10.1071/MF11093_AC

Accessory Publication: Marine and Freshwater Research, 2011, 62(11), 1318–1326

Accessory Publication

Table A1. Details of twenty sites in Ningaloo Marine Park, at which *Tridacna maxima* was censused in August and September 2010

Code	Name	°S	°E	Area (m^2)	Number of *Tridacna maxima*	Number outside transects
A	Mildura Wreck	-21.7854	114.1638	2600	117	9
B	Surfers North	-21.7870	114.1595	1098	143	0
C	Surfers South	-21.7912	114.1545	1680	104	11
D	Jurabi Out 2	-21.8461	114.0359	560	221	8
E	Jurabi Out 1	-21.8479	114.0312	168	131	0
F	Jurabi In 1	-21.8494	114.0262	282	105	0
G	Jurabi In 2	-21.8506	114.0250	480	157	3
H	Jurabi In 3	-21.8517	114.0233	180	195	5
I	Mandu Mandu South Flat	-22.1465	113.8696	304	166	1
J	Bateman Bay In	-23.0499	113.8234	720	164	9
K	Coral Bay North	-23.1532	113.7683	620	58	4
L	Coral Bay North no map	-23.1543	113.7680	2075	166	0
M	Coral Bay South	-23.1572	113.7664	1080	146	7
N	Elle's In	-23.4336	113.7815	1496	138	10
O	Elle's Out	-23.4383	113.7787	120	313	1
P	Gnarraloo Bay Out 2	-23.7607	113.5617	600	158	20
Q	Gnarraloo Bay Out 1	-23.7636	113.5580	480	82	2
R	3 Mile North	-23.8704	113.4970	30	248	0
S	3 Mile In 2	-23.8754	113.4942	120	198	12
T	3 Mile Out 2	-23.8794	113.4902	480	109	3

Table A2. Relationship of densities of categories of *T. maxima,* proportion of the smallest size class, and CV of lengths of clams at each site with physical variables

The independent variables were selected by forward, stepwise regression, which stopped when added independent variables had non-significant regression coefficients. Transformations were used to make the residuals more evenly distributed. Regressions for the largest size category of clams was non-significant. The number of sites is 19 because site L lacked most of the physical measurements

Dependent variable	Terms in model	coefficient	s.e.	p	standardized coefficient ± s.e	adjusted r^2 (p for overall model)
Density of ≤6.9 cm clams	Intercept	-9.9597	5.3547	0.084		
	200 cm chain	-0.0147	0.0042	0.003	-0.507 ± 0.143	
	Complexity index	11.5892	5.2867	0.046	0.335 ± 0.153	
	width (m)	0.0014	0.0004	0.001	0.615 ± 0.152	0.63 (0.0009)
log(density of 7.0-14.9 cm clams +0.01)	Intercept	4.8435	2.0235	0.029		
	200 cm chain	-0.0755	0.0275	0.014	-0.555 ± 0.202	0.27 (0.0136)
log(density of 15.0-17.9 cm clams +0.01)	Intercept	10.5365	5.2387	0.060		
	200 cm chain	-0.14500	0.0664	0.037	-0.480 ± 0.213	0.27 (0.0136)
log(density of all clams+0.01)	Intercept	6.7633	2.3433	0.011		
	200 cm chain	-0.0631	0.0255	0.025	-0.479 ± 0.213	0.30 (0.0235)
arcsine(square root(proportion ≤6.9 cm clams))	Intercept	32.2962	3.9891	<.0001		
	OffshoreReef	-0.0019	0.0008	0.0406	-0.473 ± 0.214	0.18 (0.0225)
CV	Intercept	-893.122	265.052	0.004		
	- °S	4.332	1.090	0.001	0.575 ± 0.144	
	740 cm chain	1.423	0.499	0.012	0.420 ± 0.147	
	Complexity index	910.372	252.700	0.003	0.498 ± 0.138	0.68 (0.0001)

Table A3. Information from the literature on growth rate of *Tridacna maxima*

a. Data transcribed from Figure 2 of Hart *et al.* (1998), Solomon Islands (11°14'40.83" S)

Age in years from spawning	Length in mm
0.00	0.50
0.76	23.73
1.15	38.43
1.46	49.24
1.69	57.67
2.00	68.41
2.24	77.89

b. Data of McMichael (1974), One Tree Island, Queensland, Australia (23° 30' 22.91" S). Table II shows sizes of individual clams mapped and measured on November 1966, September 1968, and November 1969 from which 43 records from first interval (1.81 years) and 267 records from the second interval (1.17 years) were used to fit a von Bertalanffy growth equation using the programs FABENS.BAS (Ebert 1999) which incorporated the size-at-age information from part a, above, and a Richards function using Ebert's RICHARDS.BAS. See Fig. 5 for plots of the curves

von Bertalanffy Growth equation	
L_∞	209.97 ± 3.55 s.e. mm
K	0.1438 ± 0.00701 $year^{-1}$
r^2	0.976358
residual SS	11390.546042
Richards function	
L_∞	233.86
K	0.06543
n (shape parameter)	-0.49498
b	1.03772

c. von Bertalanffy Growth equations of Green and Craig (1999, Figure 4), Rose Atoll, Samoan Archipelago (14° 15' 24.33" S) and Smith (2011, Table 2), Solitary Islands (~ 30° S) See Smith (2011, Table 2) for estimates from other studies

Coefficients	Rose Atoll	Solitary Islands
L_{∞}, cm	27.8	26.9
K, year^{-1}	0.068	0.118

d. Reports of Chambers (2007) and Apte *et al.* (2010) citing studies of size-at-age information

Size, cm	Chambers: Time to reach size, years	Apte *et al.*: Time to reach size, years	Chambers: Protandrous hermatphrdites - Sexual maturity	Apte *et al.*: size at transitions between stages
6			some as males	
10	5	10	50% of males, 50% of females	juvenile-subadult
14			100%	
15	10			
20	15-20	50-60		subadult-adult

Table A4. Estimates of Z, instantaneous mortality rate per year, of small giant clams at the 20 sites. p is the finite rate of survival, e^{-Z}, per year

Code	Site	Z	p
A	Mildura Wreck	0.148	0.863
B	Surfers North	0.198	0.820
C	Surfers South	0.196	0.822
D	Jurabi Out 2	0.207	0.813
E	Jurabi Out 1	0.258	0.773
F	Jurabi In 1	0.202	0.817
G	Jurabi In 2	0.142	0.868
H	Jurabi In 3	0.151	0.860
I	Mandu South Flat	0.173	0.841
J	Bateman Bay In	0.274	0.761
K	Coral Bay North	0.184	0.832
L	Coral Bay North no map	0.145	0.865
M	Coral Bay South	0.168	0.846
N	Elles Out	0.170	0.844
O	Elle's In	0.119	0.888
P	Gnarraloo Bay Out 2	0.532	0.588
Q	Gnarraloo Bay Out 1	0.724	0.485
R	Three Mile North	0.185	0.831
S	Three Mile In 2	0.185	0.831
T	Three Mile Out 2	0.157	0.855