
Cockles in Pauatahanui Inlet: results of the 2004 sampling programme



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Cockles in Pauatahanui Inlet: results of the 2004 sampling programme

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Reviewed by:

Approved for release by:



Executive Summary

Community volunteers undertook an Inlet-wide survey of the cockle populations in Pauatahanui Inlet during November 2004. This represents the sixth survey of the same sites since 1976.

This series of cockle surveys is possibly the longest running and most comprehensive undertaken by community volunteers in New Zealand.

The results show that cockles throughout the Inlet are distributed in similar patterns as found previously, with the greatest densities along the southern shores. Fewer cockles were recorded along the northern shore, consistent with previous surveys. Increasing densities of cockles occurred down the shore, as expected.

The mean size of cockles increased down the shore at most localities. Juveniles were recorded in markedly higher numbers than in 1998 and 2001 surveys. Clearly, there has been strong recent recruitment in the Inlet.

The total estimated population of cockles in the Inlet, based on the 2004 survey, was around 220 million, a slight increase from the 210 million estimated in 2001. The 2004 estimate is not significantly different to any of the estimates of absolute population number since 1992.

In general, the cockle population appears to have been relatively stable over the past decade. The strong recent recruitment bodes well for future population growth, assuming reasonable levels of survival.



1. Introduction

The Guardians of Pauatahanui Inlet is a community group of residents concerned about the ecological health of the Inlet. As part of that concern, they have completed several surveys of the cockle (*Austrovenus stutchburyi*) population throughout the Inlet, in collaboration with NIWA.

The first systematic sampling of the cockles in the Inlet was undertaken in 1976 by the then New Zealand Oceanographic Institute, DSIR, as part of the wider Pauatahanui Environmental Programme (Healy 1980). These results were published by Richardson *et al* (1979). A second survey, using most of the same sites as the 1976 survey, was undertaken in 1992, this time with the assistance of community volunteers, and overseen by NIWA (Grange 1993). That survey showed a significant decrease in the numbers of cockles in the Inlet since 1976, and indicated fewer recruits (juveniles ≤ 10 mm shell length) in the population. The most pronounced decreases were around the south-eastern shores of the Inlet. A third survey, undertaken in November 1995, resampled the same sites using the same methodology as the 1992 survey, and aimed to further document any changes in the population. Those results indicated that the population decline had continued (Grange *et al* 1996). Subsequent surveys, in November 1998 (Grange & Crocker 1999) and November 2001 (Grange & Tovey 2002), replicated the previous surveys.

The total population of cockles in Pauatahanui Inlet was estimated to be 438–608 million individuals in 1976, but declined to 187–257 million in 1992, and then to 146–214 million in 1995 (Grange *et al* 1996). Further estimates in 1998 (215–299 million, Grange & Crocker 1999) and 2001 (182–238 million, Grange & Tovey 2002) indicated that the population had stabilised. The 1998 and 2001 surveys recorded a greater overall abundance of juveniles compared with the 1992 and 1995 surveys, and it was considered possible that this could reverse the population decline apparent between 1976 and the early 1990s.

This report presents the results of the sixth survey, completed during November 2004, using the same methodology and sites as previous surveys.

2. Methods

As in 1998 and 2001, community volunteers were each provided with a series of sheets that explained the sample sites, method of measurement and placing of quadrats. They were also provided with recording sheets (see Grange & Crocker 1999 for examples). Three randomly placed, replicate quadrats of 0.1 m² were sampled from each of four tidal heights along each transect, as in previous surveys. The entire

sample was sieved to remove small individuals, and each cockle collected was measured to the nearest 1 mm and returned to the substrate. Sieve mesh sizes varied with volunteer, but most were reported to be 4–5 mm (Neil Bellingham, *pers. comm.*).

Densities for each site were calculated from the mean numbers recorded in each quadrat from all transects within a locality. Mean densities at each tidal height were also calculated and comparisons made with the 1976, 1992, 1995, 1998, and 2001 surveys.

Shell length measurements from each of the three replicate quadrats at each site were combined to produce an estimate of population size structure, enabling histograms to be produced to compare sites and tidal heights. The numbers of recruits (defined as individuals ≤ 10 mm, based on Larcombe 1971 and Richardson *et al* 1979) were also analysed to compare with previous surveys.

3. Results

3.1 Cockle Densities

The densities of cockles recorded in each quadrat ranged from zero, to a maximum of 95 per 0.1 m^2 (at transect 1, upper mid tide, Mana). The mean numbers of cockles recorded at each site are shown in Figure 1. The maximum mean density at any one site (mean of the 3 quadrats) was recorded at upper mid tide, Mana (87 per 0.1 m^2). High mean densities were consistently recorded at the Pauatahanui transects, while low mean densities of cockles occurred at Cambourne, Duck Creek, and Motukaraka West. However, at all localities, densities varied considerably among transects. The trends noted here are similar to those observed in previous surveys.

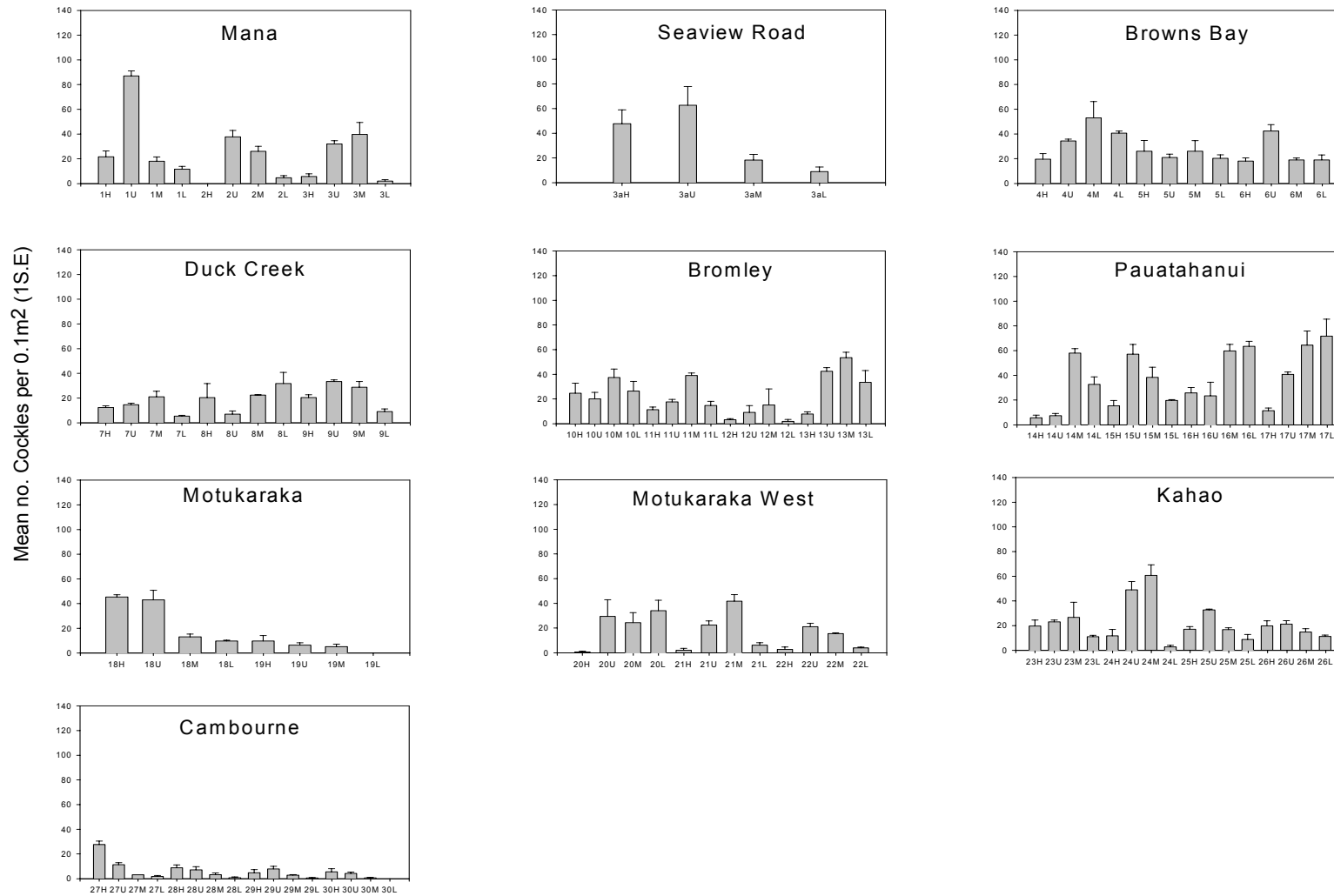


Figure 1. Mean densities of cockles (number per 0.1 m²) recorded from each transect at each locality, 2004. H = High Tide; U = Upper Mid-tide; M = Lower Mid-tide; L = Low Tide. Error bars are ± 1 standard error.

The total numbers of cockles collected at each transect (Fig. 2) show some similar trends to the mean numbers per quadrat (Fig. 1). The Pauatahanui, Browns Bay, and Seaview Road transects had high numbers of cockles. The Cambourne, Duck Creek, and Motukaraka West transects supported low total populations. There was considerable variability among transects at some locations (e.g., Bromley, Motukaraka, Cambourne), with counts from the best and worst transects varying by more than a factor of 3.

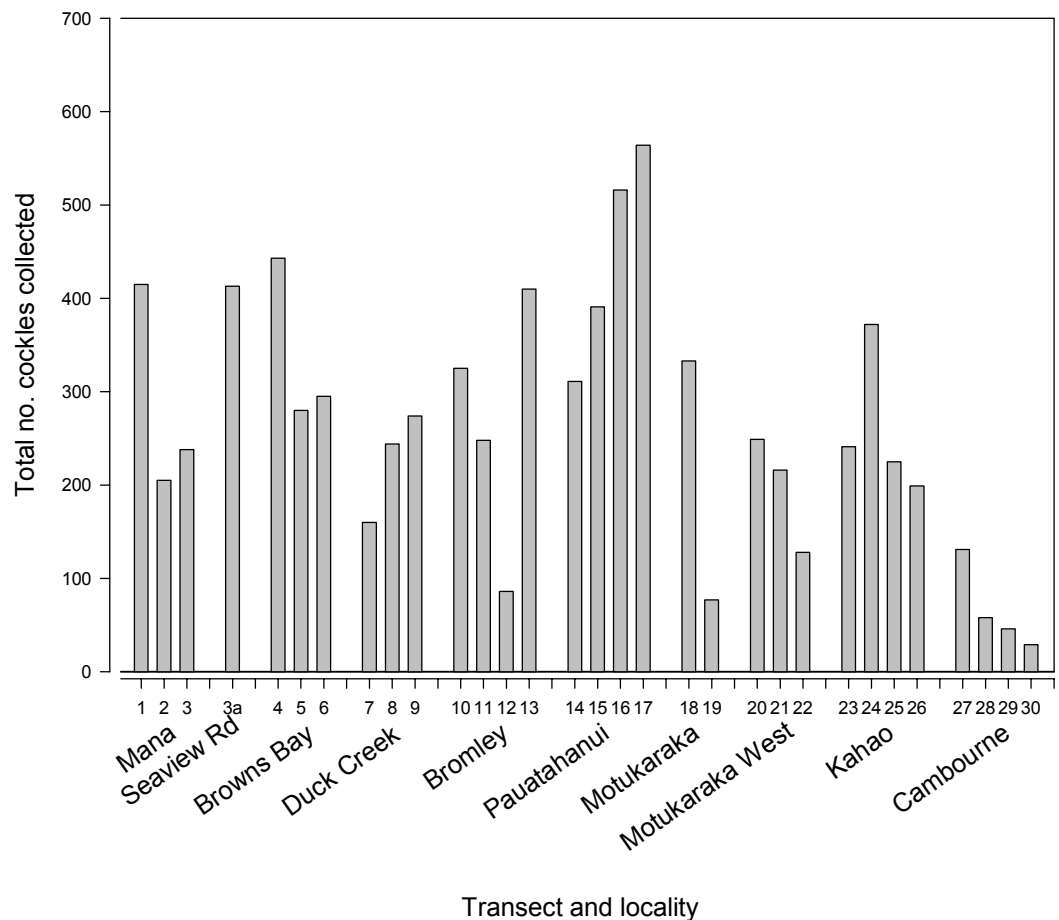


Figure 2. Total numbers of cockles collected down each transect at each locality, November 2004.

There were no obvious trends in cockle density with tidal height (Fig. 3). At some localities, densities were greatest at high and upper mid tide (e.g., Cambourne, Motukaraka, Seaview Road), while at others, highest densities occurred low on the shore (e.g., Bromley, Pauatahanui). When all results are combined, however, the maximum densities of cockles occurred at upper and lower mid-tidal sites (approximately 29 and 28 per 0.1 m², respectively) (Fig. 4). High tidal sites supported a mean of 15 cockles per 0.1 m². These results are very similar to those from the 2001

survey, although maximum densities were recorded at lower mid tidal sites in 1998 and low tidal sites in 1995.

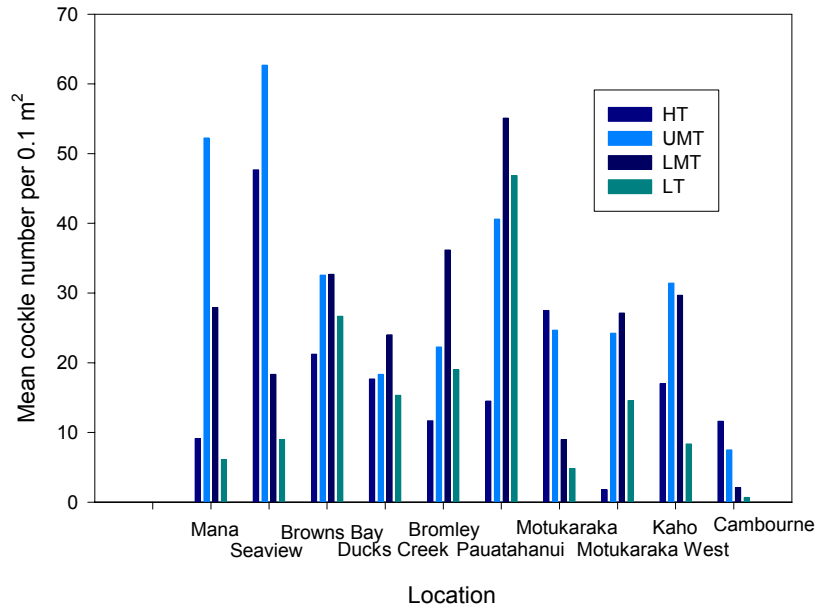


Figure 3. Mean cockle number at each tidal height and location, November 2004.

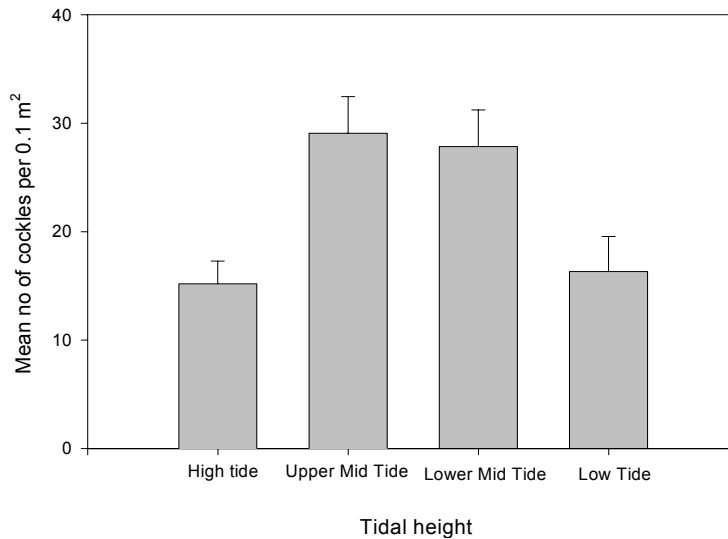


Figure 4. Mean densities of cockles at each tidal height, all localities combined, November 2004. Error bars are ± 1 standard error.

An estimate of the total cockle population in the Inlet has been calculated from the mean densities of cockles in each quadrat (Table 1), as in previous surveys, assuming a total intertidal area of 1 km² (Healy 1980).

Table 1. Densities of cockles in Pauatahanui Inlet and total population estimate, 1976–2004.

	1976	1992	1995	1998	2001	2004
Max number per quadrat	208	168	191	273	118	95
Total counted	15,633	7,976	6,484	9,264	7,807	8,124
Mean number per quadrat	52.3	22.2	18	25.7	21	22
99% CL on mean	43.8-60.8	18.7-25.7	14.6-21.4	21.5-29.9	18.2-23.8	19.38-24.6
Total population estimate (millions)	438-608	187-257	146-214	215-299	182-238	194-246

The maximum number of cockles recorded per quadrat (95) was the lowest recorded in any survey. However, the total number of cockles counted during the survey was greater than in all years except 1976 and 1998 (Table 1).

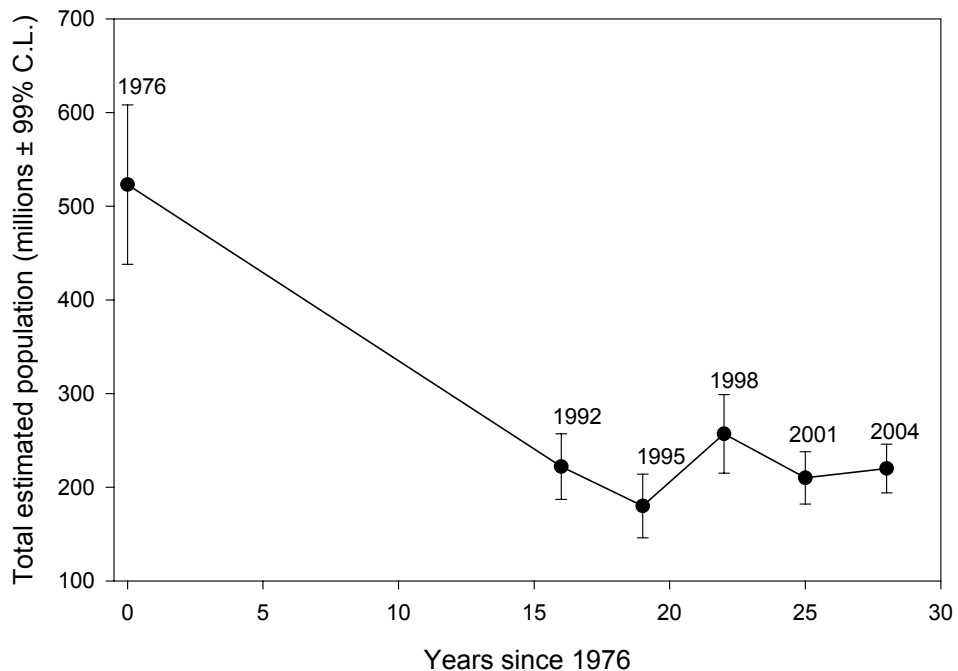


Figure 5. Trend in total cockle population within Pauatahanui Inlet, 1976–2004.

Figure 5 shows the estimated total population in all the surveys since 1976. The 2004 results continue a relatively flat trend apparent since 1992; the 2004 population estimate is not significantly different to any of the four previous estimates. On the

basis of absolute numbers, the population of cockles in the Pauatahanui Inlet has been relatively static since at least 1992.

Figure 6 shows the mean numbers of cockles per transect over time. Previous surveys had indicated pronounced decreases in cockle densities along the eastern and south-eastern shores between 1976 and the 1990s. This trend has continued to 2004 at Motukaraka and Cambourne. The results from Mana could also be interpreted as showing a slight decrease in density over the entire survey series. However, at all other localities, densities have been relatively trendless since 1992. The densities in 1976 at Mana and Browns Bay were similar to densities in subsequent series, whereas at the other localities the 1976 estimates were generally much higher than any later estimates. Only one transect (no. 5 at Browns Bay) has shown a steady increase in numbers over time. Among individual transects, numbers 12, 18, and 30 show large decreases in 2004 compared with previous surveys.

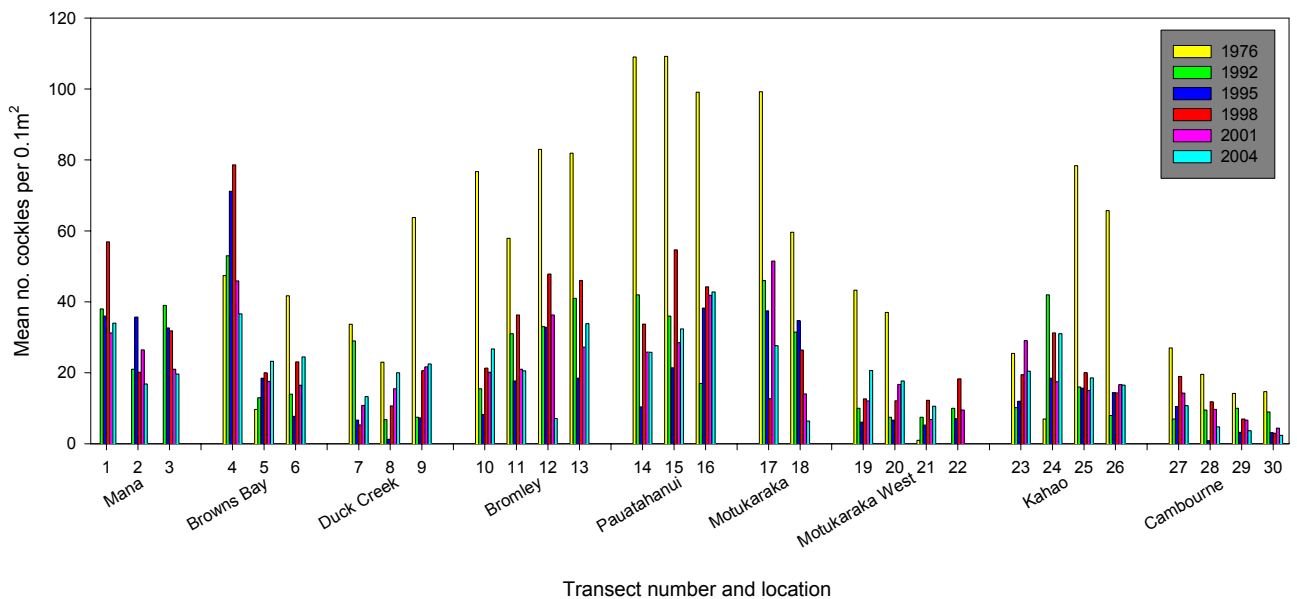


Figure 6. Mean number of cockles recorded at each site over the five surveys, 1976–2004.

3.2 Cockle Size Frequencies

Histograms of the size frequencies of cockles at all sites by tidal height are presented in Appendix 1.

3.2.1. High Tide

Most high tidal localities showed a unimodal size frequency distribution as in previous years, with modes between 15–20 or 20–25 mm. At Cambourne there appears to be a second mode of juvenile cockles between 5–10 mm. Juvenile cockles (< 10 mm shell length) were recorded at all high tidal sites. Large cockles (> 35 mm) were scarce at all sites.

3.2.2. Upper-mid Tide

The upper mid-tidal sites with the greatest abundance of cockles (i.e., Mana, Browns Bay, Bromley, Pauatahanui, and Kahao) all had unimodal distributions with modes between 15 and 25 mm. The remaining sites with fewer cockles had bimodal distributions, with a juvenile mode between 5–10 mm, and a mode of larger adult shellfish. Juveniles occurred at all localities, and were abundant at most (particularly Pauatahanui, Kahao, and Seaview Road). Large cockles (> 35 mm shell length) were not recorded at Browns Bay, Pauatahanui, Motukaraka, and Kahao, and were rare at all other sites.

3.2.3. Lower-mid Tide

Bimodal distributions were prevalent at the lower mid-tidal sites. The primary modes tended to be adult cockles in the range 25–35 mm. Secondary modes were of smaller individuals mainly in the 5–15 mm range. Seaview Road was an exception, with the primary mode being juvenile cockles of 0–5 mm, and a small secondary mode at 35–40 mm. The dominance of juvenile cockles at Seaview Road is expected given the massive increase of new recruits at this site since the 2001 survey (see Fig. 8). Juveniles were recorded at all localities. Only Mana and Duck Creek had reasonable numbers of large (> 35 mm) cockles. Overall, cockles were much more abundant at Pauatahanui than at any of the other sites.

3.2.4. Low Tide

Most of the low tidal sites exhibited weakly bimodal size frequency distributions. The primary modes tended to be adult shellfish in the range 20–35 mm. Weaker modes of small cockles in the 5–20 mm range were apparent at some sites. Exceptions to this trend are a unimodal distribution at Motukaraka West, and a Seaview Road distribution that is dominated by 0–5 mm cockles (as at the low mid tide site). Juvenile cockles (< 10 mm shell length) were recorded at all low tidal sites except Cambourne. Only Bromley, Duck Creek, Mana, and Browns Bay had reasonable numbers of large

(> 35 mm) cockles. The greatest cockle abundance occurred at Pauatahanui, followed by Browns Bay and Bromley.

The mean sizes of all cockles recorded at each locality and tidal height are presented in Table 2. There was a clear trend of increasing mean size down the shore at all sites except Cambourne and Seaview Road. Seaview Road was clearly exceptional in that the mean cockle size at the low tide height was smaller than most of the high tide means at the other localities. The localities with the largest mean sizes were low tidal sites at Mana and Duck Creek. The values in Table 2 are, on average, smaller by about 3 mm than those reported from the 2001 survey (Table 2 of Grange & Tovey 2002).

Table 2. Mean sizes (mm) of cockles for each shore height at each locality, November 2004.

	High tide	Upper mid-tide	Lower mid-tide	Low tide
Mana	21.1	24.7	28.7	31.5
Seaview Road	19.0	18.8	11.6	12.9
Browns Bay	19.3	19.2	21.9	23.1
Duck Creek	20.1	18.3	25.4	28.6
Bromley	17.3	19.1	22.2	26.4
Pauatahanui	15.3	16.2	18.5	21.7
Motukaraka	12.1	16.0	20.7	23.9
Motukaraka West	17.6	20.0	19.9	21.1
Kahao	16.6	17.5	21.1	24.9
Cambourne	18.9	25.3	23.0	19.5

The mean sizes of cockles measured at each locality and tidal height are also presented in graphic form in Figure 7. There is a reasonable consistency among sites; most localities supported cockles of very similar sizes. However, cockles at Mana, Duck Creek, and Cambourne were generally larger than average, whereas cockles at Pauatahanui, Motukaraka, and Seaview Road were mostly below average size at all tidal heights. Mean sizes increased down the shore.

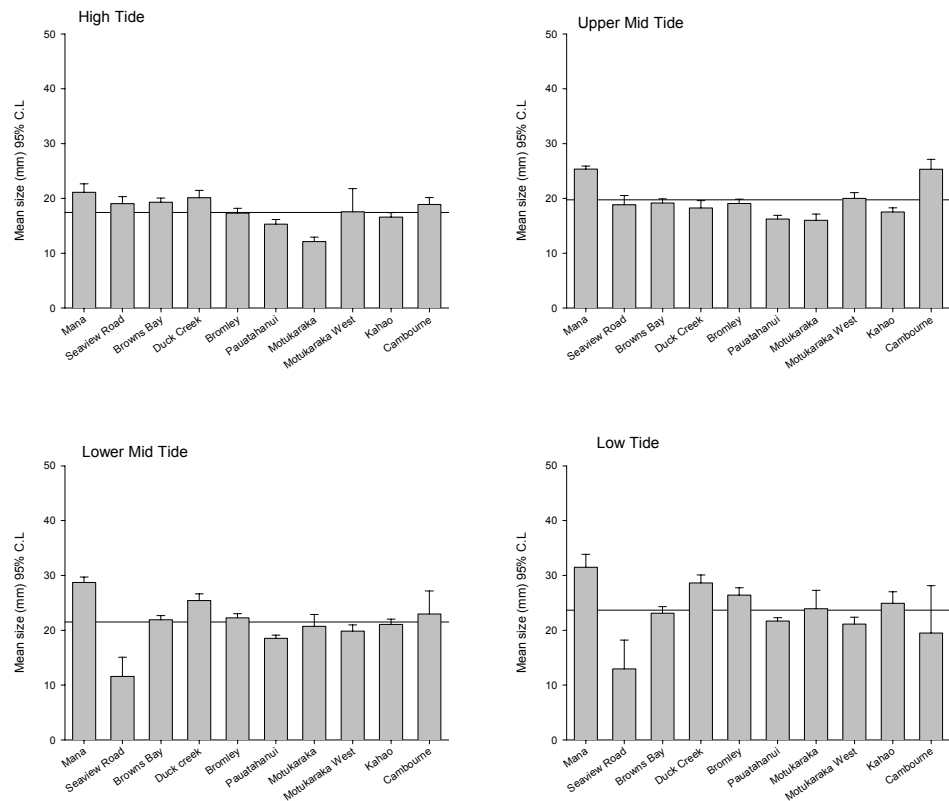


Figure 7. Mean sizes (mm \pm 95% confidence limits) of cockles at each locality and tidal height, November 2004. Horizontal lines represent the overall mean value for that tidal height.

Figure 8 presents the numbers of adult cockles (> 10 mm shell length) that were recorded at each locality in 2004, compared to the four previous surveys. The 2004 results are quite similar to those from previous surveys. Slight increases over time are apparent at Duck Creek and Motukaraka West, and decreasing trends are apparent at Mana, Bromley, and Motukaraka.

Figure 9 presents the numbers of juveniles recorded at all localities from 1992–2004. Numbers of juveniles were low at all sites in 1992 and 1995, but markedly higher at most sites in 1998 and 2001. The increasing abundance of juveniles has continued to 2004, with the numbers at all localities (except Browns Bay) being the highest on record. The increases in juveniles between the 2001 and 2004 surveys are particularly marked at Seaview Road, Duck Creek, Pauatahanui, Motukaraka West, and Kahao.

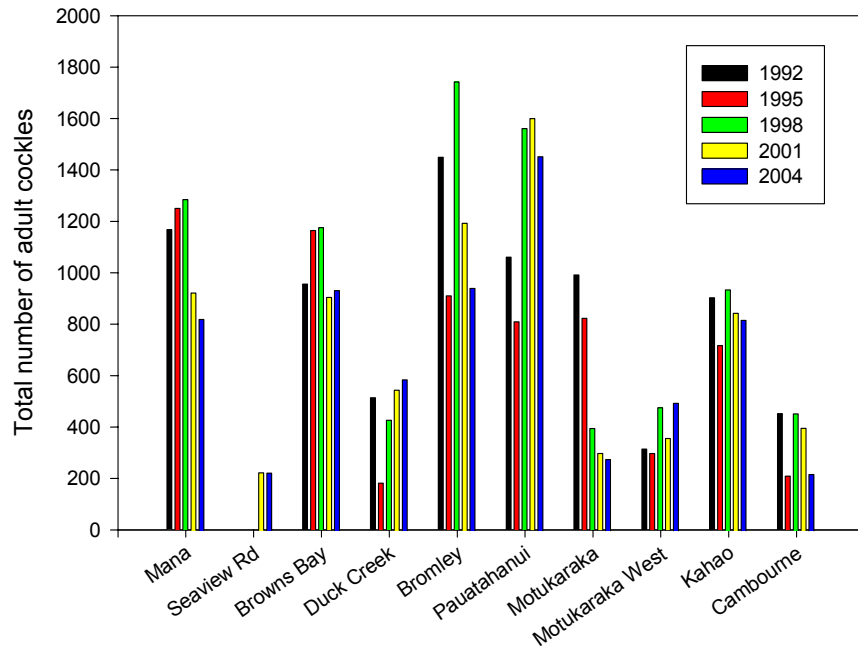


Figure 8. Total number of adult cockles (> 10 mm) collected at each site, 1992–2004.

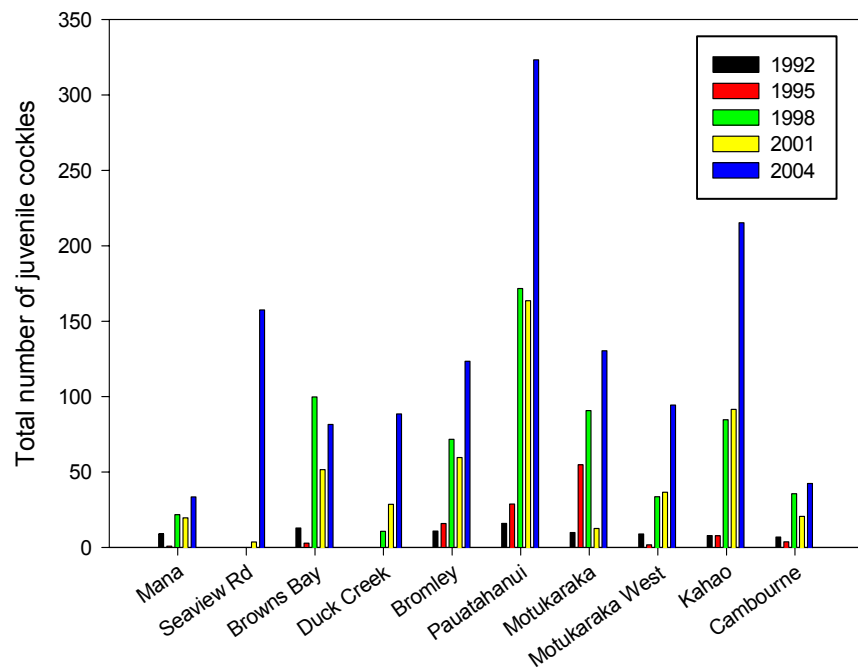


Figure 9. Numbers of juvenile cockles (< 10 mm shell length) recorded at all localities, 1992–2004.

Overall abundance of juveniles (Fig. 10) increased markedly between the 1995 and 1998 surveys. This increase, coupled with a decrease in adults at most sites, meant that the proportion of juveniles in the total population within Pauatahanui Inlet rose from around 1% in 1992, to almost 7% in 1998 (Grange & Crocker, 1999). There was little apparent change between the 1998 and 2001 surveys. However, between 2001 and 2004, the percentage of juvenile cockles in the total population more than doubled, owing to a slight decrease in adult numbers and, primarily, to a large increase in juvenile numbers.

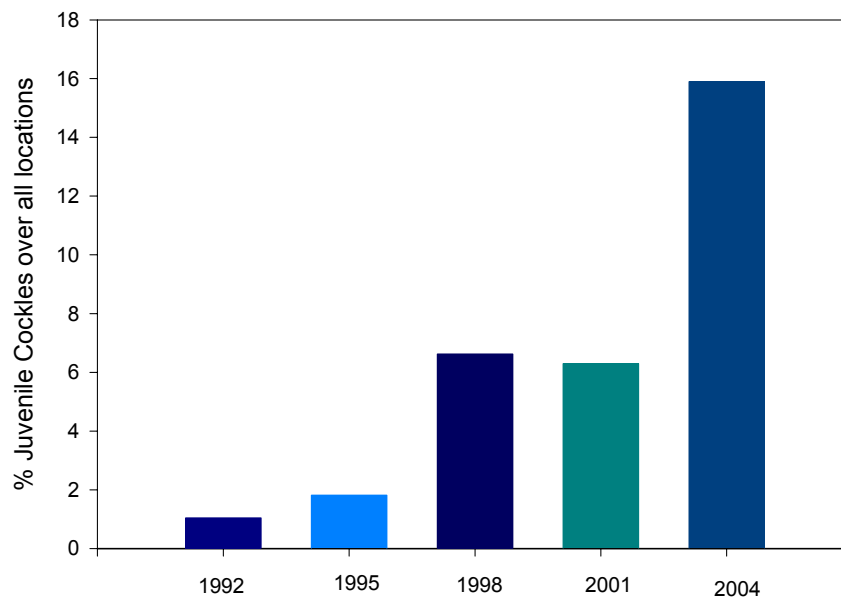


Figure 10. Juveniles as a percentage of total cockle population, 1992–2004.

4. Discussion

Although there has been a slight increase between 2001 and 2004 in the estimated total cockle population size in the Pauatahanui Inlet, there is no significant difference in any of the total population estimates since 1992. The 2004 survey has shown that since 2001 there has been a slight decrease in the number of adult cockles, but a marked increase in the number of juveniles. Juvenile numbers are significantly higher than in any of the four previous surveys.

The patterns of cockle distribution, both down the shore and geographically, are very similar to previous surveys. The areas of greatest densities were Browns Bay and Pauatahanui, and the lowest densities were at Cambourne. Mean numbers of cockles at some sites, e.g. Bromley (transect 12), and Cambourne (transect 30) had decreased

markedly since the 2001 survey (Fig. 6). Both of these sites were affected by runoff and sediment deposition during several storms that occurred during 2004. The Pauatahanui Stream, just to the south of transect 12, widened appreciably during storm events and deposited clay/silt that was still visible on the sampling date (J. Wells, *pers. comm.*). Transect 30 was similarly affected by clay deposition, due to a temporary inefficiency of silt traps constructed on a subdivision behind the site (J. Wells, *pers. comm.*).

Densities of cockles and mean cockle size increased towards low tide at most localities. The mean sizes of the cockles throughout the Inlet showed a slight decrease since the 2001 survey, primarily because of the marked increase in numbers of juveniles in all areas. The effect of the increased abundance of juveniles is clearly illustrated at the Seaview Road site. In 2001, it was the site with the largest mean cockle size. Although the number of adult cockles at Seaview Road are virtually identical in 2001 and 2004 (see Fig. 8), the number of juveniles increased by a factor of 40 between the two surveys (see Fig. 9). Consequently, in 2004 Seaview Road was the site with the smallest mean cockle size.

The strong recruitment apparent since 2001 is indicative that the current population size is at least likely to be maintained in the near future. At some localities (Motukaraka, and possibly Mana and Bromley) the adult population has exhibited a declining trend. However, Motukaraka and Bromley recorded strong juvenile recruitment in 2004. The overall population of cockles in the Pauatahanui Inlet appears to be relatively stable in terms of both numbers and sizes, and could well increase in the near future if the strong juvenile cohorts experience reasonable levels of survival. However, it is noted that even though there was reasonably strong recruitment apparent in the 1998 and 2001 surveys, this has not translated into increased numbers of adult cockles in 2004.

5. Acknowledgements

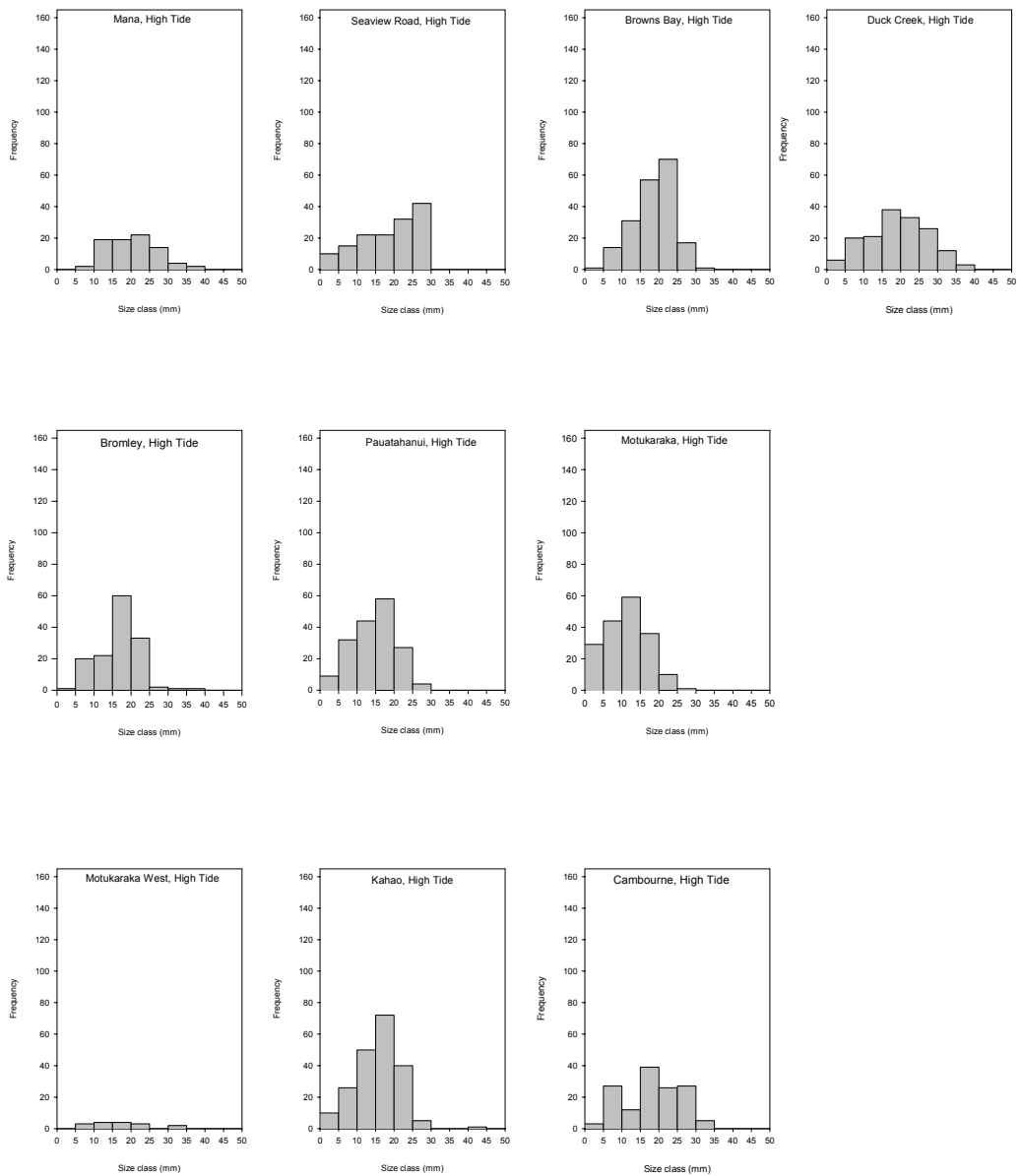
We thank the volunteers who sampled the Inlet, ensuring the worth of this time-series of data. John Wells organised the sampling effort and we are grateful to him for also providing the data in spreadsheet form.

6. References

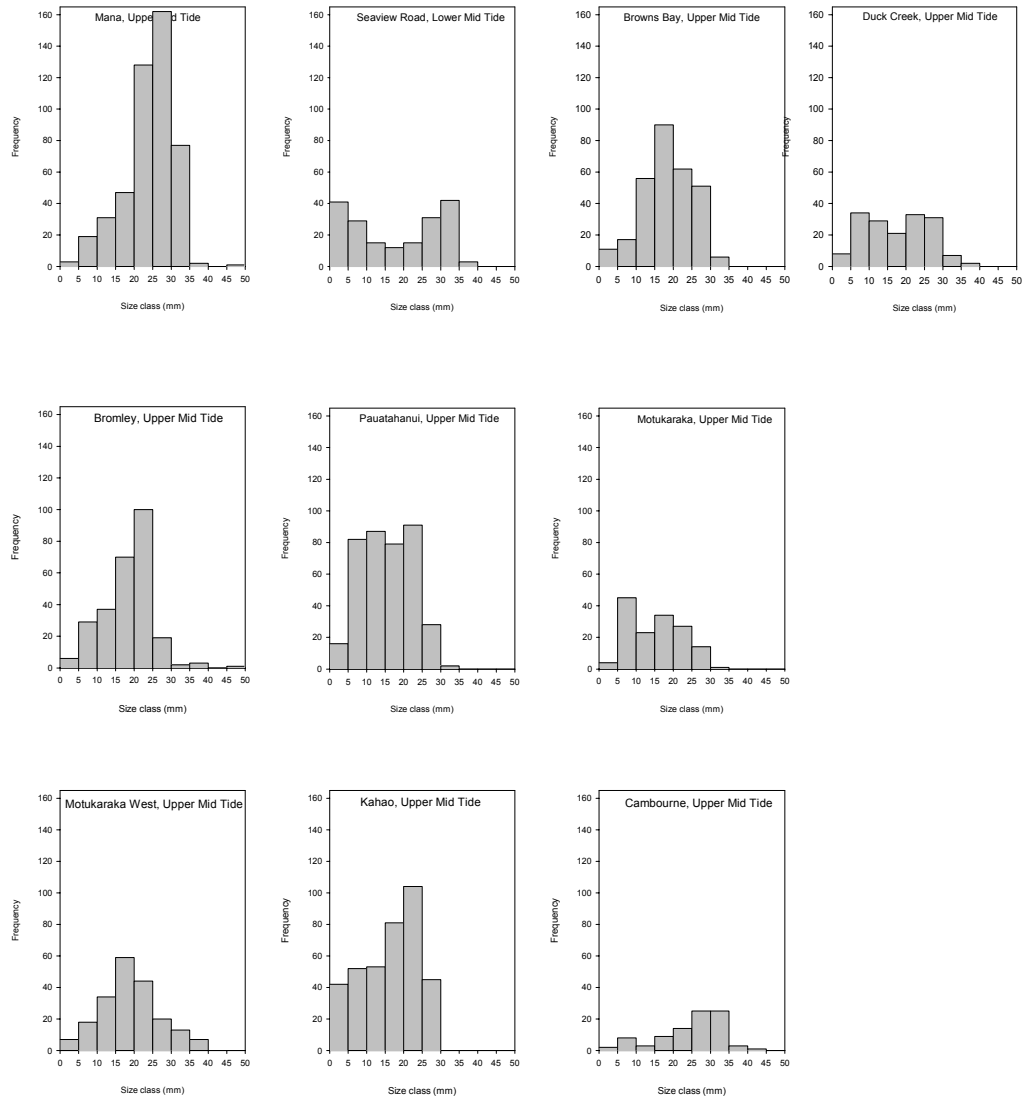
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Appendix 1. Size-frequency histograms from each sampling site and tidal height, 2004.

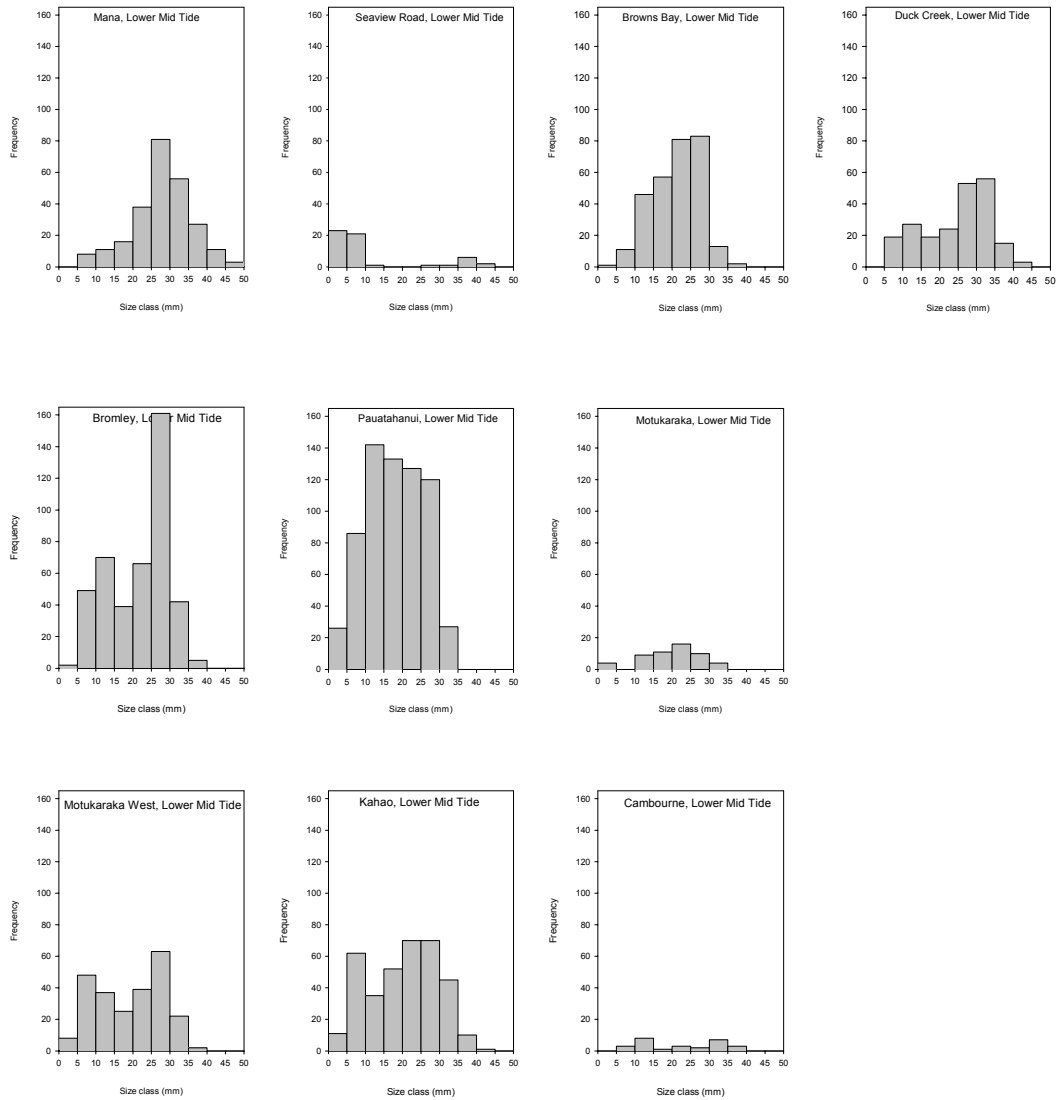
High Tide



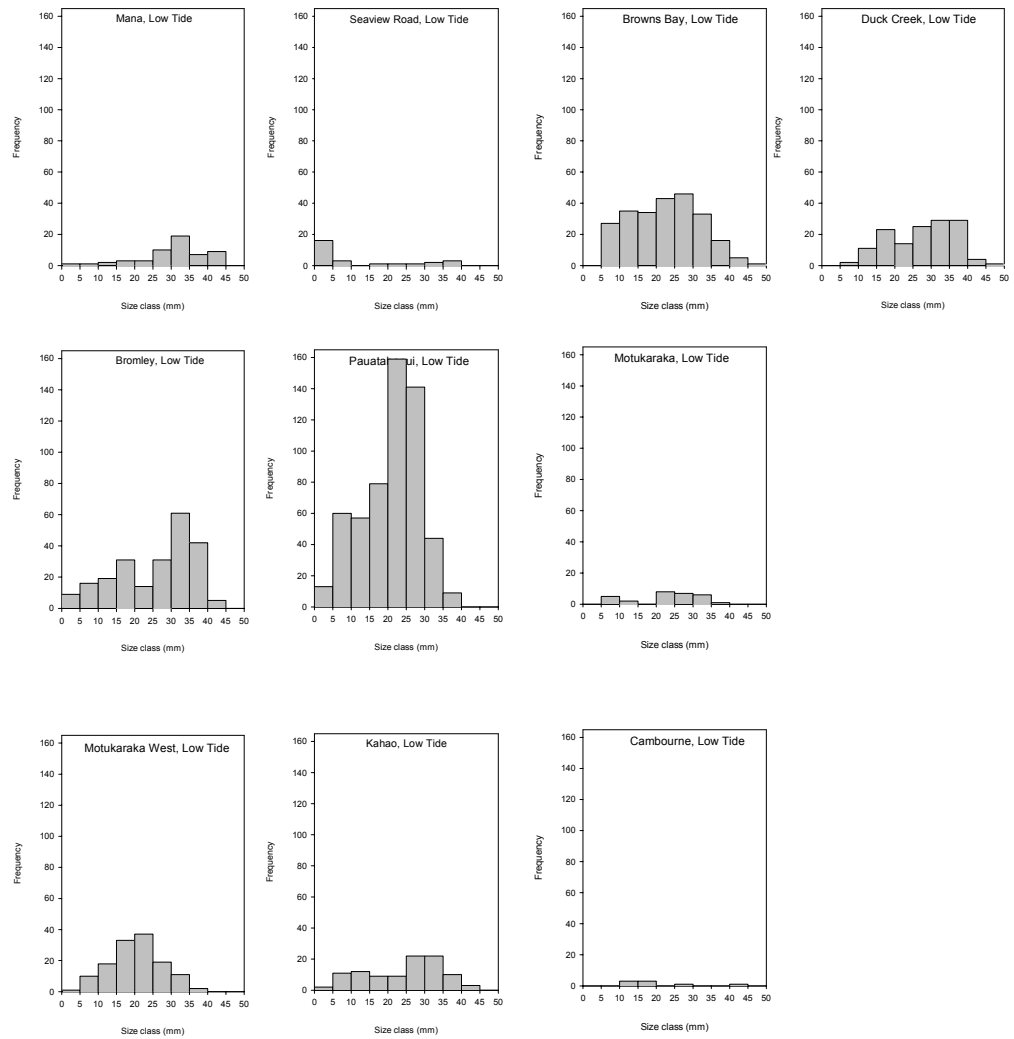
Upper Mid Tide



Lower Mid Tide



Low Tide



Appendix 2. Raw Data

Transect 1

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0			2	2				0				0	2
6	1			1	1		2	3				0				0	4
7				0			1	1				0				0	1
8				0	2	1		3				0				0	3
9				0				0				0				0	0
10				0		1	1	2				0				0	2
11		1		1		2	2	4	1		1	2				0	7
12	2	1	2	5	4	2	1	7			1	1				0	13
13	1		1	2	1			1			1	1				0	4
14	1		1	2	1	1		2				0	1			1	5
15		3	1	4	1		2	3	1	1		2	1			1	10
16		4		4	1	3	1	5				0				0	9
17	1	1		2	1	1		2				0				0	4
18	1	2	1	4	3	1	2	6	1			1	1		1	2	13
19		1		1				0				0				0	1
20	4	1	1	6	3	6	1	10			1	1				0	17
21	2	1	1	4	1	1	3	5			1	1				0	10
22	3	1	1	5	1	5	3	9		1		1	1			1	16
23	1	1		2	3	4	3	10				0				0	12
24	1	2		3	5	1	4	10				0				0	13
25	3	2	1	6	8	3	8	19		2		2	2			2	29
26	3		1	4	5	3	6	14		1	1	2	1			1	21
27				0	8	8	3	19			1	1				0	20
28	1	2	1	4	13	7	6	26	1	3	1	5			1	1	36
29	1			1		3	4	7				0				0	8
30	3		1	4	6	7	10	23	1	2	1	4	1	3		4	35
31				0	3	7	7	17	1	2		3	2			2	22
32				0	11	8	5	24	2	1		3	1	1		2	29
33				0	9	2	3	14	1	2	2	5	1	1	1	3	22
34				0	2	1	1	4	1	1	1	3	2			2	9
35				0	2	3	1	6	2	2	1	5	1	1	1	3	14
36				0				0		1		1		1		1	2
37				0		1		1		1	1	2				0	3
38				0			1	1			1	1		1	1	2	4
39				0				0				0				0	0
40				0				0		2		2	1	1		2	4
41				0				0				0			1	1	1
42				0				0		1		1			1	1	2
43				0				0	1			1			2	2	3
44				0				0				0		1		1	1
45				0				0		2		2				0	2
46				0				0				0				0	0
47				0				0				0				0	0
48				0			1	1				0				0	1
49				0				0				0				0	0
50				0				0	1			1				0	1
Total	29	23	13	65	95	82	84	261	14	25	15	54	16	10	9	35	415

Transect 2

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1	z	z	z	0				0				0				0	0
2	e	e	e	0				0				0				0	0
3	r	r	r	0				0				0				0	0
4	o	o	o	0				0				0				0	0
5				0				0				0				0	0
6				0	1			1				0				0	1
7				0		1		1				0				0	1
8				0				0				0				0	0
9				0			1	1				0				0	1
10				0	3			3				0	1			1	4
11				0				0				0				0	0
12				0	1	1	1	3				0				0	3
13				0			2	2				0				0	2
14				0		1	2	3				0				0	3
15				0			2	2				0				0	2
16				0	1			1				0				0	1
17				0	2	3		5				0				0	5
18				0	1		1	2		1		1	1			1	4
19				0	2		1	3				0				0	3
20				0	3	2		5	1			1				0	6
21				0	2	2	3	7				0				0	7
22				0	1	2	4	7	1			1				0	8
23				0	1	5	3	9				0				0	9
24				0	1	2	6	9				0				0	9
25				0	6	2	6	14	1			1				0	15
26				0	2	5	5	12				0				0	12
27				0	4	2	6	12			1	1				0	13
28				0	2	2	1	5	3		1	4				0	9
29				0	1		3	4	2	2	1	5				0	9
30				0		1		1	1	2	2	5				0	6
31				0			1	1			2	2		1		1	4
32				0				0	2	2	2	6				0	6
33				0				0		2	2	4	1	2		3	7
34				0				0	2	4	1	7			1	1	8
35				0				0	3	3	4	10	1			1	11
36				0				0	2	2	1	5				0	5
37				0				0	2			2			1	1	3
38				0				0	3		2	5	1			1	6
39				0				0			1	1				0	1
40				0				0	5	1	2	8				0	8
41				0				0				0	1	1		2	2
42				0				0	1			1				0	1
43				0				0	4	1		5	2			2	7
44				0				0	1			1				0	1
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0			2	2				0	2
49				0				0				0				0	0
50				0				0				0				0	0
Total	0	0	0	0	34	31	48	113	34	20	24	78	8	4	2	14	205

Transect 3

Size (mm)	Number of cockles				UMT				LMT				LT				Total Number
	A	B	C	total	A	B	C	total	A	B	C	total	A	B	C	total	
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0	1			1	1
5				0	1			1				0				0	1
6				0	1	1		2	1	1	1	3				0	5
7				0				0				0				0	0
8	1			1				0	2			2				0	3
9				0				0	3			3				0	3
10				0		1	1	2				0				0	2
11		2		2			1	1	3			3				0	6
12				0				0	1			1				0	1
13				0				0				0				0	0
14		1		1			2	2				0				0	3
15		1	1	2	1			1	1			1				0	4
16		1		1				0				0				0	1
17	1			1				0				0				0	1
18				0		3		3	1	1	1	3				0	6
19				0		1	2	3	1	2	2	5				0	8
20				0		2		2	1	2	1	4				0	6
21			2	2	2	2	1	5	4	1	1	6				0	13
22				0	1	1	1	3	2		4	6				0	9
23				0	1	1	1	3	2	1	3	6				0	9
24				0	1	1	1	3	3	1	1	5				0	8
25				0	7	4	4	15	4	2	3	9				0	24
26				0	2	1	2	5	3		4	7		1		1	13
27				0	5	4	3	12	5	5	1	11				0	23
28				0	2	1	1	4	2		1	3				0	7
29		1		1	4	3	3	10	9	6	3	18	1	1	1	3	32
30				0	2	5	1	8	8	5	2	15				0	23
31		1		1	3	2	1	6	1	3	1	5				0	12
32		1		1	1	1	2	4	2			2		1		1	8
33		1		1				0		1		1				0	2
34				0				0				0				0	0
35	1			1	1			1				0				0	2
36				0				0				0				0	0
37		1		1				0				0				0	1
38				0				0				0				0	0
39				0				0				0				0	0
40	1			1				0				0				0	1
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	4	10	3	17	35	34	27	96	59	31	29	119	1	4	1	6	238

Transect 3A

Size (mm)	Number of cockles				UMT				LMT				LT				Total Number
	A	B	C	total	A	B	C	total	A	B	C	total	A	B	C	total	
1				0				0				0				0	0
2				0		1		1				0				0	1
3	2			2		1	3	4	2			2	2	1		3	11
4	1	1	1	3		8	3	11		6	2	8	1	3	1	5	27
5	2	3		5	2	16	7	25	3	5	5	13	2	6		8	51
6	1	4		5	4	6		10	2	2	7	11		1		1	27
7		4	1	5	7	1	1	9		3	4	7	1			1	22
8			1	1	5	2		7			2	2	1			1	11
9	1			1	1	1		2				0				0	3
10	2		1	3		1		1		1		1				0	5
11	1		2	3		1	2	3	1			1				0	7
12	3	2	1	6		2		2				0				0	8
13	3	1	1	5	2			2				0				0	7
14	2			2	2	4	1	7				0				0	9
15	3	2	1	6	1			1				0				0	7
16	5			5		1		1				0				0	6
17	3	2		5	2		1	3				0				0	8
18	2		2	4	2	1		3				0				0	7
19	2	1	2	5	2			2				0				0	7
20	1	2		3	3			3				0		1		1	7
21	3	2	2	7			1	1				0				0	8
22	4	3		7			1	1				0				0	8
23	2	2	1	5	3	2		5				0				0	10
24	2	2	2	4	2	4		6				0				0	10
25	4	2	3	9	1	1		2				0		1		1	12
26	8	3	4	15	3	3		6				0				0	21
27	4	1	3	8	1		1	2				0				0	10
28	7	2	2	11	8	2		10				0				0	21
29		1	2	3	2	1		3			1	1				0	7
30	2	2	1	5	2	5	3	10				0		1		1	16
31				0	2	3		5				0				0	5
32				0	8	3	3	14	1			1				0	15
33				0	3	1	2	6				0	1			1	7
34				0		4	1	5				0				0	5
35				0		9	3	12				0	1			1	13
36				0			1	1				0				0	1
37				0				0				0	1			1	1
38				0				0	1			1				0	1
39				0		2		2		1	2	3			1	1	6
40				0				0			2	2	1			1	3
41				0				0			1	1				0	1
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0		1		1				0	1
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	70	40	33	143	68	86	34	188	10	19	26	55	11	14	2	27	413

Transect 4

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0				0				0				0	0
6				0				0				0				0	0
7	1			1				0				0	1	1		2	3
8				0	1			1	2			2		1	1	2	5
9	1			1				0				0	2		3	5	6
10		1	1	2			1	1	1			1	4		2	6	10
11		2		2	2	2	1	5	1		1	2	2		2	4	13
12		1		1	1	2	1	4	2			2	1			1	8
13		1		1	1	1		2				0		1		1	4
14		1	1	2	4	1	2	7	2	1	2	5	3	1	2	6	20
15	1	3	1	5	1	1	2	4	4	1	3	8	2		1	3	20
16	1	1	1	3	1	1	2	4	1	1	1	3	3	2	2	7	17
17	1			1	2		1	3	5	2	2	9	3			3	16
18		2		2	3	2	3	8	3	1	4	8	1	1	1	3	21
19			1	1	2	4	4	10	4	1	3	8	2		2	4	23
20	2	1	3	6	4	2	3	9	3	3	6	12	3	1	2	6	33
21	1	1		2	2	2	2	6	5	1	3	9	2	3	4	9	26
22	2	1	1	4	2	3	2	7	3	1	2	6	2	1	3	6	23
23	1	2	1	4			1	1	3	2	2	7	1	1	2	4	16
24	3	4		7	2	2	2	6	6	1	5	12	1	3	3	7	32
25	5	2	1	8	1	5	3	9	7	3	8	18	1	5	2	8	43
26	3	1		4		3	3	6	2	2	9	13	2	3	2	7	30
27	1	1		2		3		3	5	2	5	12	4	3	2	9	26
28				0		2	1	3	3	2	3	8	1	2		3	14
29				0	1			1	4	2	2	8	1	2		3	12
30				0				0	3		1	4	1	5	1	7	11
31				0	1	1		2		1	1	2		3	1	4	8
32				0	1			1				0	1		1	2	3
33				0				0				0				0	0
34				0				0				0				0	0
35				0				0				0				0	0
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	23	25	11	59	32	37	34	103	69	27	63	159	44	39	39	122	443

Transect 5

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		LT	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0				0			1	1				0	1
6			2	2		1		1				0				0	3
7	1			1		1		1			1	1		1	1	2	5
8				0			1	1		1	1	2				0	3
9			1	1				0			1	1		1		1	3
10	3		1	4			2	2	1	1		2	1			1	9
11				0		1	1	2	1	1	3	5		1		1	8
12				0	2			2	1	2	2	5	1	1	1	3	10
13	1	1		2	2	1		3		2	3	5	1	1	1	3	13
14	1		2	3	1			1			1	1				0	5
15	2		4	6	4	3	1	8	1		2	3	1		1	2	19
16		1	1	2		1		1				0				0	3
17	2	1	1	4	1	1		2		1	3	4		1		1	11
18	1		1	2			1	1				0				0	3
19	3			3	1	1		2			1	1			1	1	7
20	1	1	6	8	1	4	4	9		1	1	2				0	19
21	2		2	4	1			1		1	1	2		1		1	8
22	5	3	5	13	1			1		2	1	3		1		1	18
23	3	1	4	8	1	1		2		2	3	5				0	15
24			2	2	3			3	1		2	3				0	8
25	2		3	5		1	4	5	1	4	1	6		1		1	17
26		1	1	2		2		2		1	3	4		2		2	10
27			3	3	3	1		4		1		1				0	8
28	1		1	2		2		2	1	3	2	6			2	2	12
29				0	1	2		3	1		1	2				0	5
30				0		1	2	3	1	1	4	6				0	9
31		1		1				0	1		1	2		1		1	4
32				0				0		1	2	3	1	1	2	4	7
33				0				0		1		1	2			2	3
34				0				0				0		1	1	2	2
35				0		1		1				0	3	1	5	9	10
36				0				0	1			1	1	2	1	4	5
37				0				0				0		3	3	6	6
38				0				0				0	1		1	2	2
39				0				0				0	1			1	1
40				0				0				0		1	1	2	2
41				0				0				0	1			1	1
42				0				0				0	1	1	2	4	4
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0		1		1	1
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	28	10	40	78	22	25	16	63	11	26	41	78	15	22	24	61	280

Transect 6

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0		1		1				0				0	1
4		1		1	1	1	1	3				0				0	4
5				0	3	2	2	7				0				0	7
6		1		1	1	2	2	5				0				0	6
7				0				0	1			1		1		1	2
8				0	1			1				0	1		1	2	3
9	1			1	1		1	2				0		2		2	5
10				0	1		1	2	1			1		2	1	3	6
11			3	3	2			2	1			1		2		2	8
12	1			1			1	1	2	1	1	4		2	2	4	10
13	1	1		2	3	1	2	6	1			1		3		3	12
14	1			1	2	2	1	5	2	1	1	4				0	10
15		2		2	1	2	1	4				0	1		1	2	8
16	4	1	1	6	3	7	5	15		2		2	1	1	1	3	26
17		1	3	4		2		2	1	1		2	1			1	9
18		2		2	1	7	1	9	1	2		3		1		1	15
19	2	1		3		6		6	1	1		2		1		1	12
20	3	5	2	10	2	5	2	9		1		1		2	1	3	23
21	1		1	2	2	2	1	5	1			1				0	8
22	1		3	4	1	1	2	4	1	1	1	3		1		1	12
23		1		1		1		1	1		1	2	1			1	5
24	3			3	2	1	1	4				0	1	2		3	10
25	1	2		3	4	2	1	7	1	1	2	4			1	1	15
26	1			1	3		1	4	1	1		2			1	1	8
27	1	1		2	2		4	6	1	1	2	4				0	12
28				0	5	1	1	7	1		2	3	2		1	3	13
29				0	1			1	2		2	4	1	3	1	5	10
30	1			1	5		1	6	1	1	4	6	1		3	4	17
31				0				0		1		1	1	1		2	3
32				0		1		1	1		1	2		1	2	3	6
33				0	1			1		1		1		1	1	2	4
34				0				0		1		1				0	1
35				0				0				0	1		1	2	2
36				0				0				0				0	0
37				0				0			1	1				0	1
38				0				0				0		1		1	1
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	22	19	13	54	48	47	32	127	22	17	18	57	12	26	19	57	295

Transect 7

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0				0				0				0	0
6				0				0				0				0	0
7				0		1		1		1		1				0	2
8				0	1			1				0				0	1
9				0		1		1	1			1				0	2
10			1	1	2	1	1	4			1	1				0	6
11	1			1	1	1	3	5	1			1				0	7
12	2	1		3		1	2	3	2	1	2	5				0	11
13		1	1	2	1		2	3		1		1				0	6
14				0	1	1	3	5	1			1				0	6
15				0				0	1	2		3				0	3
16				0				0		1	1	2				0	2
17				0			1	1	2	1		3		1		1	5
18	1			1			1	1				0				0	2
19				0				0		1		1				0	1
20				0		1		1	1		2	3			1	1	5
21				0				0	1		1	2				0	2
22				0				0			1	1				0	1
23			1	1				0				0		1		1	2
24			1	1	1			1				0	1			1	3
25	1		3	4			1	1	1	2	1	4				0	9
26			1	1	1	2		3				0			1	1	5
27			1	1	1			1	2		2	4			1	1	7
28		1		1				0				0				0	1
29		1	1	2	3	2		5		2		2				0	9
30	3	1	2	6			1	1	1	5	1	7	1			1	15
31			1	1				0		2		2				0	3
32		2	1	3		1	2	3		6		6				0	12
33	1	1	1	3				0	1	2		3		1		1	7
34	1			1		1		1	1	1		2				0	4
35	1			1	1			1		1	3	4				0	6
36		1		1		1		1			1	1		1		1	4
37				0				0				0	1		2	3	3
38		1		1				0		1		1			1	1	3
39		1		1				0				0				0	1
40				0				0				0	1	1		2	2
41				0				0				0				0	0
42				0				0	1			1		1		1	2
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	11	11	15	37	13	14	17	44	17	30	16	63	4	6	6	16	160

Transect 8

Size (mm)	Number of cockles			HT total	UMT			UMT total	UMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
	1					0					0						
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0	1			1				0				0	1
6				0				0				0				0	0
7				0		2	3	5	2		1	3				0	8
8				0	1			1	1		1	2				0	3
9				0			1	1		1	1	1				0	2
10	3			3				0	1	3	2	6	1		1	2	11
11				0				0				0		1	1	2	2
12	1			1			1	1			1	1	1			1	4
13				0				0		1		1		1	1	2	3
14				0				0	1			1	1			1	2
15	3			3				0	1	1		2	1	2		3	8
16	1			1			1	1				0	1		1	2	4
17	1			1				0	1	2	1	4	1	2	1	4	9
18	1		1	2			1	1				0		1		1	4
19				0	1			1				0			3	3	4
20	8	1	2	11			1	1				0	1	4	2	7	19
21				0				0			2	2				0	2
22	1			1				0			2	2		1		1	4
23	2			2				0	1			1		1	1	2	5
24			2	2	1			1		1		1		2	1	3	7
25	13		3	16	1	1	2	4	2	1	3	6	1		1	2	28
26		1	1	2		1		1			1	1				0	4
27			2	2			1	1				0		1		1	4
28	1			1			1	1			2	2			2	2	6
29	1			1				0	1	4		5		2	1	3	9
30	3		6	9				0	6	4	1	11	3	2	6	11	31
31	1			1				0				0			1	1	2
32	1			1				0	1	2	1	4	1	2		3	8
33				0				0		1		1	1		4	5	6
34				0				0	2			2			2	2	4
35			1	1				0	2	1	3	6		4	8	12	19
36				0				0				0	1	1	1	3	3
37				0				0		1		1		3	1	4	5
38				0				0			1	1		1		1	2
39				0				0				0		1		1	1
40				0				0				0		3	4	7	7
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0			1	1	1
44				0				0				0	1			1	1
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0			1	1	1
50				0				0				0				0	0
Total	41	2	18	61	5	4	12	21	22	23	22	67	15	34	46	95	244

Transect 9

Size (mm)	Number of cockles												Total Number				
	HT			HT total	UMT			UMT total	LMT			LMT total		LT			LT total
A	B	C	A		B	C	A		B	C	A		B	C	A	B	
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4			3	3			1	1				0				0	4
5			3	3		5	1	6				0				0	9
6	1		1	2	1	1		2				0				0	4
7		1	1	2		2	3	5				0				0	7
8		3	2	5	2	3	1	6				0				0	11
9		2		2	1	2	1	4		2		2				0	8
10	3	1	1	5	1	2		3	2			2				0	10
11			1	1	2	1	1	4	3	1	1	5				0	10
12	1	1		2		1		1		2	1	3				0	6
13				0	1		2	3		1	1	2	1			1	6
14	2		1	3			1	1			1	1				0	5
15	1	2	2	5	2	1		3				0		1		1	9
16	1	1	3	5	1			1	1			1				0	7
17	1	3		4	1	2	1	4				0				0	8
18	3		3	6		2		2	1	1		2				0	10
19	2		1	3	3	1	1	5	1		1	2	2		1	3	13
20	1	3		4			2	2		1		1		1		1	8
21		1		1	1	2	1	4			1	1	1	1	1	2	8
22		1	1	2	2	2	2	6				0				0	8
23		2	1	3	2	1	3	6		1	1	2		1		1	12
24				0	1	1	1	3				0				0	3
25				0	3	2	2	7	1	1		2	1			1	10
26				0	1	1	1	3	2		3	5				0	8
27				0	2	1		3		1	1	2		1		1	6
28				0	2	1	3	6	1	2		3		1	1	2	11
29				0	1	1	1	3	2		2	4				0	7
30				0	1		2	3	2	1	4	7	1		1	2	12
31				0	1			1	3	1	3	7		1		1	9
32				0				0	3			3	1			1	4
33				0				0	3	1	2	6			1	1	7
34				0		1		1	3		2	5	1		1	2	8
35				0				0	3	1	1	5				0	5
36				0				0	2	1	1	4			1	1	5
37				0				0	1	1	2	4	2			2	6
38				0				0			1	1	1	1		1	3
39				0			1	1	1			1				0	2
40				0				0	1			1	1			1	2
41				0				0		1		1				0	1
42				0				0				0	1			1	1
43				0				0				0				0	0
44				0				0			1	1				0	1
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	16	21	24	61	32	36	32	100	36	20	30	86	13	6	8	27	274

Transect 10

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0	2			2				0				0	2
6	1			1		1		1				0				0	2
7	1			1				0			1	1				0	2
8				0				0	1	1	4	6				0	6
9				0				0	1		3	4		1	1	2	6
10	2	1		3				0		1	1	2		1		1	6
11			1	1		1	1	2	4	3	2	9				0	12
12	1			1				0		2	1	3				0	4
13		2		2	2		1	3	1	1		2	1	1	2	4	11
14		5	1	6	1		1	2			1	1				0	9
15	1	5		6			1	1	1	1	1	3		1	1	2	12
16		4	3	7				0			2	2		1	1	2	11
17	2	4	1	7				0		1		1			1	1	9
18	1	3	4	8	1	5		6	1	1		2	1	2	2	5	21
19	1	3	1	5	2	2		4	1	2	1	4				0	13
20	1	4		5	4	5		9		1		1	2			2	17
21	1	4	2	7	1			1		1	1	2				0	10
22	3	3	1	7	1	1	1	3			1	1	1		1	2	13
23	1	1	2	4	2	1	2	5		3	3	6		1		1	16
24				0	5	1	1	7		2	2	4	1	1	2	4	15
25	1	1		2	4	2	1	7	3	1	1	5	1			1	15
26				0				0	3	1	3	7				0	7
27		1		1		1	1	2	2	3	3	8	1		1	2	13
28				0	2	2		4	3	1	1	5			1	1	10
29				0				0	1	7	1	9	1		1	2	11
30				0	1			1	1	4	3	8			1	1	10
31				0				0		4		4	1		2	3	7
32				0				0	1	2	2	5	4		3	7	12
33				0				0		1	1	2	1		2	3	5
34				0				0				0		1	3	4	4
35				0				0				0	1	1	5	7	7
36				0				0			2	2	2	2	4	8	10
37				0				0		3		3	3		3	6	9
38				0				0				0	1	1		2	2
39				0				0				0			1	1	1
40				0				0				0	1		1	2	2
41				0				0				0			1	1	1
42				0				0				0	1			1	1
43				0				0				0		1		1	1
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	17	41	16	74	28	22	10	60	24	47	41	112	24	14	41	79	325

Transect 11

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0		1		1				0	1
4			1	1				0				0				0	1
5				0				0		1		1				0	1
6		1		1				0		1	1	2				0	3
7				0				0			3	3				0	3
8			1	1			1	1	1		2	3				0	5
9				0		1		1			1	1			1	1	3
10			1	1			1	1	1	1	5	7		1		1	10
11				0		1		1		1		1				0	2
12		1		1		1		1		1	1	2				0	4
13				0	1		1	2				0		1		1	3
14				0			1	1	1			1				0	2
15	1	2		3				0			1	1	1			1	5
16	1	2		3			2	2	2	1	1	4			1	1	10
17	2	1	1	4		1		1		1	1	2			1	1	8
18	1			1	1	1	2	4				0				0	5
19			2	2			1	1		1		1				0	4
20	1	1		2	1	2	1	4	3	2	1	6	1	3		4	16
21			1	1	1	4	3	8	1	2		3				0	12
22	3		2	5		1	1	2		1		1		2		2	10
23	2			2	1		1	2	1	1	1	3		1		1	8
24			1	1	1	2	2	5		2		2				0	8
25	2			2	2	2		4	2		5	7	1			1	14
26			1	1		1	1	2	5	2		7	1	1		2	12
27				0				0	3		2	5			1	1	6
28				0	1	2	1	4	3	3	3	9	2		1	3	16
29				0	1			1	2	5	2	9				0	10
30				0	1			1	12	6	3	21	4	2		6	28
31				0				0	4	2	2	8	2	1		3	11
32				0				0	2		1	3	1	1		2	5
33				0				0		2	1	3	1			1	4
34	1			1	1			1				0	2		1	3	5
35				0	1			1				0			1	1	2
36				0	1			1				0		2		2	3
37				0				0				0			1	1	1
38				0				0				0				0	0
39				0				0				0				0	0
40	1			1		1		1				0	2	2		4	6
41				0				0				0	1			1	1
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	15	8	11	34	14	20	19	53	43	37	37	117	19	17	8	44	248

Transect 12

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0				0				0				0	0
6				0	1			1			1	1				0	2
7				0				0			1	1				0	1
8				0	1			1			1	1				0	2
9				0			1	1		1	2	3				0	4
10		1		1				0			2	2				0	3
11				0	1			1			1	1				0	2
12				0	1			1			2	2				0	3
13				0		1		1				0		2		2	3
14				0				0			3	3				0	3
15				0	2	1		3			2	2				0	5
16		1		1	2			2		1	1	1				0	4
17	1	1		2	1	1		2				0				0	4
18			1	1	4		1	5			1	1		1		1	8
19	1	1		2	1			1				0				0	3
20	2			2	2			2				0				0	4
21				0				0				0				0	0
22				0	1			1			4	4				0	5
23				0		2		2		1	1	2				0	4
24				0	1			1			2	2				0	3
25				0				0		1	5	6				0	6
26				0				0			4	4				0	4
27				0				0			3	3				0	3
28				0				0				0		1		1	1
29				0				0				0				0	0
30				0				0			5	5		1		1	6
31				0				0				0				0	0
32				0				0				0				0	0
33				0				0				0				0	0
34				0				0			1	1				0	1
35				0				0				0				0	0
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0	1			1				0				0	1
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0	1			1				0				0	1
49				0				0				0				0	0
50				0				0				0				0	0
Total	4	4	1	9	20	5	2	27	0	4	41	45	0	5	0	5	86

Transect 13

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0		4		4				0			1	1	5
5				0				0				0	1	1	6	8	8
6		1	1	2			1	1			1	1		2	2	4	8
7			1	1	2	1	2	5		2		2	1	1	1	3	11
8	3	1	1	5		3	3	6			1	1		1		1	13
9		1	1	2	2	3	2	7			3	3			1	1	13
10	1			1		1	2	3	3	1	1	5			2	2	11
11				0	1		2	3	3	3	3	9	1			1	13
12				0	1	3		4	5	5		10	1		1	2	16
13				0	4		2	6	3	5	5	13			1	1	20
14				0	2	2		4		1		1			1	1	6
15	1		1	2		1		1	3	3		6	1	2	1	4	13
16		1	1	2		1	2	3	1	2		3		1	1	2	10
17	1	1		2	1		1	2			2	2	4	1	1	6	12
18			1	1		1	1	2	1		1	2	1	1	2	4	9
19			1	1		3	4	7	1		1	2		1	1	2	12
20	1		1	2	3	5	5	13	2	1	2	5				0	20
21			1	1	3	4	3	10	1			1		1		1	13
22				0	9	6	6	21	1		1	2				0	23
23			1	1	5	4	3	12	2		1	3			1	1	17
24				0	1	4	3	8	2		1	3				0	11
25				0			1	1	5	3	1	9				0	10
26				0	1			1	1	2	5	8			1	1	10
27				0	2	1		3	4	3	8	15		2		2	20
28				0				0	3	2	4	9		1		1	10
29				0				0	7	2	2	11	1		1	2	13
30				0				0	8	9	1	18		4	1	5	23
31				0				0	4	2	2	8	1		1	2	10
32				0				0	2	1	1	4		1	5	6	10
33				0				0		2		2	1	3	1	5	7
34				0				0			2	2	1	2	6	9	11
35				0				0				0	1	1	3	5	5
36				0				0				0		3	1	4	4
37				0				0				0	1	2	3	6	6
38				0				0				0	1		1	2	2
39				0				0				0		1	3	4	4
40				0				0				0				0	0
41				0				0				0		1		1	1
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	7	5	11	23	37	47	43	127	62	49	49	160	17	33	50	100	410

Transect 14

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0	1	2	1	4			1	1	5
4				0				0	2			2			1	1	3
5				0				0	1	2	2	5		1	3	4	9
6				0				0		1	1	2	2	1		3	5
7				0				0		1	1	2		1	2	3	5
8				0				0	1	2	3	6	2	2		4	10
9				0		1		1		1	1	2			1	1	4
10				0				0	2		3	5	1	1		2	7
11	1		1	2				0	2		1	3				0	5
12				0				0	6	2	4	12	1			1	13
13	1			1				0	1	2	2	5				0	6
14				0				0	4	1	2	7		1	3	4	11
15				0			1	1	3		3	6	2			2	9
16				0				0	1	4	2	7				0	7
17				0				0	1	3	2	6		1		1	7
18				0			1	1		4	1	5				0	6
19	1	1		2				0	3	2	4	9	1			1	12
20	1		1	2				0	1	3	4	8			2	2	12
21				0		1	2	3	1	3	3	7	1	1		2	12
22	2	1	1	4			2	2	1	3	2	6	1		3	4	16
23				0			2	2	2	2	2	6	6		1	7	15
24	3			3		1		1	7	2	2	11		1		1	16
25			1	1	1	2	2	5	2	2		4	1	1	6	8	18
26				0	1			1	4	6	3	13	2		2	4	18
27			2	2	2			2	3	3	1	7			3	3	14
28				0				0	5	2	2	9	3	2	1	6	15
29				0			1	1		8		8	1	1	2	4	13
30				0				0	1	3	1	5	2	2	4	8	13
31				0				0			1	1	2	1	2	5	6
32				0	1			1		1		1	1	3	2	6	8
33				0				0				0		1	2	3	3
34				0	1			1				0	3			3	4
35				0				0				0	1		1	2	2
36				0				0				0		1	1	2	2
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	9	2	6	17	6	5	11	22	55	65	54	174	33	22	43	98	311

Transect 15

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LTSW			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5				0				0	1			1	1			1	2
6				0				0		2		2	1	2	3	6	8
7				0	1			1				0	2			2	3
8		1		1	2	1	2	5	2		1	3	2	1	1	4	13
9				0	2	2	2	6	1			1	1		1	2	9
10		3	1	4	5	2	5	12		2		2		1	1	2	20
11			1	1	1	2		3	2		1	3				0	7
12			1	1	4	5	3	12	2	4	2	8		2	2	4	25
13		1	1	2	1	3	2	6	3			3				0	11
14		2	1	3	3	1	2	6		1	1	2	1			1	12
15				0	3	2	1	6		3	3	6			1	1	13
16		1	1	2	6	2	2	10	3		1	4	1	2	1	4	20
17	2	1	2	5	1		1	2			1	1				0	8
18	2	1		3	2	2	3	7			1	1	1			1	12
19	1	3	2	6	1	2		3				0	1			1	10
20	1		2	3	2	6	1	9	3	2	1	6				0	18
21	1	2		3	6	9	1	16	1	1		2				0	21
22		1	2	3	4	10	2	16	1		1	2		1		1	22
23		2	3	5	6	3	5	14				0				0	19
24				0	4	1	4	9				0				0	9
25			2	2	3	4	2	9	1		2	3	1	1		2	16
26				0	3	3	2	8	1	3	2	6		2	2	4	18
27			1	1	2	2	1	5	2	1	1	4		1		1	11
28		1		1	3	2		5		1	5	6	3	1	3	7	19
29				0	1			1	3	1	4	8		1		1	10
30				0				0	4	2	12	18	2	1	1	4	22
31				0				0	3	2	8	13		1		1	14
32				0				0	2		2	4	1		3	4	8
33				0				0		1	1	2				0	2
34				0				0			1	1				0	1
35				0				0			3	3	1			1	4
36				0				0				0		1	1	2	2
37				0				0				0		1		1	1
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0			1	1	1
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	7	19	20	46	66	64	41	171	35	26	54	115	19	19	21	59	391

Transect 16

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0				0				0	
3				0				0				0				0	
4	1			1		4		4				0				5	
5	1		3	4		3		3		1		1	1		1	9	
6	2	1		3		1		1		1		1	2		1	8	
7		1		1				0	1			1	1		1	3	
8	1	1		2			2	2			1	1	1		1	6	
9		1	3	1			2	2		1	3	4		1	1	8	
10	1	3	2	6	2	1	6	9		2	2	4	2	1	3	22	
11		2		2			1	1	2	1	2	5	1	1	2	10	
12	2	4	1	7	2		3	5	2	1	6	9	1	4	2	28	
13	1		1	2	1		4	5	2	3	2	7				14	
14	4	2	2	8	2			2	3	2	3	8		3	1	22	
15	2	4	2	8		2	2	4	1		3	4	1		4	21	
16	2	1	1	4			4	4	4	2	2	8		2	1	19	
17	2	2	1	5			4	4	3	4	2	9	1	1	2	22	
18	1	3	1	5	2		3	5	2	3	1	6	1	2	3	22	
19	2	1	1	4			2	2		1		1				7	
20	2	6	3	11		2	2	4	7	4	2	13	2	2	8	40	
21	1	1		2		1	1	2	2	1	3	6	1	1	1	13	
22	1			1		1		1	4	1	3	8	4	4	6	24	
23				0		1	1	2	4	3	9	16	6	3	3	30	
24				0			1	1	6	4	9	19	3	4	3	30	
25				0			3	3	6	4	1	11	8	7	2	31	
26				0			1	1	4	2	4	10	2	2	3	18	
27				0			1	1	7	4	3	14	3	2	3	23	
28				0			1	1	2	3	1	6	4	8	9	28	
29				0			1	1	1		1	2		1	2	6	
30				0				0	2		1	3	6	9	7	25	
31				0				0	1			1	2	1	2	6	
32				0				0		1		1	1	3	3	8	
33				0				0				0	1		1	2	
34				0				0				0		1	1	2	
35				0				0				0	1			1	
36				0				0				0			2	2	
37				0				0				0				0	
38				0				0				0		1		1	
39				0				0				0				0	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	26	33	18	77	9	16	45	70	66	49	64	179	56	64	70	190	516

Transect 17

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0		1		1				0				0	1
5	1	1	2	4	1	3	4	8	9		4	13	2	3		5	30
6	1	2	3	6	5	2	6	13	5	1	1	7				0	26
7	1	1	1	3	4	2	4	10	4	3		7		4	1	5	25
8		1	1	2	2	2	4	8	6	1	1	8		1		1	19
9		1		1	4	2		6	5	3	4	12		1	1	2	21
10			2	2	1	3	2	6	10	3	3	16	7	6	1	14	38
11		2	1	3	3	4	2	9	7	3	4	14	2	3	2	7	33
12	3	1		4	4	6	4	14	3	2	2	7	1	2	3	6	31
13				0		1		1	2	1	2	5	1	2	1	4	10
14				0		3		3	2	3	4	9	1	1	3	5	17
15				0	2	6	1	9	5	5	9	19			4	4	32
16				0		3	1	4	9	4	7	20	2		5	7	31
17			1	1	5	1	1	7	2	1	2	5			2	2	15
18		1	1	2	2	2	2	4	1	3	2	6	1	1	6	8	20
19	1			1	2	3	1	6	2	5	3	10	1		5	6	23
20		1	1	2	4		3	7	3	4	1	8	2	4	15	21	38
21	1			1	1			1	5	3	4	12	3	8	7	18	32
22			1	1	1			1	3	2	1	6	3	10	7	20	28
23			1	1				0				0	3	1	3	7	8
24				0			1	1	1	3		4		8	3	11	16
25				0	2			2	2		2	4	8	6	8	22	28
26				0				0	1			1	4	2		6	7
27				0				0				0	1	3	5	9	9
28				0				0				0	1	2	9	12	12
29				0				0				0	1	3	2	6	6
30				0			1	1				0	2	3		5	6
31				0				0				0				0	0
32				0				0				0		2		2	2
33				0				0				0				0	0
34				0				0				0				0	0
35				0				0				0				0	0
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	8	11	15	34	43	42	37	122	87	50	56	193	46	76	93	215	564

Transect 18

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3		1		1				0				0				0	1
4		6		6				0				0				0	6
5	1	1	20	22			3	3				0				0	25
6		5		5	1			1				0				0	6
7	9		3	12	6	2	2	10				0		2		2	24
8	3	4	8	15	1		3	4				0		1		1	20
9		5		5	4		7	11				0	1			1	17
10	1	1		2	4	11		15				0	1			1	18
11	3	6		9		2	1	3		2		2				0	14
12	5	5		10	1		4	5		1	1	2				0	17
13	11	2	3	16		3	1	4			1	1				0	21
14		5	5	10				0		1		1				0	11
15	2	2	3	7	2		5	7			1	1	1		1	2	17
16	4	1		5		3	1	4	1			1				0	10
17			1	1	1		1	2	1		2	3				0	6
18			1	1		1	6	7	1			1				0	9
19	1			1		6	1	7				0				0	8
20	2	3	1	6		9	2	11	1	2	1	4				0	21
21				0	3	2		5	1	1	1	3				0	8
22				0	1	2	1	4	2	1		3			2	2	9
23				0	1	3	1	5				0	1			1	6
24				0	1	3	1	5			3	3	1			1	9
25		1		1		2	2	4		1		1	1	2	1	4	10
26				0	2	4		6				0		1		1	7
27				0		1		1	1		1	2				0	3
28				0	1		2	3		1		1			1	1	5
29				0		1		1		3		3			1	1	5
30			1	1		1		1		2	2	4	4			4	10
31				0				0		1		1		1		1	2
32				0				0	1			1	1	2	2	5	6
33				0				0				0				0	0
34				0				0				0				0	0
35				0				0		1		1				0	1
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0		1		1	1
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	42	48	46	136	29	56	44	129	9	17	13	39	11	9	9	29	333

Transect 19

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0			1	1				0	1
3				0				0			1	1				0	1
4				0				0				0				0	0
5				0		1		1	1		1	2		a		0	3
6				0				0				0		l		0	0
7				0	1		1	2				0		l		0	2
8	1		2	3				0				0		s		0	3
9				0			2	2				0		a		0	2
10			2	2				0				0		m		0	2
11	1			1				0				0		p		0	1
12				0		1		1				0		l		0	1
13				0				0				0		e		0	0
14				0				0				0		s		0	0
15			6	6	2	1		3	1	1		2				0	11
16	1			1				0				0				0	1
17		2		6	1			1				0				0	7
18	1	1	2	5		1	1	2			1	1				0	8
19	1			5				0				0				0	5
20			4	5				0	1			1				0	6
21	1			4				0				0				0	4
22	2		1	3		1		1	2			2				0	6
23				0				0	1			1				0	1
24				1				0				0				0	1
25			1	1			3	3	2		1	3				0	7
26				0				0				0				0	0
27				0			1	1				0				0	1
28				0			1	1				0				0	1
29				0				0				0				0	0
30				0				0				0				0	0
31				0				0				0				0	0
32				0			1	1			1	1				0	2
33				0				0				0				0	0
34				0				0				0				0	0
35				0				0				0				0	0
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	8	3	18	43	4	5	10	19	8	1	6	15	0	0	0	0	77

Transect 20

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1	z		z	0				0				0				0	0
2	e		e	0				0				0				0	0
3	r		r	0			1	1				0				0	1
4	o		o	0			1	1				0				0	1
5				0				0				0			1	1	1
6				0				0				0			1	1	1
7				0			1	1				0			2	2	3
8				0			2	2				0		1	1	2	4
9				0	1			1				0	1			1	2
10				0	1			1	2			2	1	1		2	5
11				0				0	2			2		1	1	2	4
12				0				0				0		1	1	2	2
13				0	2		4	6	2		2	4		1	4	5	15
14				0				0	3		1	4	1			1	5
15				0	1	1	5	7	1		2	3	1	3		4	14
16				0			2	2	2	2		4	2	1		3	9
17				0			2	2	1	1		2		1	1	2	6
18				0	1		2	3	1	1		2	3	3	4	10	15
19				0			6	6			1	1	1	4		5	12
20				0	3		11	14	2			2		2		2	18
21				0			2	2				0			1	1	3
22		1		1	1		5	6		1	2	3	1	3	2	6	16
23				0			1	1			1	1	1	2	1	4	6
24				0	1	1	2	4	2		1	3	5	3	5	13	20
25				0	1	2	3	6	2	1	2	5		3	3	6	17
26				0			2	2	5	2	3	10		1		1	13
27				0			1	1	3			3		4	1	5	9
28				0			1	1	7	1	1	9		2	2	4	14
29				0				0	1	1		2	1			1	3
30				0			1	1	1		2	3		4	1	5	9
31				0				0	1			1			1	1	2
32				0				0	1	2		3	1	1		2	5
33		1		1				0	1		1	2		1		1	4
34				0			1	1		1		1		3	1	4	6
35				0				0			1	1		2	1	3	4
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	0	2	0	2	12	20	56	72	40	13	20	73	19	48	35	102	249

Transect 21

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1			z	0				0				0				0	
2			e	0				0				0				0	
3			r	0				0				0				0	
4			o	0				0				0				0	
5				0		1	1	2	5			5				7	
6				0	1			1	4	2		6				7	
7				0			1	1	4	2		6				7	
8				0		1		1	1	6	4	11				12	
9				0		2		2	3	2	3	8				10	
10		1		1	1	2	1	4	1	1	1	3	1	1		10	
11				0		3	1	4	2	4	1	7				11	
12		1		1	1		2	3	1	2		3			1	8	
13		1		1				0				0				1	
14				0	1		1	2	1	1		2				4	
15				0	2	4	3	9	4	2		6			1	16	
16	1	1		2	1			1		1	2	3			1	7	
17				0	1			1	3			3	1			5	
18				0	1	2		3				0	1			4	
19				0			1	1	2		1	3			1	5	
20				0	1	2		3	2	2		4	1	1	1	10	
21				0				0	1			1			1	2	
22				0		1		1	1	2	2	5		1	1	8	
23				0				0				0			2	2	
24				0				0	3	2	2	7			1	8	
25				0			2	2	3	4	2	9				11	
26				0		1		1	3	1	1	5				6	
27				0				0	1			1				1	
28				0		3	1	4		2	5	7		1		12	
29				0				0	2		2	4				4	
30				0	1	1	1	3	3	3	3	9				12	
31				0		1	1	2				0				2	
32				0	3	1		4		1	2	3				7	
33				0	1	1	1	3				0				3	
34				0		1		1		1		1				2	
35		1		1	1			1			1	1				3	
36				0		1		1				0				1	
37				0			1	1				0				1	
38				0	3	1	1	5				0				5	
39				0				0		2		2				2	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	1	5	0	6	19	29	19	67	50	43	32	125	4	4	10	216	

Transect 22

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1	z			0				0				0				0	
2	e			0				0				0				0	
3	r			0				0				0				0	
4	o			0				0				0				0	
5				0	1		2	3			3	3				6	
6				0			1	1				0				1	
7		1		1			1	1	2	1	3					5	
8				0		1	1	2	2		2					4	
9				0				0			0					0	
10		1		1				0	4	3	7					8	
11			1	1				0			1	1				2	
12				0	1		1	2	1	1	2		1		1	5	
13				0				0			0	1			1	1	
14				0				0		1	1	2				2	
15			1	1			1	1		1	1					3	
16				0	1	1	1	3			0		1		1	4	
17				0	1	2	3	6			0			1	1	7	
18			1	1	1	1	1	3			0		1		1	5	
19				0				0			0					0	
20			1	1	6	5		11		1	1			1	1	14	
21			1	1	1	1		2	1		1					4	
22			1	1	1	1	2	4			0					5	
23				0	5	1	1	7			0		1		1	8	
24				0	2	2		4			0					4	
25				0	2	1	2	5	2	1	1	4				9	
26				0	1			1			2	2		1	1	4	
27				0	1			1	1		1	2				3	
28				0	1	2		3	1	1	1	3				6	
29				0	1			1			0					1	
30				0		1		1		1	2	3	1		1	5	
31				0				0		1		1				1	
32				0		1		1	1		2	3				4	
33				0				0			1	1				1	
34				0				0	1			1				1	
35				0				0		2	1	3				3	
36				0				0				0		1	1	1	
37				0				0				0	1		1	1	
38				0				0				0				0	
39				0				0				0				0	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	0	2	6	8	26	20	17	63	16	14	16	46	3	5	3	11	128

Transect 23

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0				0				0	
3				0				0				0				0	
4				0				0				0		1	1	1	
5			1	1				0	1			1				2	
6				0		2		2				0	1			3	
7		1		1	1			1		1	1	2	1			5	
8		1	1	2				0				0				2	
9		1		1				0	1		1	2	1			4	
10		1		1				0	5			5				6	
11		1		1		1	1	2	1			1		1		5	
12	1			1				0	4			4				5	
13		1		1				0	1			1	1			3	
14	1		5	6	1	1	1	3	3	1		4				13	
15	1	2	4	7	1	2		3				0				10	
16	1	1	1	3	3	1	1	5	4		1	5	1	1		15	
17	1	2		3	2	2	2	6	1	1		2			1	12	
18	2	4	3	9				0	2		1	3	1	1		14	
19	1	2	1	4	2			2		1	1	2				8	
20		2		2	1	1	4	6	3	1	2	6			1	15	
21		2		2			3	3	2			2				7	
22		2	3	5	3	6	3	12	3	2	1	6	1	1		25	
23		1	1	2	2	1	2	5	3	3	1	7				14	
24				0	2	1	1	4	5		5	10	1	1	1	17	
25	2	1	2	5	1	1	1	3	7		2	9				17	
26			1	1		1		1				0		1	1	4	
27				0	5	1	2	8	3			3			1	12	
28				0			1	1	1			1			1	3	
29			1	1				0	1			1	2			4	
30				0	2			2		2		2	1	4	1	10	
31				0				0		1		1	1	1		3	
32				0				0				0				0	
33				0				0				0	1			1	
34				0				0				0				0	
35				0				0				0		1		1	
36				0				0				0				0	
37				0				0				0				0	
38				0				0				0				0	
39				0				0				0				0	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	10	25	24	59	26	21	22	69	51	13	16	80	13	11	9	33	241

Transect 24

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0				0				0	
3				0				0				0				0	
4				0		1	1	2				0				2	
5				0	3	8	5	16	3	3	2	8				24	
6				0	1	2	2	5	1	4	1	6				11	
7				0		1		1	1	4	4	9				10	
8				0	1			1	4	6	5	15				16	
9				0		1		1	4	5	3	12				13	
10				0	4	4	7	15	2	1	3	6				21	
11	1			1				0	2		4	6				7	
12				0	2	4	1	7			3	3				10	
13				0				0	1		2	3				3	
14	1			1		1		1		2		2				4	
15	2	4		6	5	9	3	17		2	1	3				26	
16	2			2	1		1	2	1			1		1	1	6	
17				0				0	4	1	1	6		1	1	7	
18	4	1	1	6	1	3	2	6		2	2	4				16	
19	3			3		1		1			4	4				8	
20	1	4		5	4	7	6	17		2	3	5				27	
21	1		1	2				0	2		1	3		2	2	7	
22	4	2		6	4	5	2	11			3	3				20	
23				0				0	2	3	3	8				8	
24				0		1	5	6		3	1	4				10	
25		1		1	6	7	9	22	1	1	3	5				28	
26				0	1	3		4		2	2	4				8	
27	1			1			2	2	1	1	1	3				6	
28				0	2	1		3	1	1	2	4				7	
29				0				0	1	6	3	10				10	
30		1		1	2	1	4	7	2	4	4	10				18	
31				0				0	3		5	8				8	
32				0				0	1	5	2	8				8	
33				0				0	1	2	2	5				5	
34				0				0	3	3		6		1	1	8	
35				0				0		1	1	2				2	
36				0				0	2	1	1	4				4	
37				0				0				0				0	
38				0				0		1		1	1		1	2	
39				0				0	1			1				1	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0	1		1	1	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	20	13	2	35	37	60	50	147	44	66	72	182	2	1	5	372	

Transect 25

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0				0				0	
3				0				0				0				0	
4				0	1			1				0				1	
5		1		1	4	3	1	8				0				9	
6			1	1	6	2	3	11		1		1				13	
7			2	2				0				0				2	
8			1	1	1	3		4	1			1				6	
9		1		1				0				0	2			3	
10		1	1	2	2	2	3	7				0	1	1		11	
11				0				0		1	2	3				3	
12		2		2	2	2	2	6	1	1		2		1		11	
13	1	1	1	3				0				0		1		4	
14	1	1	3	5			1	1	1			1		1		8	
15	2		1	3	1	1	5	7			1	1			1	12	
16		1	2	3		2	1	3				0			1	7	
17	1	5		6			1	1				0				7	
18	3	1	1	5	3		3	6	1	2		3				14	
19	1			1		2		2	1	1	1	3				6	
20	1		2	3	2	6	2	10			1	1				14	
21		2	1	3				0	1		1	2				5	
22	2	2	1	5	1	3	2	6		1	2	3				14	
23			1	1				0	1			1				2	
24				0		1	1	2				0				2	
25	1			1	5	2	4	11	2			2				14	
26				0	1	1	2	4	2	1		3	1			8	
27				0	3			3	1			1				4	
28				0	1			1				0				1	
29			1	1	1	1		2			1	1				4	
30				0		1	1	2	5	1	1	7		1		10	
31				0				0	2			2				2	
32				0				0		1	4	5	1			6	
33				0				0		3		3	1	2		6	
34				0				0		1	2	3		1		4	
35				0				0				0		4		4	
36				0				0				0	1			1	
37				0				0				0				0	
38				0				0				0	1	1		2	
39				0				0				0		1		1	
40				0				0				0				0	
41				0				0				0		1		1	
42				0				0				0		1		1	
43				0				0			1	1				1	
44			1	1				0				0				1	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	13	18	20	51	34	32	32	98	19	14	17	50	8	16	2	225	

Transect 26

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0	2			2				0				2	
3	1			1			1	1				0				2	
4				0	3	1	2	6				0				6	
5	3	2	2	7	3	1	2	6			2	2	1		1	16	
6				0				0				0				0	
7		1	1	2				0				0				2	
8	1	3	2	6	1	1		2				0	2	1	3	11	
9		1		1				0				0				1	
10	1	3	1	5		1	1	2	1	1	1	3		1	1	11	
11				0				0				0				0	
12		3	1	4		1	1	2				0				6	
13				0				0				0				0	
14		1	2	3	1			1				0		2	2	6	
15		6		6		1	2	3			1	1	1	3	4	14	
16			1	1				0				0				1	
17				0				0				0				0	
18		4	2	6		1	3	4				0				10	
19			2	2				0				0				2	
20	3	2	3	8	4	2	4	10	3	1	3	7				25	
21				0				0				0				0	
22	2			2	1	2	1	4		1		1				7	
23				0		1		1				0				1	
24				0	1	1	2	4		1		1	1		1	6	
25	2	1	2	5	3	3	4	10	2	1		3		1	1	19	
26				0				0		1		1				1	
27				0				0				0				0	
28				0	1		2	3	1	2		3	1		2	9	
29				0				0				0				0	
30				0	1		1	2	4	8	4	16	3	1	1	23	
31				0				0				0				0	
32				0				0				0	1	1	2	2	
33				0				0				0				0	
34				0				0	1	1		2	1		1	3	
35				0				0				0	1	1	2	4	
36				0				0				0				0	
37				0				0				0				0	
38				0				0		2	1	3	1		2	6	
39				0				0				0				0	
40				0				0		1		1		1	1	3	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	13	27	19	59	21	16	26	63	12	20	12	44	13	11	9	33	199

Transect 27

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0				0				0	
3				0				0				0				0	
4		1		1				0				0				1	
5			1	1				0				0				1	
6		1	1	2	1			1	1			1				4	
7				0			1	1				0				1	
8			1	1	1	1	1	2				0				3	
9	3	1		4				0		1		1				5	
10		1	2	3				0				0				3	
11	1			1				0				0				1	
12				0				0		1		1				1	
13				0		1		1				0		1	1	2	
14		2		2				0				0				2	
15		1	2	3				0		1		1				4	
16	1		1	2				0				0		1	1	3	
17	3		1	4				0				0	1		1	5	
18	3	4	2	9				0				0				9	
19	2	1	1	4	1			1				0				5	
20	3	3	4	10			1	1				0				11	
21	1		1	2		2		2				0				4	
22	1	1		2				0				0				2	
23	2		1	3				0				0				3	
24	4	1		5	3			3	1			1				9	
25	2	1	2	5			2	2			1	1				8	
26	3	2	1	6				0				0				6	
27		3	2	5	1			1				0		1	1	7	
28	4	1	1	6	1	2		3			1	1				10	
29		1		1			1	1				0				2	
30				0			2	2	1			1				3	
31		1		1				0				0				1	
32				0	1	1	1	3				0				3	
33				0	2	1	1	4				0				4	
34				0	1			1				0				1	
35				0	2	2		4				0				4	
36				0				0			1	1				1	
37				0			1	1				0				1	
38				0				0				0				0	
39				0				0				0				0	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0	1		1	1	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	33	26	24	83	14	9	11	34	3	3	3	9	2	0	3	5	131

Transect 28

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	0
2				0				0				0				0	0
3				0				0				0				0	0
4				0				0				0				0	0
5			1	1		1	1	2				0				0	3
6			5	5			2	2				0				0	7
7		2		2				0				0				0	2
8			1	1			1	1				0				0	2
9	1			1	1			1		1		1				0	3
10				0				0				0				0	0
11	1			1			1	1	1	1		2				0	4
12				0				0				0				0	0
13				0				0				0			1	1	1
14				0				0		1		1				0	1
15				0				0	1			1				0	1
16	1		1	2				0				0				0	2
17				0			1	1				0			1	1	2
18	1	1		2				0				0				0	2
19			1	1				0				0				0	1
20	1	1	1	3			1	1				0				0	4
21		1	1	2				0				0				0	2
22				0				0				0				0	0
23		1		1				0				0				0	1
24		1		1				0		1		1				0	2
25				0			1	1				0				0	1
26			1	1	1		1	2				0				0	3
27				0		1	1	2				0				0	2
28		1		1		1		1				0				0	2
29				0	1			1				0				0	1
30				0		1		1				0				0	1
31				0	2		1	3				0				0	3
32			1	1				0		1		1				0	2
33				0			1	1				0				0	1
34				0				0	1			1				0	1
35				0				0	1			1				0	1
36				0				0				0				0	0
37				0				0				0				0	0
38				0				0				0				0	0
39				0				0				0				0	0
40				0				0				0				0	0
41				0				0				0				0	0
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	5	8	13	26	5	4	12	21	4	5	0	9	0	0	2	2	58

Transect 29

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1		z		0				0				0		z	z	0	0
2		e		0				0				0		e	e	0	0
3		r		0				0				0		r	r	0	0
4		o		0				0				0		o	o	0	0
5				0				0				0				0	0
6				0				0				0				0	0
7	1			1				0				0				0	1
8	2			2				0				0				0	2
9	1			1				0				0				0	1
10				0				0				0				0	0
11				0				0				0	1			1	1
12				0				0				0				0	0
13				0				0			1	1				0	1
14			1	1				0		1		1				0	2
15			1	1				0				0				0	1
16				0	1			1				0				0	1
17				0				0				0				0	0
18			1	1				0				0				0	1
19			1	1		1		1				0				0	2
20				0				0				0				0	0
21				0		1		1				0				0	1
22	1			1			1	1				0				0	2
23				0				0				0				0	0
24				0				0				0				0	0
25				0			1	1				0				0	1
26				0	1		1	2				0				0	2
27				0	1		2	3				0				0	3
28	1		1	2	1		1	2				0				0	4
29				0				0				0				0	0
30			1	1			1	1				0				0	2
31				0	1	1		2				0				0	2
32				0		2		2	1	1	1	3				0	5
33	1			1			1	1				0				0	2
34				0			1	1				0				0	1
35	1			1			1	1		1		1				0	3
36				0	1		1	2				0				0	2
37				0				0			1	1				0	1
38				0				0	1			1				0	1
39				0				0				0				0	0
40				0				0				0				0	0
41				0			1	1				0				0	1
42				0				0				0				0	0
43				0				0				0				0	0
44				0				0				0				0	0
45				0				0				0				0	0
46				0				0				0				0	0
47				0				0				0				0	0
48				0				0				0				0	0
49				0				0				0				0	0
50				0				0				0				0	0
Total	8	0	6	14	6	5	12	23	2	3	3	8	1	0	0	1	46

Transect 30

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number
	A	B	C		A	B	C		A	B	C		A	B	C		
1				0				0				0				0	
2				0				0	z	z		0	e	e	e	0	
3				0				0	r	r		0	r	r	r	0	
4				0				0	o	o		0	o	o	o	0	
5				0				0				0				0	
6			1	1				0				0				1	
7		2		2				0				0				2	
8		1		1				0				0				1	
9				0				0				0				0	
10				0				0				0				0	
11				0				0				0				0	
12			1	1				0				0				1	
13				0				0				0				0	
14		1		1				0				0				1	
15			1	1			1	1				0				2	
16				0				0				0				0	
17				0				0			1	1				1	
18				0				0				0				0	
19				0				0				0				0	
20				0	1		2	3				0				3	
21				0				0				0				0	
22			1	1				0				0				1	
23			1	1	1	1		2				0				3	
24			1	1			1	1				0				2	
25				1				0				0				1	
26				1			1	1				0				2	
27			2	2				0				0				2	
28			1	1				0				0				1	
29				0				0				0				0	
30				0		1	1	2				0				2	
31			1	1	1			1				0				2	
32				0				0				0				0	
33				0				0				0				0	
34				0				0				0				0	
35				0		1		1				0				1	
36				0				0				0				0	
37				0				0				0				0	
38				0				0				0				0	
39				0				0				0				0	
40				0				0				0				0	
41				0				0				0				0	
42				0				0				0				0	
43				0				0				0				0	
44				0				0				0				0	
45				0				0				0				0	
46				0				0				0				0	
47				0				0				0				0	
48				0				0				0				0	
49				0				0				0				0	
50				0				0				0				0	
Total	4	10	2	16	4	2	6	12	0	0	1	1	0	0	0	0	29