

**Community survey of cockles
(*Austrovenus stutchburyi*) in
Pauatahanui Inlet, Wellington,
November 2007**



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June 2008**

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Community survey of cockles (*Austrovenus stutchburyi*) in Pauatahanui Inlet, Wellington, November 2007

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Prepared for

Guardians of Pauatahanui Inlet

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Executive Summary

Since 1992, the Guardians of Pauatahanui Inlet (GOPI) with the assistance of other community volunteers have undertaken six November surveys of the cockle populations in Pauatahanui Inlet, at a representative selection of sites initially surveyed in 1976 by Richardson et al (1979) of the New Zealand Oceanographic Institute. This report updates a living document of these surveys with the seventh survey, additional information on methods, and general discussion of the changes observed. The GOPI series of cockle surveys is possibly the longest running and most comprehensive undertaken by community volunteers in New Zealand and provide an important data series for monitoring the cockle populations and environmental changes in Pauatahanui Inlet.

The total intertidal cockle population size of Pauatahanui Inlet has been relatively stable since 1992, and although there has been a general upward trend in mean estimates since 1995, there is no significant difference in population size. Over this period, recruitment to the Pauatahanui cockle population has been similar to mortality and possible dispersal to sub tidal areas.

The population size of cockles in 2007 was 233 million cockles. Cockle densities in Pauatahanui Inlet show high temporal and spatial variability. Mean cockle density estimated in 2007 was less than half that in 1976, 23.3 per 0.1 m² (95% CI 20.8–25.7).

The patterns of cockle distribution, both down the shore and geographically, are very similar to previous surveys. Size frequencies at all sites and tidal heights, show significantly larger modal lengths than in 2004; that may represent growth in some of the large numbers of juvenile cockles (below 10 mm in length) sampled in November 2004. Juvenile cockles still represent 12% of the population in 2007 compared to 16% in 2004. Mean sizes are larger at lower-mid and low tide sites.

1. Introduction

1.1 Biology

Summaries of the biology of cockles, New Zealand cockle fisheries, and the status of commercial cockle stocks are given in the Ministry of Fisheries Shellfish Working Group Report (COC_06, Ministry of Fisheries Science Group (comps) 2006), and the biology summarised below. The cockle, *Austrovenus stutchburyi*, formerly known as *Chione stutchburyi*, is a shallow-burrowing suspension feeder of the family Veneridae. It is found in soft mud to fine sand on protected beaches and enclosed shores around the North and South Islands, Stewart Island and the Chatham Islands (Morton & Miller, 1968). Suspension feeders such as cockles tend to be more abundant in sediments with a larger grain size. They are also common in eelgrass (e.g., *Zostera* sp.), which often co-occurs with sand flats.

Cockles are found from the lowest high water neap tide mark to the lowest part of the shore; and may extend to 20 m depth in some areas. Cockles were found in high densities in subtidal areas of Pauatahanui Inlet sampled by Richardson et al (1979). Larcombe (1971) suggested that the upper limit is found where submergence is only 3.5 hours per day. *A. stutchburyi* is often a dominant species, and densities as high as 4500/m² have been reported in some areas. In Pauatahanui Inlet the biomass has been estimated at 5000 tonnes, 80% of the total intertidal biomass in the Inlet. Cockles may filter 1.6 million cubic metres of water on each tidal cycle at Pauatahanui, with a profound effect on water quality.

Sexes are separate and the sex ratio is usually close to 1:1. Maturity appears to be primarily a function of size rather than age, with sexual maturity occurring at a size of about 18 mm shell length. Spawning extends over spring and summer, and fertilisation is followed by a planktonic larval stage lasting about 3 weeks. Significant depression of larval settlement has been recorded for areas of otherwise suitable substrate from which all live cockles have been removed. This suggests the presence of some conditioning factor.

Interannual recruitment in cockles varies considerably and extensive movements of juveniles and smaller animals have been documented, but individuals greater than 25 mm shell length remain largely sessile, moving only in response to disturbance.

Growth in cockles varies between individuals, with size, seasonally and annually, and between locations. Small cockles grow faster than large cockles, but overall, growth is fastest during spring and summer. Growth is slower in the higher tidal ranges and in

high density beds. Significant increases in growth rates have been observed for individuals remaining in areas where densities have been reduced by simulated harvesting. Cockles on Snake Bank (Whangarei Harbour) have high growth rates reaching a size of about 30 mm in length in about 2 years, while experiments on growth in Papanui and Waitati Inlets, Purakanui and Otago Harbour did not find significant growth over one year, but Breen et al. (1999) suggested it was unlikely that average growth is really as slow as the results indicated, and there may be high inter annual variability in growth.

Given that cockles recruit to the spawning biomass at ~18 mm shell length, but do not recruit to commercial or non-commercial fisheries until closer to 30 mm shell length, there is some protection for the stock against egg overfishing, however, this generality should be treated with some caution, given that some population of adults seems to be required to stimulate settlement of spat.

Natural mortality of cockles can be high, 17–37% of the population per annum. Birds are a major predator on cockles (up to about 23 mm shell length); however, they appear to have little impact on cockle abundance. Other predators include crabs and whelks. Cockles are also killed after being smothered by sediments shifted during storms or strong tides, and from terrestrial sources.

1.2 The Guardians of Pauatahanui Inlet cockle surveys

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). Pauatahanui Inlet was divided into seven sectors, and intertidal and subtidal zones sampled in five sectors (Figure 1). 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 and smaller) in the population. The most pronounced decreases were around the south-eastern shores of the Inlet. A third survey, undertaken in November 1995, sampled 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), November 2001 (Grange & Tovey 2002), and November 2004 (Horn et al 2005) repeated the previous surveys.

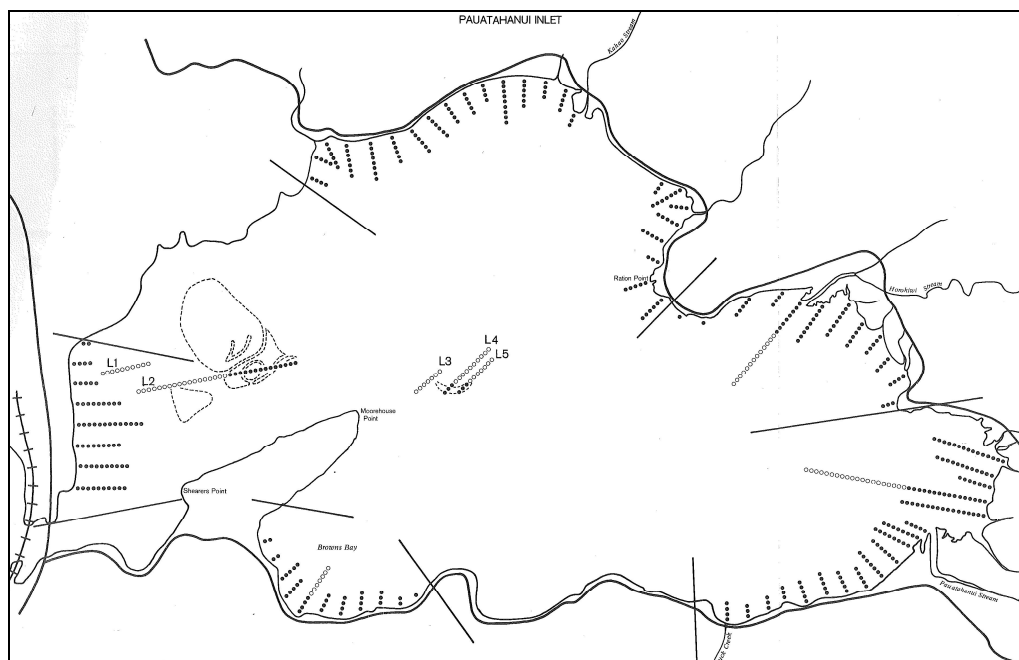


Figure 1: 1976 survey stratification of Pauatahanui Environmental Programme (Healy 1980). Pauatahanui Inlet was divided into seven sectors, and intertidal and subtidal zones sampled in five sectors. Figure from Richardson et al (1979).

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), 2001 (182–238 million, Grange & Tovey 2002), and 2004 (194–246 million, Horn et al 2005) 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 in 2004 twice the abundance of 1998 and 2001 surveys. If recruitment and mortality remained near long-term mean levels, there was negligible migration of juveniles to subtidal areas, and growth rates were typically fast, the high recruitment observed in 2004 could support an increase in the population.

This report presents the results of the seventh survey, completed during November 2007, using the same methodology and sites as previous surveys.

2. Methods

Surveys of cockles in Pauatahanui Inlet were undertaken by community volunteers in 1992, 1995, 1998, 2001, 2004, and for this survey in 2007, sampling the same transects (Figure 2) and using similar methods. Each transect was sampled by 4-5 people, one of whom was an experienced team leader (Figure 3). Volunteers were each provided with sheets that explained the sampling methods and sites (Appendices 1 and 2 for instruction and sampling sheets), and tally sheets to record cockle lengths (Appendix 3). Team leaders offered training of volunteers and monitoring of sampling (as surveys are carried out once every three years) and all were given a briefing on the organisational aspects and potential problems immediately before going out with their teams.

The survey comprised of 31 transects (Figure 2). Transects were located using permanent features and the orientation of transects given in the sampling instructions (see Appendix 2). Each transect was sampled at four tidal heights (high, upper-mid, lower-mid, and low tides) determined by the number of adult paces from a location marker (see Appendix 2) and marked with a stake to provide a reference for sampling. The markers used to locate each of these transects are given in Appendix 4. Samples were taken from 3 randomly placed quadrats, on and about 5 m either side of transects (recorded as A, B, and C), at each tide height.

Replicate quadrats of 0.1 m² were sampled to a depth of about 7 cm (Figure 4) and the entire sample was sieved with kitchen colanders (Figure 5) using seawater to flush through sediment. Sieve mesh sizes varied with volunteer, but most were reported to be 3–5 mm (John Wells and Neil Bellingham, pers. comm.). Cockles down to 2 mm in length could be retained. All live cockles were sorted into containers (Figures 6 and 7), measured for length (along the anterior posterior axis) to the nearest millimetre using rulers (Figure 8), and returned to the substrate. Individual lengths from each sample were tallied and recorded on sampling sheets (Appendix 3).

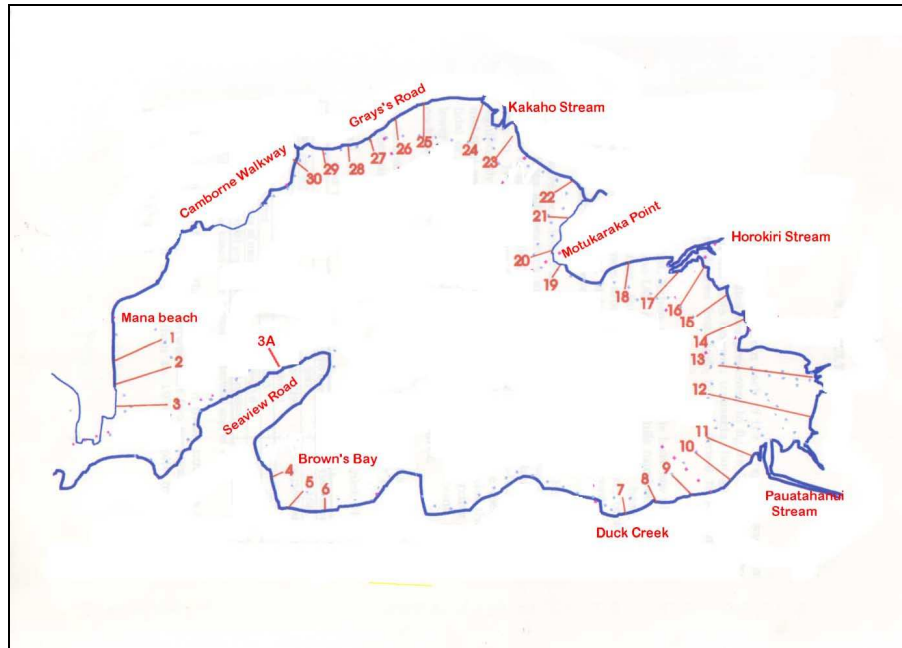


Figure 2: Location of the 31 transects in of Pauatahanui Inlet sampled for intertidal cockle densities and population size structure by the Guardians of Pauatahanui Inlet (GOPI), November 2007 (image courtesy GOPI).



Figure 3: Community volunteers sampling cockles, November 2007 (image courtesy of Don Petersen, GOPI).



Figure 4: Spades were used to excavate the 0.1 m² quadrats (image courtesy of Don Petersen, GOPI).



Figure 5: Samples were sieved through colanders with the aid of seawater (image courtesy of Don Petersen, GOPI).



Figure 6: All live cockles were removed from samples (image courtesy of Don Petersen, GOPI).



Figure 7: Cockles from each sample were kept separate in containers (image courtesy of Don Petersen, GOPI).



Figure 8: Cockles were measured for length to the nearest millimetre (image courtesy of Don Petersen, GOPI).

2.1 Density estimates

Mean cockle densities at each site, transect, and tidal height were calculated from the numbers recorded in each 0.1 m² quadrat and comparisons made with the 1976, 1992, 1995, 1998, 2001, and 2004 surveys.

2.2 Population estimates

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 compare sites and tidal heights. The numbers of juveniles (defined as individuals 10 mm or smaller in length, based on Larcombe 1971 and Richardson et al 1979) were also analysed to compare with previous surveys.

3. Results

Three hundred and seventy two quadrats were sampled from 31 transects on 24 November 2007.

3.1 Cockle densities

In 2007, cockles densities recorded in each quadrat ranged from zero, to a maximum of 112 per 0.1 m² (at transect 1, low-mid tide, Mana), similar to 95 per 0.1 m² (at transect 1, upper-mid tide, Mana) in 2004. No cockles were recorded from 5% of the quadrats sampled. Mean cockle density was 23.3 per 0.1 m² (95% CI 20.8–25.7), Table 1.

The mean numbers of cockles recorded at each site are shown in Figure 9. The maximum mean density at any one site (mean of the 3 quadrats) in 2007 was recorded at lower mid-tide, Pauatahanui (68 per 0.1 m²). The maximum mean density in 2004 was recorded at upper mid-tide, Mana (87 per 0.1 m²). Of the 124 sites sampled, 64% (79) showed an increase in density since 2004. Cockle densities varied considerably among and within transects, and between localities. Cockle densities were generally higher in 2007 at Mana, Bromley, and Motukaraka localities, variable at Motukaraka West; and similar at the other sites.

The total numbers of cockles collected at each transect (Fig. 10) show some similar trends to the mean numbers per quadrat (Fig. 9). These survey data show temporal and spatial variability in cockle numbers sampled among transects at most locations, Figure 10. The number of transects in 2007 where numbers increased from 2004 were similar to those where numbers had decreased but increases were larger (up to 345%) compared to decreases (down to 60%) on 2004 numbers, Figure 11. Increases were mainly from transects with relatively low numbers in 2004 (less than 200 cockles per transect), and decreases in transect with 200–400 cockles. Transects with more than 400 cockles appear to be spatially patchy and samples there recording either high numbers of cockles or none, Figure 11.

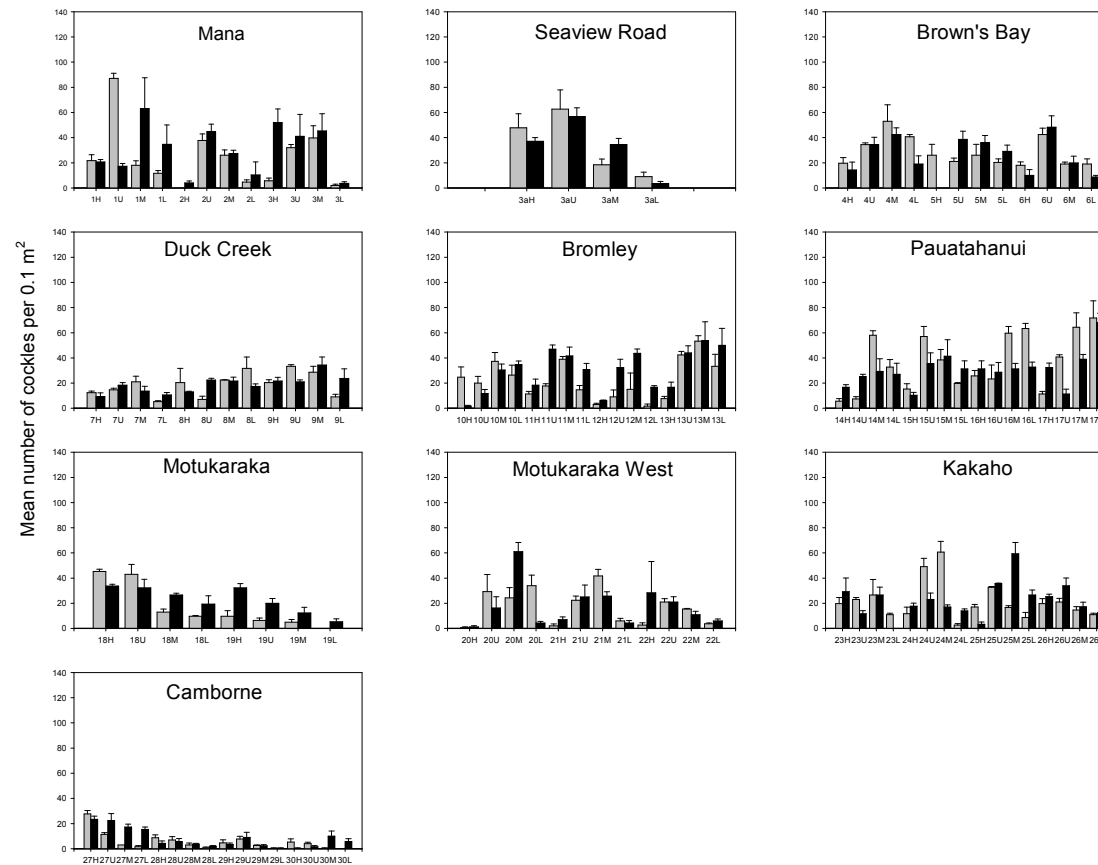


Figure 9: Mean densities of cockles (number per 0.1 m²) recorded from each transect at each locality, 2004 (grey) and 2007 (black). H = High Tide; U = Upper Mid-tide; M = Lower Mid-tide; L = Low Tide. Error bars are ± 1 standard error.

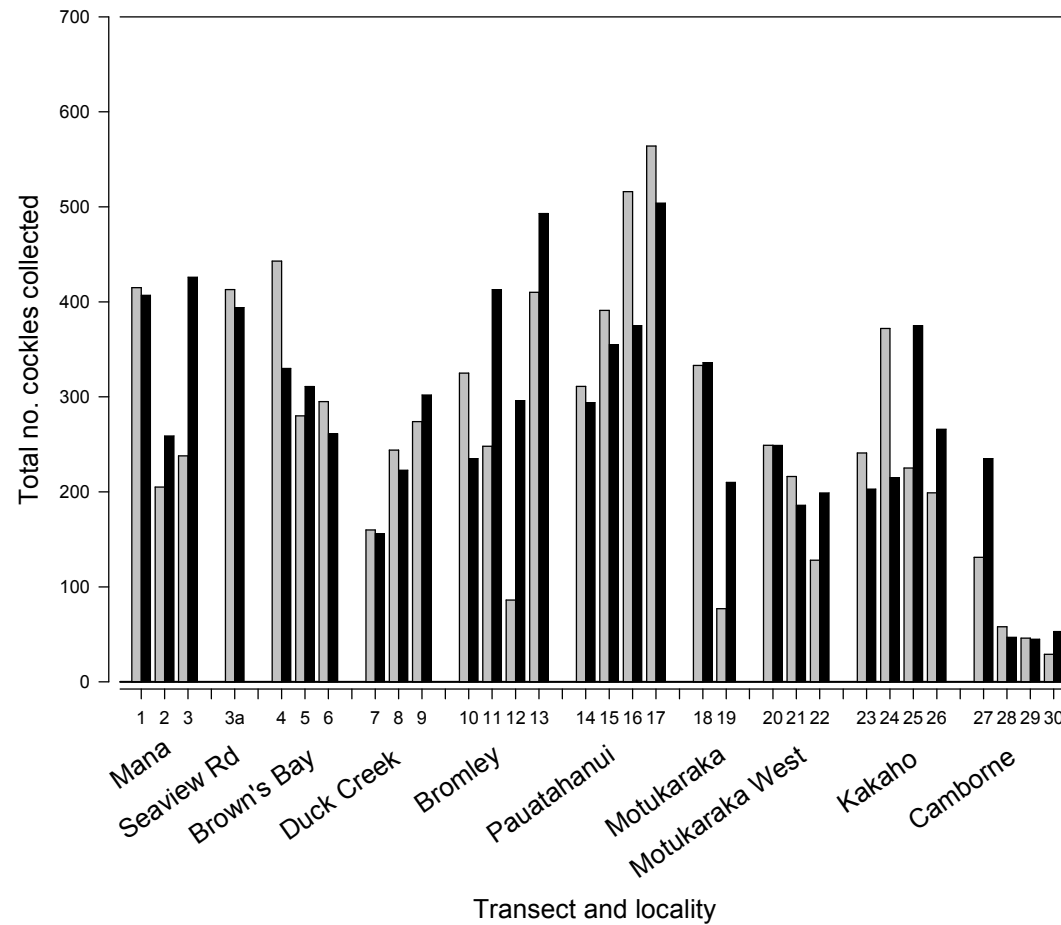


Figure 10: Total numbers of cockles collected down each transect at each locality, November 2004 (grey) and November 2007 (black).

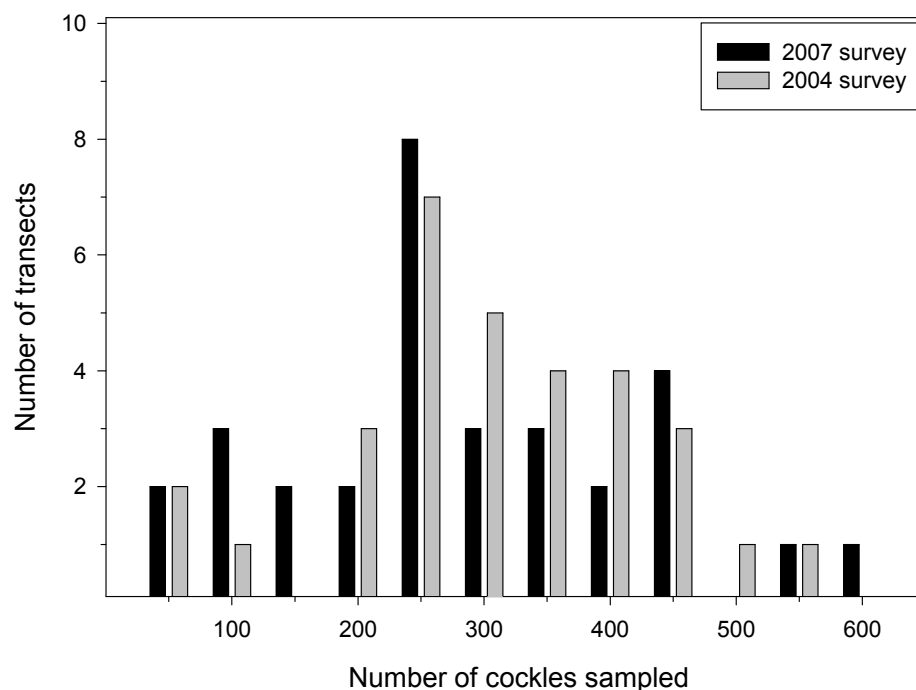


Figure 11: Cockle numbers per transect for the 2004 (grey) and 2007 (black) surveys.

There were no obvious trends in cockle density with tidal height, but patterns of distribution were similar between 2004 and 2007 (Fig. 12). At some localities, densities were greatest at high and upper mid tide (e.g., Camborne, Motukaraka, and Seaview Road), while at others, highest densities occurred low on the shore (e.g., Pauatahanui). When all results are combined, however, the maximum densities of cockles occurred at upper and lower mid-tidal sites (approximately 28 and 31 per 0.1 m², respectively) (Fig. 13). High tidal sites supported a mean of 16 cockles per 0.1 m² and low tidal sites 18 cockles per 0.1 m². These results are very similar to those from the 2001 and 2004 surveys, and contrast to highest densities recorded at lower mid tidal sites in 1998 and low tidal sites in 1995.

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). The maximum number of cockles recorded per quadrat (112) is similar to that recorded in 2001 and 2004 surveys, but lower than that recorded in surveys 1976–1998. However, the total number of cockles counted during the 2007 survey was greater than in all years except 1976 and 1998 (Table 1).

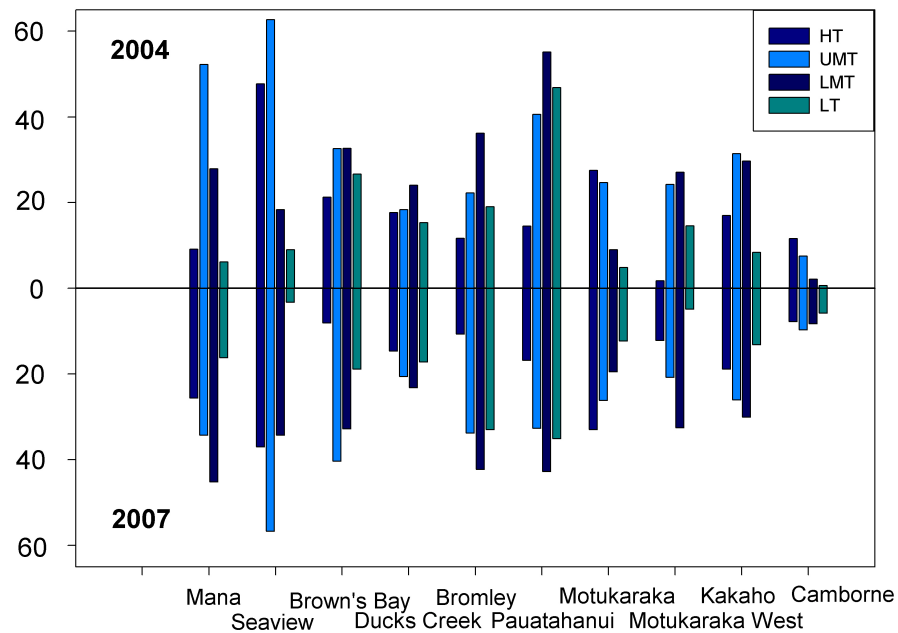


Figure 12: Mean cockle number at each tidal height and location, November 2004 (upper) and 2007 (lower).

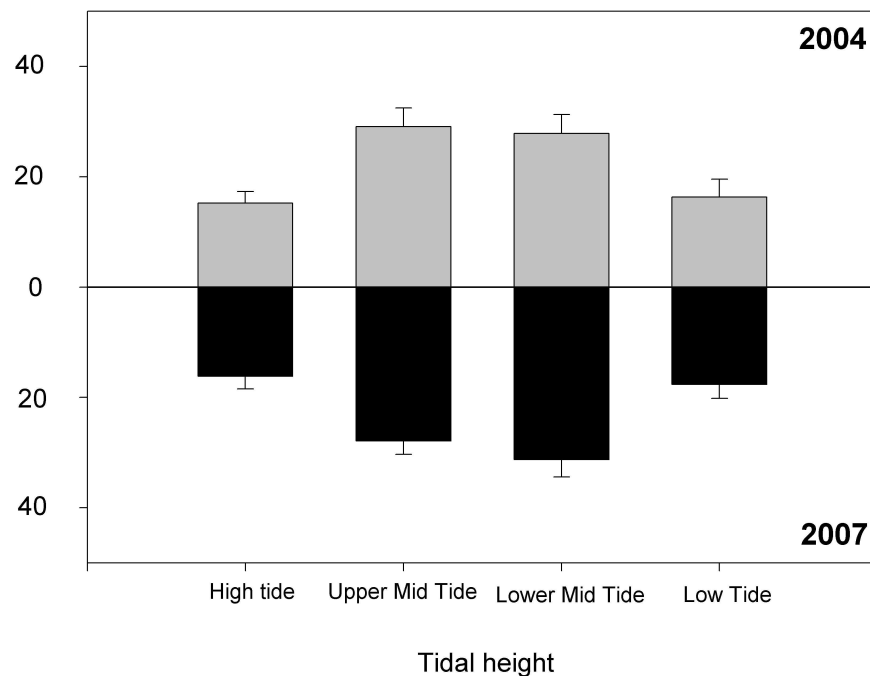


Figure 13: Mean densities of cockles at each tidal height, all localities combined, 2004 (upper, grey) and 2007 (lower, black). Error bars are ± 1 standard error.

Table 1: Densities of cockles in Pauatahanui Inlet and total population estimate, 1976–2007.

	1976	1992	1995	1998	2001	2004	2007
Max number per quadrat	208	168	191	273	118	95	112
Total counted	15 633	7 976	6 484	9 264	7 807	8 124	8 653
Mean number per quadrat	52.3	22.2	18	25.7	21	22	23.3
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	20.83-25.69
Total population estimate (millions)	438-608	187-257	146-214	215-299	182-238	194-246	208-257

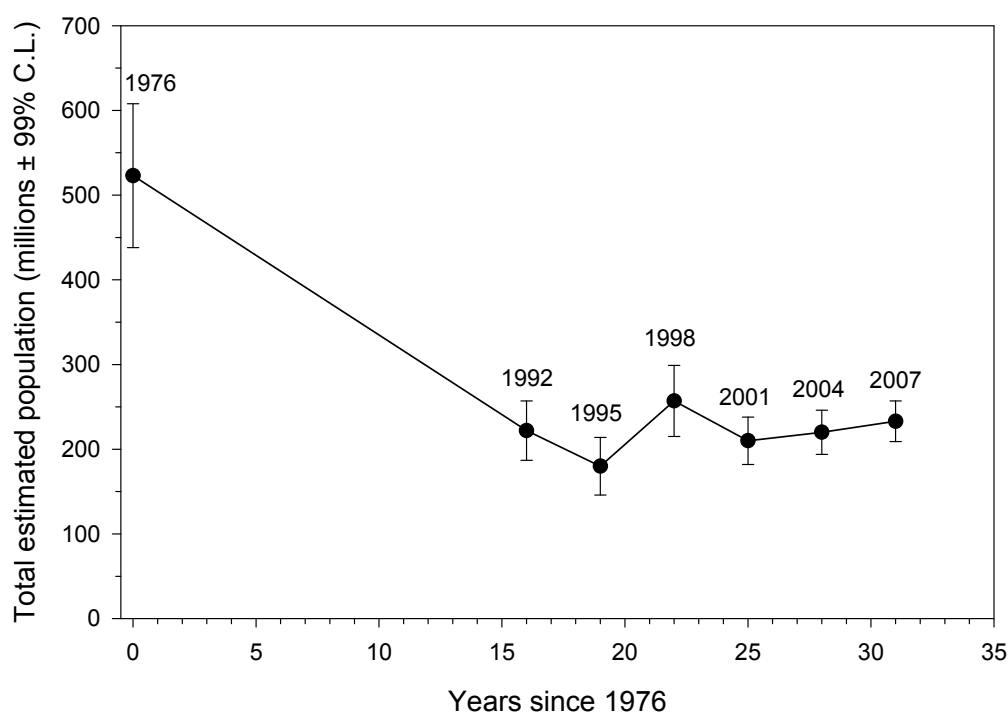


Figure 14: Trend in total cockle population within Pauatahanui Inlet, 1976–2007.

Figure 14 shows the estimated total population in all the surveys since 1976. The 2007 results continue a relatively flat trend apparent since 1992; the 2007 population estimate is not significantly different to any of the five 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 15 shows the mean numbers of cockles per transect over time. Mean densities are generally higher in 2007 than 2004. Long-term trends show significant decreases in cockle densities along the south-eastern, northern and north-eastern shores between the 1976 and the 1992 surveys. Densities have continued to decrease at Camborne, but other sites have been relatively stable since 1992, and densities vary around a long-term average. Only one transect (no. 5 at Browns Bay) has shown a steady increase in numbers over time.

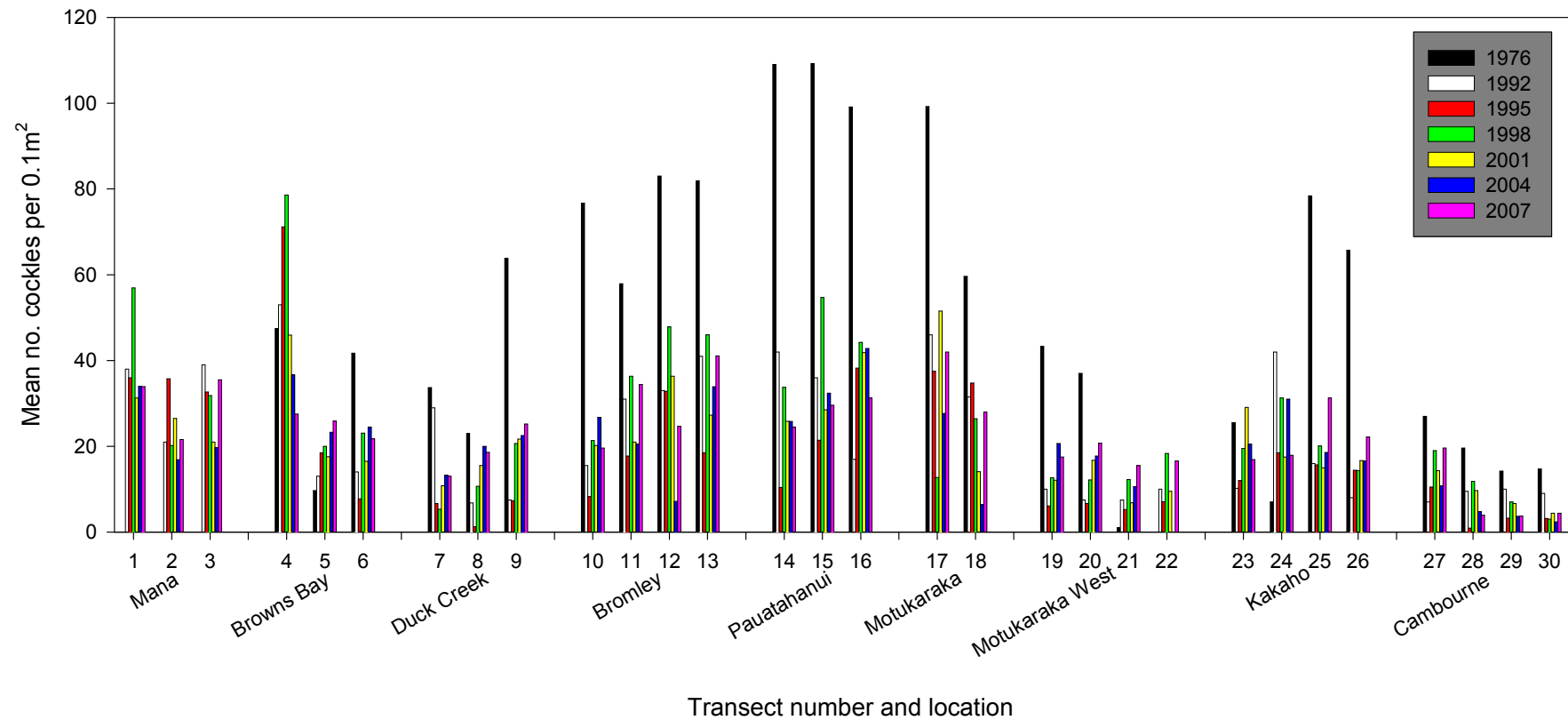


Figure 15: Mean number of cockles recorded at each site over the five surveys, 1976–2007. Mana sites were not sampled in 1976.

3.2 Cockle Size Frequencies

Histograms of the size frequencies of cockles at all sites by tidal height are presented in Appendix 5.

3.2.1 High Tide

Most high tidal localities showed similar size frequency distributions to the 2004 survey. These distributions were unimodal, but varied in structure from flat to well defined modes. Modes in 2007 varied between 20–25 and 25–30 mm at most localities compared to 15–20 or 20–25 mm in 2004. These distributions show an increase in larger sized cockles from 2004, but no significant, recent recruitment (settlement and survival of cockles), except at Motukaraka West where the modal length of 5–10 mm shows large numbers of juvenile and small cockles. Large cockles (greater than 35 mm) were scarce at all sites.

3.2.2 Upper-mid Tide

Most upper mid-tidal sites also showed similar size frequency distribution to the 2004 survey, unimodal distributions, and structures with flat to well defined modes. Differences in modes between 2004 and 2007 varied; some sites were similar (Mana and Seaview Road,) with modes between 25–35 mm, while others showed increased modal lengths from 2004 (Duck Creek, Bromely, Pauatahanui, both Motukaraka sites, and Kakaho) 25–35 mm. Duck creek and Brown's Bay showed bimodal distributions with juvenile and small cockles between 10 and 20 mm well represented. There was little change at Camborne. These distributions show an increase in larger sized cockles from 2004, but no significant, recent recruitment (settlement and survival of cockles). Large cockles (greater than 35 mm) were also scarce.

3.2.3 Lower-mid Tide

Bimodal distributions showing recent recruitment were more common at the lower mid-tidal sites (Mana, Bromely, Pauatahanui, and kakaho), but the majority of sites had unimodal distributions with flat to well defined modes. Modes for small cockles were 10–20 mm, and for large cockles and unimodal distributions 25–40 mm, larger than higher tidal sites. Cockles were generally larger than 2004, especially at Mana, Brown's Bay, and Motukaraka (both sites). Small cockles less than 10 mm were scarce as were cockles larger than 45 mm, especially at Seaview Road, Motukaraka, and Camborne. Seaview Road, Brown's Bay, Motukaraka, and Camborne all showed more large cockles than 2004.

3.2.4 Low Tide

Low numbers of cockles were sampled at low tidal sites at Seaview Road, Motukaraka (both sites), and Camborne in 2007, especially compared with cockle numbers at Bromely and Pauatahanui. Some sites exhibited weakly bimodal size frequency distributions with modes for small cockles between 10 and 20 mm (Mana, Brown's Bay, Motukaraka West and Camborne), driven by recent recruitment. The primary modes tended to be large cockles in the range 30–40 mm, larger than in 2004.

3.3 All tidal sites by locality

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 for minor deviations at Mana and Seaview Road. The general trend is similar to that observed in 2004. The localities with the largest mean sizes of cockles were low tidal sites at Seaview Road, Brown's Bay, Duck Creek, and Bromely. Mean sizes were much larger in 2007 at Seaview Road; larger at Kakaho, Motukaraka West, and at some sites at Brown's Bay and Motukaraka; and similar at Duck Creek, Bromely, and Pauatahanui. Mean sizes were much smaller at Mana. Mean sizes in 2004 were, on average, smaller by about 3 mm than those reported from the 2001 survey (Table 2 of Grange & Tovey 2002).

The mean sizes of cockles measured at each locality and tidal height in 2004 and 2007 are also presented in Figure 16. Mean sizes are similar among sites at most localities except for Pauatahanui, Motukaraka and Motukaraka West where they were generally smaller; and Mana, Camborne, and Seaview Road where they were generally larger than average. Mean sizes are also similar between 2004 and 2007, especially in high tide and upper-mid tide areas. Lower-mid tide and low tide areas showed some marked differences at Seaview Road, where cockles were larger than in 2004 and Mana where they were smaller.

Table 2. Mean lengths (mm) of cockles for each shore height at each locality, November 2004 and 2007. HT, high tide; UMT, upper-mid tide; LMT, lower-mid tide; and LT, low tide.

Locality	Mean length							
	2007				2004			
	HT	UMT	LMT	LT	HT	UMT	LMT	LT
Mana	20.7	20.8	25.0	17.0	21.1	24.7	28.7	31.5
Seaview Road	18.8	20.6	27.2	31.1	19.0	18.8	11.6	12.9
Brown's Bay	17.4	16.3	25.5	29.1	19.3	19.2	21.9	23.1
Duck Creek	18.6	18.8	23.7	27.9	20.1	18.3	25.4	28.6
Bromley	15.7	16.2	21.7	29.0	17.3	19.1	22.2	26.4
Pauatahanui	14.5	15.6	17.9	23.6	15.3	16.2	18.5	21.7
Motukaraka	16.0	22.1	25.0	22.6	12.1	16.0	20.7	23.9
Motukaraka West	11.3	19.6	22.0	21.8	17.6	20.0	19.9	21.1
Kakaho	18.7	21.5	23.8	26.2	16.6	17.5	21.1	24.9
Camborne	20.6	20.7	22.5	21.4	18.9	25.3	23.0	19.5

Figure 17 presents the numbers of adult cockles (> 10 mm shell length) that were recorded at each locality in 1992–2007. Adult cockle numbers in 2007 are similar to previous surveys at most locations with slight increases on the 2004 survey recorded at eight of the ten localities. Increasing, longer-term trends were recorded at Duck Creek and Motukaraka West, and decreasing trends at Brown's Bay, Bromley, and Motukaraka.

Figure 18 presents the numbers of juveniles recorded at all localities from 1992–2007. Numbers of juveniles were low at all sites in 1992 and 1995, but markedly higher at most sites in 1998 and 2001, and significantly higher in 2004 and 2007. The abundance of juveniles in 2007 was much higher than 2004 at Mana, and lower at Seaview Road. The increases in juveniles between the 2001 and 2004 surveys are particularly marked at Seaview Road, Duck Creek, Pauatahanui, Motukaraka West, and Kahao. These patterns show variable recruitment, both spatially and temporally, to the Pauatahanui Inlet survey sites.

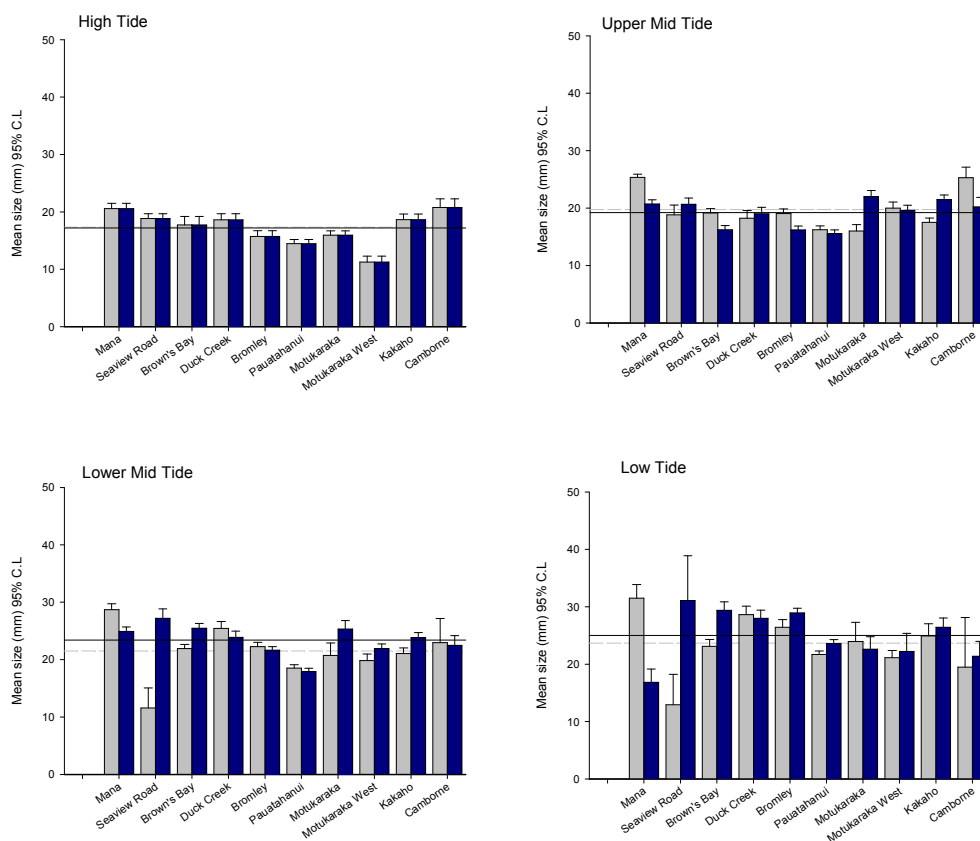


Figure 16: Mean sizes (mm + 95% confidence limits) of cockles at each locality and tidal height, November 2007 (blue bars) and November 2004 (grey bars). Broken horizontal lines represent the overall mean value for that tidal height in 2004 and solid line for 2007.

Overall abundance of juveniles (Fig. 19) 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. The percentage of juvenile cockles declined from the high of 16% in 2004 to 12% in 2007, and the population size has remained similar suggesting recruitment to the Pauatahanui Inlet population has been similar to mortality or dispersal to sub tidal areas.

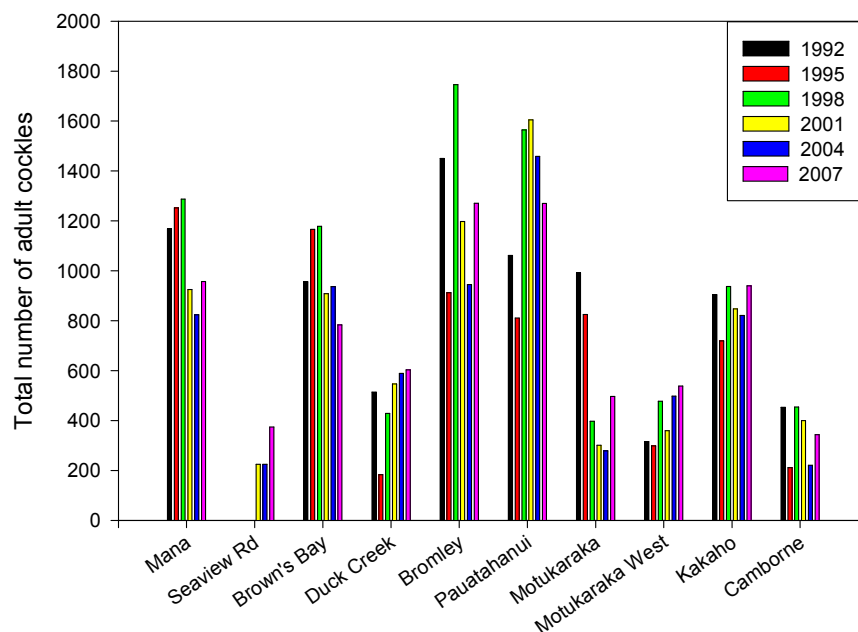


Figure 17: Total number of adult cockles (> 10 mm) collected at each site, 1992–2007.

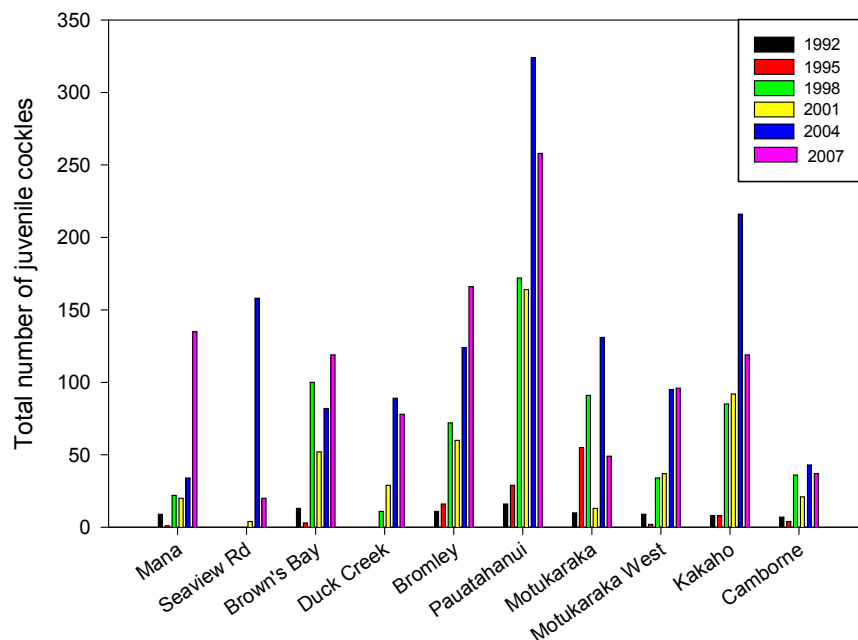


Figure 18: Numbers of juvenile cockles (< 10 mm shell length) recorded at all localities, 1992–2007.

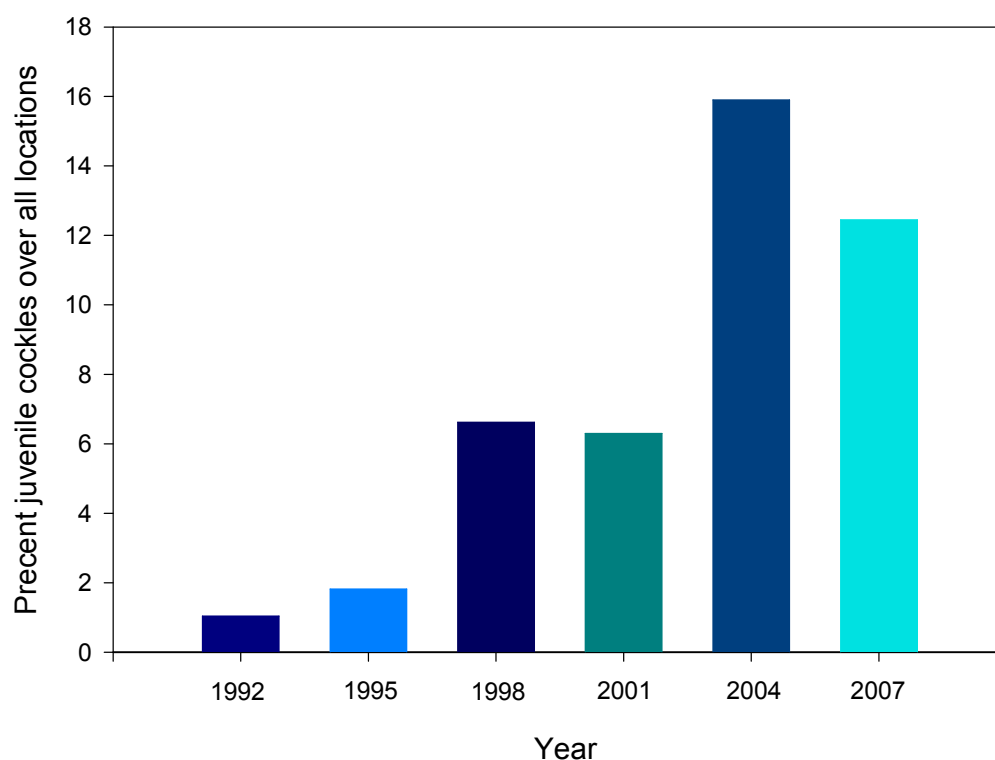


Figure 19: Juveniles (<10 mm) as a percentage of total cockle population, 1992–2007.

4. Discussion

The total intertidal cockle population size of Pauatahanui Inlet has been relatively stable since 1992, and although there has been a general upward trend in mean estimates since 1995, there is no significant difference in estimates of population size. Richardson et al (1979) estimated the mean density of cockles in 1976 at 58 per 0.1 m² (95% confidence intervals of 49–67) and a maximum of 280 per 0.1 m²; consisting mainly of adult cockles greater than 10 mm in length. This estimate differs slightly from that reported in Horn et al 2005 (probably a re-estimate of the original data). Mean cockle density estimated in 2007 was less than half that in 1976, 23.3 per 0.1 m² (95% CI 20.8–25.7), a maximum of 112 per 0.1 m². Estimates of population size have been made assuming an intertidal area of 1 km² since 1976. If the size of the intertidal area has varied over time, these changes will affect the reliability of the estimates of population size, but not comparisons of relative estimates of density.

Shellfish populations show temporal variability in population size driven by population, climatic, and environmental factors. Further, some hand gathering of cockles occurs in Pauatahanui Inlet. There are no data to quantify the level of harvest.

Non-commercial harvesting on Auckland beaches has reduced cockle stocks to low levels (Hartill et al. 2005), but the effects of harvesting on Pauatahanui stocks is unknown. The 1995 to 2007 estimates of cockle population size in Pauatahanui Inlet show a relatively stable trend and marked decrease from the historical high cockle densities, suggesting a shift in intertidal cockle habitat or carrying capacity of the survey area between 1976–1992 and 1995–2007. Degradation of coastal habitats can result in the loss of shellfish stocks such as cockles (Cummings et al. 2007). Norkko et al. (2006) showed rare storm events that temporarily increased turbidity and sedimentation in estuaries do not significantly affect bivalves such as cockles, but that continued sediment input (from terrestrial sources), leading to infilling and increased muddiness of estuaries, has a significant negative effect on bivalve physiology. Further, sedimentation is an important structuring force in intertidal estuarine macrofaunal communities (see Norkko et al. 2006), influencing the density and distribution of cockles through movement and mortality.

Cockles occur in both intertidal and sub tidal areas of Pauatahanui Inlet and can attain higher densities in sub tidal areas; a maximum of 389 per 0.1 m² recorded by Richardson et al (1979). Cockles are assumed to be a sessile species, but both adults and juveniles have the ability to disperse from unfavourable habitats. Adults can use their foot to crawl from the substrate, make themselves positively buoyant and be dispersed by tidal and wind driven currents (Hayward 1995). Newly settled cockles remain on the sediment surface until they find suitable habitat, and juvenile cockles can move in and out of the substrate, influenced by habitat changes including bioturbation by other fauna (Mouritsen 2004). These size groups can also be dispersed by currents, determining recruitment patterns (Lundquist et al. 2006). Any interactions between cockle populations in intertidal and sub tidal areas are poorly understood.

In addition to harvesting of cockles, predation and disease cause mortality resulting in population changes. Changes to cockle habitat which may cause cockles to leave the substrate, exposes them to predation from birds, fishes, and epibenthic predators such as whelks (Stewart & Cresse 2004). These predators, especially birds, are also primary hosts for non-lethal diseases affecting the function of the foot and infected cockles may be unable to burrow making them more vulnerable to predation (Mouritsen 2002). Prolonged exposure to low salinity water reduces growth and condition of cockles (Marsden 2004), and under some conditions may cause mass mortality, especially in high intertidal areas (Tallis et al. 2004).

Cockle densities in Pauatahanui Inlet show high variability. The patterns of cockle distribution, both down the shore and geographically, are very similar to previous surveys. Horn et al. (2005) reported some transects in Camborne were affected by clay

deposition, due to a temporary inefficiency of silt traps constructed on a subdivision behind the site (J. Wells, pers. comm.). Cockle densities at Camborne transects 1976–2007 have been relatively low and variable, and it is difficult to detect any decline or if silt levels may be affecting populations there.

There has been a shift in the size structure of cockles since 2004. At almost all sites and tidal heights modal lengths are larger than in 2004, possibly due to the large numbers of juvenile cockles below 10 mm sampled in 2004 surviving and growing to adult size. Mean sizes are larger at lower-mid and low tide sites. These areas are covered by the tide for longer periods than high and upper-mid tide areas, providing longer feeding opportunities, and therefore more energy for growth and survival.

Multiple species measures are often better indicators of ecological health than single species measures. Cockles are hardier than most intertidal species and they are a good species for community groups to monitor. This community programme provides a long time-series of data on the distribution, size structure, and density of cockles in Pauatahanui Inlet. Shellfish and cockles in this case, provide a health indicator of the Pauatahanui environment, particularly changes in habitat, and intertidal, macrofaunal community structure from sediment inflows associated with terrestrial activities such as modified land use for residential building. Filter feeding bivalves such as cockles also accumulate heavy metals (Peake et al. 2006), bacteria, and viruses, and are good indicators of ecosystem health and water quality.

5. Acknowledgments

I thank the volunteers who sampled Pauatahanui Inlet in 2007, ensuring the worth of this time-series of data. John Wells organised the sampling effort and I am grateful to him for also providing the data in spreadsheet form, sourcing images, providing sampling details, and comments on the report. I also thank Don Petersen for the use of his images of sampling, Jane Halliday and Alison MacDiarmid who reviewed this report, and the Ken Grange and Peter Horn whose reports provided the foundation for this report.

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7. Appendix 1: The Guardians of Pauatahanui Inlet cockle survey instruction sheet, 2007.

2007 Pauatahanui Inlet Cockle Count

First recognise your cockle!



Shell with distinctive pattern of ridges and a prominent recurved 'beak'

INSTRUCTIONS FOR DIGGING, MEASURING, TALLYING

- Assign one person as recorder. Recorder must try to keep hands dry and clean.
- At each tide level quadrats A, B, C should be about 5 paces apart.
- For each quadrat:
 - Drop the quadrat frame randomly (don't choose good places).
 - Dig out the mud and animals inside the frame to a depth of approximately 7 cm and place in your sieve.
 - Pour water through sieve, or lower it into water and stir.
 - Pick out stones and empty shells to make it easier to find live cockles.
 - Take out every live cockle and put it into a marked ice cream carton. Be careful not to count nut shells as small cockles.
 - Measure width of each cockle to the nearest mm. and call the measurement to the recorder.
 - Recorder puts a single tally dash (/) for each cockle beside the correct mm size.
 - Tallies are marked in groups of 5 like this: "### //" = 7

PLEASE COLLECT ALL GEAR AND RETURN TO STOUT COTTAGE

Thank you, your help is much appreciated

8. Appendix 2: The Guardians of Pauatahanui Inlet cockle survey transects location and labelling sheet, 2007.

2007 Pauatahanui Inlet Cockle Count

Transect number 1

Location marker (Map overleaf)	Mana beach; access by lane beside Stillwater Lodge. Marked stake by a large taupata bush and a clump of Agapanthus about 20 metres north of access lane.
Aim transect towards ?	Kakaho Stream mouth
Number of ADULT paces from —	
location marker to high tide site	20
high tide site to upper mid tide site	80
upper mid tide site to lower mid tide site	80
lower mid tide site to low tide site	80-100
Estimated time of low tide	5.30 pm

RECORD OF COMPLETED QUADRATS

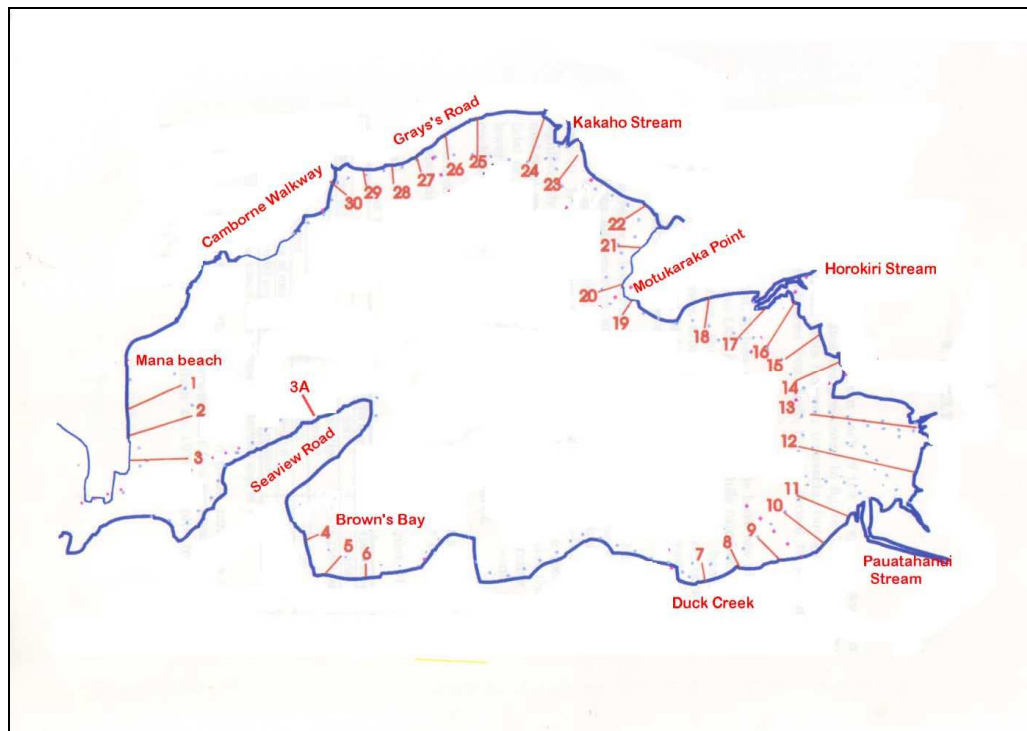
Date	Tick	Tick	Tick
High tide quadrats	A	B	C
Upper midtide quadrats	A	B	C
Lower midtide quadrats	A	B	C
Low tide quadrats	A	B	C

INSTRUCTIONS

- Use stakes to mark position of each sampling site.
- Arrange your work so you are working at low tide level when the tide is low.
- Follow instructions for sieving out, measuring and recording cockles.
- Write any comments about this transect at the bottom of this sheet or on reverse.
- When finished check you have all your gear – especially the quadrats.
- Return all equipment and this sheet to Stout Cottage.

Thank you for your help. We hope you enjoy your day.

Appendix 2: Continued.



9. Appendix 3: The Guardians of Pauatahanui Inlet survey cockle lengths tally sheet, 2007.

2007 Pauatahanui Inlet Cockle Count		Transect Number 4			
		Low Tide sample			
Tally marks (### //)					
Size (mm)	Quadrat A	Size (mm)	Quadrat B	Size (mm)	Quadrat C
1		1		1	
2		2		2	
3		3		3	
4		4		4	
5		5		5	
6		6		6	
7		7		7	
8		8		8	
9		9		9	
10		10		10	
11		11		11	
12		12		12	
13		13		13	
14		14		14	
15		15		15	
16		16		16	
17		17		17	
18		18		18	
19		19		19	
20		20		20	
21		21		21	
22		22		22	
23		23		23	
24		24		24	
25		25		25	
26		26		26	
27		27		27	
28		28		28	
29		29		29	
30		30		30	
31		31		31	
32		32		32	
33		33		33	
34		34		34	
35		35		35	
36		36		36	
37		37		37	
38		38		38	
39		39		39	
40		40		40	
41		41		41	
42		42		42	
43		43		43	
44		44		44	
45		45		45	
46		46		46	
47		47		47	
48		48		48	
49		49		49	
50		50		50	

10. Appendix 4: Descriptions of markers used to locate each survey transects in Pauatahanui Inlet.

No.	Locality	Start marker description	Start Lat/long	Start NZ-map grid	Aim towards	Paces to high tide site	Paces from high tide to upper midtide site	Paces from upper to lower midtide site	Paces from lower midtide to low tide site
1	Mana	Mana beach; access by lane beside Stillwater Lodge. Large taupata bush and a clump of Agapanthus about 20 metres north of access lane.	S:41 05 911 E:174 52 252	E2667 131 N6010 344	Kakaho Stream	20	80	80	80-100
2	Mana	Mana beach; access by lane beside Stillwater Lodge. Long line of bushes just south of access lane. Below two pohutakawa trees.	S:41 05 955 E:174 52 258	E2667 135 N6010 250	Via a red striped channel marker cone on pole to southern edge of Motukaraka Point (eastern edge of Gray's Bush)	20	100	100	100-130
3	Mana	Mana beach car park just over Paremata Bridge. Marked stake at northern end of sloping wooden retaining wall in front of toilet block; in front of very large macrocarpa tree.	S:41 06 258 E:174 52 295	E2667 151 N6010 090	Radio mast on Golden Gate peninsula (above prominent 2 storey house at beach level with 2 green roofs)	35	110	110	90-110

Appendix 4: Continued.

3A	Mana (Golden Gate) (Seaview Road)	Park at Ivey Bay car park. CROSS ROAD VIA UNDERPASS TO KINDERGARTEN. Front left corner of boatshed with ramp by house number 37A.			Most easterly boatshed on Camborne walkway at Camborne	0	25	25	30-50
4	Browns Bay	Seawall opposite large brown house at foot of Postgate Drive. A half buried pole about 25 paces west of large storm drain	S:41 06 320 E:174 52841	E2667 847 N6009 562	Houses at Motukaraka Point	10	45	45	50-60
5	Browns Bay	Foot of western steps from car park to beach.	S:41 06 344 E:174 52 910	E2668 038 N6009 515	Kakaho Stream mouth	20	45	45	40-60
6	Browns Bay	Foot of eastern steps from car park to beach	S:41 06 347 E:174 52 947	E2668 099 N6009 502	Moorhouse Point (end of Golden Gate peninsula)	20	30	30	20-30
7	Duck Creek	Park in space by northern lane of SH 58, about 30-50 metres west of house entrance with two palm trees. FROM PAUATAHANUI VILLAGE DRIVE PAST THESE TREES AND U-TURN AT JAMES COOK DRIVE. Pink paint spot on concrete sea wall 50 metres east of junction of James Cook Drive and SH58.	S:41 06340 E:174 54 123	E2669 738 N6009 474	Large white house at Motukaraka Point	20	40	60	40-60

Appendix 4: Continued.

8	Duck Creek	Park in space by northern lane of SH 58, about 30-50 metres west of house entrance with two palm trees. FROM PAUATAHANUI VILLAGE PASS THESE TREES AND U-TURN AT JAMES COOK DRIVE. Rip rap rock wall about 30 metres west of twin palm trees. Green paint spot on rocks.	S:41 06 304 E:174 54 240	E2669 908 N6009 535	Large white house at Motukaraka Point	20	40	40	40-70
9	Duck Creek	Park in extension of entrance to 374 Paremata Road (SH 58). TAKE CARE IN CROSSING ROAD. Rip rap rock sea wall just west of entrance to 374. Green paint spot on easternmost rip rap rock	S: 41 06 294 E: 174 54 341	E2670 045 N6009 571	Large white house at Motukaraka Point	25	55	70	50-80
10	Bromley	Park at entrance to 400 Paremata Rd. TAKE EXTREME CARE IN CROSSING ROAD Green painted driftwood below Wildlife Reserve sign on SH58.	S:41 06 274 E:174 54 442	E2670 193 N6009 602	Motukaraka Point	20	75	75	75-100

Appendix 4: Continued.

11	Bromley	Park at entrance to 400 Paremata Rd. TAKE EXTREME CARE IN CROSSING ROAD Green paint on large log about 160 paces from transect 10 marker.	S:41 06 227 E:174 54 543	E2670 322 N6009 702	Waterski Club at east end of Camborne Walkway	20	60	60	50-70
12	Bromley (Pauatahanui)	Stake about 90 paces north of drain from direction of large white house on edge of reserve	S: E:	E2670 654 N6009884	Moorhouse Point	20	130	130	100-150
13	Bromley (Pauatahanui)	Stake at edge of saltmarsh by drain from direction of Rushes Restaurant	S: E:	E2670 674 N6009 976	Camborne	20	130	130	100-150
14	Pauatahanui (Ration Point)	Park either side of Horokiri bridge (sign “Horokiri Estuary Restoration Project”) and walk back to Ration Point on formed pathway. Enter shore at this point and go west to green topped stake numbered 14	S:41 05 814 E:174 54 539	E2670 339 N6010 440	Long red roofed house just to right of apex of hill above Bradey’s Point	20	30	50	40-70

Appendix 4: Continued.

15	Pauatahanui (Ration Point)	Park either side of Horokiri bridge (sign “Horokiri Estuary Restoration Project”) and walk back to Ration Point on formed pathway. Enter shore at this point and go west to green topped stake numbered 14 and on about 180 paces to green topped stake numbered 15.	S:41 05 755 E:174 54 475	E2670 251 N6010 555	Long red roofed house just to right of apex of hill above Bradey’s Point	20	50	50	40-60
16	Pauatahanui (Horikiri Stream)	Park either side of Horokiri bridge (sign “Horokiri Estuary Restoration Project”) and walk back to Ration Point on formed pathway. Enter shore at this point and go west to green topped stake numbered 14 and on about 180 paces to green topped stake numbered 15 and on about another 180 paces to green topped stake numbered 16.	S:41 05 690 E:174 54 400	E2670 166 N6010 673	Bradey’s Point	20	50	70	50-70

Appendix 4: Continued.

17	Motukaraka (Horikiri Stream)	Park either side of Horokiri bridge (sign “Horokiri Estuary Restoration Project”) and walk back to Ration Point on formed pathway. Enter shore at this point and go west past green topped stakes numbered 14 and 15 and on to green topped stake numbered 16. Number 17 is a pink topped stake about a further 250 paces west. Take the direct line along the shell banks – DO NOT WALK LANDWARD OF SHELL BANK as mud is deep there.	S:41 05 673 E:174 54 287	E2669 993 N6010 712	Yellow cliffs at mouth of Duck Creek	20	40	40	40-60
18	Motukaraka	Pink topped stake on beach below very large tree at car turnaround at Motukaraka Point	S:41 05 655 E:174 54 113	E2669 745 N6010 742	2 red roofed houses behind mouth of Duck Creek	30	70	70	60-80
19	Motukaraka West	Concrete rubble at base of low cliff below easternmost power pole on Motukaraka Point	S:41 05 705 E:174 53 941	E2669 505 N6010 669	Brandon subdivision (prominent yellowish house).	10	15	15	10-20

Appendix 4: Continued.

20	Motukaraka West	At seaward edge of grass bank opposite entrance to house number 7 is a square iron plate in the ground marked "survey mark". Take the track from this point seawards to the shell bank. Start point marked by a small cairn of stones and a pink topped stake.	S:41 05 631 E:174 53 850	E2669 389 N6010 805	Moorhouse Point (tip of Golden Gate peninsula – house with several ball-topped turrets)	20	25	25	25-30
21	Motukaraka West	Picnic table in front of toilet block	S:41 05 519 E:174 53 911	E2669 479 N6011 003	Waterski Club at eastern end of Camborne walkway	20	35	35	35-45
22	Motukaraka West	Park at car park by public toilets. Green topped stake on shell bank on beach opposite garage at entrance to "Barrowside" 325 Grays Road and the yellow/black 55 chevron sign. CROSS MUD FLAT WITH CARE NOT TO WALK ON SALT MARSH PLANTS	S:41 05 442 E:174 53 922	E2669 493 N6011 145	Moorhouse Point (tip of Golden Gate peninsula – house with several ball-topped turrets)	20	35	50	15-30
23	Kakahao	Park at Kakaho Bridge. Pink spot marker on rock wall opposite 283 Grays Road (just east of car park)	S:41 05 315 E:174 53 705	E266 9207 N6011 392	Paremata Bridge; Paremata Boating Club buildings.	15	70	75	65-75

Appendix 4: Continued.

24	Kakahao	Park at Kakaho bridge and cross bridge WITH GREAT CARE. Enter beach about 20 metres from bridge and walk through mud flat to shell bank below salt marsh. DO NOT WALK ON SALT MARSH PLANTS. Walk west along shore to green topped stake number 24	S: 41 05 240 E: 174 53 586	E2669 027 N6009 540	Browns Bay	20	80	80	80-90
25	Kakahao	Park at Kakaho bridge and cross bridge WITH GREAT CARE. Enter beach about 20 metres from bridge and walk through mud flat to shell bank below salt marsh. DO NOT WALK ON SALT MARSH PLANTS. Walk west to green topped stake number 25 on beach near rushes; about 100 paces beyond stake number 24.	S: 41 05 233 E: 174 53 493	E2668 896 N6011 565	Flat topped hill (with 2 vertical track scars) just east of Browns Bay	20	65	65	65-75

Appendix 4: Continued.

26	Kakaho (Camborne)	Park at Water Ski Club at east end of Camborne walkway. Walk east along beach to drain opposite wooden gate; about 25 metres west of 'wiggly road' sign; small dab of green paint on wall by drain	S: 41 05 254 E: 174 53 327	E2668 664 N6011 535	2 houses at sea level below Brandon subdivision (prominent yellowish house)	25	60	60	50-65
27	Camborne	Park at Water Ski Club at east end of Camborne walkway. Walk east along beach to drain just west of fallen large macrocarpa trees; marked by green paint on piece of broken sea wall	S: 41 05 324 E: 174 53 172	E 2668 450 N 6011 397	2 houses at sea level below Brandon subdivision (prominent yellowish house)	30	30	30	30-40
28	Camborne	Park at Water Ski Club at east end of Camborne walkway. Walk east along beach to set of steps to beach from Grays Road (about 100 paces west of pair of black/white striped poles).	S: 41 05 349 E: 174 53 097	E 2668 342 N 6011 345	Flat-topped hill (with 2 vertical track scars) just east of Browns Bay.	15	10	10	10-15

Appendix 4: Continued.

29	Camborne	Park at Water Ski Club at east end of Camborne walkway. Walk east along beach to black/white striped pole on beach below similar pole on roadside	S: 41 05 361 E: 174 53 037	E2668 255 N6011 331	Flat-topped hill (with 2 vertical track scars) just east of Browns Bay.	15	10	10	10-25
30	Camborne	Park at Water Ski Club at east end of Camborne walkway. Black/white striped pole in car park by water ski club house, eastern end of Camborne Walkway.	S: 41 05 393 E: 174 52 897	E2668 070 N6011 296	Yellow cliffs at mouth of Duck Creek	20	20	20	15-30

11. Appendix 5: Size-frequency histograms from each sampling site and tidal height, 2004 and 2007.

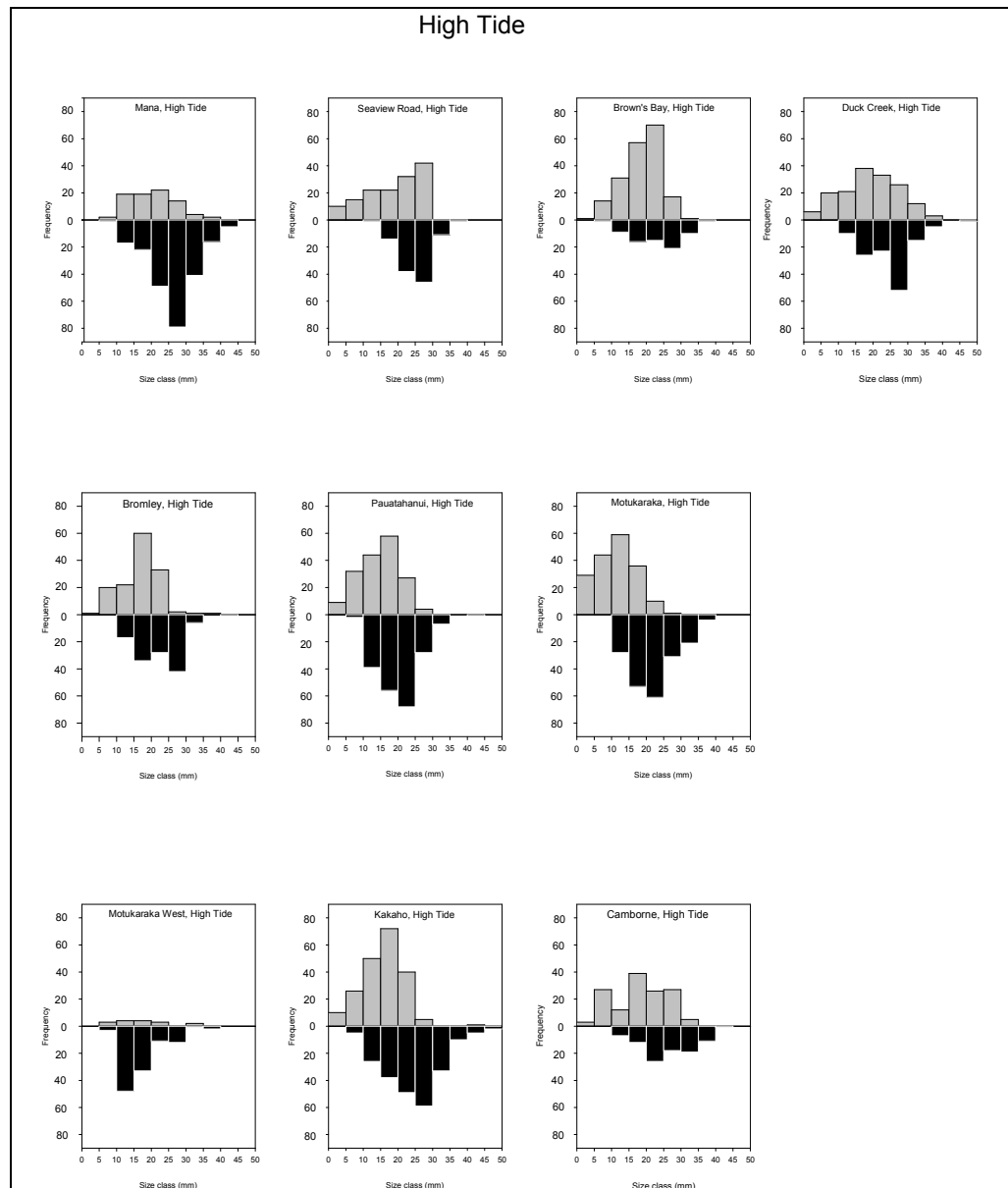


Figure A5.1: Size-frequency histograms from each sampling site at high tide, 2004 (upper in grey) and 2007 (lower in black).

Appendix 5: Continued.

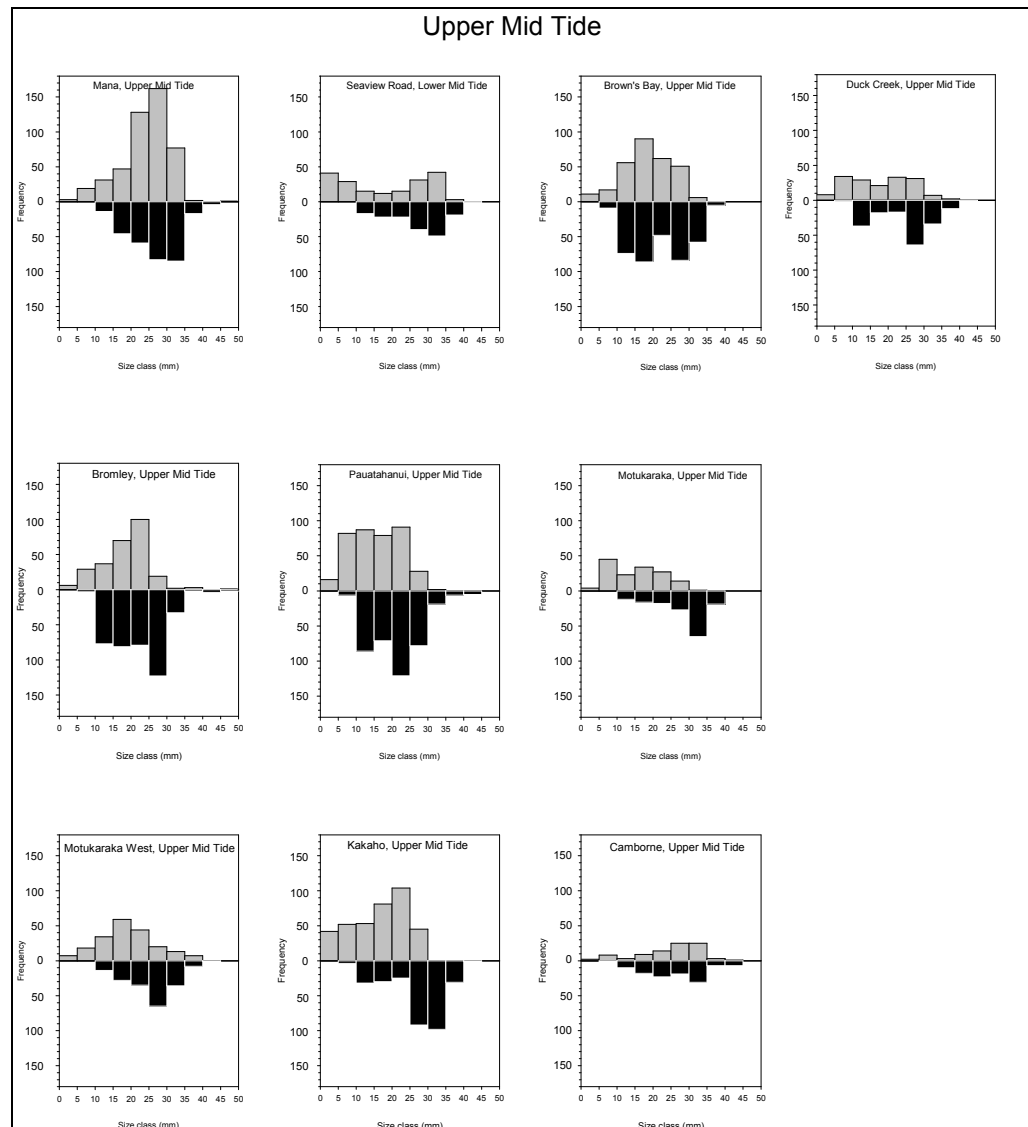


Figure A5.2: Size-frequency histograms from each sampling site at upper-mid tide, 2004 (upper in grey) and 2007 (lower in black).

Appendix 5: Continued.

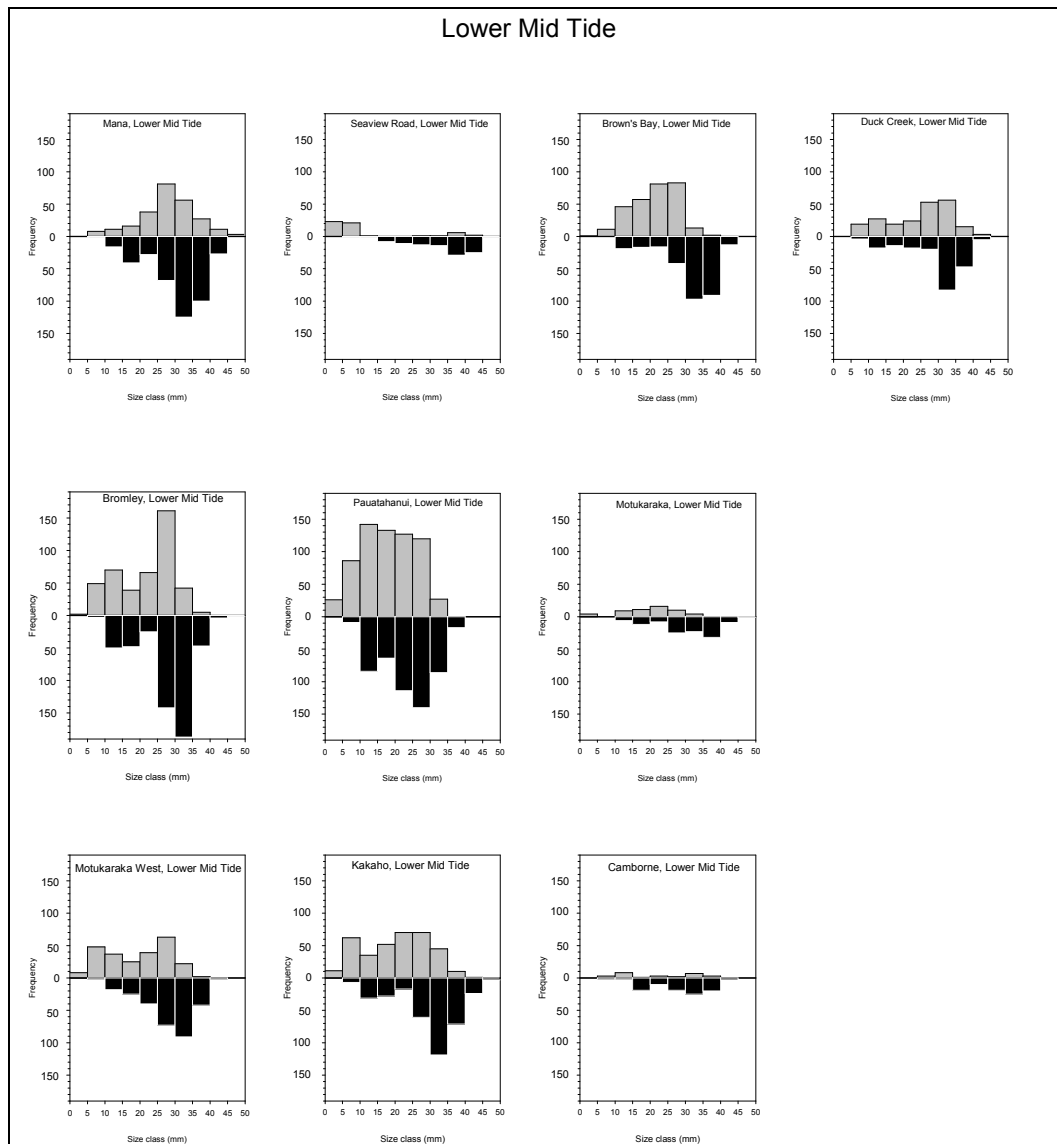


Figure A5.3: Size-frequency histograms from each sampling site at lower-mid tide, 2004 (upper in grey) and 2007 (lower in black).

Appendix 5: Continued.

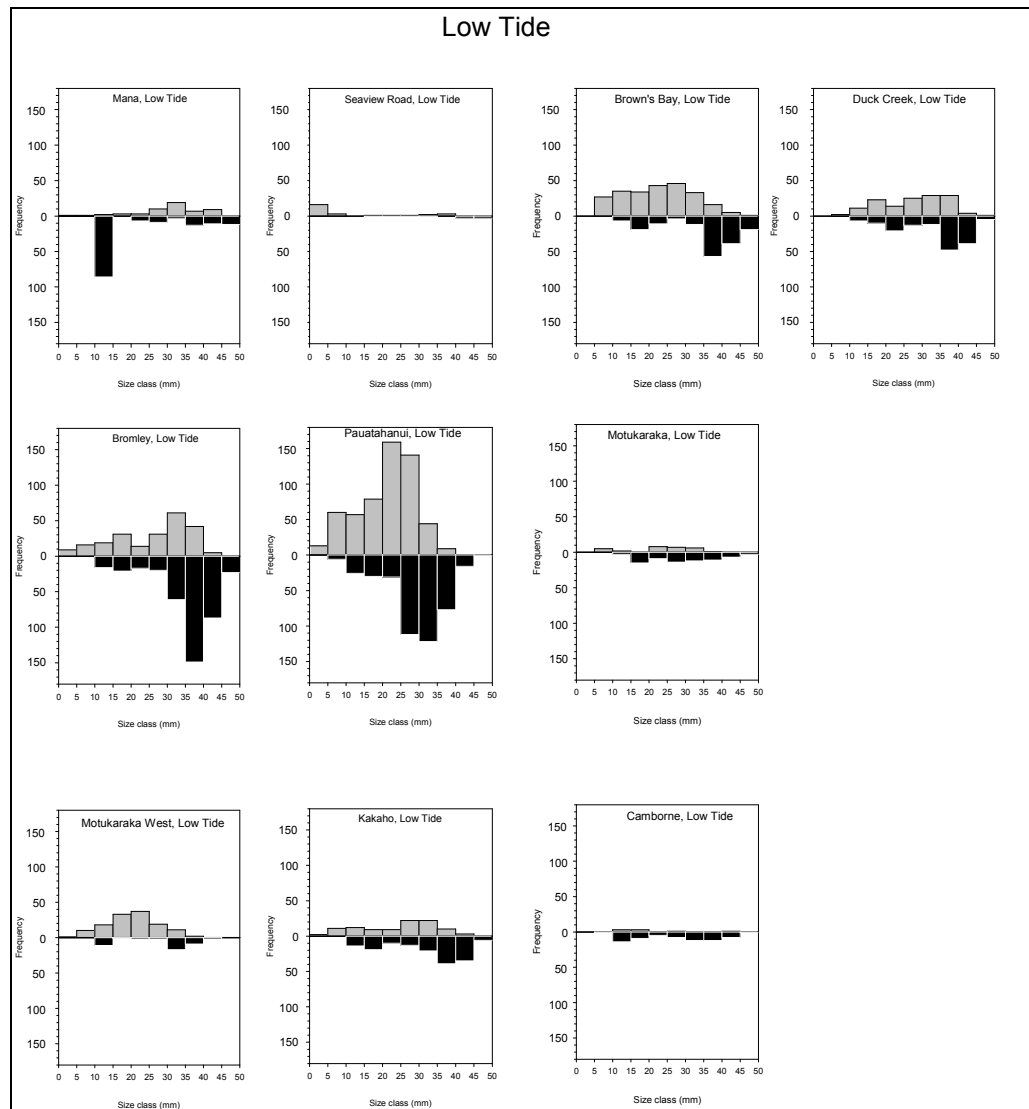


Figure A5.3: Size-frequency histograms from each sampling site at low tide, 2004 (upper in grey) and 2007 (lower in black).

Appendix 6: Raw Data

Transect 1.

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

Transect 1 continued.

Size (mm)	Number of cockles														Total		
	HT	0	0	HT	UMT	0	0	UMT	LMT	0	0	LMT	LT	0		0	LT
41	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
46	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
Total	22	23	17	62	21	17	14	52	43	34	112	189	60	7	37	104	407

Transect 2.

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

Transect 2 continued.

Size (mm)	Number of cockles															Total	
	HT			UMT			LMT			LT			LT				
41	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
45	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
48	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	2	3	7	12	42	36	56	134	22	30	30	82	31	0	0	31	259

Transect 3.

Size (mm)	Number of cockles			HT			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	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	1	1	0	0	0	0	0	0	1	1	0	0	0	0	2
5	0	0	0	0	0	1	0	1	0	0	2	2	0	0	0	0	3
6	1	0	1	2	0	0	0	0	0	1	0	1	0	0	0	0	3
7	2	0	0	2	1	0	0	1	0	0	5	5	0	0	0	0	8
8	1	0	0	1	4	0	0	4	1	0	0	1	0	0	0	0	6
9	0	0	0	0	2	1	0	3	0	2	0	2	0	0	0	0	5
10	1	0	0	1	1	0	0	1	0	0	2	2	0	0	0	0	4
11	0	2	0	2	3	1	1	5	0	6	1	7	0	0	0	0	14
12	0	0	0	0	1	1	0	2	1	5	0	6	0	0	0	0	8
13	1	0	0	1	1	1	1	3	0	2	4	6	0	0	0	0	10
14	3	0	0	3	2	1	1	4	0	5	0	5	0	0	0	0	12
15	2	2	1	5	1	2	0	3	1	0	1	2	0	0	0	0	10
16	3	1	1	5	1	2	0	3	0	0	2	2	0	0	0	0	10
17	1	4	0	5	1	1	0	2	0	1	1	2	0	0	0	0	9
18	5	7	2	14	3	0	1	4	0	3	1	4	0	0	0	0	22
19	4	4	1	9	4	1	1	6	0	0	0	0	0	0	0	0	15
20	0	1	4	5	0	1	2	3	0	1	0	1	2	0	0	2	11
21	0	7	5	12	4	0	1	5	0	2	0	2	0	0	0	0	19
22	0	3	3	6	6	1	0	7	0	0	0	0	0	0	0	0	13
23	3	4	8	15	5	2	2	9	1	2	0	3	0	0	0	0	27
24	2	7	4	13	2	3	0	5	0	5	1	6	0	0	0	0	24
25	1	0	4	5	1	3	0	4	1	3	3	7	0	0	0	0	16
26	0	1	4	5	12	4	0	16	2	1	3	6	0	0	0	0	27
27	0	2	10	12	2	4	2	8	2	1	1	4	0	0	0	0	24
28	0	2	1	3	8	2	0	10	5	1	6	12	0	0	0	0	25
29	0	4	4	8	1	0	1	2	0	10	4	14	2	0	0	2	26
30	0	2	5	7	0	2	0	2	2	9	5	16	1	0	0	1	26
31	0	1	1	2	7	1	0	8	1	3	0	4	0	1	1	2	16
32	0	1	2	3	0	2	0	2	1	0	1	2	0	0	0	0	7
33	0	0	3	3	0	0	0	0	1	2	1	4	0	0	0	0	7
34	0	1	0	1	0	0	0	0	1	2	0	3	0	0	0	0	4
35	0	0	1	1	0	0	0	0	0	0	2	2	0	1	0	1	4
36	0	1	0	1	0	0	0	0	1	0	0	1	0	0	0	0	2
37	0	1	1	2	0	0	0	0	0	0	0	0	0	0	1	1	3
38	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
39	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
40	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1

Transect 3 continued.

Size (mm)	Number of cockles															Total	
	HT			UMT			LMT			LT							
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	58	67	156	73	37	13	123	21	68	47	136	6	2	3	11	426

Transect 3A.

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	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	1	
5	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	2	
6	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	2	
7	0	0	1	1	2	0	0	2	0	0	0	0	0	0	0	3	
8	0	0	0	0	4	3	1	8	0	0	0	0	0	0	0	8	
9	0	0	0	0	2	0	1	3	0	0	1	1	0	0	0	4	
10	2	1	4	7	5	3	1	9	0	2	0	2	0	0	0	18	
11	0	0	0	0	6	0	1	7	1	0	1	2	0	0	0	9	
12	0	1	5	6	0	2	0	2	0	0	1	1	0	0	0	9	
13	0	0	1	1	2	0	0	2	0	0	3	3	0	0	1	7	
14	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	2	
15	3	3	6	12	3	4	1	8	1	0	0	1	0	0	0	21	
16	3	1	0	4	3	0	1	4	1	1	1	3	0	0	0	11	
17	3	3	4	10	0	0	1	1	1	0	1	2	0	0	0	13	
18	3	4	0	7	1	0	3	4	3	0	0	3	0	1	0	15	
19	1	4	0	5	3	0	2	5	0	0	2	2	0	0	0	12	
20	7	5	11	23	8	8	3	19	2	3	3	8	1	0	0	51	
21	2	5	1	8	0	0	3	3	1	0	1	2	0	0	0	13	
22	2	1	2	5	4	2	3	9	0	1	1	2	0	0	0	16	
23	3	1	2	6	2	0	1	3	0	0	0	0	0	0	0	9	
24	3	1	0	4	3	3	0	6	0	1	0	1	0	0	0	11	
25	3	1	2	6	5	13	3	21	0	1	1	2	0	0	0	29	
26	3	0	0	3	1	2	5	8	0	0	0	0	0	1	0	12	
27	0	0	1	1	4	0	4	8	2	3	0	5	0	0	0	14	
28	1	0	0	1	4	3	1	8	1	2	3	6	0	0	0	15	
29	0	0	0	0	0	0	4	4	0	1	0	1	0	0	0	5	
30	0	0	0	0	1	11	4	16	0	5	3	8	0	0	0	24	
31	0	0	0	0	1	0	0	1	2	1	3	6	0	0	0	7	
32	0	0	0	0	0	0	0	0	3	3	1	7	0	0	0	7	
33	1	0	0	1	1	0	1	2	2	1	4	7	0	0	0	10	
34	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	1	
35	0	0	0	0	0	1	0	1	2	8	4	14	0	0	0	15	
36	0	0	0	0	0	0	0	0	1	3	0	4	0	2	0	6	
37	0	0	0	0	0	0	0	0	0	3	1	4	0	0	0	4	
38	0	0	0	0	0	0	0	0	1	2	0	3	0	1	0	4	
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	3	

Transect 3A continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	40	31	40	111	69	56	45	170	25	42	36	103	2	7	1	10	394		

Transect 4.

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

Transect 4 continued.

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	
41	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
43	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	12	5	43	46	30	27	103	33	52	42	127	32	11	14	57	330

Transect 5.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
4	0	0	0	0	0	3	0	3	0	0	0	0	0	0	0	0	0	3
5	0	0	0	0	0	3	0	3	0	1	0	1	0	1	0	1	2	7
6	0	0	0	0	0	2	0	2	0	2	0	2	0	0	0	1	1	5
7	0	0	0	0	0	5	1	6	0	2	1	3	1	0	0	1	1	10
8	0	0	0	0	0	2	1	3	1	0	0	1	1	0	0	1	1	5
9	0	0	0	0	2	9	0	11	0	0	0	0	0	0	0	0	0	11
10	0	0	0	0	4	4	6	14	0	0	1	1	0	0	1	1	1	16
11	0	0	0	0	3	1	4	8	0	2	0	2	0	0	0	0	0	10
12	0	0	0	0	1	2	4	7	0	0	0	0	1	0	3	4	4	11
13	0	0	0	0	2	4	5	11	0	1	3	4	0	0	0	0	0	15
14	0	0	0	0	0	1	3	4	0	1	0	1	0	0	0	0	0	5
15	0	0	0	0	2	1	2	5	0	0	0	0	2	0	1	3	3	8
16	0	0	0	0	0	0	2	2	2	0	0	2	0	0	0	0	0	4
17	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
18	0	0	0	0	0	1	1	2	0	2	0	2	1	0	0	1	1	5
19	0	0	0	0	1	1	2	4	1	0	0	1	0	0	0	0	0	5
20	0	0	0	0	1	0	6	7	0	2	1	3	0	0	1	1	1	11
21	0	0	0	0	1	0	1	2	0	0	0	0	1	0	0	1	1	3
22	0	0	0	0	6	0	2	8	1	0	0	1	2	0	0	2	2	11
23	0	0	0	0	0	1	0	1	0	0	2	2	0	0	0	0	0	3
24	0	0	0	0	1	0	0	1	0	0	2	2	0	0	0	0	0	3
25	0	0	0	0	0	2	0	2	1	1	0	2	1	0	1	2	2	6
26	0	0	0	0	1	3	0	4	0	2	2	4	0	1	0	1	1	9
27	0	0	0	0	0	1	0	1	4	1	1	6	0	0	0	0	0	7
28	0	0	0	0	0	0	0	0	5	3	3	11	1	0	1	2	2	13
29	0	0	0	0	0	0	0	0	3	1	3	7	1	0	0	1	1	8
30	0	0	0	0	2	1	0	3	12	6	1	19	3	5	6	14	14	36
31	0	0	0	0	0	0	0	0	2	0	0	2	0	3	0	3	3	5
32	0	0	0	0	0	0	0	0	6	1	4	11	0	3	1	4	4	15
33	0	0	0	0	0	0	0	0	4	1	0	5	0	2	0	2	2	7
34	0	0	0	0	0	0	0	0	3	1	0	4	1	2	3	6	6	10
35	0	0	0	0	0	0	0	0	1	1	1	3	1	5	7	13	13	16
36	0	0	0	0	0	0	0	0	0	0	3	3	1	3	2	6	6	9
37	0	0	0	0	0	0	0	0	1	1	0	2	1	1	1	3	3	5
38	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	1	2
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	6	1	7	7	7

Transect 5 continued.

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		
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	0	0	27	49	40	116	47	33	28	108	19	34	34	87	311

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	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	
5	0	0	0	0	0	2	3	5	0	0	0	0	0	0	0	5	
6	0	0	0	0	1	4	1	6	0	0	0	0	0	0	0	6	
7	0	0	0	0	1	7	2	10	0	0	0	0	0	0	0	10	
8	1	0	2	3	2	4	4	10	0	0	1	1	0	0	0	14	
9	1	0	0	1	3	2	0	5	0	0	0	0	0	0	0	6	
10	0	0	3	3	1	1	1	3	0	0	0	0	0	1	1	8	
11	0	1	1	2	1	1	1	3	0	0	0	0	3	0	0	8	
12	2	0	1	3	1	2	1	4	0	0	0	0	0	0	0	7	
13	0	0	1	1	2	2	0	4	0	0	0	0	0	0	0	5	
14	0	0	0	0	2	3	0	5	0	0	0	0	0	0	1	6	
15	2	0	0	2	1	1	3	5	0	1	0	1	0	0	0	8	
16	0	0	1	1	2	1	2	5	0	0	0	0	0	0	0	6	
17	0	1	4	5	2	4	1	7	1	0	0	1	0	0	0	13	
18	0	0	1	1	2	1	1	4	0	0	1	1	0	0	1	7	
19	1	0	0	1	0	1	3	4	0	0	0	0	0	0	0	5	
20	0	0	0	0	2	2	2	6	1	0	1	2	0	0	0	8	
21	0	0	0	0	0	0	2	2	1	0	3	4	0	0	0	6	
22	0	1	2	3	2	1	2	5	2	2	1	5	0	0	0	13	
23	0	1	1	2	2	3	2	7	1	1	1	3	0	0	0	12	
24	0	0	1	1	1	6	7	14	2	0	2	4	0	0	0	19	
25	0	0	1	1	2	6	3	11	4	2	1	7	0	0	1	20	
26	0	0	0	0	1	5	4	10	1	1	4	6	0	0	0	16	
27	0	0	0	0	1	3	1	5	4	2	3	9	0	1	0	15	
28	0	0	0	0	1	0	0	1	5	0	1	6	0	0	0	7	
29	0	0	0	0	0	1	0	1	3	0	1	4	0	0	0	5	
30	0	0	0	0	0	1	0	1	3	1	0	4	0	0	0	5	
31	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	1	
32	0	0	0	0	0	0	0	0	0	1	0	1	0	1	2	4	
33	0	0	0	0	0	0	0	0	1	0	0	1	2	0	1	4	
34	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	
35	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
37	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
40	0	0	0	0	0	0	0	0	0	0	0	0	2	1	0	3	

Transect 6 continued.

Size (mm)	HT			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		
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7	4	19	30	33	64	48	145	29	11	20	60	10	6	10	26	261

Transect 7.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	2	0	2	4	0	0	0	0	0	0	0	0	0	4
6	0	0	0	0	1	4	2	7	0	0	0	0	0	0	0	0	0	7
7	0	0	0	0	1	1	5	7	0	0	0	0	0	0	0	0	0	7
8	2	1	0	3	1	0	2	3	0	0	0	0	0	0	0	0	0	6
9	0	1	0	1	0	2	1	3	0	1	0	1	0	0	0	0	0	5
10	1	0	1	2	1	0	0	1	0	0	0	0	0	0	0	0	0	3
11	0	0	1	1	1	0	0	1	1	0	1	2	0	1	0	1	1	5
12	0	0	1	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1
13	0	0	0	0	0	0	0	0	2	2	0	4	0	0	0	0	0	4
14	0	0	0	0	0	0	0	0	2	1	0	3	0	0	0	0	0	3
15	0	0	0	0	0	0	1	1	1	0	0	1	1	1	0	2	2	4
16	0	0	0	0	0	0	0	0	1	2	1	4	0	0	0	0	0	4
17	0	1	0	1	0	1	0	1	3	0	1	4	2	3	1	6	6	12
18	0	1	0	1	0	0	0	0	0	1	1	2	1	2	3	6	6	9
19	0	0	0	0	0	0	0	0	0	0	1	1	1	0	1	2	2	3
20	0	1	0	1	0	0	0	0	1	0	0	1	1	2	0	3	3	5
21	0	1	0	1	1	0	0	1	1	0	0	1	0	1	2	3	3	6
22	0	3	1	4	0	0	0	0	1	1	2	4	0	0	0	0	0	8
23	1	1	0	2	0	1	0	1	1	0	0	1	0	0	2	2	2	6
24	0	2	0	2	0	1	1	2	0	0	0	0	0	0	0	0	0	4
25	1	1	0	2	1	1	2	4	4	0	0	4	0	0	1	1	1	11
26	0	1	0	1	1	0	1	2	0	0	0	0	0	0	0	0	0	3
27	0	1	1	2	0	2	0	2	0	0	0	0	0	0	0	0	0	4
28	0	0	1	1	1	2	0	3	0	1	1	2	0	0	1	1	1	7
29	0	0	0	0	1	0	1	2	0	0	0	0	0	0	1	1	1	3
30	0	0	1	1	0	0	1	1	1	0	0	1	0	1	0	1	1	4
31	0	0	0	0	0	2	1	3	1	0	1	2	0	0	0	0	0	5
32	0	0	0	0	1	0	2	3	0	1	0	1	0	0	0	0	0	4
33	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	0	2
34	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	0	2
35	0	0	0	0	1	0	0	1	0	0	0	0	1	1	0	2	2	3
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1	1
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	0	1

Transect 7 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	15	7	28	15	18	22	55	21	11	9	41	7	13	12	32	156		

Transect 8.

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

Transect 8 continued.

Size (mm)	Number of cockles			HT total	UMT			UMT total	LMT			LMT total	LT			LT total	Total Number	
	HT A	B	C		UMT A	B	C		LMT A	B	C		LT A	B	C			
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	14	12	13	39	25	22	20	67	26	16	23	65	21	17	14	52	223	

Transect 9.

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	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
5	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	3	
6	0	2	0	2	0	0	0	0	1	1	2	4	0	0	0	6	
7	0	0	0	0	0	0	0	0	0	2	0	2	0	1	1	4	
8	0	1	1	2	2	1	1	4	0	0	1	1	0	0	1	8	
9	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	2	
10	0	0	0	0	0	3	0	3	0	0	0	0	1	0	0	4	
11	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
12	1	3	1	5	0	1	1	2	0	0	0	0	0	1	0	8	
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
14	1	1	1	3	0	1	0	1	0	1	0	1	0	0	0	5	
15	2	1	0	3	0	0	1	1	0	0	0	0	1	0	0	5	
16	1	2	0	3	0	1	0	1	0	1	0	1	0	0	0	5	
17	1	2	0	3	0	0	2	2	0	0	0	0	0	1	1	7	
18	0	1	4	5	3	0	0	3	0	0	0	0	0	0	0	8	
19	1	1	0	2	0	0	3	3	0	0	0	0	0	1	0	6	
20	10	4	8	22	3	3	2	8	0	0	0	0	1	0	0	31	
21	0	2	0	2	0	0	0	0	0	1	0	1	0	0	0	3	
22	3	3	1	7	4	4	1	9	1	0	0	1	1	0	0	18	
23	0	1	0	1	5	0	5	10	1	1	3	5	0	0	0	16	
24	0	1	1	2	1	1	4	6	0	1	4	5	1	0	0	14	
25	0	2	0	2	2	3	3	8	3	5	4	12	0	0	0	22	
26	0	0	0	0	0	0	0	0	1	3	5	9	0	0	0	9	
27	0	0	0	0	0	0	0	0	2	3	8	13	0	0	1	14	
28	0	0	0	0	0	0	0	0	2	3	5	10	0	0	0	10	
29	0	0	0	0	0	0	0	0	1	2	4	7	1	1	1	10	
30	0	0	0	0	0	1	1	2	3	2	1	6	3	1	0	12	
31	0	0	0	0	0	0	0	0	2	1	3	6	0	3	1	10	
32	1	0	0	1	0	0	0	0	3	1	3	7	3	2	1	14	
33	0	0	0	0	0	0	0	0	0	1	1	2	8	1	2	13	
34	0	0	0	0	0	0	0	0	1	0	1	2	3	1	0	6	
35	0	0	0	0	0	0	0	0	0	0	1	1	3	0	0	4	
36	0	0	0	0	0	0	0	0	2	0	1	3	4	2	0	9	
37	0	0	0	0	0	0	0	0	0	0	0	0	3	1	2	6	
38	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	
39	0	0	0	0	0	0	0	0	0	0	0	0	2	1	1	4	
40	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	

Transect 9 continued.

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		
41	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	21	27	17	65	20	19	24	63	26	30	47	103	38	21	12	71	302

Transect 10.

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

Transect 10 continued.

Size (mm)	HT			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		
41	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
42	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
43	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
44	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
45	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	1	1	5	8	9	18	35	33	37	21	91	30	40	34	104	235

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	0	0	0	0	0	0	0	0	0	0	0	
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
4	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	3	
5	0	1	0	1	2	4	0	6	0	1	0	1	0	0	0	8	
6	1	2	0	3	2	4	0	6	0	0	3	3	0	0	0	12	
7	0	1	0	1	3	2	5	10	2	5	2	9	0	0	0	20	
8	1	0	2	3	2	1	2	5	0	1	0	1	0	1	0	10	
9	1	2	1	4	1	3	0	4	0	2	3	5	0	0	0	13	
10	2	4	0	6	5	6	4	15	1	2	0	3	0	1	0	25	
11	2	1	0	3	0	1	0	1	1	1	0	2	0	0	0	6	
12	4	2	1	7	0	2	0	2	2	1	3	6	1	2	0	18	
13	0	0	0	0	0	0	3	3	3	0	0	3	0	0	0	6	
14	0	0	2	2	1	0	0	1	1	1	1	3	1	1	0	8	
15	0	1	0	1	5	5	9	19	2	1	0	3	0	1	0	24	
16	0	0	0	0	0	3	1	4	0	0	1	1	0	1	0	6	
17	0	1	0	1	2	3	1	6	0	0	0	0	0	0	0	7	
18	0	2	0	2	3	1	2	6	0	0	0	0	0	0	0	8	
19	0	2	1	3	0	1	1	2	1	2	1	4	1	1	0	11	
20	0	5	2	7	12	12	13	37	1	3	3	7	0	2	0	53	
21	0	1	1	2	0	0	0	0	2	2	3	7	0	0	0	9	
22	1	2	2	5	0	1	0	1	0	5	2	7	2	0	0	15	
23	0	0	0	0	0	0	0	0	3	5	2	10	0	0	0	10	
24	1	0	0	1	0	1	0	1	1	5	6	12	0	0	0	14	
25	0	1	1	2	1	0	0	1	1	4	6	11	0	2	3	19	
26	0	0	0	0	0	0	0	0	3	3	2	8	0	0	0	8	
27	0	0	0	0	0	0	0	0	1	1	2	4	1	0	3	8	
28	0	0	0	0	0	0	0	0	1	1	4	6	2	1	2	11	
29	0	0	0	0	0	0	0	0	0	0	3	3	2	2	5	12	
30	0	0	0	0	0	0	0	0	0	1	3	4	3	5	4	16	
31	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5	10	
32	0	0	0	0	0	0	0	0	0	0	0	0	3	5	3	11	
33	0	0	0	0	1	0	0	1	0	0	0	0	1	3	0	5	
34	0	0	0	0	0	0	0	0	0	0	0	0	0	1	4	5	
35	0	0	0	0	2	0	0	2	0	0	0	0	2	2	2	8	
36	1	0	0	1	1	0	0	1	0	0	0	0	2	2	0	6	
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
38	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	
39	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	1	
40	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1	

Transect 11 continued.

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					
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
45	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	1
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	1
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	14	28	13	55	46	53	42	141	28	47	50	125	22	39	31	92				413

Transect 12.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	1	1	1	3	0	0	0	0	3
5	0	0	0	0	0	1	5	6	1	4	1	6	0	0	3	3	3	15
6	0	0	0	0	0	3	3	6	3	3	0	6	1	2	0	3	3	15
7	1	0	0	1	1	4	1	6	4	0	1	5	0	2	0	2	2	14
8	0	0	0	0	0	5	0	5	0	1	1	2	1	0	0	1	1	8
9	0	0	0	0	2	1	0	3	1	0	3	4	0	0	0	0	0	7
10	0	0	0	0	4	4	3	11	3	3	2	8	1	0	3	4	4	23
11	1	0	0	1	1	2	0	3	1	0	6	7	0	0	0	0	0	11
12	0	0	0	0	1	1	0	2	2	1	2	5	1	0	3	4	4	11
13	0	0	0	0	0	2	0	2	0	0	2	2	0	0	0	0	0	4
14	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	0	3
15	1	0	0	1	1	1	1	3	1	1	1	3	1	0	2	3	3	10
16	0	0	1	1	0	1	0	1	0	0	0	0	0	0	0	0	0	2
17	0	0	0	0	1	1	0	2	1	0	0	1	0	0	0	0	0	3
18	0	0	0	0	0	2	0	2	2	2	1	5	1	0	1	2	2	9
19	0	0	0	0	2	1	2	5	1	0	1	2	1	0	0	1	1	8
20	3	3	3	9	5	2	1	8	0	3	6	9	0	1	1	2	2	28
21	1	0	0	1	1	0	0	1	0	0	2	2	0	0	0	0	0	4
22	0	1	0	1	2	2	1	5	2	5	6	13	0	0	0	0	0	19
23	0	0	0	0	1	6	4	11	0	0	1	1	0	0	0	0	0	12
24	0	1	0	1	0	0	2	2	4	0	2	6	0	1	0	1	1	10
25	0	0	0	0	1	3	4	8	5	7	3	15	0	1	1	2	2	25
26	0	0	0	0	0	1	1	2	3	0	1	4	0	0	0	0	0	6
27	0	0	0	0	0	0	1	1	4	0	0	4	0	2	0	2	2	7
28	0	0	2	2	0	0	0	0	3	1	1	5	0	1	0	1	1	8
29	0	0	0	0	0	0	0	0	3	0	0	3	0	0	0	0	0	3
30	0	0	0	0	0	0	0	0	1	4	3	8	6	0	1	7	7	15
31	0	0	0	0	0	0	0	0	0	0	0	0	1	3	0	4	4	4
32	0	0	0	0	0	0	0	0	0	1	0	1	1	1	0	2	2	3
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2
35	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	2
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	2	2
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect 12 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	7	5	6	18	23	45	29	97	46	37	48	131	19	16	15	50			296

Transect 13.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	1	0	0	1	0	0	0	0	1	0	1	2	1	1	1	3	6	6
6	0	1	0	1	0	0	0	0	1	0	1	2	0	0	0	0	3	3
7	0	0	0	0	1	0	0	1	1	0	0	1	0	0	0	0	2	2
8	1	0	1	2	2	1	1	4	0	0	1	1	1	1	1	3	10	10
9	0	0	0	0	7	5	1	13	0	0	1	1	0	0	0	0	14	14
10	5	0	6	11	7	5	5	17	1	1	1	3	1	2	0	3	34	34
11	0	0	0	0	3	1	0	4	0	0	1	1	0	0	0	0	5	5
12	1	0	3	4	1	1	2	4	0	0	0	0	1	0	0	1	9	9
13	0	0	0	0	0	2	0	2	0	0	1	1	0	0	0	0	3	3
14	0	0	0	0	0	6	2	8	0	0	0	0	0	0	0	0	8	8
15	7	1	5	13	2	4	0	6	0	0	0	0	2	1	0	3	22	22
16	0	0	1	1	2	2	0	4	0	1	0	1	0	0	0	0	6	6
17	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2	2
18	1	1	1	3	1	5	0	6	1	0	0	1	0	0	0	0	10	10
19	0	0	0	0	2	1	2	5	0	0	1	1	0	0	0	0	6	6
20	0	6	5	11	3	6	4	13	5	5	2	12	1	4	0	5	41	41
21	0	0	0	0	5	3	6	14	1	1	1	3	0	0	0	0	17	17
22	0	1	1	2	3	1	2	6	6	3	1	10	0	1	0	1	19	19
23	0	0	0	0	2	2	2	6	2	6	0	8	0	0	0	0	14	14
24	0	0	0	0	1	1	2	4	2	6	2	10	0	0	1	1	15	15
25	0	0	1	1	4	4	2	10	11	21	3	35	4	8	2	14	60	60
26	0	0	0	0	1	0	2	3	3	10	3	16	1	0	0	1	20	20
27	0	0	0	0	0	0	0	0	6	10	2	18	0	0	1	1	19	19
28	0	0	0	0	0	0	0	0	4	6	0	10	5	4	3	12	22	22
29	0	0	0	0	0	0	0	0	0	2	2	4	1	0	1	2	6	6
30	0	0	0	0	0	0	0	0	5	4	1	10	14	21	1	36	46	46
31	0	0	0	0	0	0	0	0	1	3	1	5	4	0	0	4	9	9
32	0	0	0	0	0	0	0	0	0	0	1	1	8	0	1	9	10	10
33	0	0	0	0	0	0	0	0	3	0	0	3	6	0	0	6	9	9
34	0	0	0	0	0	0	0	0	0	0	0	0	6	0	0	6	6	6
35	0	0	0	0	0	0	0	0	1	0	0	1	6	8	6	20	21	21
36	0	0	0	0	0	0	0	0	0	0	0	0	3	0	4	7	7	7
37	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
38	0	0	0	0	0	0	0	0	0	0	0	0	3	1	3	7	7	7
39	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	1
40	0	0	0	0	0	0	0	0	0	0	0	0	1	2	0	3	3	3

Transect 13 continued.

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					
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	16	10	24	50	48	51	33	132	55	79	27	161	71	54	25	150	493			

Transect 14.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	1	1	2	0	0	0	0	0
4	0	0	1	1	0	0	1	1	0	1	0	1	1	0	0	0	0	0
5	0	0	1	1	0	0	0	0	0	1	1	1	2	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	1	5	6	0	1	0	1	1	7
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	1	1	2	0	1	0	1	1	1	0	0	1	4
9	0	0	0	0	1	0	0	1	1	0	0	1	1	1	1	0	2	4
10	0	2	0	2	1	0	0	1	0	1	4	5	0	0	0	0	0	8
11	1	0	1	2	0	1	0	1	0	0	1	1	0	0	0	0	0	4
12	0	0	1	1	0	1	1	2	1	1	0	2	0	0	0	0	0	5
13	0	0	0	0	1	1	2	4	0	0	0	0	0	1	0	1	1	5
14	1	3	3	7	1	1	3	5	0	0	1	1	0	0	0	0	0	13
15	3	1	4	8	0	1	3	4	0	0	1	1	0	0	0	0	0	13
16	4	1	0	5	2	0	2	4	1	0	0	1	1	1	0	2	2	12
17	0	0	2	2	1	0	4	5	0	1	0	1	1	0	0	1	1	9
18	1	0	1	2	3	1	2	6	2	1	3	6	0	0	0	0	0	14
19	0	0	1	1	3	1	3	7	1	0	1	2	0	0	0	0	0	10
20	3	1	1	5	0	0	0	0	1	1	1	3	0	0	0	0	0	8
21	1	0	1	2	0	0	0	0	3	0	3	6	0	0	1	1	1	9
22	1	1	0	2	1	0	1	2	3	0	4	7	0	1	0	1	1	12
23	0	0	0	0	2	0	0	2	1	0	0	1	1	0	0	1	1	4
24	4	2	0	6	3	3	0	6	3	0	1	4	1	0	0	1	1	17
25	0	1	0	1	4	1	0	5	7	1	8	16	3	1	0	4	4	26
26	1	0	0	1	0	0	2	2	3	0	3	6	1	1	0	2	2	11
27	0	1	0	1	0	0	0	0	0	0	2	2	0	0	0	0	0	3
28	0	0	0	0	2	1	0	3	2	0	1	3	7	3	1	11	1	17
29	0	0	0	0	0	0	1	1	2	0	0	2	9	1	3	13	3	16
30	0	0	0	0	1	2	1	4	1	0	2	3	4	3	2	9	4	16
31	0	0	0	0	0	0	0	0	0	0	1	1	0	6	0	6	0	7
32	0	0	0	0	0	0	0	0	0	0	0	0	5	1	2	8	0	8
33	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	0	2
34	0	0	0	0	1	1	0	2	0	0	1	1	1	2	1	4	0	7
35	0	0	0	0	0	3	0	3	0	0	0	0	2	3	1	6	0	9
36	0	0	0	0	0	0	0	0	0	0	0	0	1	1	0	2	0	2
37	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	0	1
38	0	0	0	0	0	1	0	1	0	0	0	0	0	0	0	0	0	1
39	0	0	0	0	0	1	0	1	0	0	0	0	1	0	0	1	0	2
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect 14 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	20	13	17	50	27	21	27	75	32	11	45	88	42	27	12	81	294		

Transect 15.

Size (mm)	Number of cockles			HT			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	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
4	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
5	0	0	0	0	0	2	2	4	0	0	0	0	0	1	0	0	5
6	0	1	0	1	0	1	1	2	0	0	1	1	3	0	0	3	7
7	0	0	0	0	0	2	1	3	0	0	0	0	0	0	0	0	3
8	0	1	0	1	0	2	0	2	0	1	1	2	1	1	0	2	7
9	0	0	1	1	0	1	0	1	0	2	0	2	2	0	0	2	6
10	4	2	1	7	0	4	1	5	0	1	0	1	0	1	0	1	14
11	2	0	0	2	0	5	1	6	1	0	1	2	0	2	0	2	12
12	3	0	0	3	0	0	1	1	4	1	0	5	0	0	1	1	10
13	0	0	0	0	0	1	1	2	2	0	2	4	0	0	1	1	7
14	0	0	0	0	0	0	0	0	1	0	1	2	1	0	0	1	3
15	0	1	1	2	1	1	0	2	0	0	0	0	0	0	0	0	4
16	1	0	0	1	1	0	0	1	0	0	0	0	0	0	0	0	2
17	1	0	0	1	2	1	2	5	1	0	2	3	0	0	0	0	9
18	0	1	1	2	3	4	1	8	2	1	0	3	0	0	0	0	13
19	0	1	2	3	5	8	8	21	1	0	1	2	2	0	0	2	28
20	2	0	2	4	6	12	4	22	3	0	2	5	1	0	0	1	32
21	2	0	0	2	1	3	1	5	1	1	5	7	0	1	0	1	15
22	0	0	0	0	1	1	0	2	5	3	2	10	0	1	0	1	13
23	0	0	0	0	2	2	1	5	2	0	3	5	1	1	0	2	12
24	0	0	0	0	1	2	2	5	4	1	1	6	0	1	0	1	12
25	0	0	0	0	0	0	1	1	6	2	6	14	2	1	1	4	19
26	0	1	0	1	0	0	1	1	9	1	3	13	3	0	1	4	19
27	0	0	0	0	0	0	1	1	7	1	1	9	4	2	0	6	16
28	0	0	0	0	0	0	0	0	4	0	6	10	3	2	1	6	16
29	0	0	0	0	0	0	0	0	3	1	2	6	2	2	3	7	13
30	0	0	0	0	0	0	0	0	4	0	1	5	4	2	5	11	16
31	0	0	0	0	0	0	0	0	1	0	1	2	3	4	7	14	16
32	0	0	0	0	0	0	0	0	1	1	2	4	4	0	0	4	8
33	0	0	0	0	0	0	0	0	0	0	0	0	2	2	0	4	4
34	0	0	0	0	0	0	0	0	0	0	1	1	3	1	1	5	6
35	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
37	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	2	2
38	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	2	2
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1

Transect 15 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	15	8	8	31	23	52	31	106	62	17	45	124	44	25	25	94	355		

Transect 16.

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

Transect 16 continued.

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					
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	23	44	86	23	34	37	94	25	38	35	98	27	39	31	97	375			

Transect 17.

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			
1	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	0	0	0	0	0	0	0	1	2	3	1	1	0	2	5	
4	0	0	0	0	1	0	0	1	1	1	1	3	1	1	0	2	6	
5	0	0	0	0	3	1	0	4	2	3	3	8	1	2	0	3	15	
6	0	0	0	0	6	8	1	15	4	3	4	11	0	0	2	2	28	
7	1	0	0	1	3	9	5	17	5	2	5	12	0	1	1	2	32	
8	0	0	0	0	2	1	1	4	6	3	10	19	0	0	0	0	23	
9	2	0	0	2	2	1	2	5	3	7	8	18	0	0	1	1	26	
10	2	1	1	4	2	2	2	6	5	3	6	14	0	2	0	2	26	
11	1	1	0	2	3	1	1	5	4	1	3	8	0	0	0	0	15	
12	1	0	0	1	1	2	5	8	4	0	5	9	0	0	1	1	19	
13	0	1	0	1	0	1	0	1	1	0	0	1	0	1	0	1	4	
14	1	0	0	1	2	2	3	7	0	2	3	5	2	1	4	7	20	
15	1	1	1	3	0	4	4	8	1	2	5	8	1	0	0	1	20	
16	0	1	1	2	1	3	3	7	4	1	1	6	0	1	0	1	16	
17	2	0	1	3	1	3	0	4	4	4	3	11	0	1	0	1	19	
18	4	1	1	6	2	4	2	8	4	5	6	15	0	2	1	3	32	
19	0	0	2	2	3	3	2	8	4	8	4	16	0	6	1	7	33	
20	1	1	0	2	2	1	1	4	2	3	3	8	1	2	4	7	21	
21	0	0	0	0	3	0	0	3	3	2	3	8	1	3	1	5	16	
22	0	0	1	1	0	0	0	0	1	4	5	10	0	6	4	10	21	
23	0	0	0	0	0	0	0	0	2	3	2	7	5	7	3	15	22	
24	0	0	0	0	1	0	0	1	0	1	1	2	5	12	5	22	25	
25	2	0	0	2	0	0	1	1	0	1	0	1	6	8	4	18	22	
26	0	0	0	0	0	0	0	0	0	0	0	0	8	5	4	17	17	
27	1	0	0	1	0	0	0	0	0	1	0	1	2	2	2	6	8	
28	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
29	0	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	
30	0	0	0	0	0	0	0	0	0	0	0	0	3	3	1	7	7	
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
32	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	

Transect 17 continued.

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					
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	7	8	34	38	46	33	117	60	61	83	204	43	67	39	149	504			

Transect 18.

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

Transect 18 continued.

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		
41	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	31	36	34	101	41	37	19	97	28	24	28	80	10	32	16	58	336

Transect 19.

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

Transect 19 continued.

Size (mm)	Number of cockles															Total Number	
	HT			HT	UMT			UMT	LMT			LMT	LT				LT
	A	B	C	total	A	B	C	total	A	B	C	total	A	B	C		total
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	26	37	34	97	27	14	19	60	21	10	6	37	6	1	9	16	210

Transect 20.

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			
1	0	0	z	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
2	0	0	e	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
3	0	0	r	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
4	0	0	o	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
5	0	0	0	0	1	0	0	1	4	0	1	5	1	1	0	2	8	8
6	0	0	0	0	0	0	0	0	3	3	0	6	0	0	0	0	6	6
7	0	0	0	0	0	0	0	0	0	2	0	2	0	0	1	1	3	3
8	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1	1
9	0	0	0	0	0	1	0	1	1	0	0	1	0	0	0	0	2	2
10	0	1	0	1	1	1	0	2	0	1	1	2	0	0	0	0	5	5
11	0	0	0	0	3	2	0	5	3	0	2	5	0	0	0	0	10	10
12	0	0	0	0	0	1	0	1	0	0	5	5	0	0	0	0	6	6
13	0	0	0	0	3	0	0	3	0	0	0	0	0	0	0	0	3	3
14	0	0	0	0	2	0	0	2	1	0	2	3	0	0	0	0	5	5
15	1	0	0	1	5	0	0	5	6	1	5	12	0	0	0	0	18	18
16	1	0	0	1	4	0	0	4	5	1	3	9	0	0	0	0	14	14
17	0	0	0	0	0	0	1	1	3	2	2	7	0	0	0	0	8	8
18	0	0	0	0	0	0	0	0	2	0	0	2	0	0	0	0	2	2
19	0	0	0	0	0	0	1	1	1	1	0	2	0	0	0	0	3	3
20	0	0	0	0	2	1	0	3	7	3	11	21	0	0	0	0	24	24
21	0	0	0	0	1	0	0	1	5	1	6	12	0	0	0	0	13	13
22	0	0	0	0	1	0	1	2	2	5	11	18	0	0	0	0	20	20
23	0	0	0	0	1	0	0	1	1	2	2	5	0	0	0	0	6	6
24	0	0	0	0	3	0	1	4	2	3	0	5	0	0	0	0	9	9
25	0	0	0	0	1	0	1	2	13	5	5	23	0	1	0	1	26	26
26	0	0	0	0	2	0	1	3	4	2	1	7	0	0	2	2	12	12
27	0	0	0	0	0	2	0	2	5	3	1	9	1	1	0	2	13	13
28	0	0	0	0	0	0	0	0	1	2	2	5	0	0	1	1	6	6
29	0	0	0	0	0	0	0	0	1	6	0	7	0	0	0	0	7	7
30	1	0	0	1	2	0	0	2	3	5	0	8	0	1	2	3	14	14
31	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	2	2
32	0	0	0	0	1	0	0	1	0	0	0	0	0	1	0	1	2	2
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect 20 continued.

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	
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	3	1	0	4	34	8	7	49	74	49	60	183	2	5	6	13	249

Transect 21.

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

Transect 21 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	8	10	3	21	21	11	43	75	32	25	20	77	2	8	3	13	186		

Transect 22.

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

Transect 22 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	1	78	85	27	23	13	63	16	10	7	33	3	8	7	18	199		

Transect 23.

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

Transect 23 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	49	27	12	88	13	7	15	35	20	21	39	80	0	0	0	0	0	0	203

Transect 24.

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

Transect 24 continued.

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			
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	1
42	0	0	0	0	0	0	0	0	0	0	0	0	2	0	0	2	2	2
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	13	21	19	53	26	30	13	69	17	20	14	51	17	13	12	42	215	

Transect 25.

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

Transect 25 continued.

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			
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	6	4	0	10	35	36	36	107	43	61	74	178	34	21	25	80	375

Transect 26.

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

Transect 26 continued.

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	
41	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	24	29	23	76	23	44	35	102	12	24	16	52	13	11	12	36	266

Transect 27.

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

Transect 27 continued.

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					
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	19	28	23	70	28	28	11	67	19	13	20	52	14	13	19	46	235			

Transect 28.

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

Transect 28 continued.

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			
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	1	1	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Total	8	3	2	13	1	7	9	17	5	3	3	11	2	1	3	6	47

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	0	0	0	0	0	0	0	0	0	0	0	0	z	z	0	0	0
2	0	0	0	0	0	0	0	0	0	0	0	0	e	e	0	0	0
3	0	0	0	0	0	0	0	0	0	0	0	0	r	r	0	0	0
4	0	0	0	0	0	0	0	0	0	0	0	0	o	o	0	0	0
5	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
6	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
7	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
10	0	0	0	0	1	1	0	2	0	0	0	0	0	0	0	0	2
11	0	0	0	0	2	0	0	2	1	1	1	3	0	0	0	0	5
12	0	0	0	0	2	0	1	3	0	0	0	0	0	0	0	0	3
13	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
14	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
15	0	0	0	0	1	1	3	5	0	0	0	0	0	0	0	0	5
16	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
17	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
18	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
19	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
20	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
21	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
22	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
23	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
24	1	0	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
25	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	1	0	0	1	0	0	1	1	0	0	0	0	0	0	0	0	2
28	0	0	1	1	2	0	0	2	0	0	0	0	0	0	0	0	3
29	0	0	0	0	0	0	1	1	0	0	0	0	0	0	0	0	1
30	0	0	1	1	0	0	0	0	1	0	0	1	0	0	1	1	3
31	0	0	1	1	0	0	0	0	1	0	0	1	0	0	0	0	2
32	2	0	0	2	1	0	1	2	0	0	0	0	0	0	0	0	4
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	1	1	1	0	0	1	0	0	1	1	0	0	0	0	3
35	0	0	0	0	1	0	1	2	0	0	0	0	0	0	0	0	2
36	0	1	0	1	0	0	0	0	0	0	0	0	0	0	0	0	1
37	0	0	0	0	2	0	0	2	0	0	0	0	0	0	0	0	2
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	1	0	0	1	0	0	0	0	0	0	0	0	1
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect 29 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	5	1	4	10	16	2	9	27	4	1	2	7	0	0	1	1	45		

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	z	z	0	0	0	0	z	0	0	0	0	0	0	0	0	0	
2	e	e	0	0	0	0	e	0	0	0	0	0	0	0	0	0	
3	r	r	0	0	0	0	r	0	1	0	1	0	0	0	0	1	
4	o	o	0	0	0	0	o	0	0	0	0	1	0	0	1	1	
5	0	0	0	0	0	0	0	0	0	0	0	4	0	0	4	4	
6	0	0	0	0	0	0	0	0	0	0	0	3	0	0	3	3	
7	0	0	0	0	0	0	0	0	0	0	0	1	0	0	1	1	
8	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
9	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
10	0	0	0	0	2	0	0	2	0	1	0	1	0	1	0	1	4
11	0	0	0	0	0	0	0	0	0	0	3	3	0	0	0	0	3
12	0	0	0	0	0	0	0	0	1	0	2	3	0	0	0	0	3
13	0	0	0	0	0	0	0	0	0	2	1	3	0	0	0	0	3
14	0	0	0	0	0	0	0	0	0	1	0	1	0	0	0	0	1
15	0	0	0	0	0	1	0	1	0	1	1	2	0	0	0	0	3
16	0	0	0	0	1	0	0	1	0	1	1	2	0	0	0	0	3
17	0	0	1	1	0	0	0	0	0	2	0	2	1	0	0	1	4
18	0	0	0	0	0	0	0	0	0	0	0	0	0	2	0	2	2
19	0	0	0	0	0	0	0	0	0	1	0	1	0	1	0	1	2
20	0	0	0	0	0	1	0	1	0	1	0	1	0	0	0	0	2
21	0	0	0	0	0	0	0	0	0	1	3	4	0	0	0	0	4
22	0	0	0	0	0	0	0	0	0	0	2	2	0	0	0	0	2
23	0	0	0	0	0	0	0	0	1	0	0	1	0	0	0	0	1
24	0	0	0	0	0	0	0	0	0	1	1	2	0	0	1	1	3
25	0	0	0	0	0	0	0	0	0	1	0	1	0	0	1	1	2
26	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
27	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
28	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
29	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
30	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
31	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
32	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
33	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
34	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
35	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
36	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
37	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
38	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
39	0	0	0	0	0	0	0	0	0	0	0	0	0	1	0	1	1
40	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0

Transect 30 continued.

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				
41	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	
42	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
43	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
44	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
45	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
46	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
47	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
48	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
49	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
50	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0	0
Total	0	0	1	1	3	2	0	5	2	14	14	30	10	5	2	17	53		