)	-2.638 (-3.47, -1.80)	-2.938 (-5.53, -0.34)

Table 6.8 Length characteristics of age classes of male, female and total mussels sampled from Georgetown billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.00-0.99	male	11	0.90	36.3	3.38	31.0	42.0	34.0, 38.5
	female	3	0.87	33.7	2.52	31.0	36.0	27.4, 39.9
	total	1352	0.52	19.5	9.90	3.0	69.0	18.9, 20.0
1.00-1.99	male	154	1.47	42.0	5.45	25.5	56.0	41.2, 42.9
	female	136	1.53	43.7	4.84	27.0	57.5	42.9, 44.5
	total	453	1.36	40.6	6.81	18.5	62.0	39.9, 41.2
2.00-2.99	male	106	2.40	48.4	4.45	36.5	56.5	47.5, 49.3
	female	111	2.41	49.2	4.37	39.0	60.0	48.4, 50.1
	total	217	2.41	48.8	4.42	36.5	60.0	48.2, 49.4
3.00-3.99	male	119	3.51	52.8	3.74	43.0	65.0	52.1, 53.5
	female	93	3.50	52.5	3.31	42.0	58.0	51.9, 53.2
	total	213	3.51	52.7	3.57	42.0	65.0	52.2, 53.1
4.00-4.99	male	67	4.40	54.8	3.57	43.0	61.0	54.0, 55.7
	female	82	4.37	54.1	4.13	46.0	64.0	53.2, 55.1
	total	150	4.39	54.4	3.88	43.0	64.0	53.8, 55.1
5.00-5.99	male	56	5.50	56.3	3.38	46.0	64.0	55.4, 57.2
	female	57	5.48	55.4	3.95	45.0	64.0	54.3, 56.4
	total	113	5.49	55.8	3.69	45.0	64.0	55.1, 56.5
6.00-6.99	male	66	6.61	57.6	4.09	47.0	67.0	56.6, 58.6
	female	42	6.49	57.1	4.01	49.0	64.0	55.8, 58.3
	total	108	6.56	57.4	4.05	47.0	67.0	56.6, 58.2
7.00-7.99	male	59	7.53	58.7	4.46	48.0	73.0	57.6, 59.9
	female	56	7.44	58.3	4.33	45.0	68.0	57.1, 59.4
	total	115	7.49	58.5	4.38	45.0	73.0	57.7, 59.3
8.00-8.99	male	45	8.54	59.6	4.12	52.5	68.0	58.4, 60.8
	female	58	8.46	60.2	4.59	49.0	69.5	59.0, 61.4
	total	103	8.50	60.0	4.38	49.0	69.5	59.0, 60.8
9.00-9.99	male	53	9.46	60.0	4.99	50.0	70.0	58.6, 61.3
	female	56	9.52	60.1	5.10	51.5	71.0	58.8, 61.5
	total	109	9.49	60.0	5.02	50.0	71.0	59.1, 61.0
10.0-10.99	male	27	10.46	60.6	4.29	51.5	69.0	58.9, 62.3
	female	24	10.45	62.6	4.72	56.0	71.5	60.6, 64.6
	total	51	10.45	61.5	4.57	51.5	71.5	60.2, 62.8

Table 6.8 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
11.0-11.99	male	24	11.47	60.7	4.49	49.0	69.0	58.8,	62.6
	female	20	11.52	61.4	7.14	52.5	75.0	58.0,	64.7
	total	44	11.49	61.0	5.78	49.0	75.0	59.3,	62.8
12.0-12.99	male	20	12.37	62.0	3.35	55.0	69.0	60.4,	63.6
	female	20	12.52	63.3	5.12	55.0	75.0	60.9,	65.7
	total	40	12.44	62.6	4.32	55.0	75.0	61.3,	64.0
13.0-13.99	male	11	13.56	64.0	2.61	59.0	67.0	62.2,	65.7
	female	8	13.34	61.9	3.29	56.0	65.5	59.2,	64.7
	total	19	13.47	63.1	3.0	56.0	67.0	61.7,	64.6
14.0-14.99	male	19	14.48	65.0	3.40	59.0	72.0	63.4,	66.7
	female	16	14.42	63.3	4.56	57.0	74.0	60.9,	65.8
	total	35	14.45	64.3	4.00	57.0	74.0	62.9,	65.6
15.0-15.99	male	7	15.45	62.4	5.38	54.0	71.0	57.4,	67.3
	female	12	15.43	63.3	5.66	52.0	72.0	59.7,	66.9
	total	19	15.44	62.9	5.43	52.0	72.0	60.3,	65.6
16.0-16.99	male	6	16.46	65.9	3.90	63.0	73.0	61.8,	70.0
	female	3	16.54	61.7	3.75	59.5	66.0	52.4,	71.0
	total	9	16.49	64.5	4.19	59.5	73.0	61.3,	67.7
17.0-17.99	male	6	17.57	66.5	4.23	62.0	73.0	62.1,	70.9
	female	3	17.48	68.8	3.69	66.0	73.0	59.7,	78.0
	total	9	17.54	67.3	3.99	62.0	73.0	64.2,	70.4
18.0-18.99	male	4	18.12	67.0	2.71	65.0	71.0	62.7,	71.3
	female	3	18.80	68.0	6.08	64.0	75.0	52.9,	83.1
	total	7	18.41	67.4	4.04	64.0	75.0	63.7,	71.2
19.0-19.99	male	-	-	-	-	-	-	-	-
	female	2	19.61	69.5	2.12	68.0	71.0	-	-
	total	2	19.61	69.5	2.12	68.0	71.0	-	-
20.0-20.99	male	1	20.02	67.0	-	67.0	67.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	20.02	67.0	-	67.0	67.0	-	-
22.0-22.99	male	1	22.24	68.5	-	68.5	68.5	-	-
	female	1	22.69	69.0	-	69.0	69.0	-	-
	total	2	22.46	68.8	0.35	68.5	69.0	-	-

Table 6.9 Length characteristics of age classes of male, female and total mussels sampled from Gulungul billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.01-0.99	male	18	0.75	41.0	3.90	29.0	45.5	39.1, 43.0
	female	16	0.75	39.4	4.30	33.0	49.5	37.1, 41.7
	total	34	0.75	40.3	4.11	29.0	49.5	38.8, 41.7
1.00-1.99	male	3	1.76	50.7	3.21	47.0	53.0	42.7, 58.7
	female	3	1.76	51.7	1.53	50.0	53.0	47.9, 55.5
	total	6	1.76	51.2	2.32	47.0	53.0	48.7, 53.6
2.00-2.99	male	1	2.76	54.5	-	54.5	54.5	- -
	female	-	-	-	-	-	-	- -
	total	1	2.76	54.5	-	54.5	54.5	- -
4.00-4.99	male	2	4.63	56.0	4.24	53.0	59.0	- -
	female	1	4.76	56.0	-	56.0	56.0	- -
	total	3	4.67	56.0	3.00	53.0	59.0	48.6, 63.5
5.00-5.99	male	2	5.76	59.0	0.71	58.5	59.5	- -
	female	-	-	-	-	-	-	- -
	total	2	5.76	59.0	0.71	58.5	59.5	- -
6.00-6.99	male	2	6.76	63.0	4.24	60.0	66.0	- -
	female	-	-	-	-	-	-	- -
	total	2	6.76	63.0	4.24	60.0	66.0	- -
7.00-7.99	male	4	7.76	62.8	4.99	59.0	70.0	54.8, 70.7
	female	8	7.74	61.6	2.24	57.0	64.0	59.7, 63.4
	total	12	7.75	62.0	3.22	57.0	70.0	59.9, 64.0
8.00-8.99	male	6	8.72	66.9	4.09	62.0	73.5	62.6, 71.2
	female	5	8.71	64.1	1.34	62.0	65.5	62.4, 65.8
	total	11	8.71	65.6	3.36	62.0	73.5	63.4, 67.9
9.00-9.99	male	1	9.63	66.5	-	66.5	66.5	- -
	female	1	9.63	63.5	-	63.5	63.5	- -
	total	2	9.63	65.0	2.12	63.5	66.5	- -
10.0-10.99	male	-	-	-	-	-	-	- -
	female	1	10.63	63.0	-	63.0	63.0	- -
	total	1	10.63	63.0	-	63.0	63.0	- -
11.0-11.99	male	2	11.76	75.5	13.44	66.0	85.0	- -
	female	2	11.70	69.5	4.95	66.0	73.0	- -
	total	4	11.73	72.5	8.96	66.0	85.0	58.3, 86.8
12.0-12.99	male	1	12.63	72.5	-	72.5	72.5	- -
	female	-	-	-	-	-	-	- -
	total	1	12.63	72.5	-	72.5	72.5	- -

Table 6.10 Length characteristics of age classes of male, female and total mussels sampled from Corndorl billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	1	0.93	35.5	-	35.5	35.5	-	-
	total	1	0.93	35.5	-	35.5	35.5	-	-
1.00-1.99	male	16	1.35	37.7	4.42	32.0	47.0	35.4,	40.1
	female	18	1.33	39.1	4.65	33.0	47.0	36.8,	41.4
	total	34	1.34	38.4	4.52	32.0	47.0	36.9,	40.0
2.00-2.99	male	8	2.47	46.3	2.37	44.0	50.0	44.3,	48.3
	female	10	2.70	47.2	4.41	41.0	55.0	44.0,	50.3
	total	18	2.60	46.8	3.58	41.0	55.0	45.0,	48.6
3.00-3.99	male	21	3.44	50.4	2.64	47.0	56.5	49.2,	51.6
	female	32	3.48	49.2	3.00	42.5	58.0	48.1,	50.3
	total	53	3.46	49.7	2.92	42.5	58.0	48.9,	50.5
4.00-4.99	male	57	4.57	51.8	3.34	46.0	61.0	50.9,	52.6
	female	48	4.52	51.6	3.74	45.5	63.0	50.5,	52.7
	total	105	4.54	51.7	3.51	45.5	63.0	51.0,	52.4
5.00-5.99	male	79	5.53	53.9	4.38	45.0	66.0	52.9,	54.8
	female	54	5.53	53.7	4.59	45.0	63.0	52.4,	54.9
	total	133	5.53	53.8	4.45	45.0	66.0	53.0,	54.6
6.00-6.99	male	77	6.54	56.3	4.58	47.0	66.0	55.3,	57.4
	female	65	6.55	56.4	4.31	45.0	64.0	55.4,	57.5
	total	142	6.54	56.4	4.44	45.0	66.0	55.6,	57.1
7.00-7.99	male	64	7.36	58.2	4.23	50.0	67.0	57.2,	59.3
	female	61	7.50	58.0	4.95	43.0	67.0	56.8,	59.3
	total	126	7.43	58.2	4.57	43.0	67.0	57.4,	59.0
8.00-8.99	male	56	8.38	60.8	4.52	51.0	77.0	59.6,	62.0
	female	45	8.40	58.9	4.93	48.0	67.0	57.5,	60.4
	total	101	8.39	60.0	4.77	48.0	77.0	59.0,	60.9
9.00-9.99	male	33	9.30	60.1	4.91	50.0	70.0	58.4,	61.8
	female	19	9.25	59.2	5.42	45.5	67.5	56.6,	61.9
	total	52	9.28	59.8	5.10	45.5	70.0	58.4,	61.2
10.0-10.99	male	23	10.1	60.0	5.55	52.0	71.5	57.6,	62.4
	female	13	10.23	59.2	5.79	51.0	70.0	55.7,	62.7
	total	36	10.20	59.7	5.56	51.0	71.5	57.9,	61.6
11.0-11.99	male	12	11.12	58.8	4.37	53.0	70.0	56.0,	61.5
	female	14	11.21	60.3	6.11	52.0	70.0	56.7,	63.8
	total	26	11.17	59.6	5.33	52.0	70.0	57.4,	61.7
12.0-12.99	male	5	12.21	63.7	2.39	59.5	65.0	60.7,	66.7
	female	-	-	-	-	-	-	-	-
	total	5	12.21	63.7	2.39	59.5	65.0	60.7,	66.7
13.0-13.99	male	4	13.35	68.8	2.36	67.0	72.0	65.0,	72.5
	female	6	13.26	65.7	5.47	56.0	73.0	59.9,	71.4
	total	10	13.30	66.9	4.58	56.0	73.0	63.6,	70.2
14.0-14.99	male	3	14.25	71.5	3.12	68.0	74.0	63.8,	79.3
	female	3	14.34	66.5	6.72	59.0	72.0	49.8,	83.2
	total	6	14.29	69.0	5.43	59.0	74.0	63.3,	74.7
15.0-15.99	male	2	15.29	67.3	6.01	63.0	71.5	-	-
	female	4	15.61	72.1	8.51	59.5	78.0	58.6,	85.7
	total	6	15.50	70.5	7.55	59.5	78.0	62.6,	78.4
16.0-16.99	male	1	16.12	66.0	-	66.0	66.0	-	-
	female	2	16.46	66.3	9.55	59.5	73.0	-	-
	total	3	16.35	66.2	6.75	59.5	73.0	49.4,	82.9
17.0-17.99	male	1	17.8	72.5	-	72.5	72.5	-	-
	female	2	17.38	67.3	6.01	63.0	71.5	-	-
	total	3	17.52	69.0	5.22	63.0	72.5	56.0,	82.0
19.0-19.99	male	1	19.64	80.0	-	80.0	80.0	-	-
	female	1	19.64	80.0	-	80.0	80.0	-	-
	total	2	19.64	80.0	-	80.0	80.0	-	-

Table 6.11 Length characteristics of age classes of male, female and total mussels sampled from the Magela Creek channel. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	3	0.97	29.5	3.12	26.0	32.0	21.8	37.3
	total	3	0.97	29.5	3.12	26.0	32.0	21.8	37.3
1.00-1.99	male	109	1.55	39.4	3.98	28.0	51.0	38.6	40.2
	female	104	1.46	40.2	4.03	32.0	54.5	39.4	40.9
	total	219	1.50	39.6	4.24	26.5	54.5	39.0	40.1
2.00-2.99	male	96	2.47	45.6	4.23	34.0	54.0	44.7	46.4
	female	111	2.44	46.4	3.97	36.0	57.0	45.6	47.1
	total	211	2.46	45.9	4.10	34.0	57.0	45.4	46.5
3.00-3.99	male	94	3.55	49.5	3.29	40.0	56.0	48.9	50.2
	female	72	3.52	50.3	4.29	40.0	59.5	49.3	51.3
	total	168	3.54	49.8	3.80	40.0	59.5	49.2	50.4
4.00-4.99	male	69	4.51	51.3	4.31	33.0	58.0	50.3	52.3
	female	79	4.54	52.4	3.61	44.0	59.0	51.6	53.2
	total	149	4.53	51.9	3.97	33.0	59.0	51.2	52.5
5.00-5.99	male	64	5.56	53.8	4.12	45.0	65.0	52.8	54.9
	female	64	5.51	54.1	3.83	43.5	63.0	53.1	55.0
	total	130	5.54	53.9	4.01	43.5	65.0	53.2	54.6
6.00-6.99	male	64	6.51	55.3	4.06	42.0	65.0	54.3	56.4
	female	36	6.45	56.0	4.48	48.0	64.0	54.5	57.5
	total	100	6.49	55.6	4.20	42.0	65.0	54.7	56.4
7.00-7.99	male	41	7.50	56.2	3.65	47.0	62.0	55.0	57.3
	female	29	7.54	57.4	4.18	51.0	66.0	55.9	59.0
	total	71	7.52	56.6	3.90	47.0	66.0	55.7	57.6
8.00-8.99	male	25	8.51	56.4	4.25	48.0	69.5	54.6	58.2
	female	17	8.59	57.4	3.22	52.0	63.0	55.8	59.1
	total	42	8.54	56.8	3.86	48.0	69.5	55.6	58.0
9.00-9.99	male	19	9.57	57.4	4.46	51.0	67.0	55.3	59.6
	female	14	9.47	59.1	3.17	53.0	64.0	57.3	61.0
	total	33	9.53	58.2	4.00	51.0	67.0	56.8	59.6
10.0-10.99	male	3	10.30	55.7	4.93	50.0	59.0	43.4	67.9
	female	11	10.40	58.9	3.85	54.5	66.0	56.3	61.5
	total	14	10.38	58.2	4.13	50.0	66.0	55.8	60.6
11.0-11.99	male	6	11.74	61.8	2.89	58.0	66.0	58.7	64.8
	female	4	11.73	59.1	4.13	55.0	64.5	52.6	65.7
	total	10	11.73	60.7	3.49	55.0	66.0	58.2	63.2
12.0-12.99	male	2	12.46	57.0	2.83	55.0	59.0	-	-
	female	-	-	-	-	-	-	-	-
	total	2	12.46	57.0	2.83	55.0	59.0	-	-
15.0-15.99	male	1	15.13	61.0	-	61.0	61.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	15.13	61.0	-	61.0	61.0	-	-

Table 6.12 Length characteristics of age classes of male, female and total mussels sampled from Mudginberri billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.01-0.99	male	55	0.75	37.0	3.82	29.0	46.0	36.0, 38.0
	female	31	0.80	39.3	3.89	29.0	47.0	37.9, 40.7
	total	650	0.37	22.7	18.17	2.0	68.5	21.3, 24.1
1.00-1.99	male	22	1.36	45.0	5.97	31.0	59.0	42.4, 47.7
	female	29	1.30	45.8	6.01	33.0	65.0	43.5, 48.1
	male	194	1.37	44.9	6.16	20.5	66.0	44.1, 45.8
2.00-2.99	male	30	2.43	49.4	3.35	43.5	55.0	48.1, 50.6
	female	33	2.38	48.2	4.64	32.0	57.0	46.6, 49.9
	total	63	2.40	48.7	4.09	32.0	57.0	47.7, 49.8
3.00-3.99	male	38	3.43	52.1	3.45	44.0	58.0	51.0, 53.2
	female	38	3.48	53.8	4.33	45.0	64.0	52.3, 55.2
	total	76	3.45	52.9	3.97	44.0	64.0	52.0, 53.8
4.00-4.99	male	32	4.48	54.4	3.73	47.0	61.0	53.0, 55.7
	female	39	4.53	54.9	3.02	48.0	63.0	53.9, 55.9
	total	71	4.50	54.7	3.34	47.0	63.0	53.9, 55.4
5.00-5.99	male	49	5.42	55.1	2.68	49.5	61.5	54.3, 55.8
	female	47	5.46	55.5	4.00	48.0	64.0	54.4, 56.7
	total	96	5.44	55.3	3.38	48.0	64.0	54.6, 56.0
6.00-6.99	male	69	6.49	56.7	3.30	50.0	64.5	55.9, 57.5
	female	38	6.54	57.8	2.65	51.0	63.0	57.0, 58.7
	total	108	6.50	57.2	3.20	50.0	65.0	56.6, 57.8
7.00-7.99	male	73	7.53	57.8	3.32	51.0	66.0	57.0, 58.5
	female	69	7.43	58.9	3.68	49.0	67.0	58.1, 59.8
	total	142	7.48	58.3	3.53	49.0	67.0	57.8, 58.9
8.00-8.99	male	74	8.46	58.6	4.14	48.0	70.0	57.6, 59.6
	female	62	8.50	59.4	4.47	49.0	68.0	58.3, 60.6
	total	136	8.48	59.0	4.30	48.0	70.0	58.3, 59.7
9.00-9.99	male	49	9.50	59.3	4.90	39.0	69.0	57.9, 60.7
	female	42	9.38	58.3	3.92	48.0	66.5	57.1, 59.5
	total	91	9.45	58.9	4.48	39.0	69.0	57.9, 59.8
10.0-10.99	male	47	10.37	59.6	3.64	48.0	66.0	58.5, 60.7
	female	36	10.54	60.7	4.36	53.0	72.0	59.3, 62.2
	total	83	10.44	60.1	3.98	48.0	72.0	59.2, 61.0
11.0-11.99	male	25	11.50	61.5	4.23	53.5	69.0	59.7, 63.2
	female	35	11.50	61.4	4.45	51.0	68.0	59.9, 63.0
	total	60	11.50	61.5	4.32	51.0	69.0	60.3, 62.6
12.0-12.99	male	29	12.53	59.8	3.65	52.0	65.0	58.4, 61.2
	female	37	12.48	61.6	5.48	50.0	79.0	59.8, 63.5
	total	66	12.50	60.8	4.82	50.0	79.0	59.6, 61.8
13.0-13.99	male	31	13.47	61.4	5.20	55.0	82.0	59.5, 63.3
	female	40	13.53	61.7	4.11	51.0	72.0	60.2, 63.1
	total	71	13.50	61.5	4.58	51.0	82.0	60.4, 62.6
14.0-14.99	male	39	14.48	59.9	3.96	52.0	66.5	58.6, 61.1
	female	28	14.52	62.6	4.31	51.0	70.0	60.9, 64.2
	total	67	14.50	61.0	4.29	51.0	70.0	59.9, 62.0

Table 6.12 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
15.0-15.99	male	24	15.38	61.7	3.98	54.0	67.0	60.0, 63.4
	female	34	15.43	63.3	3.96	56.0	72.0	61.9, 64.6
	total	58	15.41	62.6	4.02	54.0	72.0	61.5, 63.7
16.0-16.99	male	41	16.37	62.6	4.05	56.5	72.0	61.3, 63.9
	female	29	16.37	62.8	4.08	51.5	67.5	61.2, 64.3
	total	70	16.37	62.7	4.04	51.5	72.0	61.7, 63.6
17.0-17.99	male	33	17.44	62.3	4.27	55.0	75.0	60.8, 63.8
	female	33	17.43	64.1	5.08	52.0	73.0	62.3, 65.9
	total	67	17.43	63.1	4.85	52.0	75.0	61.9, 64.2
18.0-18.99	male	26	18.49	62.1	3.62	53.0	66.5	60.6, 63.6
	female	27	18.45	65.9	3.68	59.5	76.5	64.4, 67.4
	total	53	18.47	64.0	4.09	53.0	76.5	62.9, 65.2
19.0-19.99	male	23	19.50	63.7	3.88	59.0	71.0	62.0, 65.4
	female	25	19.46	63.6	3.06	57.0	69.0	62.4, 64.9
	total	49	19.47	63.6	3.47	57.0	71.0	62.6, 64.6
20.0-20.99	male	22	20.49	62.7	3.64	55.0	70.5	61.1, 64.3
	female	23	20.43	63.0	3.74	57.0	72.0	61.4, 64.6
	total	45	20.46	62.9	3.65	55.0	72.0	61.7, 64.0
21.0-21.99	male	26	21.46	63.1	3.52	56.0	68.0	61.7, 64.6
	female	22	21.46	64.1	4.22	56.0	72.0	62.2, 66.0
	total	48	21.46	63.6	3.84	56.0	72.0	62.5, 64.7
22.0-22.99	male	9	22.57	63.5	2.32	62.0	69.0	61.7, 65.3
	female	14	22.50	64.9	2.99	60.0	70.0	63.1, 66.6
	total	23	22.53	64.3	2.77	60.0	70.0	63.1, 65.5
23.0-23.99	male	11	23.44	65.6	3.77	57.0	71.5	63.1, 68.1
	female	11	23.45	64.5	4.29	55.0	70.0	61.6, 67.3
	total	23	23.44	65.1	3.90	55.0	71.5	63.4, 66.8
24.0-24.99	male	8	24.64	62.8	3.82	59.0	71.0	59.6, 66.0
	female	6	24.36	67.7	3.56	63.0	73.0	63.9, 71.4
	total	14	24.52	64.9	4.35	59.0	73.0	62.4, 67.4
25.0-25.99	male	8	25.40	61.3	5.84	56.0	75.0	56.4, 66.1
	female	8	25.46	63.5	3.59	58.0	70.0	60.5, 66.5
	total	16	25.43	62.4	4.83	56.0	75.0	59.8, 65.0
26.0-26.99	male	5	26.58	61.1	4.62	56.0	68.5	55.4, 66.8
	female	7	26.42	66.0	6.38	58.0	75.0	60.1, 71.9
	total	12	26.49	64.0	6.02	56.0	75.0	60.1, 67.8
27.0-27.99	male	4	27.36	67.8	5.12	62.0	73.0	59.6, 75.9
	female	1	27.42	60.0	-	60.0	60.0	- -
	total	5	27.37	66.2	5.63	60.0	73.0	59.2, 73.2
28.0-28.99	male	3	28.48	65.0	2.00	63.0	67.0	60.0, 70.0
	female	1	28.76	70.0	-	70.0	70.0	- -
	total	4	28.55	66.3	2.99	63.0	70.0	61.5, 71.0
29.0-29.99	male	3	29.41	69.0	3.91	64.5	71.5	59.3, 78.7
	female	-	-	-	-	-	-	- -
	total	3	29.41	69.0	3.91	64.5	71.5	59.3, 78.7
32.0-32.99	male	1	32.43	63.0	-	63.0	63.0	0 -
	female	-	-	-	-	-	-	- -
	total	1	32.43	63.0	-	63.0	63.0	0 -

Table 6.13 Length characteristics of age classes of male, female and total mussels sampled from Buffalo billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.01-0.99	male	4	0.78	33.5	8.73	24.5	44.5	19.6, 47.4
	female	5	0.78	31.1	2.38	32.5	38.5	33.2, 39.1
	total	174	0.30	12.2	9.32	2.5	44.5	10.8, 13.6
1.00-1.99	male	35	1.23	41.4	3.58	33.5	48.5	40.2, 42.6
	female	20	1.39	44.0	3.90	34.5	50.5	42.2, 45.9
	total	55	1.28	42.4	3.87	33.5	50.5	41.3, 43.4
2.00-2.99	male	18	2.30	46.4	2.22	42.0	50.5	45.3, 47.5
	female	26	2.36	47.9	3.70	41.5	55.5	46.4, 49.4
	total	44	2.33	47.3	3.24	41.5	55.5	46.3, 48.3
3.00-3.99	male	17	3.26	48.9	3.70	39.5	52.5	47.0, 50.8
	female	16	3.22	51.0	3.46	44.5	58.5	49.2, 52.8
	total	33	3.24	49.9	3.70	39.5	58.5	48.6, 51.2
4.00-4.99	male	20	4.19	52.4	3.48	47.5	58.0	50.8, 54.0
	female	18	4.25	52.7	3.61	43.0	57.0	50.9, 54.5
	total	38	4.22	52.5	3.50	43.0	58.0	51.4, 53.7
5.00-5.99	male	20	5.29	54.3	3.37	49.0	61.0	52.7, 55.9
	female	19	5.38	56.6	4.18	49.5	63.5	54.6, 58.6
	total	39	5.33	55.4	3.91	49.0	63.5	54.1, 56.7
6.00-6.99	male	35	6.39	56.6	4.90	47.5	73.0	55.0, 58.3
	female	30	6.38	56.7	5.15	48.0	71.0	54.7, 58.6
	total	65	6.38	56.7	4.98	47.5	73.0	55.4, 57.9
7.00-7.99	male	48	7.34	57.5	3.59	48.0	66.0	56.5, 58.6
	female	44	7.36	58.2	3.98	51.5	68.5	57.0, 59.4
	total	92	7.35	57.9	3.78	48.0	68.5	57.1, 58.6
8.00-8.99	male	46	8.35	59.3	4.47	51.0	70.0	58.0, 60.7
	female	30	8.34	59.4	3.43	52.0	67.0	58.1, 60.7
	total	76	8.35	59.3	4.07	51.0	70.0	58.4, 60.3
9.00-9.99	male	42	9.28	59.5	3.48	52.0	68.0	58.4, 60.5
	female	34	9.24	57.9	4.56	45.0	66.5	56.4, 59.5
	total	77	9.27	58.8	4.03	45.0	68.0	57.9, 59.7
10.0-10.99	male	30	10.42	61.1	3.55	54.5	68.0	59.8, 62.5
	female	33	10.32	60.2	5.14	49.0	70.0	58.4, 62.1
	total	63	10.37	60.7	4.44	49.0	70.0	59.5, 61.8
11.0-11.99	male	33	11.31	60.5	3.13	54.5	66.0	59.4, 61.6
	female	21	11.27	61.3	5.06	54.0	74.0	59.0, 63.6
	total	54	11.29	60.8	3.96	54.0	74.0	59.7, 61.9
12.0-12.99	male	20	12.29	60.9	5.31	51.0	74.5	58.5, 63.4
	female	22	12.30	60.2	3.66	53.0	66.5	58.6, 61.8
	total	42	12.30	60.6	4.48	51.0	74.5	59.2, 62.0
13.0-13.99	male	27	13.35	59.6	4.32	48.5	67.0	57.9, 61.3
	female	25	13.38	61.2	5.16	50.0	75.0	59.1, 63.4
	total	52	13.37	60.4	4.77	48.5	75.0	59.1, 61.7
14.0-14.99	male	15	14.25	60.2	2.67	56.0	66.0	58.8, 61.7
	female	19	14.31	60.5	4.60	53.0	69.0	58.3, 62.7
	total	34	14.28	60.4	3.80	53.0	69.0	59.0, 61.7
15.0-15.99	male	26	15.41	60.8	4.03	50.5	68.0	59.2, 62.4
	female	15	15.25	61.0	3.25	56.5	68.0	59.2, 62.8
	total	41	15.35	60.9	3.72	50.5	68.0	59.7, 62.0
16.0-16.99	male	26	16.30	61.9	4.04	50.0	68.0	60.3, 63.6
	female	18	16.35	62.4	4.35	55.5	70.0	60.2, 64.6
	total	44	16.32	62.1	4.12	50.0	70.0	60.9, 63.4

Table 6.13 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
17.0-17.99	male	22	17.28	61.1	3.87	53.0	67.0	59.4, 62.8
	female	19	17.27	61.7	4.71	53.0	76.0	59.4, 64.0
	total	41	17.28	61.4	4.24	53.0	76.0	60.0, 62.7
18.0-18.99	male	27	18.33	60.7	4.27	49.0	67.5	59.0, 62.4
	female	17	18.40	63.0	3.99	55.0	68.5	60.9, 65.0
	total	44	18.36	61.6	4.27	49.0	68.5	60.3, 62.9
19.0-19.99	male	33	19.42	61.5	5.11	50.5	70.5	59.7, 63.3
	female	18	19.38	60.1	4.87	54.5	72.0	57.7, 62.5
	total	51	19.41	61.0	5.02	50.5	72.0	59.6, 62.4
20.0-20.99	male	23	20.31	61.1	6.38	53.0	83.5	58.3, 63.8
	female	29	20.31	62.8	5.55	53.0	81.0	60.7, 64.9
	total	52	20.31	62.0	5.93	53.0	83.5	60.4, 63.7
21.0-21.99	male	26	21.29	61.8	4.81	53.0	71.0	59.9, 63.8
	female	23	21.37	62.1	4.83	55.5	71.5	60.0, 64.2
	total	49	21.33	62.0	4.77	53.0	71.5	60.6, 63.3
22.0-22.99	male	20	22.39	58.6	4.19	51.5	67.5	56.6, 60.6
	female	22	22.41	63.9	5.31	51.5	73.5	61.5, 66.2
	total	42	22.40	61.4	5.46	51.5	73.5	59.7, 63.1
23.0-23.99	male	23	23.25	61.8	5.61	50.0	71.5	59.4, 64.3
	female	20	23.43	61.1	3.70	54.0	69.0	59.4, 62.8
	total	43	23.33	61.5	4.78	50.0	71.5	60.0, 63.0
24.0-24.99	male	28	24.39	61.7	5.09	49.0	69.0	59.7, 63.7
	female	14	24.5	62.6	3.09	59.0	69.0	60.8, 64.4
	total	42	24.43	62.0	4.50	49.0	69.0	60.6, 63.4
25.0-25.99	male	13	25.42	62.6	2.35	59.5	66.5	61.2, 64.0
	female	14	25.40	61.6	4.97	53.0	69.0	58.7, 64.4
	total	27	25.41	62.1	3.90	53.0	69.0	60.5, 63.6
26.0-26.99	male	11	26.35	63.4	4.23	56.5	69.0	60.6, 66.3
	female	10	26.33	60.3	4.76	53.0	67.5	56.9, 63.7
	total	21	26.34	61.9	4.65	53.0	69.0	59.8, 64.1
27.0-27.99	male	7	27.38	62.7	3.87	59.5	71.0	59.1, 66.3
	female	9	27.28	62.1	6.52	52.0	74.0	57.1, 67.1
	total	16	27.32	62.3	5.36	52.0	74.0	59.5, 65.2
28.0-28.99	male	10	28.38	61.4	4.31	55.0	67.0	58.3, 64.4
	female	10	28.21	60.7	5.71	50.5	69.5	56.6, 64.7
	total	20	28.30	61.0	4.94	50.5	69.5	58.7, 63.3
29.0-29.99	male	3	29.17	66.2	5.97	62.0	73.0	51.3, 81.0
	female	2	29.27	57.3	0.35	57.0	57.5	-
	total	5	29.21	62.6	6.46	57.0	73.0	54.6, 70.6
30.0-30.99	male	5	30.37	58.9	5.72	52.5	66.5	51.8, 66.0
	female	6	30.48	67.1	3.51	64.5	74.0	63.4, 70.8
	total	11	30.43	63.4	6.12	52.5	74.0	59.3, 67.5
31.0-31.99	male	3	31.45	66.7	4.51	62.0	71.0	55.5, 77.9
	female	1	31.78	64.0	-	64.0	64.0	-
	total	4	31.54	66.0	3.92	62.0	71.0	59.8, 72.2
32.0-32.99	male	1	32.50	64.0	-	64.0	64.0	-
	female	4	32.09	62.0	6.52	55.5	71.0	51.6, 72.4
	total	5	32.17	62.4	5.72	55.5	71.0	55.3, 69.5
33.0-33.99	male	1	33.04	63.5	-	63.5	63.5	-
	female	1	33.50	64.0	-	64.0	64.0	-
	total	2	33.27	63.8	0.35	63.5	64.0	-
34.0-34.99	male	1	34.23	67.0	-	67.0	67.0	-
	female	-	-	-	-	-	-	-
	total	1	34.23	67.0	-	67.0	67.0	-
35.0-35.99	male	2	35.37	59.8	4.60	56.5	63.0	-
	female	-	-	-	-	-	-	-
	total	2	35.37	59.8	4.60	56.5	63.0	-

Table 6.14 Length characteristics of age classes of male, female and total mussels sampled from the Island billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.01-0.99	male	3	0.80	49.0	8.0	41.0	57.0	29.1, 68.9
	female	4	0.77	45.9	3.12	42.5	49.0	40.9, 50.8
	total	7	0.78	47.2	5.38	41.0	57.0	42.2, 52.2
1.00-1.99	male	44	1.39	51.3	5.72	42.0	61.0	49.5, 53.0
	female	43	1.38	52.5	5.04	43.0	66.0	50.9, 54.0
	total	87	1.38	51.9	5.39	42.0	66.0	50.7, 53.0
2.00-2.99	male	39	2.46	60.7	4.84	51.0	69.0	59.1, 62.2
	female	25	2.44	62.6	4.74	53.0	70.5	60.7, 64.6
	total	64	2.45	61.4	4.86	51.0	70.5	60.2, 62.7
3.00-3.99	male	46	3.51	65.5	4.14	53.5	75.0	64.3, 66.7
	female	46	3.38	66.1	5.07	50.0	74.0	64.6, 67.6
	total	92	3.45	65.8	4.61	50.0	75.0	64.8, 66.7
4.00-4.99	male	41	4.36	67.5	3.51	54.0	72.0	66.4, 68.7
	female	46	4.40	69.6	3.79	61.0	77.0	68.5, 70.8
	total	87	4.38	68.7	3.79	54.0	77.0	67.9, 69.5
5.00-5.99	male	69	5.48	72.5	5.19	58.0	87.5	71.3, 73.7
	female	62	5.46	73.0	4.94	55.0	83.0	71.8, 74.3
	total	133	5.46	72.7	5.04	55.0	87.5	71.9, 73.6
6.00-6.99	male	81	6.43	75.8	4.86	63.0	88.0	74.7, 76.9
	female	84	6.40	74.9	5.14	61.5	92.0	73.8, 76.1
	total	166	6.41	75.4	5.00	61.5	92.0	74.6, 76.1
7.00-7.99	male	51	7.40	78.8	5.94	60.0	94.0	77.1, 80.5
	female	49	7.48	76.3	4.60	60.0	89.0	74.9, 77.6
	total	100	7.44	77.6	5.45	60.0	94.0	76.5, 78.6
8.00-8.99	male	17	8.50	81.4	4.94	73.0	91.0	78.8, 83.9
	female	22	8.55	80.2	5.34	69.5	89.0	77.8, 82.6
	total	39	8.53	80.7	5.13	69.5	91.0	79.1, 82.4
9.00-9.99	male	19	9.39	78.8	6.66	66.0	90.0	75.6, 82.0
	female	11	9.50	80.5	4.99	69.0	86.0	77.1, 83.8
	total	30	9.43	79.4	6.06	66.0	90.0	77.1, 81.7
10.0-10.99	male	6	10.41	78.4	3.81	73.5	83.0	74.4, 82.4
	female	8	10.40	83.9	3.82	78.5	88.5	80.8, 87.1
	total	14	10.40	81.6	4.64	73.5	88.5	78.9, 84.3
11.0-11.99	male	11	11.36	85.3	3.43	79.0	90.0	83.0, 87.6
	female	8	11.61	86.8	5.76	79.5	95.0	82.0, 91.6
	total	19	11.47	85.9	4.48	79.0	95.0	83.8, 88.1
12.0-12.99	male	6	12.40	83.3	3.0	79.0	87.0	80.1, 86.4
	female	6	12.44	85.4	4.76	81.5	92.0	80.4, 90.4
	total	12	12.42	84.3	3.96	79.0	92.0	81.8, 86.9
13.0-13.99	male	6	13.70	87.8	4.43	82.0	95.0	83.2, 92.5
	female	1	13.74	84.5	-	84.5	84.5	-
	total	7	13.70	87.4	4.24	82.0	95.0	84.8, 89.9
14.0-14.99	male	5	14.18	85.4	2.77	81.5	88.0	82.0, 88.8
	female	1	14.17	89.0	-	89.0	89.0	-
	total	6	14.18	86.0	2.88	81.5	89.0	83.0, 89.0
15.0-15.99	male	2	15.71	88.8	0.35	88.5	89.0	-
	female	1	15.32	79.0	-	79.0	79.0	-
	total	3	15.58	85.5	5.63	79.0	89.0	71.5, 99.5
16.0-16.99	male	3	16.40	89.0	5.57	83.0	94.0	75.2, 102.8
	female	-	-	-	-	-	-	-
	total	3	16.4	89.0	5.57	83.0	94.0	75.2, 102.8
17.0-17.99	male	1	17.41	96.0	-	96.0	96.0	-
	female	1	17.18	91.5	-	91.5	91.5	-
	total	2	17.30	93.8	3.18	91.5	96.0	-
19.0-19.99	male	1	19.7	86.0	-	86.0	86.0	-
	female	-	-	-	-	-	-	-
	total	1	19.74	86.0	-	86.0	86.0	-

Table 6.15 Length characteristics of age classes of male, female and total mussels sampled from the Hidden billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	1	0.08	48.0	-	48.0	48.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	0.08	48.0	-	48.0	48.0	-	-
1.00-1.99	male	2	1.08	37.8	13.08	28.5	47.0	-	-
	female	2	1.08	48.3	0.35	48.0	48.5	-	-
	total	4	1.08	43.0	9.69	28.5	48.5	27.6, 58.4	
2.00-2.99	male	5	2.08	54.7	3.03	50.5	58.0	50.9, 58.5	
	female	3	2.08	57.0	2.00	55.0	59.0	52.0, 62.0	
	total	8	2.08	55.6	2.80	50.5	59.0	53.2, 57.9	
3.00-3.99	male	1	3.08	53.5	-	53.5	53.5	-	-
	female	1	3.08	62.0	-	62.0	62.0	-	-
	total	2	3.08	57.8	6.01	53.5	62.0	-	-
4.00-4.99	male	1	4.08	71.5	-	71.5	71.5	-	-
	female	3	4.08	67.0	6.24	62.0	74.0	51.5, 82.5	
	total	4	4.08	68.1	5.57	62.0	74.0	59.3, 77.0	
5.00-5.99	male	2	5.08	66.0	1.41	65.0	67.0	-	-
	female	2	5.08	69.5	5.66	65.5	73.5	-	-
	total	4	5.08	67.8	3.93	65.0	73.5	61.5, 74.0	
6.00-6.99	male	2	6.08	64.3	0.35	64.0	64.5	-	-
	female	3	6.08	68.2	7.65	63.5	77.0	49.2, 87.2	
	total	5	6.08	66.6	5.82	63.5	77.0	59.4, 73.8	
7.00-7.99	male	5	7.08	67.9	4.48	61.0	72.0	62.3, 73.5	
	female	4	7.08	72.0	6.48	63.0	78.0	61.7, 82.3	
	total	9	7.08	69.7	5.52	61.0	78.0	65.5, 74.0	
8.00-8.99	male	2	8.08	79.3	1.77	78.0	80.5	-	-
	female	5	8.08	71.1	5.07	66.0	78.5	64.8, 77.4	
	total	7	8.08	73.4	5.78	66.0	80.5	68.1, 78.8	
9.00-9.99	male	1	9.08	70.0	-	70.0	70.0	-	-
	female	1	9.08	78.5	-	78.5	78.5	-	-
	total	2	9.08	74.3	6.01	70.0	78.5	-	-
10.0-10.99	male	1	10.08	71.0	-	71.0	71.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	10.08	71.0	-	71.0	71.0	-	-
11.0-11.99	male	1	11.08	87.0	-	87.0	87.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	11.08	87.0	-	87.0	87.0	-	-

Table 6.16 Length characteristics of age classes of male, female and total mussels sampled from JaJa billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	-	-	-	-	-	-	-	-
	female	1	0.84	49.5	-	49.5	49.5	-	-
	total	2	0.52	37.3	17.32	25.0	49.5	-	-
1.00-1.99	male	7	1.52	55.9	8.99	43.0	73.0	47.6	64.2
	female	7	1.31	48.3	2.86	44.5	53.0	45.7	50.9
	total	14	1.41	52.1	7.51	43.0	73.0	47.7	56.4
2.00-2.99	male	8	2.38	54.7	2.17	52.0	58.5	52.9	56.5
	female	11	2.37	56.0	4.09	48.5	61.0	53.3	58.8
	total	19	2.38	55.5	3.41	48.5	61.0	53.8	57.1
3.00-3.99	male	7	3.40	58.2	2.38	54.0	61.0	56.0	60.4
	female	4	3.40	59.8	4.27	57.0	66.0	53.0	66.5
	total	11	3.40	58.8	3.08	54.0	66.0	55.7	59.9
4.00-4.99	male	10	4.31	64.2	2.93	60.5	69.0	62.1	66.3
	female	4	4.64	66.1	1.84	64.0	68.5	63.2	69.1
	total	14	4.40	64.7	2.76	60.5	69.0	63.1	66.3
5.00-5.99	male	11	5.34	65.2	5.34	55.0	72.5	61.6	68.8
	female	9	5.38	66.0	3.78	57.0	69.0	63.1	68.9
	total	20	5.36	65.6	4.60	55.0	72.5	63.4	67.7
6.00-6.99	male	20	6.48	68.6	5.32	57.0	79.0	66.1	71.0
	female	14	6.45	69.6	2.56	66.0	75.5	68.1	71.1
	total	34	6.47	69.0	4.38	57.0	79.0	67.5	70.5
7.00-7.99	male	17	7.59	71.1	5.96	52.0	80.0	68.0	74.1
	female	24	7.43	71.9	4.62	64.0	82.5	70.0	73.9
	total	41	7.50	71.6	5.16	52.0	82.5	69.9	73.2
8.00-8.99	male	17	8.42	74.2	3.21	68.0	80.0	72.6	75.9
	female	22	8.40	73.9	4.37	66.0	86.5	71.9	75.8
	total	39	8.41	74.0	3.87	66.0	86.5	72.8	75.3
9.00-9.99	male	15	9.39	74.5	3.97	68.0	82.0	72.3	76.7
	female	14	9.36	74.4	3.88	68.0	79.0	72.1	76.6
	total	29	9.38	74.4	3.86	68.0	82.0	72.9	75.9
10.0-10.99	male	6	10.32	74.3	2.80	71.0	79.0	71.4	77.3
	female	12	10.32	74.6	3.81	69.0	81.0	72.2	77.1
	total	18	10.32	74.5	3.42	69.0	81.0	72.8	76.2
11.0-11.99	male	6	11.26	76.3	6.43	72.0	89.0	69.5	83.0
	female	14	11.38	75.5	4.55	67.0	82.0	72.9	78.2
	total	20	11.34	75.8	5.01	67.0	89.0	73.4	78.1

Table 6.16 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
12.0-12.99	male	11	12.31	78.3	4.68	69.5	84.0	75.1, 81.4
	female	7	12.46	78.6	6.54	68.5	86.0	72.6, 84.7
	total	18	12.37	78.4	5.29	68.5	86.0	75.8, 81.1
13.0-13.99	male	12	13.41	79.8	2.43	76.0	84.0	78.2, 81.3
	female	11	13.37	82.3	4.84	75.0	90.0	79.0, 85.5
	total	23	13.39	81.0	3.91	75.0	90.0	79.3, 82.7
14.0-14.99	male	4	14.41	84.4	1.80	83.0	87.0	81.5, 87.2
	female	8	14.36	81.3	1.28	79.0	83.0	80.2, 82.4
	total	12	14.38	82.3	2.05	79.0	87.0	81.0, 83.6
15.0-15.99	male	5	15.37	87.6	7.96	77.0	98.0	77.7, 97.5
	female	7	15.57	82.8	6.59	74.0	93.0	76.7, 88.9
	total	13	15.47	84.6	6.99	74.0	98.0	80.4, 88.8
16.0-16.99	male	7	16.29	84.5	6.28	73.5	91.0	78.7, 90.3
	female	5	16.38	80.3	2.49	77.0	83.0	77.2, 83.4
	total	13	16.36	82.7	5.11	73.5	91.0	79.6, 85.8
17.0-17.99	male	3	17.42	85.3	2.52	83.0	88.0	79.1, 91.6
	female	2	17.53	82.3	7.42	77.0	87.5	- -
	total	5	17.46	84.1	4.45	77.0	88.0	78.6, 89.6
18.0-18.99	male	3	18.63	87.2	11.75	75.5	99.0	58.0, 116.4
	female	3	18.37	79.2	7.25	72.0	86.5	61.2, 97.2
	total	6	18.50	83.2	9.77	72.0	99.0	72.9, 93.4
19.0-19.99	male	1	19.24	85.0	-	85.0	85.0	- -
	female	-	-	-	-	-	-	- -
	total	1	19.24	85.0	-	85.0	85.0	- -
20.0-20.99	male	2	20.38	92.0	1.41	91.0	93.0	- -
	female	1	20.24	95.0	-	95.0	95.0	- -
	total	3	20.33	93.0	2.00	91.0	95.0	88.0, 98.0
21.0-21.99	male	1	21.52	95.0	-	95.0	95.0	- -
	female	-	-	-	-	-	-	- -
	total	1	21.52	95.0	-	95.0	95.0	- -

Table 6.17 Length characteristics of age classes of male, female and total mussels sampled from Leichhardt billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	13	0.77	46.3	5.34	38.0	57.0	43.0,	49.5
	female	16	0.82	46.6	6.51	36.0	55.0	43.2,	50.1
	total	29	0.80	46.5	5.91	36.0	57.0	44.2,	48.7
1.00-1.99	male	27	1.54	55.4	5.93	44.0	68.0	53.1,	57.8
	female	20	1.62	56.3	5.28	44.0	66.0	53.8,	58.8
	total	48	1.56	55.4	6.13	38.0	68.0	53.7,	57.2
2.00-2.99	male	28	2.40	61.6	4.69	49.0	70.5	59.8,	63.5
	female	18	2.29	60.8	6.37	51.0	76.5	57.6,	64.0
	total	46	2.35	61.3	5.36	49.0	76.5	59.7,	62.9
3.00-3.99	male	19	3.37	64.3	5.43	53.0	78.0	61.7,	66.9
	female	12	3.43	64.6	4.58	58.0	75.0	61.7,	67.5
	total	31	3.39	64.4	5.04	53.0	78.0	62.6,	66.3
4.00-4.99	male	32	4.50	70.5	6.43	56.5	85.0	68.2,	72.8
	female	42	4.54	69.4	6.45	58.5	82.5	67.4,	71.4
	total	74	4.52	69.9	6.42	56.5	85.0	68.4,	71.4
5.00-5.99	male	68	5.55	73.8	5.55	58.5	87.0	72.5,	75.2
	female	90	5.46	74.7	6.13	58.5	88.0	73.5,	76.0
	total	158	5.50	74.3	5.88	58.5	88.0	73.4,	75.3
6.00-6.99	male	105	6.40	75.4	6.83	57.0	92.0	74.1,	76.7
	female	87	6.44	76.5	6.22	62.5	90.5	75.2,	77.8
	total	192	6.42	75.9	6.57	57.0	92.0	75.0,	76.8
7.00-7.99	male	108	7.44	77.7	6.66	61.0	93.0	76.4,	79.0
	female	59	7.37	78.2	6.99	62.5	89.0	76.4,	80.1
	total	168	7.41	77.9	6.76	61.0	93.0	76.9,	79.0
8.00-8.99	male	40	8.34	80.5	7.36	65.5	104.0	78.2,	82.9
	female	23	8.41	77.5	4.27	71.0	86.0	75.6,	79.3
	total	63	8.37	79.4	6.53	65.5	104.0	77.8,	81.1
9.00-9.99	male	17	9.23	86.6	6.47	77.0	97.5	83.2,	89.9
	female	11	9.28	81.1	5.44	70.5	92.0	77.4,	84.7
	total	28	9.25	84.4	6.57	70.5	97.5	81.9,	87.0
10.0-10.99	male	7	10.22	85.1	66.6	78.0	94.0	78.9,	91.2
	female	1	10.70	78.0	-	78.0	78.0	-	-
	total	8	10.28	84.2	6.65	78.0	94.0	78.6,	89.8
11.0-11.9	male	4	11.41	84.5	3.32	80.0	88.0	79.2,	89.8
	female	1	11.22	91.0	-	91.0	91.0	-	-
	total	5	11.38	85.8	4.09	80.0	91.0	80.7,	90.9
12.0-12.99	male	2	12.82	93.3	8.13	87.5	99.0	20.2,	166.3
	female	1	12.20	77.5	-	77.5	77.5	-	-
	total	3	12.61	88.0	10.76	77.5	99.0	61.3,	114.7
17.0-17.99	male	-	-	-	-	-	-	-	-
	female	1	17.27	96.0	-	96.0	96.0	-	-
	total	1	17.27	96.0	-	96.0	96.0	-	-

Table 6.18 Length characteristics of age classes of male, female and total mussels sampled from Jabiluka billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)
0.01-0.99	male	6	0.96	40.0	6.84	32.0	51.0	32.8, 47.2
	female	2	0.86	46.5	7.78	41.0	52.0	- -
	total	8	0.93	41.6	7.15	32.0	52.0	35.7, 47.6
1.00-1.99	male	16	1.62	51.5	5.51	40.0	60.0	48.6, 54.5
	female	9	1.76	52.3	6.41	41.5	61.0	47.4, 57.2
	total	25	1.67	51.8	5.73	40.0	61.0	49.4, 54.2
2.00-2.99	male	34	2.45	57.5	4.42	47.0	67.0	56.0, 59.0
	female	25	2.62	56.4	4.98	46.5	64.0	54.3, 58.4
	total	59	2.52	57.0	4.66	46.5	67.0	55.8, 58.2
3.00-3.99	male	39	3.45	60.6	4.66	54.0	74.0	59.1, 62.1
	female	25	3.40	62.9	5.47	51.0	71.5	60.7, 65.2
	total	64	3.43	61.5	5.08	51.0	74.0	60.2, 62.8
4.00-4.99	male	46	4.51	64.5	5.48	56.0	79.0	62.9, 66.1
	female	31	4.55	66.2	5.64	52.0	77.0	64.1, 68.3
	total	78	4.52	65.2	5.55	52.0	79.0	64.0, 66.5
5.00-5.99	male	58	5.46	68.3	4.45	57.5	77.0	67.1, 69.4
	female	43	5.50	69.5	5.09	58.0	80.0	67.9, 71.0
	total	101	5.48	68.8	4.75	57.5	80.0	67.8, 69.7
6.00-6.99	male	68	6.42	71.3	4.39	63.5	83.0	70.2, 72.3
	female	62	6.52	71.1	5.17	60.5	83.5	69.8, 72.4
	total	131	6.47	71.2	4.74	60.5	83.5	70.4, 72.0
7.00-7.99	male	55	7.36	72.9	4.69	63.0	85.0	71.6, 74.2
	female	68	7.40	73.5	4.97	61.5	84.5	72.3, 74.7
	total	123	7.38	73.2	4.84	61.5	85.0	72.4, 74.1
8.00-8.99	male	37	8.45	75.0	4.67	64.5	85.0	73.5, 76.6
	female	30	8.35	75.6	4.71	63.0	82.5	73.8, 77.4
	total	68	8.40	75.4	4.74	63.0	85.0	74.3, 76.6
9.00-9.99	male	22	9.49	76.1	6.50	60.5	87.0	73.2, 79.0
	female	23	9.39	78.8	6.77	69.0	93.0	75.8, 81.7
	total	45	9.44	77.5	6.70	60.5	93.0	75.5, 79.5
10.0-10.99	male	17	10.35	80.0	5.46	73.0	94.0	77.2, 82.8
	female	12	10.40	78.2	4.26	71.0	87.0	75.5, 80.9
	total	29	10.37	79.3	5.00	71.0	94.0	77.4, 81.2
11.0-11.99	male	15	11.36	79.2	5.28	70.5	92.0	76.3, 82.2
	female	19	11.46	82.2	5.43	70.0	93.0	79.5, 84.8
	total	34	11.42	80.9	5.49	70.0	93.0	79.0, 82.8

Table 6.18 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
12.0-12.99	male	14	12.42	83.5	3.92	75.0	90.0	81.2,	85.7
	female	7	12.36	80.6	4.79	72.0	86.0	76.2,	85.1
	total	21	12.40	82.5	4.32	72.0	90.0	80.6,	84.5
13.0-13.99	male	5	13.60	84.7	3.63	79.0	89.0	80.2,	89.2
	female	10	13.23	84.3	6.44	69.0	91.0	79.7,	88.9
	total	15	13.35	84.4	5.52	69.0	91.0	81.4,	87.5
14.0-14.99	male	4	14.59	85.0	8.60	75.0	94.0	71.3,	98.7
	female	4	14.15	84.9	5.51	77.5	90.0	76.1,	93.7
	total	8	14.37	84.9	6.69	75.0	94.0	79.4,	90.5
15.0-15.99	male	1	15.72	83.5	-	83.5	83.5	-	-
	female	5	15.51	89.5	2.55	85.0	91.0	86.3,	92.7
	total	6	15.55	88.5	3.35	83.5	91.0	85.0,	92.0
16.0-16.99	male	2	16.60	95.5	0.71	95.0	96.0	-	-
	female	3	16.44	89.7	1.04	88.5	90.5	87.1,	92.3
	total	5	16.50	92.0	3.30	88.5	96.0	87.9,	96.1
17.0-17.99	male	6	17.59	83.5	6.06	76.0	93.0	77.1,	89.9
	female	2	17.24	92.5	13.44	83.0	102.0	-	-
	total	8	17.50	85.8	8.33	76.0	102.0	78.8,	92.7
18.0-18.99	male	4	18.31	81.0	6.80	75.0	88.5	70.2,	91.8
	female	4	18.36	86.8	5.56	83.0	95.0	77.9,	95.6
	total	8	18.34	83.9	6.52	75.0	95.0	78.4,	89.3
19.0-19.99	male	4	19.50	91.1	2.66	88.0	94.0	86.9,	95.4
	female	2	19.20	81.5	2.12	80.0	83.0	-	-
	total	6	19.40	87.9	5.46	80.0	94.0	82.2,	93.7
20.0-20.99	male	2	20.35	85.0	2.83	83.0	87.0	-	-
	female	2	20.24	90.8	3.89	88.0	93.5	-	-
	total	4	20.30	87.9	4.33	83.0	93.5	81.0,	94.8
21.0-21.99	male	1	21.86	80.0	-	80.0	80.0	-	-
	female	2	21.12	85.0	-	85.0	85.0	-	-
	total	3	21.37	83.3	2.89	80.0	85.0	76.2,	90.5
22.0-22.99	male	1	22.72	88.0	-	88.0	88.0	-	-
	female	1	22.20	93.0	-	93.0	93.0	-	-
	total	2	22.46	90.5	3.54	88.0	93.0	-	-
23.0-23.99	male	1	23.27	84.0	-	84.0	84.0	-	-
	female	-	-	-	-	-	-	-	-
	total	1	23.27	84.0	-	84.0	84.0	-	-

Table 6.19 Length characteristics of age classes of male, female and total mussels sampled from Nankeen billabong. Total mussels includes males, females, unsexed individuals and hermaphrodites.

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
0.01-0.99	male	2	0.79	39.5	3.54	37.0	42.0	-	-
	female	2	0.97	46.3	1.77	45.0	47.5	-	-
	total	124	0.25	23.6	25.39	2.0	76.0	19.1,	28.1
1.00-1.99	male	29	1.51	45.7	7.01	33.5	56.0	43.0,	48.4
	female	50	1.49	47.9	7.58	34.0	72.5	45.7,	50.1
	total	98	1.49	46.3	7.90	21.0	72.5	44.7,	47.8
2.00-2.99	male	33	2.50	52.1	3.71	43.0	59.0	50.8,	53.4
	female	23	2.37	53.8	6.03	40.0	70.5	51.2,	56.4
	total	57	2.45	52.8	4.79	40.0	70.5	51.6,	54.1
3.00-3.99	male	26	3.52	57.3	5.55	45.0	75.5	55.1,	59.5
	female	21	3.50	57.4	3.78	48.0	61.0	55.7,	59.1
	total	48	3.52	57.4	4.74	45.0	75.5	56.0,	58.8
4.00-4.99	male	42	4.49	59.8	4.57	53.0	71.0	58.4,	61.2
	female	39	4.54	60.8	4.43	51.0	73.0	59.4,	62.2
	total	89	4.53	60.4	4.38	51.0	73.0	59.5,	61.3
5.00-5.99	male	49	5.52	61.9	4.89	54.0	81.0	60.5,	63.3
	female	44	5.53	63.0	5.09	53.5	75.5	61.4,	64.5
	total	108	5.51	62.1	4.76	53.5	81.0	61.2,	63.0
6.00-6.99	male	122	6.54	65.1	4.84	45.0	77.0	64.2,	66.0
	female	101	6.53	65.4	5.48	46.0	76.5	64.3,	66.5
	total	238	6.53	65.2	5.14	45.0	78.0	64.5,	65.9
7.00-7.99	male	142	7.50	65.9	4.72	52.5	81.0	65.1,	66.7
	female	120	7.50	66.7	4.64	56.5	85.0	65.9,	67.5
	total	278	7.50	66.2	4.64	52.5	85.0	65.7,	66.8
8.00-8.99	male	87	8.38	66.7	4.92	53.0	80.0	65.6,	67.7
	female	96	8.41	68.5	5.24	55.0	88.0	67.4,	69.5
	total	187	8.39	67.6	5.14	53.0	88.0	66.9,	68.8
9.00-9.99	male	67	9.44	67.7	5.24	57.0	79.0	66.4,	69.0
	female	66	9.38	68.0	5.53	53.5	82.0	66.6,	69.3
	total	133	9.41	67.8	5.37	53.5	82.0	66.9,	68.8
10.0-10.99	male	50	10.45	68.1	4.43	59.5	78.0	66.8,	69.4
	female	54	10.47	67.9	3.94	60.0	80.0	66.8,	69.0
	total	107	10.46	68.0	4.12	59.5	80.0	67.2,	68.8
11.0-11.99	male	45	11.44	67.8	4.12	59.0	77.0	66.6,	69.1
	female	44	11.49	70.1	4.93	60.0	82.0	68.6,	71.6
	total	106	11.50	68.5	4.66	59.0	82.0	67.6,	69.4

Table 6.19 (Ctd)

Age class	Sex	n	Mean age (years)	Mean length (mm)	S.D.	Minimum length (mm)	Maximum length (mm)	95% C.I. of mean (mm)	
12.0-12.99	male	35	12.44	69.1	5.04	59.5	82.0	67.3,	70.8
	female	53	12.43	69.1	4.22	58.0	81.0	67.9,	70.2
	total	109	12.45	68.9	4.43	58.0	82.0	68.0,	69.7
13.0-13.99	male	39	13.41	68.4	4.28	61.0	79.0	67.0,	69.8
	female	24	13.47	70.3	5.80	60.0	81.0	67.8,	72.7
	total	97	13.45	69.2	4.58	60.0	81.0	68.3,	70.1
14.0-14.99	male	46	14.44	68.4	5.57	59.0	87.0	66.8,	70.1
	female	38	14.40	69.2	5.47	61.0	85.0	67.4,	71.0
	total	92	14.40	68.7	5.47	59.0	87.0	67.6,	69.9
15.0-15.99	male	19	15.39	68.1	3.97	60.5	75.0	66.2,	70.0
	female	21	15.38	70.0	5.21	62.0	81.0	67.6,	72.4
	total	46	15.41	69.3	4.54	60.5	81.0	68.0,	70.7
16.00-16.99	male	17	16.47	69.4	4.18	61.5	76.0	67.3,	71.6
	female	11	16.46	72.4	6.31	62.0	83.0	68.1,	76.6
	total	37	16.47	71.0	4.98	61.5	83.0	69.4,	72.7
17.0-17.99	male	15	17.42	68.2	4.25	62.5	76.0	65.8,	70.5
	female	8	17.46	71.9	2.84	66.5	75.0	69.5,	74.3
	total	28	17.44	69.2	4.11	62.5	76.0	67.6,	70.8
18.0-18.99	male	2	18.12	72.5	2.12	71.0	74.0	53.5,	91.6
	female	9	18.46	73.7	4.62	66.0	79.0	70.9,	74.1
	total	15	18.42	72.6	3.96	66.0	79.0	70.4,	74.8
19.0-19.99	male	5	19.34	71.6	7.12	65.0	80.5	62.8,	80.4
	female	2	19.25	76.3	8.84	70.0	82.5	-	-
	total	15	19.43	73.2	6.18	65.0	82.5	69.8,	76.6
20.0-20.99	male	2	20.29	64.5	0.71	64.0	65.0	-	-
	female	2	20.53	66.8	8.13	61.0	72.5	-	-
	total	8	20.44	68.2	5.33	61.0	75.0	63.7,	72.7
21.0-21.99	male	1	21.74	79.0	-	79.0	79.0	-	-
	female	1	21.09	79.0	-	79.0	79.0	-	-
	total	2	21.42	79.0	-	79.0	79.0	-	-

Table 6.20 The parameters of the von Bertalanffy growth equation (and 95% confidence intervals) computed from growth data between sexes and the sexes combined, for the different waterbodies of the Magela Creek.

Waterbody (code)	L _∞				K				t ₀			
	males		females		sexes combined		males		females		sexes combined	
	males	sexes combined	females	sexes combined	males	females	males	sexes combined	females	sexes combined	males	sexes combined
Georgetown (2)	62.2 (61.4, 63.0)	63.7 (62.6, 64.9)	62.8 (62.3, 63.3)	62.8 (62.3, 63.3)	0.331 (0.294, 0.369) *	0.243 (0.205, 0.280)	0.331 (0.294, 0.369) *	0.290 (0.261, 0.319)	-3.406 (-4.109, -2.703)	-2.005 (-2.393, -1.618) *	-3.406 (-4.109, -2.703)	-2.539 (-2.792, -2.340)
Gulungul (7)	93.5 (51.2, 135.7)	68.3 (57.5, 79.1)	74.8 (64.2, 85.4)	74.8 (64.2, 85.4)	0.076 (-0.023, 0.175)	0.218 (-0.040, 0.476)	0.076 (-0.023, 0.175)	0.161 (0.060, 0.262)	-3.646 (-8.326, 1.035)	-7.731 (-14.220, -1.241)	-3.646 (-8.326, 1.035)	-4.182 (-6.327, -2.036)
Corndorl (9)	70.1 (66.2, 74.0)	71.3 (66.4, 76.1)	70.6 (67.6, 73.6)	70.6 (67.6, 73.6)	0.153 (0.113, 0.192)	0.132 (0.092, 0.172)	0.153 (0.113, 0.192)	0.143 (0.115, 0.171)	-5.108 (-6.744, -3.472)	-4.155 (-5.433, -2.878)	-5.108 (-6.744, -3.472)	-4.587 (-5.596, -3.578)
Magela Creek channel (11)	58.3 (57.1, 59.5)	59.7 (58.2, 61.2)	58.9 (58.0, 59.8)	58.9 (58.0, 59.8)	0.361 (0.303, 0.420)	0.328 (0.270, 0.386)	0.361 (0.303, 0.420)	0.345 (0.303, 0.387)	-2.022 (-2.554, -1.491)	-1.647 (-2.105, -1.190)	-2.022 (-2.554, -1.491)	-1.834 (-2.166, -1.502)
Mudginberri (12)	63.3 (62.6, 64.0)	64.6 (63.8, 65.3)	64.0 (63.5, 64.5)	64.0 (63.5, 64.5)	0.183 (0.157, 0.209)	0.180 (0.154, 0.206)	0.183 (0.157, 0.209)	0.180 (0.163, 0.197)	-5.643 (-6.777, -4.510)	-5.774 (-6.947, -4.600)	-5.643 (-6.777, -4.510)	-5.746 (-6.287, -5.205)
Buffalo (14)	61.6 (61.1, 62.1)	62.1 (61.5, 62.7)	61.8 (61.4, 62.2)	61.8 (61.4, 62.2)	0.270 (0.237, 0.303)	0.247 (0.207, 0.287)	0.270 (0.237, 0.303)	0.263 (0.237, 0.289)	-3.617 (-4.603, -2.631)	-2.885 (-3.499, -2.272)	-3.617 (-4.603, -2.631)	-3.113 (-3.639, -2.587)
Island (16)	88.7 (86.1, 91.3)	88.0 (84.7, 91.2)	88.5 (86.5, 90.5)	88.5 (86.5, 90.5)	0.205 (0.174, 0.236)	0.201 (0.162, 0.239)	0.205 (0.174, 0.236)	0.201 (0.177, 0.225)	-3.339 (-4.095, -2.583)	-2.928 (-3.507, -2.348)	-3.339 (-4.095, -2.583)	-3.145 (-3.608, -2.682)
Hidden (17)	76.9 (65.0, 88.9)	73.7 (67.2, 80.1)	74.9 (69.1, 80.7)	74.9 (69.1, 80.7)	0.302 (-0.004, 0.608)	0.404 (0.045, 0.764)	0.302 (-0.004, 0.608)	0.362 (0.134, 0.592)	-1.574 (-4.017, 0.869)	-1.571 (-4.259, 1.116)	-1.574 (-4.017, 0.869)	-1.437 (-3.090, 0.215)
JaJa (22)	102.0 (89.0, 115.0) *	85.4 (82.1, 88.7)	91.7 (87.5, 95.9)	91.7 (87.5, 95.9)	0.071 (0.038, 0.103)	0.153 (0.118, 0.189)	0.071 (0.038, 0.103) *	0.107 (0.084, 0.130)	-4.414 (-5.748, -3.080)	-9.213 (-12.685, -5.742)	-4.414 (-5.748, -3.080)	-6.455 (-7.952, -4.958)
Leichhardt (24)	95.7 (84.8, 106.5)	86.1 (81.0, 91.2)	90.2 (85.5, 94.9)	90.2 (85.5, 94.9)	0.141 (0.077, 0.206)	0.233 (0.153, 0.313)	0.141 (0.077, 0.206)	0.183 (0.134, 0.232)	-2.892 (-4.193, -1.591)	-4.727 (-6.685, -2.768)	-2.892 (-4.193, -1.591)	-3.748 (-4.794, -2.702)
Jabiluka (26)	89.6 (86.5, 92.7)	92.2 (88.1, 96.3)	90.7 (88.2, 93.2)	90.7 (88.2, 93.2)	0.142 (0.117, 0.167)	0.132 (0.103, 0.162)	0.142 (0.117, 0.167)	0.138 (0.119, 0.157)	-4.813 (-6.121, -3.506)	-4.589 (-5.584, -3.594)	-4.813 (-6.121, -3.506)	-4.650 (-5.436, -3.864)
Nankeen (29)	69.1 (68.4, 69.8) *	70.9 (70.0, 71.9)	70.0 (69.5, 70.5)	70.0 (69.5, 70.5)	0.337 (0.297, 0.377)	0.281 (0.242, 0.319)	0.337 (0.297, 0.377)	0.304 (0.279, 0.329)	-2.508 (-3.095, -1.921)	-1.662 (-2.125, -1.200)	-2.508 (-3.095, -1.921)	-2.135 (-2.451, -1.819)

* overlap in the 95% confidence intervals between sexes.

Table 6.21 Seasonal measurements of surface chlorophyll a (arbitrary units) from different sites of Mudginberri billabong.
Location of the sites is shown in Figure 3.1.

Site	Sampling Date				Mean chlorophyll concentration	Depth (m)
	Aug. 80	Nov. 80	Dec. 80	Jan. 81		
1	2.14	1.00	1.25	1.50	1.47	2.4
2	2.57	1.60	1.00	1.50	1.67	2.2
3	1.71	2.80	2.50	2.25	2.32	3.2
4	2.71	3.60	3.25	2.00	2.89	3.5
5	3.42	3.40	4.50	1.25	3.14	2.8

Table 6.22 Seasonal measurements of surface chlorophyll a ($\mu\text{g/l}$) from different sites of Buffalo billabong. Location of the sites is shown in Figure 3.1.

	Site									
	1	2	3	4	5	6	7	8	9	10
Date										
13/7/81	8.04	6.75	6.42	6.42	7.23	7.20	7.20	10.79	10.90	9.83
20/10/81	5.15	5.15	4.81	4.81	6.12	10.46	10.46	6.55	5.60	7.64
mean	6.60	5.95	5.62	5.62	6.68	8.83	8.83	8.67	8.25	8.74
Depth (m)	2.9	3.0	2.4	2.8	2.8	2.7	2.6	3.7	2.2	2.4

Table 6.23 Mean length (mm) and standard deviation (SD) of mussels in relation to depth and sampling transect in Georgetown billabong. Location of the transects is shown in Figure 3.1.

Depth (m)		Transect	
		A	B
0.0-0.49	mean	19.0	27.4
	SD	13.629	14.318
	n	131	41
0.5-0.99	mean	-	33.4
	SD	-	14.168
	n	-	122
1.0-1.49	mean	41.6	37.7
	SD	16.951	19.555
	n	378	519
1.5-1.99	mean	49.5	40.2
	SD	14.294	15.583
	n	957	1159
2.0-2.49	mean	50.7	46.4
	SD	10.883	13.826
	n	378	436
2.5-2.99	mean	53.0	-
	SD	8.413	-
	n	336	-
3.0-3.49	mean	51.1	-
	SD	9.556	-
	n	309	-

Table 6.24 Mean length (mm) and standard deviation (SD) of mussels in relation to depth in Gulungul billabong.

	Depth (m)					
	0.1	0.2	0.3	0.4	0.5	0.6
mean	0.0	0.0	51.1	49.9	53.1	66.3
SD	0.0	0.0	13.657	0.634	12.549	3.889
n	0	0	26	52	30	2

Table 6.25 Mean length (mm) and standard deviation (SD) of mussels in relation to depth and substrate in Corndorl billabong.

Depth (m)		Substrate		
		A	B	C
0.0-0.2	mean	61.7	58.2	64.5
	SD	10.017	4.324	7.188
	n	3	5	4
0.21-0.4	mean	56.3	57.6	61.0
	SD	9.468	5.482	9.403
	n	35	22	12
0.41-0.6	mean	58.3	55.5	53.0
	SD	6.434	6.897	3.256
	n	73	42	3
0.61-0.8	mean	57.2	53.9	56.3
	SD	6.040	6.378	8.483
	n	96	59	12
0.81-1.0	mean	56.1	52.6	-
	SD	7.465	7.901	-
	n	113	98	-
1.01-1.2	mean	55.5	43.2	-
	SD	9.058	12.637	-
	n	96	5	-
1.21-1.4	mean	53.6	-	-
	SD	7.371	-	-
	n	69	-	-
1.41-1.6	mean	54.3	-	-
	SD	6.544	-	-
	n	4	-	-

Key to substrates:

- A. Very soft, organic silt and clay
- B. Fine gravel with some silt and clay
- C. Sand.

Table 6.26 Mean length (mm) and standard deviation (SD) of mussels in relation to depth and substrate in Mudginberri billabong.

Depth (m)		Substrate			
		A	B	C	D
0.0-0.9	mean	44.3	48.6	57.2	58.7
	SD	10.991	9.123	6.353	7.762
	n	29	10	11	9
1.0-1.9	mean	41.7	51.5	52.8	61.0
	SD	14.209	5.549	7.046	4.962
	n	7	75	90	17
2.0-2.9	mean	57.0	56.6	58.4	58.2
	SD	8.881	6.454	7.634	5.437
	n	114	168	111	49
3.0-3.9	mean	60.2	60.8	58.9	-
	SD	7.047	6.169	5.420	-
	n	165	121	52	-
4.0-4.9	mean	63.3	62.1	62.9	-
	SD	7.024	4.794	4.533	-
	n	52	17	15	-
5.0-5.9	mean	64.8	63.8	61.4	-
	SD	5.434	6.662	4.525	-
	n	13	24	11	-

Key to substrates:

- A. Sand
- B. Sand with a little silt and detritus
- C. Sand with silt and detritus (soft)
- D. Soft to stiff clay with rubble.

Table 6.27 Mean length (mm) and standard deviation (SD) of mussels in relation to depth and substrate in Buffalo billabong.

Depth (m)		substrate					
		A	B	C	E	F	G
0.0-0.9	mean	49.6	56.2	59.0	-	-	-
	SD	10.753	8.019	6.251	-	-	-
	n	4	8	3	-	-	-
1.0-1.9	mean	53.4	58.0	58.0	59.0	58.6	54.6
	SD	7.219	7.675	2.637	6.659	3.674	7.651
	n	33	50	9	20	20	12
2.0-2.9	mean	56.7	57.1	58.0	60.6	59.71	54.3
	SD	6.610	7.780	6.518	7.244	5.626	7.669
	n	303	302	142	103	51	58
3.0-3.9	mean	59.1	58.1	61.0	64.3	60.2	57.9
	SD	7.156	8.212	7.308	5.785	2.635	5.440
	n	315	141	145	17	43	24
4.0-4.9	mean	61.0	59.8	-	-	-	-
	SD	10.264	5.909	-	-	-	-
	n	8	4	-	-	-	-

Key to substrates:

- A. Sand
- B. Sand with a little silt and detritus
- C. Sand with silt and detritus (soft)
- E. Sand, silt and detritus (very soft)
- F. Soft clay with some sand, silt and detritus
- G. Soft silt, clay and fine detritus.

Table 6.28 Mean length (mm) and standard deviation (SD) of mussels in relation to depth in the floodplain billabongs.

Depth (m)		Billabong				
		Island	JaJa	Leichhardt	Jabiluka	Nankeen
0.0-0.9	mean	64.5	71.0	74.5	68.7	65.3
	SD	0.707	10.036	12.139	10.588	11.100
	n	2	59	207	21	452
1.0-1.9	mean	66.7	71.7	73.0	69.4	66.5
	SD	11.446	9.800	9.941	8.992	7.722
	n	52	192	328	43	564
2.0-2.9	mean	74.3	69.6	58.3	70.2	66.3
	SD	9.378	11.029	12.349	10.380	6.634
	n	38	33	92	26	95
3.0-3.0	mean	67.4	65.1	62.9	-	63.8
	SD	11.039	13.562	9.478	-	10.558
	n	37	13	22	-	17
4.0-4.9	mean	67.6	-	56.0	-	-
	SD	10.703	-	9.239	-	-
	n	8	-	14	-	-

Table 6.29 Linear and quadratic regression equations (with r^2 values and significance) describing the relationship between depth (X in metres) and mean length (Y in mm) of mussels in billabongs of the Magela Creek.

Billabong	Regression equation	r^2	significance
Georgetown	$Y = 19.198 + 20.748X - 3.381X^2$	0.993	**
Corndorl	$Y = 61.067 - 7.648X$	0.861	**
Mudginberri and Buffalo (pooled)	$Y = 6.326 \ln X + 52.022$	0.997	***
Floodplain (pooled)	$Y = 65.688 + 6.222X - 1.941X^2$	0.852	*

Table 6.30 Length characteristics of mussels recorded for the different waterbodies of the Magela Creek.

Billabong	Mean length (mm)	Standard deviation	Maximum length (mm)	Minimum length (mm)	n
Georgetown	43.3	17.46	77.5	3.0	4773
Gulungul	51.4	12.52	80.0	29.0	110
Corndorl	55.9	7.11	80.0	32.0	938
Magela Creek channel	49.5	7.33	69.5	26.0	1153
Mudginberri	54.2	15.27	82.0	2.0	5057
Buffalo	53.3	16.41	83.5	2.5	1518
Island	71.1	10.35	76.0	41.0	872
Hidden	64.7	10.95	87.0	28.5	48
JaJa	71.3	9.89	99.0	25.0	302
Leichhardt	71.8	11.56	104.0	36.0	968
Jabiluka	70.9	10.05	102.0	32.0	852
Nankeen	62.6	13.90	88.0	2.0	1967

Table 6.31 Mean age (years) and standard deviation (SD) of mussels in relation to depth and sampling transect in Georgetown billabong. Location of the transects is shown in Figure 3.1.

Depth (m)		Transect	
		A	B
0.0-0.49	mean	0.91	0.75
	SD	1.755	0.814
	n	129	40
0.5-0.99	mean	-	1.13
	SD	-	1.184
	n	-	106
1.0-1.49	mean	3.57	1.77
	SD	5.230	2.293
	n	218	562
1.5-1.99	mean	5.00	2.86
	SD	4.852	2.888
	n	434	675
2.0-2.49	mean	6.65	3.29
	SD	4.431	3.194
	n	211	323
2.5-2.99	mean	5.60	-
	SD	4.118	-
	n	201	-
3.0-3.49	mean	5.93	-
	SD	4.553	-
	n	210	-

Table 6.32 Mean age (years) and standard deviation (SD) of mussels in relation to depth and sampling sites in Mudginberri billabong. Location of the sites is shown in Figure 3.1.

	Site				
	1	2	3	4	5
mean	6.33	6.42	8.75	11.61	7.84
SD	5.241	5.995	8.694	8.084	6.064
n	446	493	580	425	430
depth (m)	2.4	2.2	3.2	3.5	2.8

Table 6.33 Mean age (years) and standard deviation (SD) of mussels in relation to depth and sampling sites in Buffalo billabong. Location of the sites is shown in Figure 3.1.

	Site									
	1	2	3	4	5	6	7	8	9	10
mean	13.91	14.61	10.28	13.91	12.19	13.46	12.46	10.57	9.57	9.94
SD	9.049	9.220	8.275	9.498	8.572	7.635	7.697	7.265	7.947	6.650
n	129	168	99	232	152	114	130	90	178	206
depth (m)	2.9	3.0	2.4	2.8	2.8	2.7	2.6	3.7	2.2	2.4

Table 6.34 Mean age (years) and standard deviation (SD) of mussels in relation to depth in the floodplain billabongs.

Depth (m)		Billabong				
		Island	JaJa	Leichhardt	Jabiluka	Nankeen
0.0-0.9	mean	2.95	8.58	5.44	6.82	6.96
	SD	0.057	4.324	2.531	3.387	4.229
	n	2	59	167	21	764
1.0-1.9	mean	4.44	8.67	6.45	6.87	9.76
	SD	2.631	4.410	2.323	2.659	4.080
	n	52	192	303	43	499
2.0-2.9	mean	7.18	9.00	6.28	8.66	9.34
	SD	2.927	4.047	1.665	5.758	4.097
	n	38	33	44	26	53
3.0-3.9	mean	5.55	8.26	5.63	-	-
	SD	2.974	2.510	2.011	-	-
	n	37	13	22	-	-
4.0-4.9	mean	5.31	-	6.15	-	-
	SD	2.475	-	1.414	-	-
	n	8	-	2	-	-

Table 6.35 Regression coefficients ($\pm$ standard deviation) of logistic equations describing the relationship between depth and mean age of mussels on the two transects of Georgetown billabong. The equation is of the form:

$$Y = A(1 + Be^{-KX})^{-1} \text{ where } Y = \text{mean age (years)}, X = \text{depth (m)}.$$

TRANSECT	Regression coefficient		
	A	B	K
A	6.136 (± 0.424)	13.987 (± 13.850)	2.452 (± 0.832)
B	4.306 (± 0.924)	8.184 (± 1.892)	1.494 (± 0.391)

Table 6.36 Linear and quadratic regression equations (with r^2 values and significance) describing the relationship between depth (X in metres) and mean age (Y in years) of mussels in some billabongs of the Magela Creek.

Billabong	Regression equation	r^2	Significance
Mudginberri	$Y = -2.491 + 3.788X$	0.895	*
Buffalo	$Y = 5.575 + 6.747X$	0.884	***
Leichhardt	$Y = 3.452 + 3.206X - 0.801X^2$	0.941	**
Nankeen	$Y = 4.509 + 5.979X - 1.658X^2$	0.992	***

Table 6.37 Age characteristics of mussels recorded for the different waterbodies of the Magela Creek.

Billabong	Mean age	Standard deviation	Maximum age	Minimum age	n
Georgetown	3.31	3.910	27.07	0.07	3172
Gulungul	4.51	3.967	12.63	0.63	79
Corndorl	6.79	2.775	19.64	0.93	862
Magela Creek channel	4.33	2.476	15.13	0.97	1153
Mudginberri	7.89	7.271	32.43	0.01	2465
Buffalo	12.13	8.481	35.50	0.04	1501
Island	5.71	2.982	19.74	0.67	872
Hidden	5.28	2.798	11.08	0.08	48
JaJa	9.07	4.431	21.52	0.20	356
Leichhardt	5.83	2.276	17.27	0.22	855
Jabiluka	7.20	3.856	23.27	0.72	852
Nankeen	8.33	4.476	21.74	0.03	2022

Table 6.38 Numbers of juvenile (young-of-year) and adult mussels sampled from different sites in Mudginberri billabong. Location of the sites is shown in Figure 3.1.

Age Class	Site				
	1	2	3	4	5
juveniles	74	134	210	73	71
adults	851	850	933	822	1039

Table 6.39 Numbers of juvenile (young-of-year) and adult mussels sampled from different sites in Buffalo billabong. Location of the sites is shown in Figure 3.2.

Age Class	Site									
	1	2	3	4	5	6	7	8	9	10
juveniles	10	17	15	18	22	17	20	10	24	21
adults	133	172	100	232	153	116	131	91	179	208

Table 6.40 Numbers of juvenile (young-of-year) and adult mussels sampled from different depths in Nankeen billabong.

Age Class	Depth (m)							
	0.2	0.4	0.6	0.9	1.2	1.6	1.9	2.3
juveniles	22	11	14	27	7	1	3	1
adults	120	141	247	256	247	166	88	53

Table 6.41 Regression and correlation coefficients of the significant linear regression equations describing the relationships ($P < 0.05$, unless indicated) between total discharge for the period and year class strength of mussels in the floodplain billabongs. (The equation is of the form: $Y = mX + b$ where Y = year class strength ($\arcsin \sqrt{Y}$ in percent/100), radians) and X = discharge ($m^3 \times 10^{-6}$).)

Discharge Period	Regression coefficients		r^2 (percent)
	m	b	
Apr	0.0010	0.299	44.9
May	0.0279	0.255	56.7
Mar/Apr	0.0007	0.219	61.5
Apr/May	0.0010	0.296	47.3
May/Jun	0.0220	0.254	55.4
Feb/Mar/Apr	0.0005	0.174	64.0 ¹
Mar/Apr/May	0.0007	0.217	62.7
Apr/May/Jun	0.0010	0.295	48.0
Jan/Feb/Mar/Apr	0.0004	0.182	60.7
Feb/Mar/Apr/May	0.0005	0.172	65.1 ¹
Mar/Apr/May/Jun	0.0007	0.216	63.1
Dec/Jan/Feb/Mar/Apr	0.0003	0.200	51.0
Jan/Feb/Mar/Apr/May	0.0004	0.181	61.5
Feb/Mar/Apr/May/Jun	0.0005	0.171	65.5 ¹
Dec/Jan/Feb/Mar/Apr/May/Jun	0.0003	0.198	52.1

¹ . $P < 0.01$

Table 6.42 Partial regression coefficients (and their significance) of the multiple linear regression equation describing the relationship between monthly discharges and age class strength of mussels in the floodplain billabongs.

Regression coefficient	(month)	Students t	Significance
0.1782	(-)	117.74	$P < 0.01$
-0.0017	(Dec)	-33.49	$P < 0.05$
0.0012	(Jan)	36.77	$P < 0.05$
0.0004	(Mar)	45.13	$P < 0.05$
0.0011	(Apr)	82.05	$P < 0.01$
-0.0017	(May)	-3.78	$P > 0.05$
0.0020	(Jun)	2.00	$P > 0.05$

Table 6.43 Regression and correlation coefficients, and age ranges of the significant ($P < 0.05$) linear regression equations describing the relationship between age and the proportion of female mussels recorded in some billabongs of the Magela Creek. (The equation is of the form: $Y = mX + b$ where Y = Proportion of females within the particular age class (%) and X = age (years).)

Billabong	Linear regression coefficients		r^2	Age range (years)
	b	m		
Mudginberri	180.952	-5.260	0.536	23-30
Island	59.600	-1.537	0.306	4-20
JaJa	99.162	-3.180	0.357	11-22
Leichhardt	75.649	-4.360	0.477	4-13
Jabiluka	38.087	1.070	0.214	1-19

Table 6.44 Age specific survival (S) and instantaneous mortality (Z) rates of mussel populations in Mudginberri and Nankeen billabongs.

Age	Survival after each year from curves in Fig. 5.36. S		Instantaneous mortality rate Z	
	Mudginberri	Nankeen	Mudginberri	Nankeen
0	0.55	0.88	0.60	0.13
1	0.72	0.94	0.33	0.06
2	0.81	0.98	0.21	0.02
3	0.87	1.00	0.14	0.00
4	0.92	1.00	0.08	0.00
5	0.96	0.99	0.04	0.01
6	0.99	0.98	0.01	0.02
7	1.00	0.96	0.00	0.04
8	1.00	0.93	0.00	0.07
9	1.00	0.89	0.00	0.12
10	1.00	0.86	0.00	0.15
11	1.00	0.82	0.00	0.20
12	1.00	0.78	0.00	0.25
13	1.00	0.74	0.00	0.30
14	1.00	0.69	0.00	0.37
15	0.99	0.64	0.01	0.45
16	0.97	0.58	0.03	0.54
17	0.95	0.50	0.05	0.69
18	0.90	0.42	0.11	0.87
19	0.83	0.32	0.19	1.14
20	0.73	0.20	0.31	1.61
21	0.65	0.00	0.43	-
22	0.57*		0.56*	
23	0.57*		0.56*	
24	0.57*		0.56*	
25	0.57*		0.56*	
26	0.57*		0.56*	
27	0.57*		0.56*	
28	0.57*		0.56*	
29	0.57*		0.56*	
30	0.57*		0.56*	
31	0.57*		0.56*	
32	0.57*		0.56*	

*Estimate based on catch-curve analysis.

Table 7.1 Results of the linear regressions performed between each proportion of spermatogenic stage occurring at intervals in the testes of sectioned mussels (from selected billabongs), and the percent of gravid females found among all females examined at the same period and locality. (Both variables arcsine transformed.) Student t values of the slopes (and their significance) and correlation coefficients of the regressions are shown.

SPERMATOGENIC STAGE	BILLABONG					
	MUDGINBERRI		GEORGETOWN		NANKEEN	
	t	r ²	t	r ²	t	r ²
Spermatogonia	0.82	6.3	-0.03	0.1	-0.92	29.7
Sperm morulae	-1.66	21.7	-1.19	41.6	-0.18	1.5
Primary spermatocytes	1.84	25.3	0.54	12.6	0.83	25.6
Secondary spermatocytes	1.71	22.6	2.96	81.4	0.92	29.6
Spermatids	4.36**	65.5	1.18	40.9	3.40	85.3
Spermatozoa	-0.48	2.3	0.52	11.9	0.02	0.0
Empty	-2.44*	37.3	-1.20	41.8	-0.09	0.4
degrees of freedom	10		2		2	

* P < 0.05

** P < 0.01

Table 7.2 Mean number per ovarian follicle (N) and mean diameter (D) of primary oocytes found in the ovaries of sectioned mussels from selected waterbodies of the Magela Creek, in relation to time. 95 percent confidence intervals about the means are shown in brackets.

MONTH	WATERBODY											
	Georgetown			Magela Creek channel			Mudginberri			Nankeen		
	N	D		N	D		N	D		N	D	
Jun (1980)	4.09 (3.09, 4.93)	87.7 (84.7, 90.7)	-	-	-	-	3.45 (2.06, 4.83)	95.2 (90.8, 99.6)	-	4.80 (2.93, 6.65)	100.7 (98.1, 103.4)	-
Jul	-	-	-	-	-	-	3.56 (2.49, 4.63)	91.2 (87.6, 94.8)	-	-	-	-
Aug	-	-	-	-	-	-	4.02 (2.03, 6.01)	96.3 (92.3, 100.3)	-	-	-	-
Sept	3.08 (2.54, 3.62)	91.1 (87.9, 94.3)	-	-	-	-	4.39 (2.27, 6.51)	94.3 (90.9, 97.6)	-	5.54 (4.30, 6.79)	101.8 (98.8, 104.7)	-
Oct	-	-	-	-	-	-	4.95 (3.62, 6.28)	97.2 (94.3, 100.1)	-	-	-	-
Nov	-	-	-	4.36 (3.02, 5.70)	98.4 (94.9, 101.8)	-	5.79 (2.56, 9.01)	101.6 (98.0, 105.2)	-	-	-	-
Dec	3.44 (2.62, 4.25)	93.7 (90.1, 97.2)	6.62 (2.38, 10.85)	101.9 (98.2, 105.6)	-	5.42 (2.89, 7.94)	94.6 (91.4, 97.8)	-	4.35 (1.14, 7.57)	96.3 (92.9, 99.7)	-	-
Jan (1981)	-	-	6.22 (4.23, 8.22)	96.9 (93.4, 100.3)	-	4.86 (2.65, 7.07)	97.7 (94.5, 101.0)	-	-	-	-	-
Feb	-	-	-	-	-	3.57 (1.22, 5.91)	98.7 (95.2, 102.3)	-	-	-	-	-
Mar	4.48 (3.46, 5.50)	89.6 (87.0, 92.2)	-	-	-	4.57 (2.86, 6.28)	100.2 (97.0, 103.4)	-	3.55 (2.17, 4.94)	101.2 (98.4, 104.1)	-	-
Apr	-	-	-	-	-	4.26 (3.43, 5.08)	92.6 (89.8, 95.5)	-	-	-	-	-
May	-	-	-	-	-	4.85 (4.67, 5.04)	97.9 (94.2, 101.60)	-	-	-	-	-

Table 7.3 Numbers and percentages of hermaphrodites (H) detected by gonadal smears, in relation to the total number of mussels of each age class examined (N), from selected waterbodies of the Magela Creek.

WATERBODY												
Age	Georgetown			Magela Creek channel			Mudginberri			Nankeen		
	N	H	(%)	N	H	(%)	N	H	(%)	N	H	(%)
0	14	-		3	-		89	3	(3.37)	4	-	
1	292	2	(0.69)	217	4	(1.84)	51	-		79	-	
2	217	-		207	-		63	-		57	1	(1.75)
3	213	1	(0.47)	166	-		76	-		48	1	(2.08)
4	150	1	(0.67)	149	1	(0.67)	71	-		81	-	
5	113			130	2	(1.54)	96	-		94	1	(1.06)
6	108			100	-		108	1	(0.925)	224	1	(0.45)
7	115			71	1	(1.41)	142	-		262	-	
8	103			42			136	-		184	1	(0.54)
9	109			33			91	-		133	-	
10	51			14			83	-		107	3	(2.80)
11	44			10			60	-		90	1	(1.11)
12	40			2			66	-		88		
13	19			-			71	-		63		
14	35			-			67	-		84		
15	19			1			58	-		40		
16	9						70	-		28		
17	9						67	1	(1.49)	23		
18	7						53	-		11		
19	2						49	1	(2.04)	7		
20	1						45	-		4		
21	-						48	-		2		
22	2						23	-				
23	-						23	1	(4.35)			
24	-						14					
25	-						16					
26	-						12					
27	1						5					
28							4					
29							3					
30							-					
31							-					
32							1					
33							1					
Total	1673	4	(0.24)	1145	8	(0.70)	1761	7	(0.40)	1713	9	(0.53)

Table 7.4 Numbers of male (M) and female (F) hermaphrodites detected monthly by gonadal smears, from selected waterbodies of the Magela Creek. A total of 70 mussels from the billabongs and 50 mussels from the Magela Creek channel were examined each month.

Month	WATERBODY							
	Georgetown		Magela Creek channel		Mudginberri		Nankeen	
	M	F	M	F	M	F	M	F
JUN 1980	-	-	-	-	-	-	-	-
JUL	-	-	-	-	-	-	-	-
AUG	-	-	-	-	-	-	-	-
SEP	-	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-
NOV	-	-	1	-	-	-	1	4*
DEC	-	-	-	1	-	1	-	-
JAN 1981	-	-	-	-	-	1	-	-
FEB	-	1	1	-	-	-	-	-
MAR	-	-	2	1	1	-	-	-
APR	1	-	-	-	-	-	-	-
MAY	-	-	-	-	1	-	-	-
JUN	-	1	-	-	-	-	1	-
JUL	-	-	-	-	-	-	-	-
AUG	-	-	-	-	-	-	-	-
SEP	-	-	-	1	-	-	1	-
OCT	-	-	1	-	-	1	-	-
NOV	-	-	-	-	-	-	-	-
DEC	-	-	-	-	-	-	-	1
JAN 1982	1	-	-	-	-	-	-	-
FEB	-	-	-	-	-	-	-	-
MAR	-	-	-	-	-	-	-	-
APR	-	-	-	-	-	-	-	1
MAY	-	-	-	-	-	-	-	-
TOTAL	2	2	5	3	2	3	3	6

* one brooding larvae.

Table 7.5 Nature and condition of the gonads and inner gills of hermaphrodites sectioned histologically from waterbodies of the Magela Creek.

Waterbody	Dominant visceral gonad	Sex as determined by inner gill morphology	Marsupial condition	Nature of follicles or tubules
Magela Creek channel	male (> 60%)	male	-	confined to discrete regions
"	male (> 80%)	male	-	"
Mudginberri	male (> 90%)	male	-	"
"	male (> 80%)*	male	-	"
"	male (> 90%)	female	brooding developing larvae	"
"	female (> 60%)	female	brooding mature larvae	interspersed

* ovarian follicles almost devoid of oocytes.

Table 7.6 Sex ratios (percentage of both males and females combined that are females) of mature mussels of all age classes and mature young of year mussels, examined from waterbodies of the Magela Creek. Mean length of mature young of year mussels (both males and females) is shown.

WATERBODY	total		young of year		
	no. of males and females examined	sex ratio (percent females)	no. of males and females examined	sex ratio (percent females)	mean length (mm)
Georgetown	1862	48.1	13	23.1	35.5
Gulungul	79	46.8	34	47.1	40.3
Corndorl	938	47.0	1	0.0	35.5
Magela Creek channel	1145	47.2	3	0.0	29.5
Mudginberri	1967	47.9	86	36.0	37.8
Buffalo	1336	46.0**	9	55.5	32.3
Island	872	47.9	7	57.1	47.5
JaJa	354	50.8	1	100.0	49.5
Leichhardt	855	44.8**	29	55.2	46.5
Jabiluka	852	45.9*	8	25.0	42.0
Nankeen	1886	48.3	4	50.0	42.9

* significant ($P < 0.05$) departure from 1:1 sex ratio

** very significant ($P < 0.01$) departure from 1:1 sex ratio.

Table 7.7 Sex ratios (percentage of both mature males and females combined that are females) of juvenile mussels from the Magela Creek waterbodies, in relation to size class of individuals examined. In brackets are the respective numbers examined of mature males and females combined, and individuals with immature (undifferentiated) gonads.

WATERBODY	Size class (mm)			
	25.0-29.9	30.0-34.9	35.0-39.9	40.0-44.9
Georgetown	25 (4,3)	24 (21,3)	41 (64,1)	48 (162,0)
Gulungul	0 (1,0)	100 (2,0)	60 (10,0)	35 (17,0)
Corndorl	-	50 (10,0)	42 (12,0)	71 (17,0)
Magela Creek channel	0 (2,3)	39 (23,0)	45 (97,3)	49 (160,0)
Mudginberri	33 (3,2)	25 (20,4)	34 (41,3)	56 (54,0)
Buffalo	0 (1,9)	67 (3,3)	33 (18,2)	43 (42,0)
Island	-	-	-	27 (11,0)
JaJa	0 (0,1)	-	-	0 (2,0)
Leichhardt	-	-	80 (5,1)	22 (9,0)
Jabiluka	-	0 (1,0)	0 (2,0)	33 (6,0)
Nankeen	-	50 (6,0)	50 (8,1)	52 (21,0)

Table 7.8 Numbers of male and female mussels from selected waterbodies of the Magela Creek, infected monthly with cercarial trematodes. Infections detected by gonadal smears. A total of 70 mussels from the billabongs and 50 mussels from the Magela Creek channel, were examined each month. Corrected infection rates determined from histological observations.

MONTH	WATERBODY							
	Georgetown		Magela Creek channel		Mudginberri		Nankeen	
	M	F	M	F	M	F	M	F
JUN 1980	-	1	-	-	-	-	-	-
JUL	1	1	-	-	-	-	-	-
AUG	-	1	-	-	-	-	-	-
SEP	1	-	-	-	-	-	-	-
OCT	-	-	-	-	-	-	-	-
NOV	1	2	-	-	1	-	-	-
DEC	-	-	-	-	-	-	-	-
JAN 1981	-	-	1	-	-	1	1	-
FEB	-	1	-	-	-	1	-	-
MAR	-	-	-	-	-	-	-	1
APR	-	-	-	-	-	-	-	-
MAY	-	1	-	-	-	-	-	-
JUN	1	-	-	-	-	-	-	-
JUL	2	-	-	-	-	-	-	-
AUG	2	-	-	-	-	-	-	-
SEP	2	5	-	-	-	-	-	-
OCT	1	1	-	-	-	-	-	-
NOV	-	-	-	-	-	-	-	-
DEC	-	-	-	-	-	-	-	-
JAN 1982	-	-	-	-	-	-	-	1
FEB	-	1	-	-	1	1	-	-
MAR	1	2	-	-	-	-	1	-
APR	-	2	-	-	-	-	-	-
MAY	2	3	-	-	-	-	-	-
TOTAL	14	21	1	0	2	3	2	2
TOTAL NUMBER EXAMINED	1673		1145		1761		1713	
TOTAL PARASITISED	35		1		5		4	
PERCENT OF TOTAL (CORRECTED)	2.09 (3.49)		0.09 (0.15)		0.28 (0.47)		0.23 (0.39)	

Table 7.9 Nature of the gonads as determined by gonadal smears, of all young of year mussels below 30 mm in length examined from Mudginberri billabong during 1981.

Month	Age (years)	Total length (mm)	Sex
Sept. 1981	0.58	25.5	undifferentiated
"	"	27.0	"
"	"	29.0	male
"	"	30.0	undifferentiated
"	"	30.0	"
Oct. 1981	0.70	29.0	female
"	"	29.0	male

Table 7.10 Proportion and age of young of year mussels collected monthly from Mudginberri billabong during 1981, that had reached gonadal maturity (> 30 mm length) and first gravidity (> 40 mm length).

Month (1981)	Mean age (years)	Number of young of year	Proportion of length > 30 mm(%)	Proportion of length > 40 mm (%)
Feb	0.03	39	0.0	0.0
Mar	0.13	59	0.0	0.0
Apr	0.19	44	2.3	0.0
May	0.25	30	3.3	3.3
Jun	0.36	4	25.0	0.0
Jul	0.45	11	27.0	0.0
Aug	0.51	8	75.0	25.0
Sept	0.58	41	75.6	2.4
Oct	0.70	40	92.5	17.5
Nov	0.77	31	100.0	33.3
Dec	0.90	24	100.0	50.0

Table 7.11 Female young of year mussels examined from waterbodies of the Magela Creek, in relation to marsupial condition and mean length of gravid individuals. Minimum mean size at first gravidity (averaged over all waterbodies) used to estimate mean age at first spawning and brooding.

BILLABONG	Number of females examined	Empty marsupia (%)	PERCENTAGE WITH LARVAL STAGE			Mean length of females examined (mm)	Mean length of gravid females (mm)	Mean age at first spawning and brooding (years)
			Eggs and embryos (%)	Developing larvae (%)	Glochidia (%)			
Georgetown	3	100.0	0.0	0.0	0.0	33.7	-	1.4
Gulungul	16	18.8	37.5	12.5	31.3	39.4	39.0	0.8
Corndorl	-	-	-	-	-	-	-	1.5
Magela Creek channel	-	-	-	-	-	-	-	1.5
Mudginberri	31	41.9	16.1	12.9	29.0	39.3	41.0	0.8
Buffalo	5	100.0	0.0	0.0	0.0	31.1	-	1.2
Island	4	25.0	25.0	50.0	0.0	45.9	45.2	0.7
JaJa	1	0.0	0.0	0.0	100.0	49.5	49.5	0.6
Leichhardt	16	37.5	12.5	18.8	31.3	46.6	49.6	0.6
Jabiluka	2	50.0	0.0	0.0	50.0	46.5	41.0	0.8
Nankeen	2	50.0	0.0	0.0	50.0	46.3	45.0	1.0

Table 7.12 Data of marsupial condition of all female young of year mussels collected from Mudginberri billabong during September, October, and November 1981, used to determine size and age at first gravidity.

Month	Age (years)	Total length (mm)	Marsupial condition
Sept.	0.58	38.5	empty
"	0.58	39.0	eggs and embryos
"	"	39.5	"
"	"	40.0	empty
"	"	40.0	"
"	"	41.0	"
Oct.	0.70	36.5	empty
"	"	37.0	"
"	"	38.0	"
"	"	38.5	glochidia
"	"	41.0	developing larvae
Nov.	0.77	36.0	eggs and embryos
"	"	38.0	empty
"	"	40.0	glochidia
"	"	41.5	"
"	"	42.0	developing larvae
"	"	44.5	eggs and embryos
"	"	45.0	glochidia

Table 7.13 Linear and quadratic regression equations (with r^2 values and significance) describing the relationship between the percent of gravid females found among all females examined ($\arcsin \sqrt{(Y \text{ in percent}/100)}$, radians) and age of mussels (X in years), in billabongs of the Magela Creek.

Billabong	Regression equation	R^2	Significance	Age range (years)
Cordorl	$Y = 0.984 - 0.0273X$	0.381	**	all ages
Mudginberri	$Y = 1.049 - 0.0078X$	0.172	*	"
Buffalo	$Y = 0.872 - 0.0110X$	0.318	***	"
Island	$Y = 1.027 - 0.0270X$	0.347	*	"
Leichhardt	$Y = 0.904 + 0.0330X - 0.0062X^2$	0.655	*	"
Jabiluka	$Y = 0.596 + 0.0317X - 0.0026X^2$	0.498	*	"
Nankeen	$Y = 0.740 - 0.0112X$	0.198	*	> 2.0

* $P < 0.05$

** $P < 0.01$

*** $P < 0.001$

Table 7.14 Partial regression coefficients (and their significance and coefficients of determination of the multiple linear regression equations describing the relationship between monthly larval production (percent of gravid female mussels found among all females examined) and various environmental variables, in billabongs of the Magela Creek. Equation is of the form: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$ where Y = larval production (arcsin $\sqrt{Y}$ in percent/100), radians), a = constant, X_1 = ln dissolved oxygen, X_2 = chlorophyll, X_3 = turbidity, X_4 = time, X_5 = temperature and $b_1 - b_5$ are the respective regression coefficients of the independent variables.

BILLABONG	P A R T I A L		R E G R E S S I O N					C O E F F I C I E N T		
		constant	ln diss. oxygen (mg/l)	chlora. (µg/l)	turb. (NTU)	time (month)	temp. °C	r ²	DF	
Georgetown	coeff. t value	-0.369 -0.52	0.0625 0.40	0.0083 1.10	-0.0012 -2.29*	-0.0236 -1.66	0.0458 2.24*	0.723	21	
Corndorl	coeff. t value	-2.570 -1.30	0.0953 0.65	-0.0321 -0.70	-0.0084 -1.94	0.0519 0.79	0.1230 1.72	0.370	11	
Mudginberri	coeff. t value	-0.818 -1.56	-0.0525 -0.28	-0.0045 -0.57	0.0033 0.23	0.0296 2.31*	0.0599 3.48**	0.614	21	
Island	coeff. t value	-2.110 -1.83	0.1960 3.33*	-0.0192 -1.45	0.0562 1.38	0.0527 2.36*	0.0870 2.33*	0.828	11	
JaJa	coeff. t value	-3.780 -3.68	0.2620 6.88	-0.0004 -0.13	-0.0106 -4.65	0.1603 6.08	0.1269 3.83	0.995	1	
Leichhardt	coeff. t value	-0.452 -0.38	0.166 2.31*	-0.0042 -0.48	0.0569 1.85	-0.0099 -0.27	0.0337 0.80	0.575	11	
Jabiluka	coeff. t value	0.081 0.04	0.0730 1.21	0.0145 1.46	0.0174 1.67	-0.0946 -1.36	0.0131 0.21	0.695	11	
Nankeen	coeff. t value	1.660 2.07	0.3110 5.64***	-0.0008 -0.14	0.0039 2.26*	-0.0801 -3.11*	-0.0365 -1.35	0.734	21	
Billabongs combined	coeff. t value	-0.874 -2.36*	0.2050 8.09***	0.0040 1.28	-0.0019 -3.53***	0.0196 2.14*	0.0475 3.67***	0.387	150	

* $P < 0.05$
 ** $P < 0.01$
 *** $P < 0.001$

Table 7.15 Linear regression equations (with r^2 values and significance) describing the relationship between monthly larval production - the percent of gravid females found among all females examined ($\arcsin \sqrt{(Y \text{ in percent}/100)}$, radians), and various environmental variables (X), in billabongs of the Magela Creek.

Billabong	Regression equation	Independent variable	Significance	r^2
Georgetown	$Y = 0.973 - 0.002X$	turbidity (NTU)	$P < 0.001$	61.1
Mudginberri	$Y = -1.208 + 0.077X$	temperature ($^{\circ}\text{C}$)	$P < 0.001$	47.9
Island	$Y = 0.598 + 0.301X$	(ln) dissolved oxygen (mg/l)	$P < 0.001$	61.0
JaJa	$Y = 0.511 + 0.327X$	"	$P < 0.05$	74.8
Leichhardt	$Y = 0.704 + 0.195X$	"	$P < 0.05$	30.2
Jabiluka	$Y = 0.453 + 0.142X$	"	$P < 0.10$	21.0
Nankeen	$Y = 0.259 + 0.344X$	"	$P < 0.001$	58.6

Table 7.16 Date of capture of fish examined for glochidial infection, from billabongs of the Magela Creek, in relation to the percent of gravid female mussels (found among all females) collected simultaneously.

BILLABONG	Date of capture	Percent of gravid female mussels
Georgetown	16/9/1980	11.9
"	29/10/1980	38.2
"	1/12/1980	27.3
"	24/4/1981	59.5
Corndorl	26/9/1980	52.6
"	29/10/1980	76.0
"	1/12/1980	84.0
"	23/9/1981	55.0
Gundur	15/8/1980	68.0
"	26/9/1980	79.0
"	1/12/1980	96.0
Mudginberri	2/12/1980	86.5
"	3/7/1981	46.9
"	27/11/1981	87.5
"	28/1/1982	66.7
"	3/2/1982	63.6
"	6/5/1982	50.0
Buffalo	2/12/1980	88.0
"	20/10/1981	83.5
Nankeen	24/2/1982	62.5

Table 7.17 Mean number per fish (and standard deviation) of encysted glochidia of V. angasi found monthly upon the fins of the host, Glossogobius giurus, captured from Mudginberri billabong.

MONTH	Mean number of glochidia per fish	standard deviation	number of fish examined
March (1981)	6.25	4.54	20
April	6.81	5.44	16
May	3.40	4.20	20
June	2.75	2.36	20
July	1.70	2.25	20
August	4.50	4.38	12
September	6.01	3.67	5
October	7.09	2.74	5
November	7.42	2.30	5
December	6.29	4.50	3
January (1982)	1.48	2.01	10
February	0.82	1.32	10
March	0.45	0.52	11
April	5.64	5.94	11

Table 7.18 Mean number per fish of encysted glochidia of V. angasi found upon the various tissues of four host fish species, in relation to site and time of fish capture.

Fish species	Common name	Site of infection					Billabong (date)	Number of fish examined
		Internal surfaces		External surfaces				
Scientific name		mouth	opercula	gills	body surface	fins		
<u>Ambassis spp.</u>	perchlet	0.67	0.08	1.42	0.25	1.67	Georgetown (24/4/1981)	12
"	"	0.0	0.0	0.0	0.0	1.00	Gundur (26/9/1980)	2
"	"	0.17	0.0	3.50	0.67	1.33	Corndorl (1/12/1980)	6
<u>Glossogobius giurus</u>	flathead goby	1.05	1.30	19.05	0.30	6.35	Mudginberi (31/3/1981)	20
<u>Oxyeleotris lineolatus</u>	sleepy cod	0.0	0.0	2.00	0.0	1.00	Georgetown (24/4/1981)	1
<u>Tandanus ater</u>	eeltailed catfish	0.0	0.0	1.00	0.0	0.0	Georgetown (24/4/1981)	2
"	"	0.0	0.0	0.0	0.0	0.0	Gundur (26/9/1980)	4
"	"	0.0	0.0	2.33	0.0	0.0	Corndorl	4

Table 7.19 Natural infections of glochidia of *V. angasi* found upon the fins of fish species captured from various Magela Creek billabongs, in relation to the mean percent of gravid female mussels (found among all females) collected simultaneously. Incidence (% of fish infected = 'parasitised') and intensity (mean number of glochidia per infected fish = 'mean larvae') of infection are shown.

FISH SPECIES		BILLABONG						
		GEORGETOWN	CORNDORL	GUNDUR	MUDGINBERRI	BUFFALO	NANKEEN	AVERAGED OVERALL
	Percent of gravid female mussels	34.2	66.9	81.0	66.9	85.8	62.5	
<i>Glussogobius</i>	examined	16	-	-	248*	-	-	264
<i>glucus</i>	parasitised (%)	6.3	-	-	77.0	-	-	72.7
	mean larvae	1.00	-	-	4.14	-	-	4.13
<i>Ambassis</i>	examined	72	60	72	5	-	-	209
spp.	parasitised (%)	12.5	30.0	28.3	40.0	-	-	23.6
	mean larvae	2.56	1.94	2.27	2.50	-	-	2.21
<i>Anniataba</i>	examined	-	13	19	9	21	-	62
<i>percoidea</i>	parasitised (%)	-	38.5	15.8	11.0	76.0	-	40.3
	mean larvae	-	4.40	1.00	4.00	2.56	-	2.80
<i>Glossamia</i>	examined	7	40	32	13	-	-	92
<i>apiron</i>	parasitised (%)	28.6	7.5	6.2	61.5	-	-	16.3
	mean larvae	1.50	2.67	1.5	3.6	-	-	2.85
<i>Toxotes</i>	examined	3	6	13	8	2	-	32
<i>chatareus</i>	parasitised (%)	67.0	0.0	46.2	25.0	0.0	-	31.3
	mean larvae	6.50	0.0	1.00	1.50	0.0	-	2.20
<i>Oxyeleotris</i>	examined	10	6	3	1	-	-	20
<i>lineolatus</i>	parasitised (%)	40.0	16.7	66.7	100.0	-	-	35.0
	mean larvae	1.75	2.00	2.50	2.00	-	-	2.00
<i>Hexanematichthys</i>	examined	10	-	5	13	-	6	34
spp.	parasitised (%)	0.0	-	0.0	23.1	-	33.3	14.7
	mean larvae	0.0	-	0.0	3.33	-	1.50	2.60
<i>Nematalosa</i>	examined	39	-	2	18	13	-	72
<i>erebi</i>	parasitised (%)	5.1	-	50.0	6.0	38.5	-	12.5
	mean larvae	1.00	-	4.00	1.00	1.20	-	1.44
<i>Strongylura</i>	examined	8	8	7	12	2	1	38
<i>kreffiti</i>	parasitised (%)	25.0	0.0	0.0	0.0	0.0	100.0	7.9
	mean larvae	1.00	0.0	0.0	0.0	0.0	2.00	1.33
<i>Melanotaenia</i>	examined	31	42	32	-	-	-	105
<i>splendida</i>	parasitised (%)	12.9	7.1	0.0	-	-	-	6.7
	mean larvae	1.25	1.00	0.0	-	-	-	1.14
<i>Moquarda</i>	examined	2	2	1	1	-	-	6
<i>moquarda</i>	parasitised (%)	50.0	0.0	100.0	0.0	-	-	33.3
	mean larvae	2.00	0.0	1.00	0.0	-	-	1.50
<i>Liza</i>	examined	-	-	1	-	-	-	1
sp.	parasitised (%)	-	-	100.0	-	-	-	100
	mean larvae	-	-	2.0	-	-	-	2.00
<i>Tandanus</i>	examined	60	32	31	11	2	-	136
<i>ater</i>	parasitised (%)	1.60	3.1	3.2	0.0	0.0	-	2.2
	mean larvae	1.00	1.00	1.00	0.0	0.0	-	1.00
<i>Lates</i>	examined	-	2	-	9	-	1	12
<i>calcarifer</i>	parasitised (%)	-	50.0	-	0.0	-	100	17.0
	mean larvae	-	1.00	-	0.0	-	1.0	1.00
<i>Denariusa</i>	examined	-	4	16	-	-	-	20
<i>bandata</i>	parasitised (%)	-	25.0	0.0	-	-	-	5.0
	mean larvae	-	1.00	0.0	-	-	-	1.00
<i>Craterocephalus</i>	examined	-	-	28	6	-	-	34
<i>stercusmuscarum</i>	parasitised (%)	-	-	0.0	17.0	-	-	2.9
	mean larvae	-	-	0.0	2.00	-	-	2.00
<i>Megalops</i>	examined	1	-	-	5	-	8	14
<i>cypclinoidea</i>	parasitised (%)	0.0	-	-	0.0	-	13.0	7.1
	mean larvae	0.0	-	-	0.0	-	1.00	1.00
<i>Leiopotherapon</i>	examined	1	4	1	-	-	-	6
<i>unicolor</i>	parasitised (%)	0.0	0.0	0.0	-	-	-	0.0
	mean larvae	0.0	0.0	0.0	-	-	-	0.0
<i>Craterocephalus</i>	examined	-	-	-	-	2	-	2
sp.	parasitised (%)	-	-	-	-	0.0	-	0.0
	mean larvae	-	-	-	-	0.0	-	0.0
<i>Melanotaenia</i>	examined	-	-	1	-	-	-	1
<i>nigrans</i>	parasitised (%)	-	-	0.0	-	-	-	0.0
	mean larvae	-	-	0.0	-	-	-	0.0
<i>Porochilus</i>	examined	2	-	-	2	-	-	4
<i>rendahli</i>	parasitised (%)	0.0	-	-	0.0	-	-	0.0
	mean larvae	0.0	-	-	0.0	-	-	0.0
<i>Scleropages</i>	examined	-	-	-	1	-	6	7
<i>jardine</i>	parasitised (%)	-	-	-	0.0	-	0.0	0.0
	mean larvae	-	-	-	0.0	-	0.0	0.0

* Collected monthly during 1981/1982.

Table 7.20 The host fish species of Velesunio angasi as determined by: natural infections found on field collected fish (F); and/or successful larval metamorphosis achieved in laboratory experiments (L). Feeding guilds of the fish species are also shown.

Fish species		Field (F) and/or laboratory (L) observation	Feeding guild
Scientific name	Common name		
<u>Ambassis</u> spp.	perchlet	F, L	microphagic carnivore
<u>Glossogobius</u> <u>qiurus</u>	flathead goby	F, L	meiophagic carnivore
<u>Glossamia</u> <u>apron</u>	mouth almighty	F	macrophagic carnivore
<u>Amniataba</u> <u>percoides</u>	banded grunter	F	meiophagic omnivore
<u>Toxotes</u> <u>chatareus</u>	archer fish	F	meiophagic insectivore
<u>Oxyleotris</u> <u>lineolatus</u>	sleepy cod	F	macrophagic carnivore
<u>Hexanematicthys</u> spp.	forktailed catfish	F	macrophagic omnivore
<u>Nematalosa</u> <u>erebi</u>	bony bream	F	detritophagic /planktophagic
<u>Strongylura</u> <u>kreffti</u>	longtom	F	macrophagic piscivore/carnivore
<u>Melanotaenia</u> <u>splendida</u>	checkered rainbowfish	F, L	meiophagic omnivore
<u>Mogurnda</u> <u>mogurnda</u>	purple spotted gudgeon	F	meiophagic carnivore
<u>Liza</u> sp.	mullet	F	detritophagic /phytophagic
<u>Tandanus</u> <u>ater</u>	eeltailed catfish	F	meiophagic benthic carnivore
<u>Lates</u> <u>calcarifer</u>	barramundi	F, L	macrophagic piscivore/carnivore
<u>Denariusa</u> <u>bandata</u>	penny fish	F	meiophagic carnivore
<u>Craterocephalus</u> <u>stercusmuscarum</u>	speckled hardyhead	F	microphagic carnivore
<u>Megalops</u> <u>cyprinoides</u>	tarpon	F	macrophagic piscivore/carnivore
<u>Leiopotherapon</u> <u>unicolor</u>	spangled grunter	L	meiophagic omnivore
<u>Hypseleotris</u> <u>compressus</u>	northern carp gudgeon	L	microphagic carnivore

Table 8.1 Relative fractions of unicellular algae (with standard deviation), other unidentifiable organic material (detritus), and inorganic material found in the stomachs and intestines (where indicated) of mussels collected from selected billabongs of the Magela Creek, in relation to time of year.

Billabong	DATE	Stomach and Intestinal Content (percent)		
		Algae (SD)	Other organics	Inorganic
Georgetown	APR/1981	22.21 (5.42)	[77.8]	
	JUN/1982	14.34 (4.09)	51.7	34.0
	* "	-	-	31.6
	AUG/1981	1.72 (1.29)	61.8	36.5
	DEC/1981	3.70 (3.67)	59.2	37.1
	JAN/1982	7.10 (5.12)	48.2	44.7
Mudginberri	MAR/1981	6.34 (6.21)	[93.7]	
	JUN/1980	5.61 (3.81)	56.2	38.2
	* "	-	-	48.0
	JUN/1981	21.21 (6.53)	44.3	23.1
	AUG/1981	12.19 (4.77)	75.9	11.9
	* "	6.56 (4.83)	69.6	23.8
	DEC/1981	2.87 (2.25)	92.1	5.0
	JAN/1982	3.60 (1.30)	50.1	46.3
Nankeen	APR/1981	3.0 -	[97.0]	
	JUN/1981	27.44 (6.61)	[72.6]	
	AUG/1981	6.08 (2.66)	68.9	25.0
	DEC/1981	0.91 (1.56)	85.1	14.0
	JAN/1981	3.48 (2.87)	68.6	27.9
	* "	-	-	35.4

* intestinal content.
- not determined.

Table 8.2 Relative fractions of the stomach contents (as mean percentages), and mean stomach and intestinal fullness of mussels from selected billabongs, in relation to time of year and prevailing environmental conditions.

Billabong	DATE	Stomach content (percent)			Stomach and intestinal fullness					
		Algae	Other Organics	Inorganics	Stomach (SD)	Intestine (SD)	n	Surface chlorophyll (µg/l)	Turbidity (NTU)	Dissolved oxygen (mg/l)
Georgetown	APR/1981	22.2	-	-	0.60 (0.69)	2.30 (0.96)	15	15.3	30.0	2.2
	JUN/1981	14.3	51.7	34.0	2.37 (1.14)	1.40 (0.39)	15	13.9	86.0	5.1
	AUG/1981	1.7	61.8	36.5	2.50 (1.60)	0.87 (0.58)	15	11.5	160.0	5.3
	DEC/1981	3.7	59.2	37.1	1.77 (1.18)	1.10 (0.28)	15	5.4	18.0	6.3
	JAN/1982	7.1	48.2	44.7	2.43 (1.39)	1.07 (0.42)	15	1.4	20.0	6.3
Mudginberri	MAR/1981	6.3	-	-	0.27 (0.32)	0.37 (0.52)	15	0.7	8.0	6.3
	JUN/1980	5.6	56.2	38.2	0.60 (0.47)	1.63 (0.35)	15	9.0	5.0	4.4
	JUN/1981	21.2	44.3	23.1	0.97 (0.88)	1.20 (0.68)	15	12.1	2.4	4.5
	AUG/1981	12.2	75.9	11.9	1.00 (0.75)	1.65 (0.53)	10	9.5	2.9	5.2
	DEC/1981	2.9	92.1	5.0	2.20 (1.10)	1.07 (0.32)	15	1.2	6.6	5.3
	JAN/1982	3.6	50.1	46.3	1.67 (1.08)	1.17 (0.70)	15	3.0	6.3	6.8
Nankeen	APR/1981	3.0	-	-	0.02 (0.11)	0.02 (0.11)	22	5.0	0.5	0.2
	JUN/1981	27.4	-	-	0.35 (0.52)	0.56 (0.53)	17	23.5	12.0	2.3
	AUG/1981	6.1	68.9	25.0	0.38 (0.52)	0.98 (0.49)	21	12.7	49.0	2.4
	DEC/1981	0.9	85.1	14.0	0.87 (0.88)	0.93 (0.32)	15	6.8	105.0	5.9
	JAN/1981	3.5	68.6	27.9	1.93 (1.29)	1.33 (0.62)	15	6.3	33.0	8.3

Table 8.3 Percentage composition of phytoplankton genera and other identifiable organic material, found in the stomachs of mussels sampled at different times of the year from Georgetown billabong. Values are means averaged over 10 individuals from each sampling period. Total numbers of phytoplankton species found among the stomach contents of the 10 individuals are given.

GENUS	DATE				
	APR 1981	JUN 1981	AUG 1981	DEC 1981	JAN 1982
Cl. DINOPHYCEAE					
<u>Glenodinium</u>	-	-	-	0.8	0.3
<u>Peridinium</u>	10.4	0.4	-	0.8	-
Cl. CHRYSOPHYCEAE					
<u>Dinobryon</u>	-	-	-	-	0.3
Cl. XANTHOPHYCEAE					
<u>Anabaena</u>	-	-	-	-	0.3
<u>Centritractus</u>	-	-	-	-	0.3
<u>Microcystis</u>	-	-	1.6	-	-
<u>Ophiocytium</u>	-	-	-	0.8	-
Cl. BACILLARIOPHYCEAE					
Unidentified A	-	-	-	2.8	0.6
Unidentified E	-	-	-	0.4	0.6
Unidentified F	-	-	-	0.4	-
Unidentified G	-	-	-	0.4	-
Unidentified H	-	-	-	-	0.4
<u>Eunotia</u>	-	-	1.2	0.4	-
<u>Frustulia</u>	-	-	0.4	-	0.3
<u>Gomphonema</u>	-	-	0.8	-	0.4
<u>Pinnularia</u>	-	-	-	0.4	-
Cl. EUGLENOPHYCEAE					
<u>Euglena</u>	1.6	1.2	-	5.2	1.7
<u>Lepocinclis</u>	16.8	8.2	1.2	-	4.1
<u>Phacus</u>	8.4	2.4	0.8	0.4	4.8
<u>Strombomonas</u>	0.8	-	-	0.4	-
<u>Trachelomonas</u>	48.2	81.0	83.6	34.0	61.2
Cl. CHLOROPHYCEAE					
0. Chlorococcales					
<u>Ankistrodesmus</u>	-	-	-	-	0.2
<u>Crucigenia</u>	-	-	-	0.4	2.2
<u>Oocystis</u>	2.4	3.2	0.4	-	0.3
<u>Scenedesmus</u>	-	-	-	0.4	0.3
<u>Sphaerocystis</u>	-	-	-	-	0.3
<u>Tetraedron</u>	-	-	-	-	0.4
0. Zygnematales					
<u>Bambusina</u>	-	-	-	0.8	-
<u>Closterium</u>	-	-	-	4.6	3.0
<u>Cosmarium</u>	5.8	0.8	0.4	5.8	1.3
<u>Desmidiium</u>	-	-	-	2.4	1.0
<u>Euastrum</u>	0.4	-	-	2.4	0.7
<u>Hyalotheca</u>	-	-	-	0.4	0.3
<u>Micrasterias</u>	-	-	-	-	0.4
<u>Netrium</u>	-	-	-	0.4	-
<u>Penium</u>	-	-	-	1.2	1.3
<u>Pleurotaenium</u>	-	-	-	5.6	2.0
<u>Sphaerosozoma</u>	-	0.4	-	-	-
<u>Spirogyra</u>	-	-	-	0.4	-
<u>Staurastrum</u>	4.6	0.4	0.8	17.2	7.5
<u>Staurodesmus</u>	-	0.4	-	0.4	0.7
<u>Tetmemorus</u>	-	-	-	-	0.4
<u>Triploceras</u>	-	-	-	-	0.3
0. Tetrasporales					
<u>Gloeocystis</u>	-	-	-	0.4	0.3
0. Volvocales					
<u>Eudorina</u>	-	-	-	-	1.4
<u>Volvox</u>	-	1.6	8.8	10.0	0.4
Allochthonous matter	-	-	-	4.8	11.5
Total number of species	35	17	14	66	86

Table 8.4 Percentage composition of phytoplankton genera and other identifiable organic material, found in the stomachs (and intestines where indicated) of mussels sampled at different times of the year from Mudginberri billabong. Values are means averaged over 10 individuals from each sampling period. Total numbers of phytoplankton species found among the stomach contents of the 10 individuals are given.

GENUS	DATE						
	JUN 1980	MAR 1981	JUN 1981	AUG 1981	AUG 1981*	DEC 1981	JAN 1982
Cl. DINOPHYCEAE							
<u>Glenodinium</u>	0.8	-	-	2.6	-	-	-
<u>Peridinium</u>	19.8	9.6	14.4	14.0	25.4	1.2	1.6
Cl. CHRYSOPHYCEAE							
<u>Dinobryon</u>	-	-	-	0.2	-	-	-
Cl. XANTHOPHYCEAE							
<u>Anabaena</u>	-	-	-	0.2	-	-	-
<u>Certritractus</u>	0.4	-	-	1.4	0.4	0.4	0.8
<u>Microcystis</u>	-	-	-	-	0.6	-	-
<u>Ophiocytium</u>	-	-	-	1.2	1.2	-	0.8
Cl. BACILLARIOPHYCEAE							
Unidentified sp.A	-	2.0	-	0.8	-	-	-
Unidentified sp.B	0.4	-	24.4	4.6	-	-	-
Unidentified sp.D	-	-	-	0.6	-	-	-
Unidentified sp.E	-	-	-	0.4	-	-	-
<u>Eunotia</u>	0.4	-	-	-	-	-	0.4
<u>Frustulia</u>	-	-	-	0.2	-	0.4	-
Cl. EUGLENOPHYCEAE							
<u>Euglena</u>	0.4	0.8	-	-	-	0.8	1.2
<u>Lepocinclis</u>	1.6	14.4	3.2	1.4	3.0	4.8	2.0
<u>Phacus</u>	2.8	3.6	0.8	1.2	0.8	3.6	0.4
<u>Strombomonas</u>	0.4	-	-	-	-	-	-
<u>Trachelomonas</u>	65.0	52.6	51.6	22.8	57.0	72.0	34.8
Cl. CHLOROPHYCEAE							
0. Chlorococcales							
<u>Botryococcus</u>	0.4	-	-	-	-	-	-
<u>Coelastrum</u>	-	-	-	0.2	-	-	-
<u>Coenochloris</u>	-	-	-	9.0	1.6	0.4	-
<u>Crucigenia</u>	-	-	-	0.2	-	-	-
<u>Oocystis</u>	-	4.8	0.8	6.2	0.6	-	1.6
<u>Scenedesmus</u>	0.4	0.4	-	0.6	0.8	2.0	-
<u>Sphaerocystis</u>	-	0.4	-	0.2	-	-	-
<u>Tetrastrum</u>	-	-	-	0.2	-	-	-
0. Zygnematales							
<u>Actinotaenium</u>	-	-	-	0.2	-	-	-
<u>Closterium</u>	0.8	0.4	-	0.8	-	0.4	4.8
<u>Cosmarium</u>	2.0	2.8	-	3.6	0.6	5.2	10.8
<u>Desmidium</u>	-	-	0.2	0.2	-	1.2	1.6
<u>Docidium</u>	-	-	-	-	-	-	0.4
<u>Euastrum</u>	0.8	0.4	-	-	0.4	-	3.2
<u>Penium</u>	-	-	-	0.2	-	-	-
<u>Pleurotaenium</u>	0.4	-	0.4	-	0.2	0.4	6.4
<u>Staurostrum</u>	1.6	1.6	0.4	0.2	0.4	5.6	11.8
<u>Staurodesmus</u>	0.4	0.4	-	0.2	-	0.4	0.4
<u>Xanthidium</u>	-	0.8	-	-	-	-	-
0. Tetrasporales							
<u>Gloeocystis</u>	-	-	1.2	25.8	6.6	-	0.4
0. Volvocales							
<u>Eudorina</u>	-	-	-	0.6	-	-	-
<u>Volvox</u>	1.2	4.4	1.6	0.2	0.4	1.2	16.0
Allochthonous matter	-	-	-	-	-	-	-
Total number of species	28	31	14	52	23	34	52

* intestinal contents.

Table 8.5 Percentage composition of phytoplankton genera and other identifiable organic material, found in the stomachs of mussels sampled at different times of the year from Nankeen billabong. Values are means averaged over 10 individuals from each sampling period. Total numbers of phytoplankton species found among the stomach contents of the 10 individuals are given.

GENUS	DATE				
	APR 1981	JUNE 1981	AUG 1981	DEC 1981	JAN 1982
Cl. DINOPHYCEAE					
<u>Peridinium</u>	-	3.2	-	0.4	-
Cl. XANTHOPHYCEAE					
<u>Microcystis</u>	-	-	-	0.4	-
<u>Ophiocytium</u>	-	-	-	0.4	-
Cl. BACILLARIOPHYCEAE					
Unidentified sp. A	-	-	-	-	1.8
Unidentified sp. B	-	-	-	-	0.2
Unidentified sp. C	-	-	-	-	0.4
<u>Navicula</u>	-	-	-	-	0.2
Cl. EUGLENOPHYCEAE					
<u>Euglena</u>	-	0.4	2.0	8.4	0.4
<u>Lepocinclis</u>	2.0	2.0	7.2	12.6	-
<u>Phacus</u>	-	0.8	3.6	8.9	1.4
<u>Strombomonas</u>	-	-	0.4	0.4	-
<u>Trachelomonas</u>	92.0	93.6	86.4	49.9	2.0
Cl. CHLOROPHYCEAE					
0. Chlorococcales					
<u>Coelastrum</u>	-	-	-	0.4	-
<u>Crucigenia</u>	-	-	-	1.6	0.6
<u>Dimorphococcus</u>	-	-	-	1.6	-
<u>Oocystis</u>	2.0	-	-	1.2	0.4
<u>Scenedesmus</u>	-	-	-	1.2	1.2
<u>Stigeoclonium</u>	-	-	-	0.4	-
0. Zygnematales					
<u>Closterium</u>	-	-	-	0.8	0.8
<u>Cosmarium</u>	2.0	-	-	2.9	79.0
<u>Desmidium</u>	-	-	-	0.8	1.4
<u>Euastrum</u>	-	-	-	0.4	-
<u>Penium</u>	-	-	-	-	0.6
<u>Pleurotaenium</u>	-	-	0.4	-	0.4
<u>Sphaerzosma</u>	2.0	-	-	-	-
<u>Stauroastrum</u>	-	-	-	0.8	7.0
<u>Staurodesmus</u>	-	-	-	0.4	0.2
<u>Triploceras</u>	-	-	-	1.2	-
<u>Xanthidium</u>	-	-	-	-	0.4
0. Tetrasporales					
<u>Gloeocystis</u>	-	-	-	-	0.2
<u>Paulschulzia</u>	-	-	-	-	0.2
0. Volvocales					
<u>Eudorina</u>	-	-	-	-	0.6
<u>Volvox</u>	-	-	-	4.8	0.4
Allochthonous matter	-	-	-	-	1.0
Total number of species	7	10	12	42	41

Table 8.6 Percentage composition of phytoplankton genera found in the stomachs of mussels collected from Mudginberri billabong on 15 June 1980, in relation to the number of days (out of 11) from 24 June to 4 July 1980, over which genera were present among the plankton of the billabong waters. The number of phytoplankton species of each genus recorded in the plankton and stomachs of mussels is indicated in brackets. Stomach values are means averaged over 10 individuals. Plankton data from Kessell and Tyler (1983).

GENUS	SOURCE	
	PLANKTON	STOMACH
Cl. CYANOPHYCEAE		
<u>Aphanocapsa</u>	3 (1)	-
<u>Gomphosphaeria</u>	4 (1)	-
<u>Merismopedia</u>	3 (1)	-
<u>Oscillatoria</u>	1 (1)	-
<u>Spirulina</u>	1 (1)	-
Cl. DINOPHYCEAE		
<u>Glenodinium</u>	1 (1)	0.8 (1)
<u>Peridinium</u>	11 (5)	19.8 (2)
Cl. CHRYSOPHYCEAE		
<u>Dinobryon</u>	8 (1)	-
<u>Mallomonas</u>	6 (2)	-
<u>Synura</u>	1 (1)	-
Cl. XANTHOPHYCEAE		
<u>Centritractus</u>	8 (1)	0.4 (1)
Cl. BACILLARIOPHYCEAE		
<u>Asterionella</u>	11* (1)	-
<u>Eunotia</u>	7 (1)	0.4 (1)
<u>Frustulia</u>	2 (1)	-
<u>Gomphonema</u>	1 (1)	-
<u>Melosira</u>	7 (1)	-
<u>Nitzschia</u>	4 (1)	-
<u>Rhizosolenia</u>	9 (1)	-
Unidentified sp.B	-	0.4 (1)
Cl. CHLOROMONADOPHYCEAE		
<u>Chloromonad flagellate</u>	6 (1)	-
Cl. EUGLENOPHYCEAE		
<u>Euglena</u>	8 (4)	0.4 (1)
<u>Lepocinclis</u>	1 (1)	1.6 (1)
<u>Phacus</u>	11 (4)	2.8 (2)
<u>Strombomonas</u>	4 (1)	0.4 (1)
<u>Trachelomonas</u>	11 (5)	65.0 (3)
Cl. CHLOROPHYCEAE		
0. Chlorococcales		
<u>Ankistrodesmus</u>	4 (1)	-
<u>Botryococcus</u>	4 (1)	0.4 (1)
<u>Coelastrum</u>	2 (1)	-
<u>Crucigenia</u>	3 (1)	-
<u>Distyosphaerium</u>	7 (1)	-
<u>Kirchneriella</u>	9 (2)	-
<u>Micractinium</u>	1 (1)	-
<u>Oocystis</u>	1 (1)	-
<u>Scenedesmus</u>	11 (5)	0.4 (1)
<u>Selenastrum</u>	1 (1)	-
<u>Tetraedron</u>	9 (2)	-
0. Zygnematales		
<u>Closterium</u>	2 (2)	0.8 (2)
<u>Cosmarium</u>	7 (4)	2.0 (1)
<u>Desmidiium</u>	1 (1)	-
<u>Euastrum</u>	3 (3)	0.8 (2)
<u>Hyalotheca</u>	1 (1)	-
<u>Micrasterias</u>	1 (1)	-
<u>Netrium</u>	1 (1)	-
<u>Pleurotaenium</u>	1 (1)	0.4 (1)
<u>Sphaerzosoma</u>	4 (1)	-
<u>Stauroastrum</u>	9 (6)	1.6 (3)
<u>Staurodesmus</u>	4 (2)	0.4 (1)
<u>Xanthidium</u>	1 (1)	-
0. Tetrasporales		
<u>Gloeocystis</u>	1 (3)	-
0. Volvocales		
<u>Volvox</u>	-	1.2 (1)
Total number of species	81	27

* dominant taxon.

Table 8.7 Regression and correlation coefficients of the linear log-log transformed equations describing the relationship between dry and wet weight of mussels (all seasons) from the Magela Creek waterbodies, for sexes separate and combined. Equation is of the form: $\ln DW = b + m \ln FW$ where DW = dry weight (g), FW = flesh (or wet) weight (g). Levels of significant differences between the slopes and intercepts of the equations derived for each sex (as shown by analysis of covariance testing) are indicated.

WATERBODY			regression and correlation coefficient		
			n	b	m
Georgetown	male	660	-2.107	1.151	0.935
	female	599	-2.086	1.142	0.930
	total	1267	-2.089	1.142	0.936
Corndorl	male	223	-1.966	1.054	0.912
	female	181	-1.898	1.003	0.863
	total	404	-1.937	1.032	0.891
Magela Creek channel	male	370	-1.883	1.053	0.844
	female	312	-1.919	1.089	0.875
	total	690	-1.928	1.089	0.866
Mudginberri	male	688	-2.167***	1.175	0.901
	female	648	-2.079	1.148	0.892
	total	1340	-2.130	1.165	0.897
Buffalo	male	136	-2.150	1.099	0.882
	female	121	-2.179	1.082	0.860
	total	257	-2.159	1.088	0.868
Island	male	205	-1.980	1.146	0.979
	female	206	-2.121	1.180	0.961
	total	412	-2.057	1.165	0.969
JaJa	male	173	-1.919	1.124	0.945
	female	180	-1.793	1.072	0.952
	total	353	-1.861	1.100	0.955
Leichhardt	male	217	-2.001	1.143	0.959
	female	186	-1.895	1.103	0.962
	total	403	-1.950	1.124	0.960
Jabiluka	male	216	-2.061	1.105	0.889
	female	191	-2.171	1.157	0.884
	total	410	-2.125	1.134	0.887
Nankeen	male	636	-2.016	1.150	0.885
	female	628	-1.984	1.151	0.934
	total	1274	-1.996	1.148	0.913

*** P < 0.001.

Table 8.8 Regression and correlation coefficients of the linear log-log transformed equations describing the relationship between dry weight and length of mussels (all seasons) from the Magela Creek waterbodies, for sexes separate and combined. Equation is of the form: $\ln DW = a + b \ln L$ where DW = dry weight (g), L = shell length (mm). Levels of significant differences between the slopes and intercepts of the equations derived for each sex (as shown by analysis of covariance testing) are indicated.

BILLABONG	Regression and correlation coefficient	Sex		
		male	female	combined
Georgetown	a ***	-12.428	-11.820	-12.159
	b *	3.083	2.908	3.004
	r ²	0.837	0.794	0.821
	n	658	598	267
Corndorl	a	-11.401	-11.203	-11.311
	b	2.800	2.746	2.776
	r ²	0.761	0.771	0.764
	n	223	181	404
Magela Creek channel	a	-13.026	-13.439	-13.465
	b	3.274	3.368	3.380
	r ²	0.766	0.812	0.798
	n	371	312	691
Mudginberri	a	-13.773	-13.187	-13.464
	b	3.421	3.264	3.339
	r ²	0.801	0.801	0.803
	n	685	646	1335
Buffalo	a	-14.789	-13.658	-14.187
	b	3.635	3.340	3.478
	r ²	0.816	0.751	0.780
	n	136	121	257
Island	a ***	-13.190	-13.538	-13.404
	b	3.363	3.426	3.403
	r ²	0.881	0.855	0.866
	n	205	206	412
JaJa	a	-13.252	-12.952	-13.311
	b	3.346	3.278	3.361
	r ²	0.806	0.833	0.842
	n	171	180	353
Leichhardt	a	-12.544	-13.244	-12.851
	b	3.183	3.346	3.255
	r ²	0.853	0.868	0.860
	n	217	186	403
Jabiluka	a	-9.729	-10.730	-10.295
	b	2.458	2.701	2.595
	r ²	0.704	0.755	0.731
	n	216	191	410
Nankeen	a ***	-10.879	-11.896	-11.488
	b *	2.739	2.966	2.876
	r ²	0.658	0.765	0.715
	n	640	628	1278
Total	a	-	-	-13.704
	b	-	-	3.412
	r ²	-	-	0.862
	n	-	-	6804

* P < 0.05

*** P < 0.001

Table 8.9 Partial regression coefficients (and their significance) and coefficients of determination of the multiple linear regression equations describing the relationship between mean monthly condition of mussels and various environmental variables, in billabongs of the Magela Creek. Equation is of the form: $Y = a + b_1X_1 + b_2X_2 + b_3X_3 + b_4X_4 + b_5X_5$ where Y = condition (K), a = constant, X_1 = ln dissolved oxygen, X_2 = ln chlorophyll, X_3 = ln turbidity, X_4 = time, X_5 = temperature and b_1 - b_5 are the respective regression coefficients of the independent variables.

BILLABONG	P A R T I A L			R E G R E S S I O N		C O E F F I C I E N T			
	coeff. t value	constant	ln diss. oxygen (mg/l)	ln chloro. (µg/l)	ln turb. (NTU)	time (month)	temp. (°C)	r ²	DF
Georgetown	0.787 1.68		0.1400 1.41	0.0055 0.18	0.0762 3.34**	-0.0256 -2.80*	-0.0071 -0.56	45.2	20
Corndorl	0.442 1.03		0.0377 1.00	-0.0626 -0.84	-0.0498 -1.40	0.0255 1.76	0.0154 0.86	33.2	10
Mudginberri	1.644 5.17***		-0.0400 -0.36	0.0376 1.73	0.0166 0.44	0.0143 2.02	-0.0281 -2.84**	48.8	21
Island	0.517 0.75		0.0208 0.66	0.0613 0.96	0.1505 1.68	-0.0098 -0.65	0.0203 0.94	27.4	10
Jaja	5.931 5.69		0.1390 3.41	-0.0958 -1.70	-0.2977 -4.54	0.1462 4.68	-0.1769 -5.03	98.1	1
Leichhardt	0.003 0.0		0.0095 0.32	0.1184 1.35	-0.0508 -0.62	0.0063 0.29	0.0352 1.53	51.2	10
Jabiluka	0.182 0.47		0.0289 1.84	0.1200 3.05*	-0.0378 -0.54	0.0063 0.27	0.0209 1.58	78.1	9
Nankeen	1.862 3.83***		0.0126 0.38	0.0205 0.54	0.0456 1.89	-0.0088 -0.68	-0.0345 -2.12*	56.4	21
Billabongs combined	0.884 3.76***		0.0146 0.94	0.0682 3.43***	-0.0166 -1.37	0.0079 1.31	-0.0003 -0.03	13.1	145

* $P < 0.05$

** $P < 0.01$

*** $P < 0.001$

Table 8.10 Linear regression equations (with r^2 values and significance) describing the relationship between mean monthly condition of mussels, K (Y), and chlorophyll concentration (X in $\mu\text{g/l}$), in billabongs of the Magela Creek. The significance of other linear regressions describing the relationship between (a) mean monthly condition (Y) and turbidity ($\ln X$), and (b) monthly chlorophyll ($\ln Y$) and turbidity ($\ln X$), in the billabongs is also shown.

Billabong	Regression equation	r^2	P	Significance (P) of other regressions	
				Condition(Y) log chlorophyll(Y)/log turbidity(X)	log chlorophyll(Y)/log turbidity(X)
Georgetown	-	-	N.S.	*	*
Mudginberri	$Y=0.869+0.0556X$	0.251	**	N.S.	N.S.
Leichhardt	$Y=1.038+0.0824X$	0.313	*	*	**
Jabiluka	$Y=0.793+0.0907X$	0.624	***	**	***
Nankeen	$Y=0.811+0.0996X$	0.291	**	***	**
billabongs combined	$Y=0.896+0.0725X$	0.112	***	N.S.	***

* P < 0.05

** P < 0.01

*** P < 0.001

Table 8.11 Linear and quadratic regression equations (with r^2 values and significance) describing the relationship between mean condition of mussels, K (Y), and age of mussels (X in years), in billabongs of the Magela Creek.

Billabong	Regression equation	r^2	significance
Georgetown	$1.052 - 0.016X$	0.776	***
Corndorl	$1.034 - 0.023X$	0.847	***
Mudginberri	$0.937 + 0.012X - 0.0005X^2$	0.331	**
Buffalo	$0.768 + 0.005X$	0.237	**
Island	$1.280 + 0.031X - 0.0029X^2$	0.354	*
JaJa	$1.027 + 0.057X - 0.0031X^2$	0.482	***
Leichhardt	$1.334 - 0.019X$	0.554	**
Jabiluka	$1.279 - 0.055X + 0.0015X^2$	0.846	**
Nankeen	$1.137 - 0.013X$	0.458	***

* $P < 0.05$
 ** $P < 0.01$
 *** $P < 0.001$

Table 8.12 Mean shell free, dry weight (g/m²) and standard deviation (SD) of mussels in relation to depth and substrate in Georgetown billabong.

Depth (m)		substrate			
		A	B	C	D
0.0-0.9	mean	14.511	7.203	14.451	2.858
	SD	7.916	2.809	14.111	4.369
	n	15	12	21	6
1.0-1.9	mean	8.970	9.004	-	-
	SD	4.052	4.920	-	-
	n	9	21	-	-

Key to substrates:

- A. Soft silt and clay
- B. Sand with a little silt, clay and detritus
- C. Silt, clay and detritus with some sand
- D. Friable organic mud.

Table 8.13 Mean shell free, dry weight (g/m^2) and standard deviation (SD) of mussels in relation to depth in Gulungul billabong.

	Depth (m)					
	0.1	0.2	0.3	0.4	0.5	0.6
mean	0.0	0.0	0.664	1.265	1.967	2.791
SD	0.0	0.0	0.926	1.014	1.537	2.007
n	19	40	31	26	13	10

Table 8.14 Mean shell free, dry weight (g/0.25m²) and standard deviation (SD) of mussels in relation to depth and substrate in Corndorl billabong.

Depth (m)		substrate		
		A	B	C
0.00-0.2	mean	0.155	0.980	1.319
	SD	0.439	1.399	1.038
	n	23	5	4
0.21-0.4	mean	0.768	2.651	2.596
	SD	1.018	2.538	2.317
	n	43	8	6
0.41-0.6	mean	2.091	7.403	0.374
	SD	2.686	5.072	0.748
	n	35	5	4
0.61-0.8	mean	3.704	12.619	2.907
	SD	2.989	9.006	1.403
	n	30	10	6
0.81-1.0	mean	4.241	15.130	-
	SD	3.757	9.292	-
	n	24	5	-
1.01-1.2	mean	3.617	2.452	-
	SD	2.234	1.953	-
	n	24	7	-
1.21-1.4	mean	2.317	-	-
	SD	1.608	-	-
	n	24	-	-
1.41-1.6	mean	0.511	-	-
	SD	0.731	-	-
	n	5	-	-

Key to substrates:

- A. Very soft, organic silt and clay
- B. Fine gravel with some silt and clay
- C. Sand.

Table 8.15 Mean shell free, dry weight (g/0.25m²) and standard deviation (SD) of mussels in relation to depth and substrate in Mudginberri billabong.

Depth (m)		substrate			
		A	B	C	D
0.0-0.9	mean	0.219	0.724	2.413	0.857
	SD	2.104	0.594	2.046	0.840
	n	13	5	5	4
1.0-1.9	mean	0.299	3.056	4.062	6.495
	SD	0.523	2.424	2.836	4.033
	n	12	19	19	5
2.0-2.9	mean	2.044	7.789	5.313	9.424
	SD	2.341	4.932	6.570	7.647
	n	63	23	25	6
3.0-3.9	mean	4.691	10.123	5.643	-
	SD	5.550	5.352	3.155	-
	n	46	16	11	-
4.0-4.9	mean	6.660	8.024	5.519	-
	SD	3.533	5.109	1.678	-
	n	12	3	4	-
5.0-5.9	mean	5.314	4.743	1.363	-
	SD	2.097	2.535	1.110	-
	n	4	2	11	-

Key to substrates:

- A. Sand
- B. Sand with a little silt and detritus
- C. Sand with silt and detritus (soft)
- D. Soft to stiff clay with rubble.

Table 8.16 Mean shell free, dry weight (g/0.25m²) and standard deviation (SD) of mussels in relation to depth and substrate in Buffalo billabong.

Depth (m)		substrate					
		A	B	C	E	F	G
0.0-0.9	mean	0.352	1.928	1.423	-	-	-
	SD	0.610	0.500	1.161	-	-	-
	n	8	5	3	-	-	-
1.0-1.9	mean	4.308	6.853	1.881	1.252	5.667	2.827
	SD	2.442	4.265	0.962	1.154	3.154	1.969
	n	10	3	8	10	4	4
2.0-2.9	mean	4.872	5.286	4.513	3.317	10.979	7.744
	SD	3.500	2.983	3.929	2.455	9.401	3.920
	n	66	54	31	37	5	6
3.0-3.9	mean	5.416	4.630	4.525	3.372	9.314	4.633
	SD	3.645	2.451	3.327	3.043	6.723	2.568
	n	61	31	38	7	5	5
4.0-4.9	mean	1.119	4.302	-	-	-	-
	SD	0.966	3.784	-	-	-	-
	n	4	5	-	-	-	-

Key to substrates:

- A. Sand
- B. Sand with a little silt and detritus
- C. Sand with silt and detritus (soft)
- E. Sand, silt and detritus (very soft)
- F. Soft clay with some sand, silt and detritus
- G. Soft silt, clay and fine detritus.

Table 8.17 Mean shell free, dry weight (g/m²) and standard deviation (SD) of mussels in relation to depth and substrate in Leichhardt billabong.

Depth (m)		substrate		
		A	B	C
0.0-0.9	mean	26.208	0.0	-
	SD	36.905	0.0	-
	n	28	1	-
1.0-1.9	mean	33.596	0.0	-
	SD	21.311	0.0	-
	n	31	4	-
2.0-2.9	mean	7.991	0.445	0.366
	SD	16.342	1.335	0.625
	n	19	10	9
3.0-3.9	mean	2.114	0.0	0.0
	SD	3.056	0.0	0.0
	n	6	27	2
4.0-4.9	mean	0.522	-	0.0
	SD	1.651	-	0.0
	n	4	-	1

Key to substrates;

- A. Soft, coarse silt and clay
- B. Silt and unconsolidated plant debris
- C. Extremely compacted grey clay.

Table 8.18 Mean shell free, dry weight (g/m^2) and standard deviation (SD) of mussels in relation to depth in the floodplain billabongs.

Depth (m)		Billabong			
		Island	JaJa	Jabiluka	Nankeen
0.0-0.9	mean	0.128	14.547	1.174	31.804
	SD	0.520	8.975	4.675	14.496
	n	34	12	37	41
1.0-1.9	mean	3.925	22.540	3.611	39.638
	SD	9.788	13.604	13.692	55.712
	n	36	26	25	37
2.0-2.9	mean	7.484	8.372	1.318	6.358
	SD	10.584	6.117	5.965	4.594
	n	19	11	43	29
3.0-3.9	mean	2.862	1.685	0.0	1.135
	SD	3.579	0.975	0.0	0.306
	n	36	7	38	28
4.0-4.9	mean	1.304	-	0.0	-
	SD	1.987	-	0.0	-
	n	17	-	9	-

Table 8.19 Mean shell free, dry weight (g/0.25m²) and standard deviation (SD) of mussels in relation to depth and stations sampled in Nankeen billabong.

Station		Depth (m)			
		0.0-0.9	1.0-1.9	2.0-2.9	3.0-3.9
1	mean	4.355	4.342	1.594	0.211
	SD	11.337	12.440	6.734	3.263
	n	68	51	21	11
2	mean	9.104	14.947	2.260	0.715
	SD	7.463	16.374	1.973	1.387
	n	11	11	11	11
3	mean	6.356	7.525	0.877	0.0
	SD	8.299	7.179	1.674	0.0
	n	11	11	11	11
4	mean	16.801	14.968	1.757	0.362
	SD	15.577	17.535	1.896	0.661
	n	11	11	11	11
5	mean	6.782	6.875	2.456	0.167
	SD	7.128	9.375	5.902	0.553
	n	11	11	11	11
6	mean	14.300	13.483	1.016	0.0
	SD	14.623	11.812	1.767	0.0
	n	11	11	11	11
7	mean	3.882	6.964	0.888	0.239
	SD	4.173	7.486	1.465	0.794
	n	11	11	11	11
8	mean	12.791	21.784	4.274	1.144
	SD	17.687	16.048	4.287	1.493
	n	11	11	11	11
9	mean	1.616	3.751	0.177	0.0
	SD	2.009	4.180	0.613	0.0
	n	11	11	11	11
10	mean	3.524	4.456	0.596	0.0
	SD	6.418	7.611	0.907	0.0
	n	11	11	11	11
Mean East Bank	mean	4.598	5.891	1.198	0.102
	SD	2.081	1.715	0.863	0.121
	n	112	95	65	55
Mean West Bank	mean	11.304	13.928	1.981	0.444
	SD	5.167	6.200	1.434	0.491
	n	55	55	55	55

Table 8.20 Step by step computations used to calculate annual production, biomass, and turnover (P/B) ratios of age classes of mussels in Georgetown billabong. (Following the procedure of Lewandowski and Stanczykowska, 1975.)

Age (years)	Density (numbers/ m ²) <i>n</i>	Biomass of one individual (shell free dry weight) (g) <i>b</i>	Increase of the biomass of one individual per year (g) Δb	Average biomass (g/m ²) $B = n.b$	Production per year (g/m ²) $P = n.\Delta b$	P/B
0.5	0.383	0.266	0.266	0.102	0.102	1.000
1.5	0.230	0.434	0.168	0.100	0.039	0.386
2.5	0.174	0.597	0.163	0.104	0.028	0.273
3.5	0.127	0.743	0.146	0.094	0.019	0.196
4.5	0.193	0.866	0.123	0.167	0.024	0.142
5.5	0.304	0.966	0.101	0.293	0.031	0.104
6.5	0.549	1.047	0.080	0.575	0.044	0.077
7.5	0.647	1.109	0.063	0.717	0.041	0.057
8.5	0.552	1.158	0.049	0.639	0.027	0.042
9.5	0.356	1.195	0.037	0.426	0.013	0.031
10.5	0.280	1.224	0.028	0.342	0.008	0.023
11.5	0.256	1.245	0.022	0.319	0.006	0.017
12.5	0.280	1.261	0.016	0.353	0.005	0.013
13.5	0.248	1.274	0.012	0.316	0.003	0.010
14.5	0.243	1.283	0.009	0.312	0.002	0.007
15.5	0.111	1.290	0.007	0.143	0.001	0.005
16.5	0.100	1.295	0.005	0.130	0.001	0.004
17.5	0.066	1.299	0.004	0.086	0.000	0.003
18.5	0.048	1.302	0.003	0.062	0.000	0.002
19.5	0.032	1.304	0.002	0.041	0.000	0.002
20.5	0.026	1.306	0.002	0.035	0.000	0.001
21.5	0.005	1.307	0.001	0.007	0.000	0.001
Total	13.358	-	-	5.363	0.394	0.073

Table 8.21 Step by step computations used to calculate annual production, biomass, and turnover (P/B) ratios of age classes of mussels in Mudginberri billabong. (Following the procedure of Lewandowski and Stanczykowska, 1975.)

Age (years)	Density (numbers/ m ²) <i>n</i>	Biomass of one individual (shell free dry weight) (g) <i>b</i>	Increase of the biomass of one individual per year (g) Δb	Average biomass (g/m ²) $B = n.b$	Production per year (g/m ²) $P = n.\Delta b$	P/B
0.5	1.518	0.411	0.411	0.625	0.625	1.000
1.5	0.533	0.531	0.120	0.283	0.064	0.225
2.5	0.425	0.648	0.117	0.276	0.050	0.181
3.5	0.505	0.759	0.111	0.383	0.056	0.146
4.5	0.469	0.861	0.102	0.404	0.048	0.119
5.5	0.668	0.954	0.093	0.637	0.062	0.097
6.5	0.721	1.036	0.082	0.747	0.059	0.080
7.5	0.919	1.109	0.073	1.019	0.067	0.065
8.5	0.881	1.172	0.063	1.032	0.056	0.054
9.5	0.605	1.227	0.055	0.742	0.033	0.045
10.5	0.558	1.274	0.047	0.710	0.026	0.037
11.5	0.409	1.314	0.040	0.537	0.017	0.031
12.5	0.414	1.348	0.034	0.558	0.014	0.026
13.5	0.453	1.377	0.029	0.624	0.013	0.021
14.5	0.431	1.402	0.025	0.604	0.011	0.018
15.5	0.417	1.423	0.021	0.593	0.009	0.015
16.5	0.461	1.440	0.018	0.664	0.008	0.012
17.5	0.422	1.455	0.015	0.615	0.006	0.010
18.5	0.351	1.468	0.012	0.515	0.004	0.009
19.5	0.326	1.478	0.011	0.482	0.003	0.007
20.5	0.320	1.487	0.009	0.476	0.003	0.006
21.5	0.318	1.494	0.007	0.474	0.002	0.005
22.5	0.146	1.500	0.006	0.220	0.001	0.004
23.5	0.171	1.506	0.005	0.258	0.001	0.003
24.5	0.083	1.510	0.004	0.125	0.000	0.003
25.5	0.091	1.514	0.004	0.138	0.000	0.002
26.5	0.077	1.517	0.003	0.117	0.000	0.002
27.5	0.039	1.519	0.003	0.059	0.000	0.002
28.5	0.030	1.521	0.002	0.046	0.000	0.001
29.5	0.019	1.523	0.002	0.029	0.000	0.001
30.5	0.000	1.524	0.002	0.000	0.000	0.000
31.5	0.000	1.526	0.001	0.000	0.000	0.000
32.5	0.008	1.527	0.001	0.013	0.000	0.001
Total	12.788	-	-	14.005	1.239	0.088

Table 8.22 Step by step computations used to calculate annual production, biomass, and turnover (P/B) ratios of age classes of mussels in Leichhardt billabong. (Following the procedure of Lewandowski and Stanczykowska, 1975.)

Age (years)	Density (numbers/ m ²) <i>n</i>	Biomass of one individual (shell free dry weight) (g) <i>b</i>	Increase of the biomass of one individual per year (g) Δb	Average biomass (g/m ²) $B = n.b$	Production per year (g/m ²) $P = n.\Delta b$	P/B
0.5	0.144	0.815	0.815	0.117	0.117	1.000
1.5	0.228	1.257	0.441	0.287	0.101	0.351
2.5	0.228	1.732	0.476	0.395	0.109	0.275
3.5	0.154	2.213	0.481	0.340	0.074	0.217
4.5	0.367	2.679	0.466	0.983	0.171	0.174
5.5	0.783	3.115	0.436	2.440	0.342	0.140
6.5	0.952	3.514	0.399	3.344	0.380	0.114
7.5	0.833	3.872	0.358	3.224	0.298	0.093
8.5	0.312	4.189	0.317	1.308	0.099	0.076
9.5	0.139	4.466	0.277	0.620	0.039	0.062
10.5	0.040	4.707	0.240	0.187	0.010	0.051
11.5	0.025	4.914	0.207	0.122	0.005	0.042
12.5	0.015	5.091	0.177	0.076	0.003	0.035
13.5	0.005	5.242	0.151	0.026	0.001	0.029
Total	4.223	-	-	13.469	1.748	0.130

Table 8.23 Step by step computations used to calculate annual production, biomass, and turnover (P/B) ratios of age classes of mussels in Nankeen billabong. (Following the procedure of Lewandowski and Stanczykowska, 1975.)

Age (years)	Density (numbers/ m ²) <i>n</i>	Biomass of one individual (shell free dry weight) (g) <i>b</i>	Increase of the biomass of one individual per year (g) Δb	Average biomass (g/m ²) $B = n.b$	Production per year (g/m ²) $P = n.\Delta b$	P/B
0.5	0.751	0.378	0.378	0.284	0.284	1.000
1.5	0.451	0.658	0.280	0.296	0.126	0.425
2.5	0.342	0.933	0.275	0.319	0.094	0.295
3.5	0.249	1.178	0.245	0.293	0.061	0.208
4.5	0.378	1.383	0.205	0.523	0.078	0.148
5.5	0.596	1.548	0.165	0.922	0.099	0.107
6.5	1.077	1.678	0.130	1.808	0.140	0.077
7.5	1.269	1.778	0.100	2.256	0.127	0.056
8.5	1.083	1.855	0.076	2.008	0.083	0.041
9.5	0.699	1.912	0.058	1.337	0.040	0.030
10.5	0.549	1.956	0.043	1.074	0.024	0.022
11.5	0.502	1.988	0.032	0.999	0.016	0.016
12.5	0.549	2.012	0.024	1.105	0.013	0.012
13.5	0.487	2.030	0.018	0.988	0.009	0.009
14.5	0.477	2.043	0.013	0.974	0.006	0.007
15.5	0.218	2.053	0.010	0.447	0.002	0.005
16.5	0.197	2.060	0.007	0.406	0.001	0.004
17.5	0.130	2.066	0.005	0.268	0.001	0.003
18.5	0.093	2.070	0.004	0.193	0.000	0.002
19.5	0.062	2.073	0.003	0.129	0.000	0.001
20.5	0.052	2.075	0.002	0.108	0.000	0.001
21.5	0.010	2.076	0.002	0.022	0.000	0.001
Total	10.219	-	-	17.065	1.205	0.071