Technical Report Series
Number 85-1

SUBTIDAL HARD CLAM *MERCENARIA MERCENARIA* (LINNE), RESOURCES IN COASTAL GEORGIA

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by

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ACKNOWLEDGEMENTS

The authors wish to thank John Carol, Paul Christian, Thomas Shierling, and Jim Whitted for their field assistance. Special thanks to Dr. E. Chin and Dr. J. Harding for critically reviewing the manuscript. Thanks are given to Bryan Fishermen's Cooperative, Jack's Marina, Sea Gardens Seafood Company, and the U.S. Fish and Wildlife Service for dockage space during various stages of the project. Special thanks to Dorothy Kennedy for typing the manuscript and to Suzanne McIntosh and Anna Boyette for the graphics.

This work was made possible under Contract #GSAFDF-22-12-22740 from the Gulf and South Atlantic Fisheries Research Foundation.

ABSTRACT

A total of 2227 stations representing 1385 square meters of bottom were sampled for hard clams, Mercenaria mercenaria, by taking three bottom grabs with a pair of patent tongs or three quadrant samples per station. Clams (N = 1575) occurred at 11.6% of the stations, with the majority (61.5%) occurring intertidally. Of the subtidal clams, 65% occurred in depths less than 1 m. Clams occurred in highest densities in shell ($\bar{x}$ = 3.1 per square meter) with decreasing amounts in sandy-mud (0.51 per square meter), mud (0.25 per square meter) and sand (0.17 per square meter) substrates. Clams occurred more frequently in feeder creeks with lesser amounts in the headwaters of creeks, in creeks and rivers, and were absent from sounds and nearshore areas. Of the 1575 clams collected, 46% were chowders, 27% cherrystones, 21% legal littlenecks, 2% pre-legal littlenecks, and 4% juveniles.

The results of this study show that large subtidal populations do not occur in coastal Georgia. Since clams occur primarily intertidally, subtidal mechanical clam harvesters do not seem feasible.

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INTRODUCTION

The potential of hard clams, Mercenaria mercenaria (Linne) and Mercenaria campechiensis (Gemlin), as a commercial fishery in the South Atlantic states grows as pollution and overharvesting in traditional clamming grounds in more northern U.S waters increase (National Marine Fisheries Service, 1977). Combined with the availability of unpolluted waters and an unexploited fishery, this has led to a steadily rising interest in using Georgia waters for commercial clamming operations. The opportunity for clamming in Georgia is ripe, and several in-state as well as numerous out-of-state companies have expressed interest in expanding into the clam fishery or relocating their current operations in Georgia.

The coastal waters of Georgia contain numerous unexploited populations of hard clams and extensive pollution-free salt marshes and waterways suitable for shellfish production and culture. Clams grow year-round in southeastern U.S. waters (Eldridge et al., 1976; Walker, 1984), and clam densities above 25 per square meter are common in the intertidal areas of Georgia (Walker and Tenore, 1984). Densities up to 100 per square meter have been observed in intertidal regions of small creeks and shell deposits associated with oyster bars (Walker et al., 1980; Walker and Tenore, 1984).

Currently in Georgia, the primary harvesting of clams is done by crab fishermen in the winter when crabbing is slack. Clamming is done by hand raking on the intertidal flats of the open sound or in intertidal creeks. Although Georgia landings have been as high as 43,000 lbs of meat per year, reported landings in 1983 were 3,482 lbs of meat (Table 1). The demand for clams is high, so this figure does not reflect a lack of market potential. Rather, this decrease in yield is due primarily to the inefficiency of hand harvesting, to the lack of willing labor, to the inaccessibility of clam beds located in small creeks, and to the large percentage of less valuable chowder clams in the population.

Commercially viable clam populations in subtidal areas where mechanical harvesters are traditionally used have not been identified in Georgia. An offshore survey conducted aboard the 100-ft research vessel, Silver Bay, did find dead clam shell concentrations. This could indicate clam beds in shallow water where the vessel could not sample (Bureau of Commercial Fisheries, 1960, 1961 a&b). A survey of inshore bottoms of Georgia by Godwin (1967, 1968) found that most clams occur in intertidal areas or areas less than 10 ft deep. Godwin concentrated his research for clam beds on areas where one would expect to find clams according to northern clam criteria. He did not survey the areas within the creek systems of the sounds--areas where Walker et al. (1980) found most of their clam beds in Wassaw Sound.

Table 1. Hard clam, Mercenaria mercenaria, production in pounds of meat landed from 1880 to the present in Georgia. Data from Department of Natural Resources (1979-83) and Lyles (1966, 1969, 1970).

Year	Pounds	Year	Pounds
1880	24,000	1956	0
1887	0	1957	0
1888	0	1958	1,000
1889	3,000	1959	0
1890	4,000	1960	0
1897	3,000	1961	0
1902	10,000	1962	0
1908	43,000	1963	0
1918	7,000	1964	0
1923	0	1965	0
1927	1,000	1966	0
1928	1,000	1967	0
1929	2,000	1968	0
1930	2,000	1969	1,000
1931	1,000	1970	17,000
1932	1,000	1971	0
1935	0	1972	0
1936	0	1973	6,000
1937	0	1974	0
1938	0	1975	0
1939	0	1976	11,000
1940	0	1977	0
1945	0	1978	0
1950	0	1979	0
1951	0	1980	*
1952	0	1981	5,855
1953	0	1982	9,725
1954	0	1983	3,482
1955	0	1984	3,146 **

* Confidential data

** Data from January to November 1984

It was the purpose of this study to determine if there were sufficient subtidal stocks of hard clams in Georgia to warrant further commercial development of the fishery with mechanical harvesters. Furthermore, we attempted to identify areas currently closed to shellfishing, but which have sufficient clam stocks to warrant closer monitoring of water quality in an effort to ascertain if these areas may be opened to shellfishing.

A secondary objective was to conduct tests to determine the shelf life of the Georgia stock of hard clams. The tests were conducted by Dr. Steven Otwell of the University of Florida on samples collected near Sapelo Island, Georgia.

METHODOLOGY

The survey of subtidal areas within the creeks and rivers of Georgia was carried out aboard a 23-ft x 10-ft barge propelled by two 115 HP Johnson outboards. The survey of subtidal areas within the open sound and nearshore areas was carried out aboard the 45-ft "Sea Dawg." A pair of patent tongs made by Mars Machine Shop, Gloucester Point, Virginia, was used to sample for hard clams. The patent tong took a bottom sample of 0.2 square meter area, and three grabs per station were taken.

Some stations (N = 161) were sampled by throwing a 0.3 square meter grid onto the bottom. Clams and substrate to a depth of 10 cm were dug with a clam rake.

Transects were made in suspected hard clam producing areas all along the coast of Georgia. These arbitrarily-defined areas were seawards of waters with 18 to 20 parts per thousand salinity (ppt), including the passes and nearshore bars of each sound. The only exception was the Savannah River, which is polluted; clamming there in the near future is unlikely.

Depth, surface salinity, and water temperature were determined at each station. Salinity was determined by a hand-held refractometer and temperature by a standard thermometer. Water depth at each station was determined and corrected to water depth at low tide.

Sediment type per station was recorded and classified into the following types: mud, sandy-mud, sand, and shell.

All clams were measured for shell length (longest possible measurement: anterio-posterior) to the nearest 0.5 mm by using a Vernier caliper. Clams were categorized according to the commercial scheme in Table 2. This classification scheme was similar to Godwin's scheme (1967), except that littlenecks (38 to 67 mm) have been subdivided into legal (larger than 44.4 mm) and pre-legal (smaller than 44.4 mm) size groups. All clams were returned to the bottom.

Table 2. Commercial hard clam size categories

Commercial Grade	Shell Length in mm
Juveniles	less than 37
Pre-legal littlenecks	38 to 44.3
Legal littlenecks	44.4 to 67
Cherrystones	68 to 77
Chowders	greater than 78

A sample of clams collected on 26 July 1984 near Sapelo Island, Georgia, was transported in coolers to Gainesville, Florida. Each cooler had a bed of ice covered by sacks. Clams were placed on top of the ice, but not allowed to come in contact with the ice.

Clams arrived in Gainesville on 27 July and were immediately placed in separate refrigeration temperatures. Three test batches (replications with 50 clams each) were placed in each temperature, totaling 150 clams per temperature. Clam size ranged from 2.1 to 3.2 in wide. Mortality and stress were monitored daily. Stress was defined as clams which would not close when agitated (tapped), yet would respond after 10 minutes exposure to room temperature. A stressed clam would be considered dead by commercial standards; thus, total accumulative commercially dead clams was equal to the total accumulative clam mortalities plus the daily number of clams in stress. Stress usually preceded mortality, especially in 40°F.

RESULTS

A total of 2227 stations (see Appendixes) representing approximately 1385 square meters of bottom was sampled for hard clams by taking three bottom grabs or three quadrant samples per station. Clams occurred at 11.6% of these stations, with 0% of the stations with clams occurring in the open sound areas, 0% in the nearshore areas, 4.0% in the rivers and major creeks, 3.2% in the headwaters of creeks, and 4.4% within feeder creeks. Creeks and rivers accounted for 60% of the area sampled, yet clams occurred in only 6.7% of the stations, whereas feeder creeks accounted for 10% of the areas sampled and clams occurred at 40.6% of the stations (Figure 1).

Of the 1575 clams collected, 61.5% occurred intertidally and 38.5% occurred subtidally. Subtidal clams (N = 606) occurred in water depths less than 7 m, with the majority (65%) occurring in depths less than 1 m (Figure 2). Most clams occurred in areas which did not drain at low tide.

Clams occurred in densities ranging from 0 to 91 per square meter with densities varying with substrate type and location. In general, clams occurred more frequently in feeder creeks (Figure 1) or in association with oyster shell deposits (Figure 3). Average clam density was highest in shell (3.1 per square meter), sandy-mud (0.51 per square meter), mud (0.25 per square meter), and lowest in sand (0.17 per square meter) substrates (Figure 3). Clams occurred in higher percentages within feeder creeks, with decreasing amounts in headwaters of creeks, creeks and rivers, sounds, and nearshore areas (Figure 1).

Clams ranged in shell length from 12.0 mm to 118.0 mm, with the majority being chowders. Of the 1575 clams collected, 46% were chowders, 27% cherrystones, 21% legal littlenecks, 2% pre-legal littlenecks, and 4% juveniles (Figure 4).

Clam breakage due to mechanical tonging was low. Of the 593 clams collected by tonging, 2.0% were cracked. Broken clams ranged from 50 mm to 115.3 mm and averaged 77.8 mm in shell length.

In the shelf-life trials, Georgia hard clams survived better than Florida clams harvested during the same period (Steven Otwell, personal communication). However, they were stressed and died rapidly at the common refrigeration temperature of 40°F. By the seventh day, clams became stressed at 40°F and by day ten, 90% were commercially dead. At 50°F, Georgia clams did not begin to show stress until day eleven and commercial death did not exceed 10% until day sixteen.

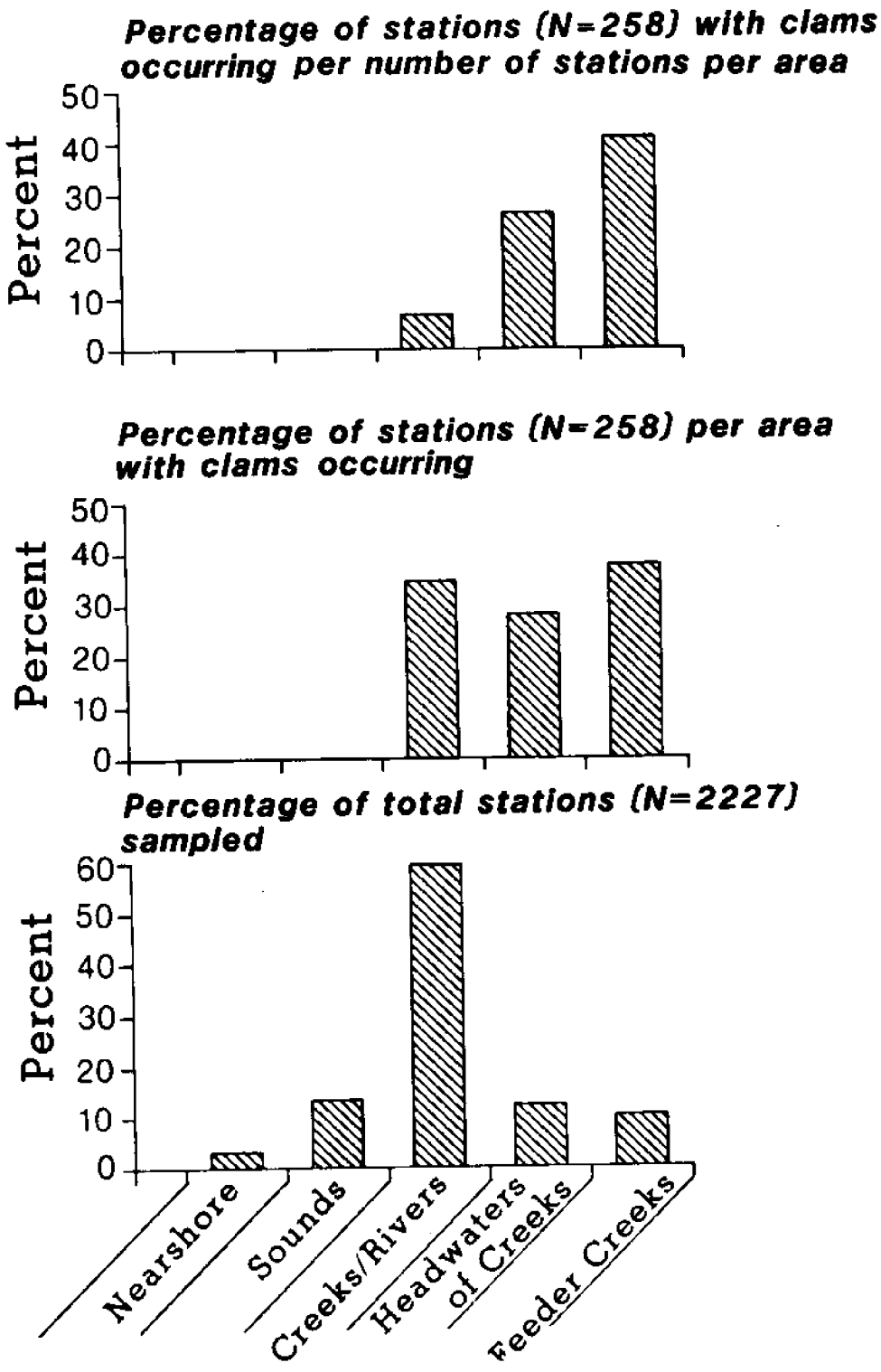

Figure 1. Percentage of total stations sampled, percentage of stations per area with clams occurring, and percentage of stations with clams occurring per number of stations per area

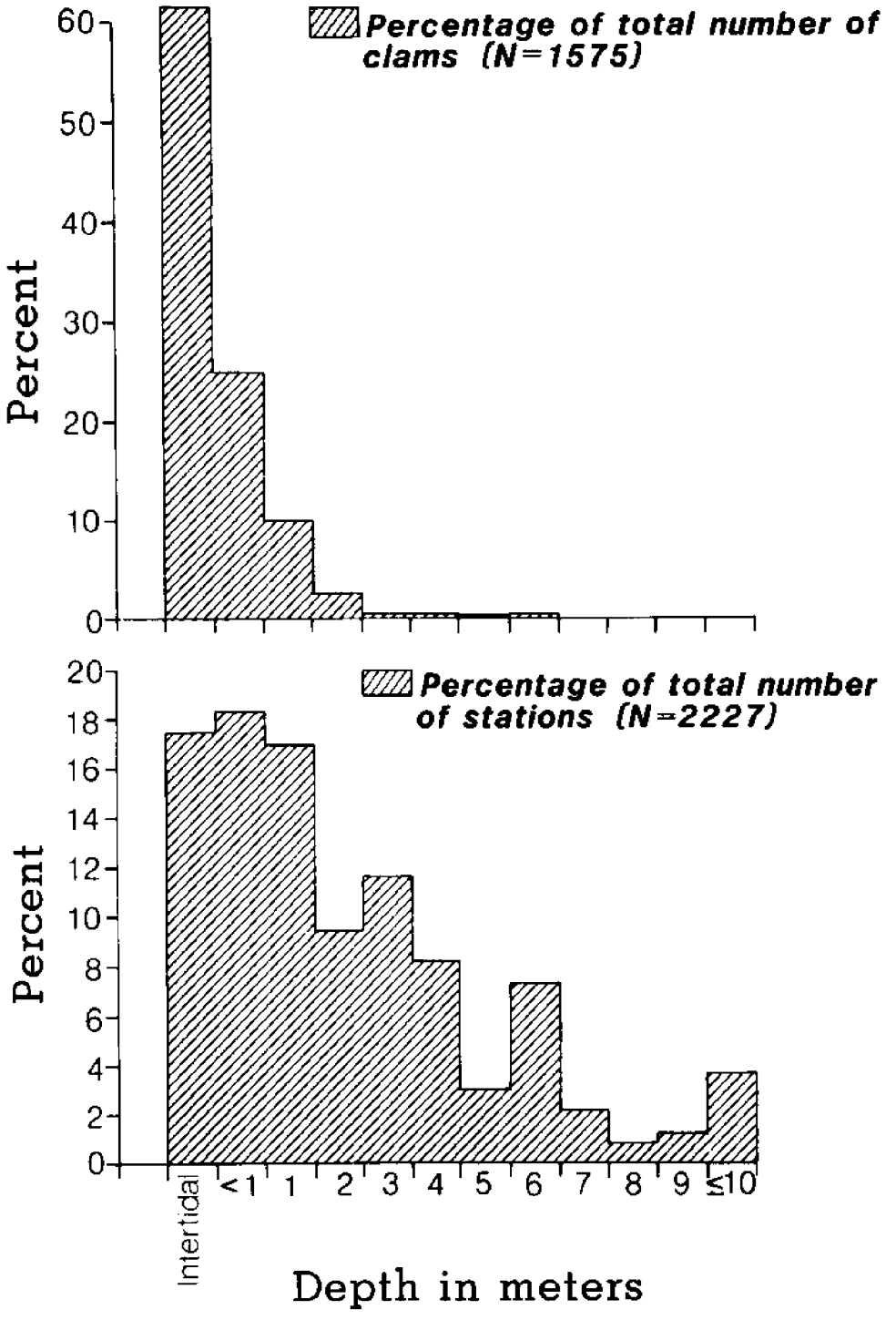

Figure 2. Percentage of stations at various depths and percentage of clams occurring at various depths

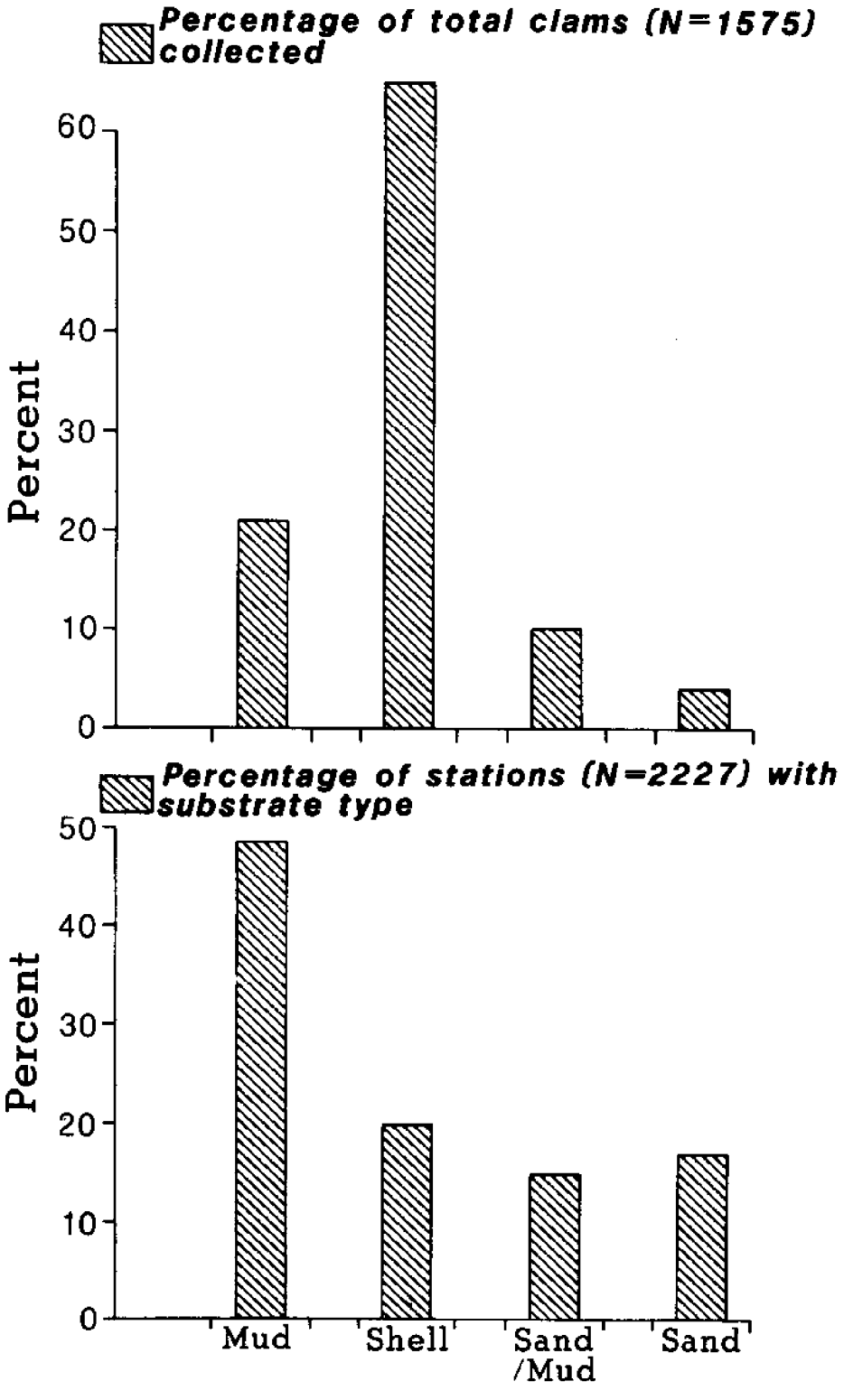

Figure 3. Percentage of stations with various substrate types and percentage of clams occurring in each substrate type

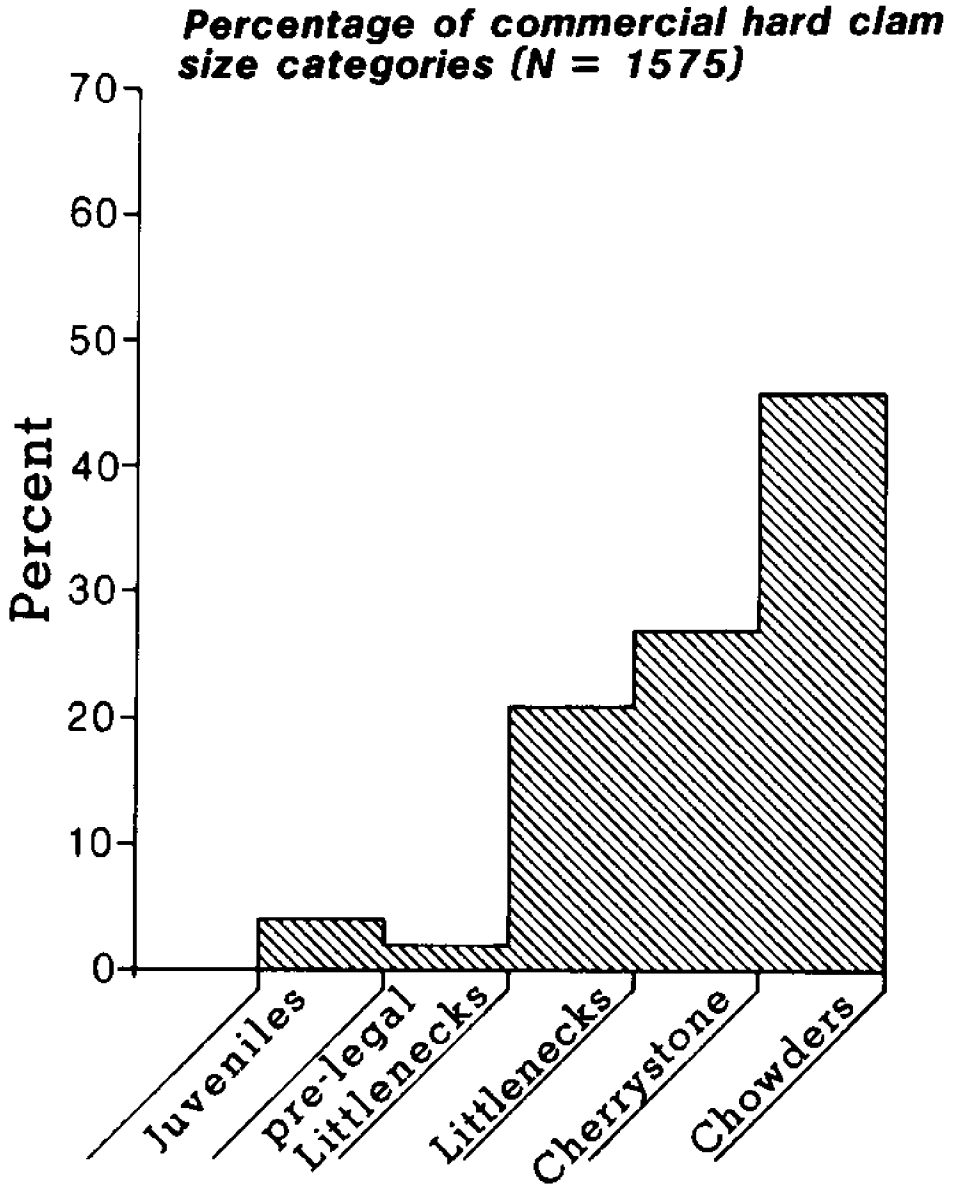

Figure 4. Percentage of commercial hard clam size categories

A similar pattern was observed at 60°F; earliest death was on day seven, but significant deaths (above 10%) did not occur until day fifteen (Table 3).

Table 3. Average survival for Georgia hard clams, Mercenaria mercenaria, harvested in July and in refrigeration.

Days in storage	Storage Temperatures 40°F			50°F			60°F		
	M	S	CD	M	S	CD	M	S	CD
6		0	0				0	0	0
7	0	12.0	12.0				0.7	0	0.7
8	1.3	10.7	12.0				0.7	0	0.7
9	4.7	13.3	18.0				0.7	0	0.7
10	11.3	28.7	40.0		0	0	0.7	0	0.7
11	12.0	46.6	58.6		0.7	0.7	2.6	0	2.6
12	15.3	43.3		0	2.0	2.0	2.6	0	2.6
13	18.9	41.3		0.7	2.6	3.3	3.3	0	3.3
14	22.6	40.7		2.6	2.6	5.2	8.7	0	8.7
15	26.0	46.7		4.0	4.7	8.7	17.3	0	17.3
16				13.3	4.0	17.3	22.0	0	22.0
17				17.3	4.0	21.3	34.0	0	34.0
18				31.3	4.0	35.3	42.7	0	42.7
19				44.0	4.0	48.0	54.0	0	54.0

M = accumulative percent mortality
S = daily percent of clams alive but in stress condition
CD = accumulative percent commercial dead clams equals M + S

All percentages per column represent the average for 3 replications from same batch of clams

DISCUSSION

Results of this study indicate that large subtidal hard clam populations do not occur in the coastal waters of Georgia. This agrees with the findings of Walker et al. (1980) and Walker and Tenore (1984) for Wassaw Sound, Georgia, and of Godwin (1968) for coastal Georgia. Clams occur primarily in intertidal areas or in areas of shallow water. Similar results have been observed in other southeastern states. In South Carolina, Anderson et al. (1978) observed that approximately half of the clams collected occurred in water less than 2.5 m deep. On the west coast of Florida, Godcharles and Jaap (1973) observed that clams, M. campechiensis, generally occurred in waters less than 9.2 m within turtle grass, Thalassia, beds.

Correlation between clam densities and bottom type has been observed in several locations. Wells (1957) in Maryland, Pratt (1953) in Rhode Island, Anderson et al. (1978) in South Carolina, and Godwin (1968) and Walker et al. (1980) in Georgia found higher clam densities in shell substrates with lowest densities occurring in mud substrates.Seagrasses are absent in Georgia; however, clams occasionally occur within the root mats of Spartina.

Chowders are the dominant (45%) commercial size class of clams in Georgia, whereas littlenecks were dominant (approximately 57%) in South Carolina waters (Anderson et al., 1978). This difference may be due to commercial fishing pressures. Commercial harvesting reduces the numbers of larger size classes more easily than smaller size clsses (Walker, 1984). Commercial harvesting of hard clams in South Carolina has been ongoing but fluctuating from year to year since before 1940 (Anderson et al., 1978). In Georgia, sporadic clamming has been undertaken since 1980 (Table 1).

Sizeable hard clam populations occur in the northern St. Catherines Island area, especially Waldburg Island (Appendix, Figure A3). Furthermore, numerous small feeder creeks (which are too small to sample using a boat and appear to be ideal clam habitat) occur along the Waldburg Creek and North Newport River areas. This area is currently closed to shellfishing, but should be monitored more closely for water quality to determine if it can be opened to shellfishing, at least seasonally.

Use of escalator harvesters or power dredges in more northern traditional clamming areas has resulted in considerable controversy. Those who opposed their use are generally clam rakers and tongers. Each side claims that its method is more efficient and less damaging to the bottom and to clam populations. Although escalator harvesters and power dredges are not currently used in Georgia to

harvest clams, considerable interest has been exhibited in their use.

Previous studies on the efficiency of escalator harvesters show that these are now more efficient than hand-held implements in gathering oysters, Crassostrea virginica, and soft-shell clams, Mya arenaria. McPhail (1961) showed that escalator harvesters were unrivaled when compared to clam hacks, oyster drags, and oyster tongs, except for gathering market-size oysters and soft-shell clams. Dickie and McPhail (1957), Medcof (1961), and Manning (1960) show that escalator harvesters gather approximately 95% of the marketable soft-shell clams in their path.

Godcharles (1971) also observed that virtually everything in the escalator harvester's path was collected. Efficiency of escalator harvesters as compared to other harvesting methods for hard clams is less well known. Manning (1960) states that escalator harvesters gather hard clams 30 to 40 times faster than clam rakes and 80% to 90% faster than power dredges. Austin and Haven (1981) observed that escalator harvesters had a 7.5 times greater catch rate than patent tongs.

Breakage is also a consideration. The low breakage rate (2%) observed here with patent tongs was higher than most reported breakage rates of other methods. Austin and Haven (1981) observed that only one out of 2000 clams was damaged by the escalator harvester. Glude and Landers (1953) observed that bullraking broke about 0.1% of the clams harvested from bottoms as compared to 1.0% for power dredging; however, 21.1% breakage was observed when power dredging in rocky-shell. Dickie and McPhail (1957), Medcof (1961), and Manning (1960) reported 1% breakage of soft-shell clams by escalator harvesters.

Although the efficiency of escalator harvesters has been determined in more northern clamming grounds, it is uncertain if data from those areas are applicable to conditions in Georgia. For instance, most of these tests were performed on mud, sandy-mud, or seagrass bottoms where hard or soft-shell clams occur. In Georgia, hard clams generally occur in shell bottoms which are associated with oyster beds (Walker et al., 1980; Walker and Tenore, 1984). No seagrasses such as Thalassia or Zostera occur in Georgia; however, clams do occasionally occur within the root mats of Spartina. The efficiency of escalator harvesting of clams on shell bottoms or in Spartina is unknown.

Most clam beds located in intertidal areas in Georgia (Walker

et al., 1980), though sometimes dense (up to 101 per square meter), were relatively small in area and could easily be overfished with an escalator harvester. For instance, in 1982, a clam bed approximately 90 square meters at Wassaw Island had an average clam density of 49 per square meter (Walker, 1984). In winter 1981-1982, illegal hand harvesting of clams at this site reduced the average clam density from 49 to 21 per square meter, annual production from 18.5 to 6.5 g ash-free dry weight (AFDW) per square meter per year, and standing stock from 110.4 to 30.0 g AFDW per square meter. Population turnover ratio ($P/\bar{B}$) increased from 0.17 to 0.22. Reduction in these variables is a result of hand harvesting of clams in approximately one week. Escalator harvesters work over the bottom at 10 to 60 times the rate of a man with conventional hand implements (McPhail, 1961) and are up to 40 times more efficient in terms of catch (Manning, 1960).

Effects of escalator harvesters on soft-shell clams, seagrasses, benthos, and the bottom is confusing and somewhat contradictory. Escalator dredges are more efficient at gathering clams and have less breakage, and of those clams returned to the bottom by the escalator harvester, 90% survived (Medcof, 1961). For hand diggers, mortalities of 45% to 71% were observed for those clams buried by hand digging (Glude, 1954). No difference in clam setting rates occurred between areas worked and those not worked by escalator harvesters (Pfilzenmeyer, 1972, according to Kyte and Chew, 1975). Although McPhail (1961) observed no damage to the bottom or plant life, Manning (1960) and Godcharles (1971) observed almost complete destruction of seagrasses in the path of the escalator harvester. Tracks left by the escalator harvester in the bottom were noticeable (Godcharles, 1971) for from several days up to one and a half years after harvesting. While working on a sandy-grass flat in Florida, he observed that plant and benthic life in adjacent areas to harvester tracks were unaffected. Kyte et al. (1975), during studies on mud flats in Maine, showed no long-lasting effects on the bottom due to these harvesters. Austin and Haven (1981) observed that craters left by patent tonging were slightly deeper than the tracks left by escalator harvesters in experimental plots. Benthic samples and visual observations were taken from plots before sampling and at various intervals after sampling; however, effects of the harvester upon benthos were not reported (Austin and Haven, 1981).

The escalator harvester was developed to harvest clams from areas where clam densities are low (Manning, 1960). Escalator harvesters are seven times more effective at gathering clams than patent tongs or hand raking (Austin and Haven, 1981). Since clams do occur subtidally, but in low numbers, escalator harvesters may have a future in Georgia.

Since most subtidal clams in Georgia occur in shallow areas within small creeks where large 30 ft to 60 ft escalator harvesters are unable to maneuver, current harvesters are impractical in Georgia. An investigation into the development of a smaller version of the escalator harvester may be appropriate.

Although preliminary shelf-life trials on Georgia clams indicate that they may survive better in the summer than their Florida counterparts, Georgia clams did not survive well at the common refrigeration temperature of 40°F. Survival was good at 50°F and 60°F, but the latter may be ruled illegal due to adverse microbial problems and odors resulting from fluids and early deaths. Storage at 40°F and 50°F seems more probable for summer harvest. Further test results from various storage situations will be reported by Dr. Steven Otwell of the University of Florida in another publication.

CONCLUSION

The results of this study show that hard clams occur primarily intertidally in the coastal waters of Georgia. Since large subtidal populations of clams do not occur in Georgia, subtidal clam harvesters do not seem feasible.

REFERENCES

Anderson, W.D.,W.J. Keith, F.H. Mills, M.E. Bailey, and J.L. Steinmeyer. 1978. A survey of South Carolina hard clam resources. South Carolina Wildlife and Marine Resources Department, Marine Resources Center, Technical Report 32, vi + 17p + 15p. Appendix III.

Austin, H.M. and D.S. Haven. 1981. A report on the operation of a hydraulic escalator dredge on private ground on Hampton Flats, James River, during October 1980. Virginia Institute of Marine Sciences and The College of William and Mary, Marine Resources Report No. 81-3, 41 pp.

Bureau of Commercial Fisheries. 1960. Savannah River to Cape Hatteras offshore areas surveyed for fish and shellfish resources. Comm. Fish. Rev. 22 : 42-43.

Bureau of Commercial Fisheries. 1961a. Fish and shellfish resources off coasts of North and South Carolina and Georgia surveyed. Comm. Fish. Rev. 23 : 26.

Bureau of Commercial Fisheries. 1961b. Survey of fish and shellfish resources off Georgia and Florida (M/V Silver Bay Cruise 28). Comm. Fish. Rev. 23 : 31-33.

Department of Natural Resources. 1976-1984. Georgia Landings Annual Summary. Coastal Resources Division, Data Management Section, Brunswick, Georgia.

Dickie, L.M. and J.S. McPhail. 1957. An experimental mechanical shelldigger. Fisheries Research Board of Canada, Atlantic Progress Report, No. 66 : 3-9.

Eldridge, P.J., W. Waltz, R.C. Gracy, and H.H. Hunt. 1976. Growth and mortality rates of hatchery seed clams, Mercenaria mercenaria, in protected trays in waters of South Carolina. Proceed. Natl. Shellfish. Assoc. 66 : 13-20.

Glude, J.B. and W.S. Landers. 1953. Biological effects on hard clams of hand raking and power dredging. U.S. Department of the Interior, Fish and Wildlife Service, Special Scientific Report, Fisheries 110, 43 pp.

Glude, J.B., 1954. Survival of soft-shell clams, Mya arenaria, buried at various depths. Maine Department of Sea and Shore, Fish. Res. Bull. 22: 1-26.

Godcharles, M.F. 1971. A study of the effects of a commercial hydraulic clam dredge on benthic communities in estuarine areas. Florida Department Natural Resources, Marine Research Laboratory, St. Petersburg, Technical Report Series No. 64, 51 pp.

Godcharles, M.F. and W.C. Jaap. 1973. Exploratory clam survey of Florida nearshore and estuarine waters with commercial hydraulic dredging gear. Florida Department of Natural Resources Laboratory, Professional Papers Series No. 21, 77 pp.

Godwin, W.F. 1967. A preliminary survey of a potential hard clam fishery. Georgia Department of Natural Resources, Georgia Game and Fish Commission, Contribution Series No. 1, 23 pp.

Godwin, W.F. 1968. The distribution and density of the hard clam, Mercenaria mercenaria, on the Georgia coast. Georgia Department of Natural Resources, Georgia Game and Fish Commission, Contribution Series No. 10, 30 pp.

Kyte, M.A. and K.K. Chew. 1975. A review of the hydraulic escalator shellfish harvester and its known effects in relation to the soft-shell clam, Mya arenaria. Division of Marine Resources, University of Washington, Technical Report, WSG 75-2, 32 pp.

Kyte, M., P. Averill and T. Hendershot. 1975. The impact of the hydraulic shellfish escalator harvester on an intertidal soft-shell clam flat in the Harrasseeket River, Maine. Maine Department of Marine Resources, Augusta, Project Completion Report.

Lyles, C.H. 1966. Statistical Digest #60. Fishery statistics of the United States. Fish and Wildlife Service, Bureau of Commercial Fisheries. Washington, D.C., p. 542.

Lyles, C.H. 1969. Statistical Digest #63. Fishery statistics of the United States. Fish and Wildlife Service, Bureau of Commercial Fisheries. Washington, D.C., p. 409.

Lyles, C.H. 1976. Statistical Digest #70. Fishery statistics of the United States. Fish and Wildlife Service, Bureau of Commercial Fisheries. Washington, D.C., p. 423.

MacPhail, J.S. 1961. A hydraulic escalator shellfish harvester. Fisheries Research Board of Canada, Bulletin Number 128, 24 pp.

Manning, J.H. 1957. The Maryland soft-shell clam industry and its effects on tidewater resources. Maryland Department of Research

and Education. Study Report No. 12, 6 pp.

Manning, J.H. 1960. Commercial and biological uses of the Maryland soft-shell clam dredge. Proc. Gulf and Carrib. Fisheries Institute, Twelfth Annual Session, November, 1959: 61-67.

Medcof, J.C. 1961. Effects of hydraulic escalator harvesters on undersized soft-shell clams. Proceed. Natl. Shellfish Assoc. 50 151-161

National Marine Fisheries Service. 1977. The molluscan shellfish industries and water quality: Problems and opportunities. U.S. Department of Commerce, NOAA, National Marine Fisheries Service, Office of Fisheries Development, Superintendent of Documents, Washington, D.C., v + 46 pp.

Pratt, D.M. 1953. Abundance and growth of Venus mercenaria and Callocardia morrhuana in relation to the character of bottom sediments. Jour. Mar. Res. 12 :60-74.

Walker, R.L. 1984. Effects of density and sampling time on the growth of hard clams, Mercenaria mercenaria, planted in predator-free cages in coastal Georgia. The Nautilus 98 :114-119.

Walker, R.L. 1984. Population dynamics of the hard clam, Mercenaria mercenaria (Linne), and its relation to the Georgia hard clam fishery. Masters Thesis, School of Applied Biology, Georgia Institute of Technology, Atlanta, Georgia. 121 pp.

Walker, R.L. and K.R. Tenore. 1984. The distribution and production of the hard clam, Mercenaria mercenaria (Linne), in Wassaw Sound, Georgia. Estuaries 7 (1): 19-27.

Walker, R.L., M.A. Fleetwood and K.R. Tenore. 1980. The distribution of the hard clam, Mercenaria mercenaria (Linne), and clam predators in Wassaw Sound, Georgia. Georgia Marine Science Center, Technical Report No. 80-8, 59 pp.

Wells, H.W. 1957. Abundance of the hard clam, Mercenaria mercenaria, in relation to the environmental factors. Ecology 38: 123-128.

APPENDIX A

MAPS OF COASTAL GEORGIA SHOWING HARD CLAM SURVEY STATIONS AND RELATIVE HARD CLAM ABUNDANCE

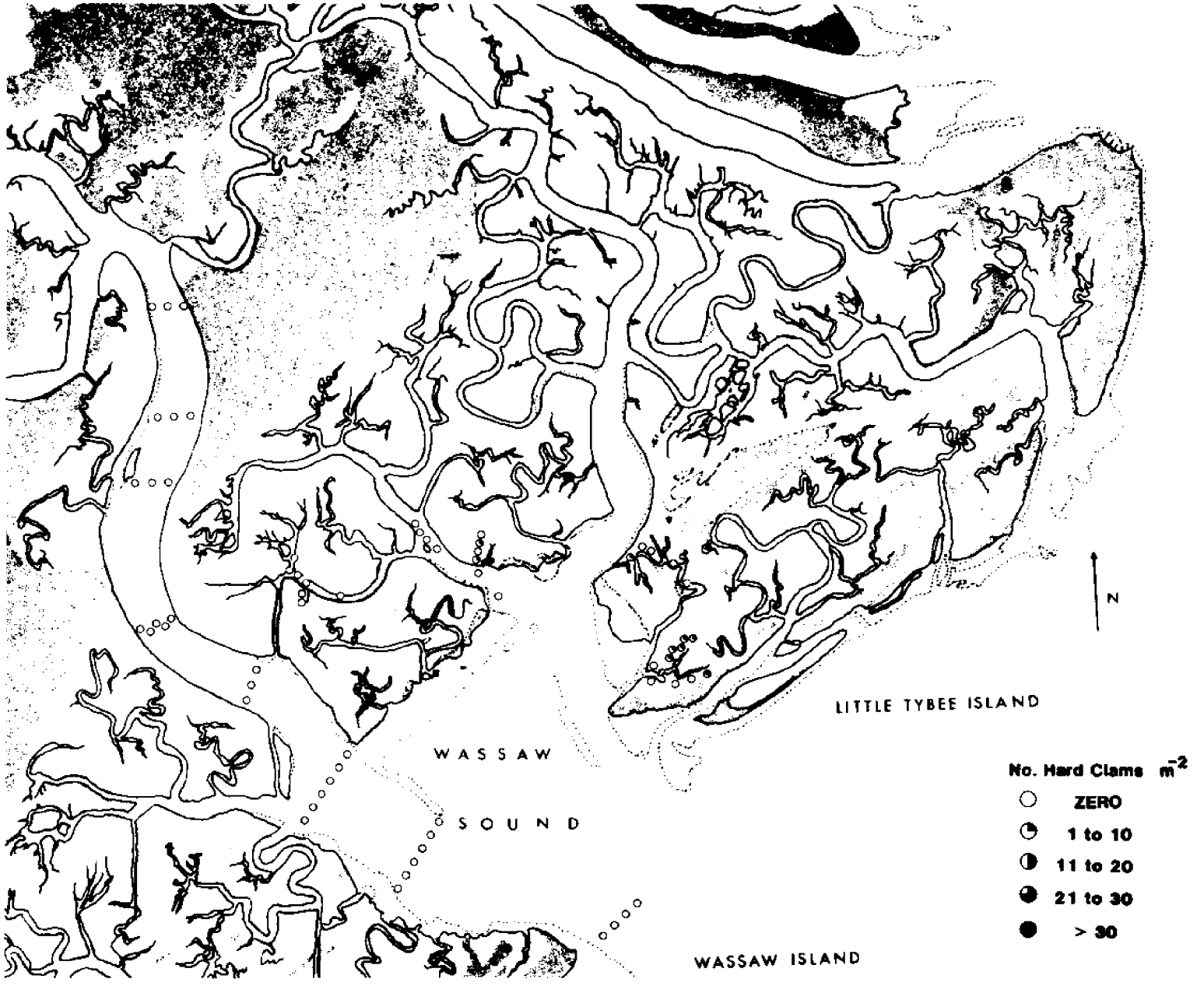

Figure A1. Hard clam distribution for Tybee and Little Tybee Islands and Wassaw Sound areas

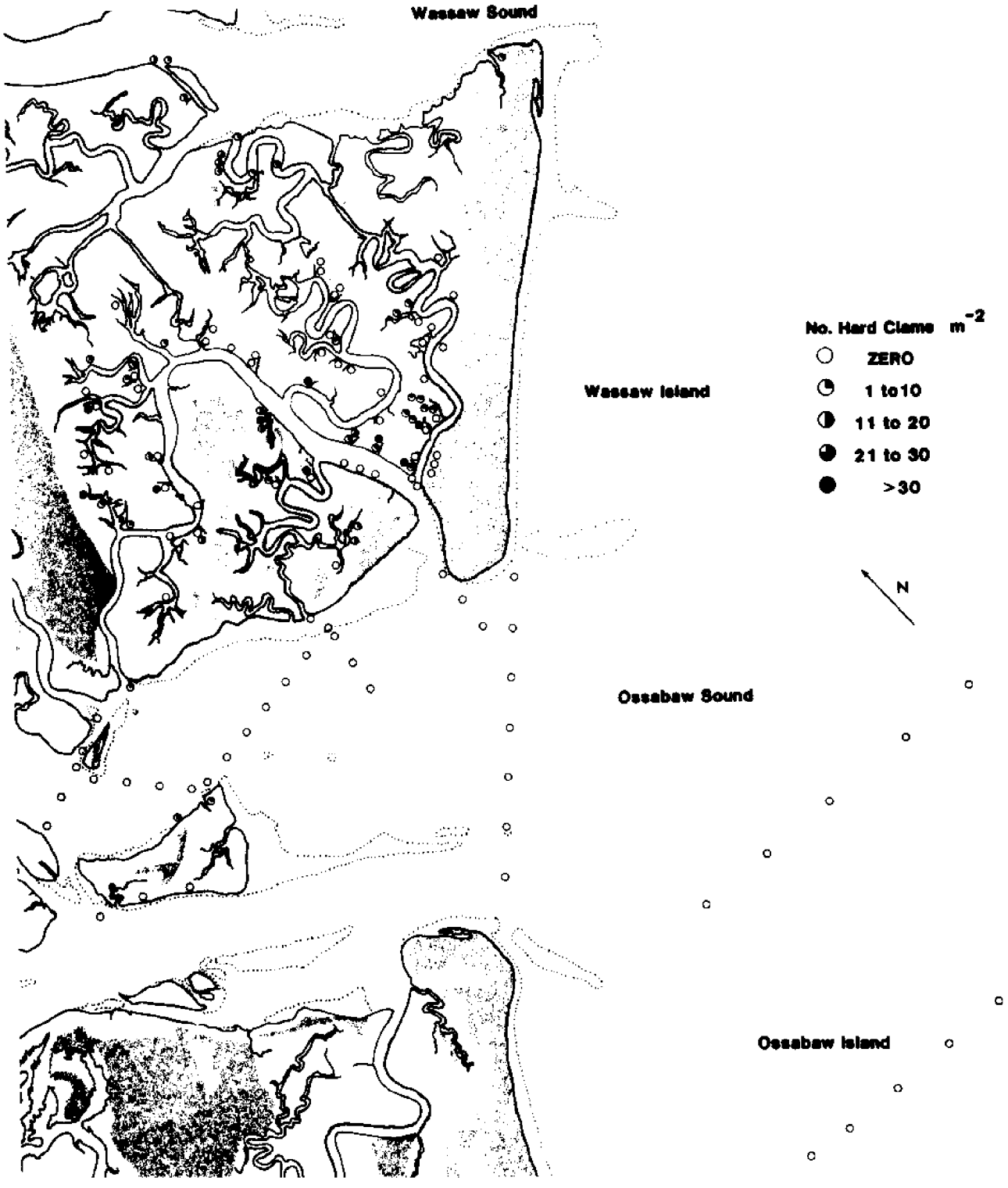

Figure A2. Hard clam distribution for Wassaw, Little Wassaw Island, and Ossabaw Sound areas

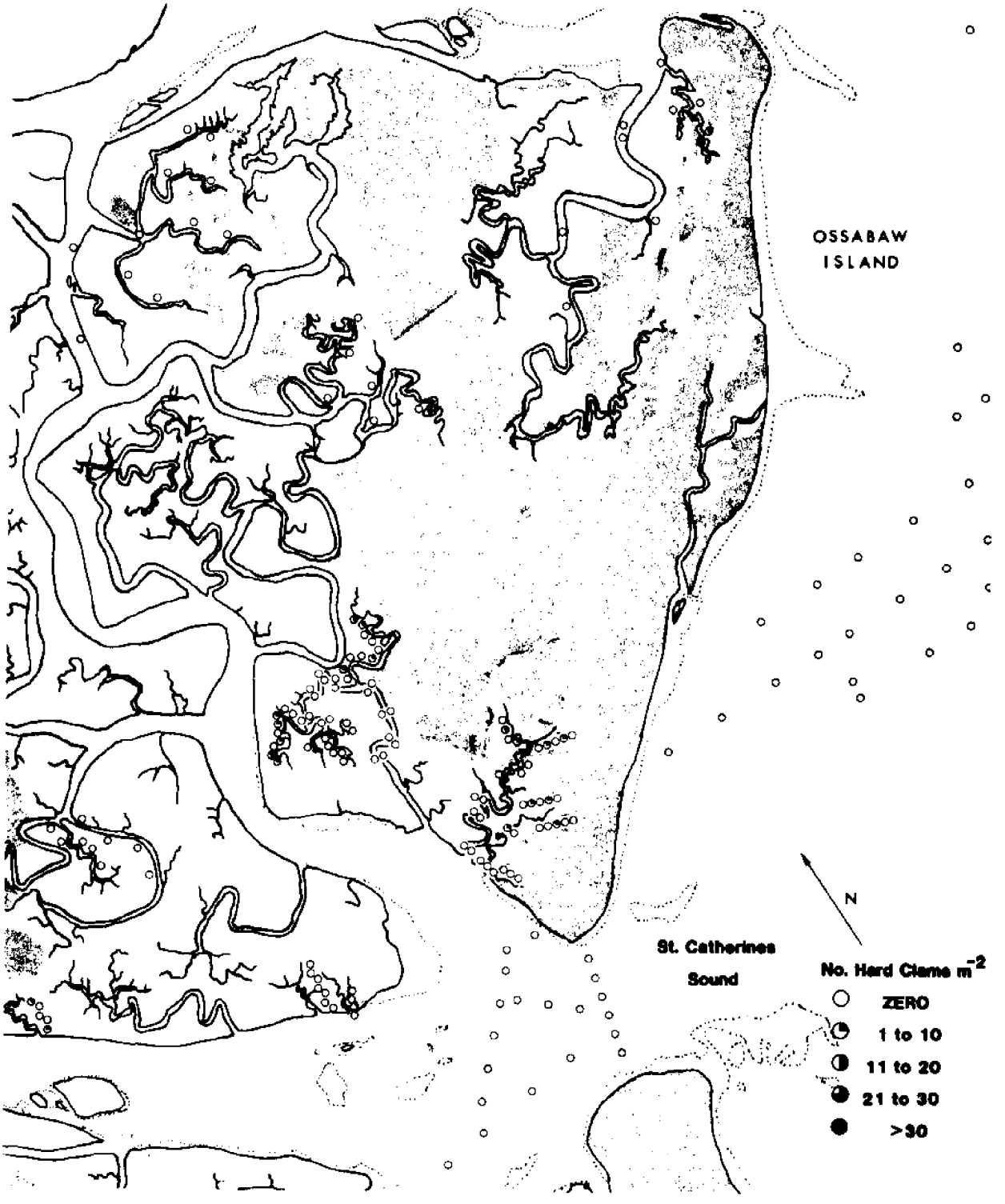

Figure A3. Hard clam distribution for Ossabaw Island and St. Catherines Sound areas

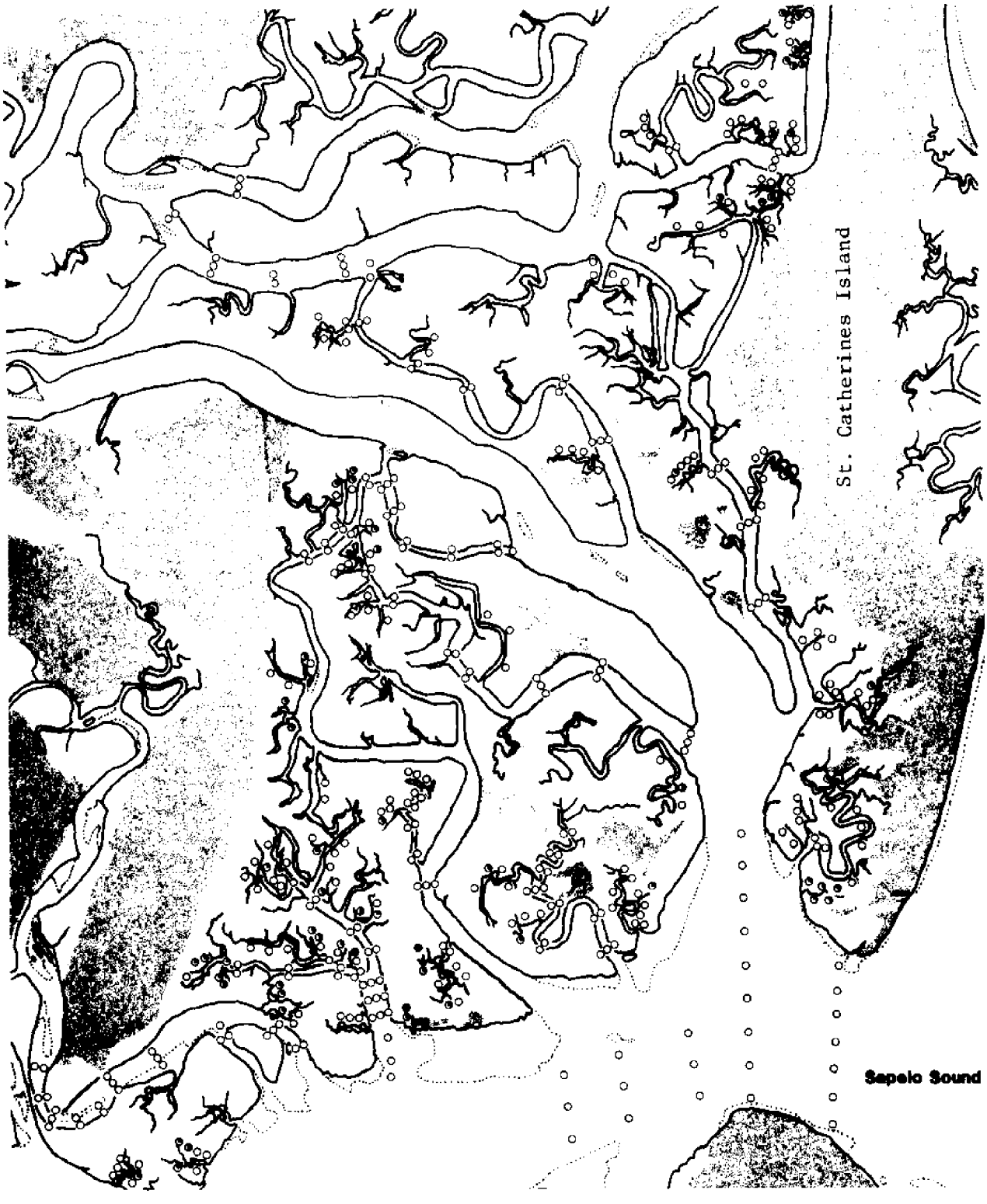

Figure A4. Hard clam distribution for St. Catherines Island and Sapelo Sound areas

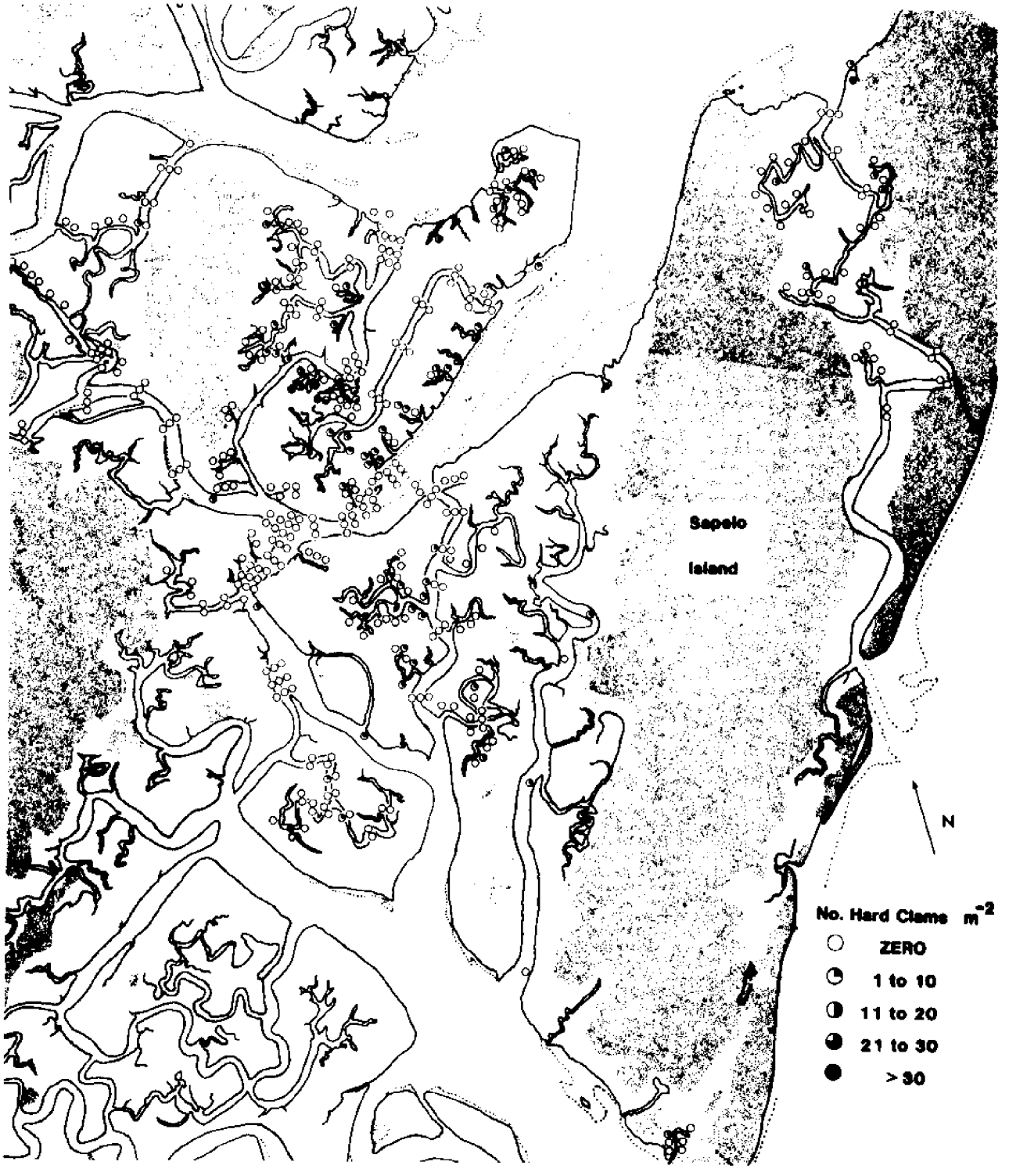

Figure A5. Hard clam distribution for Blackbeard and Sapelo Island areas

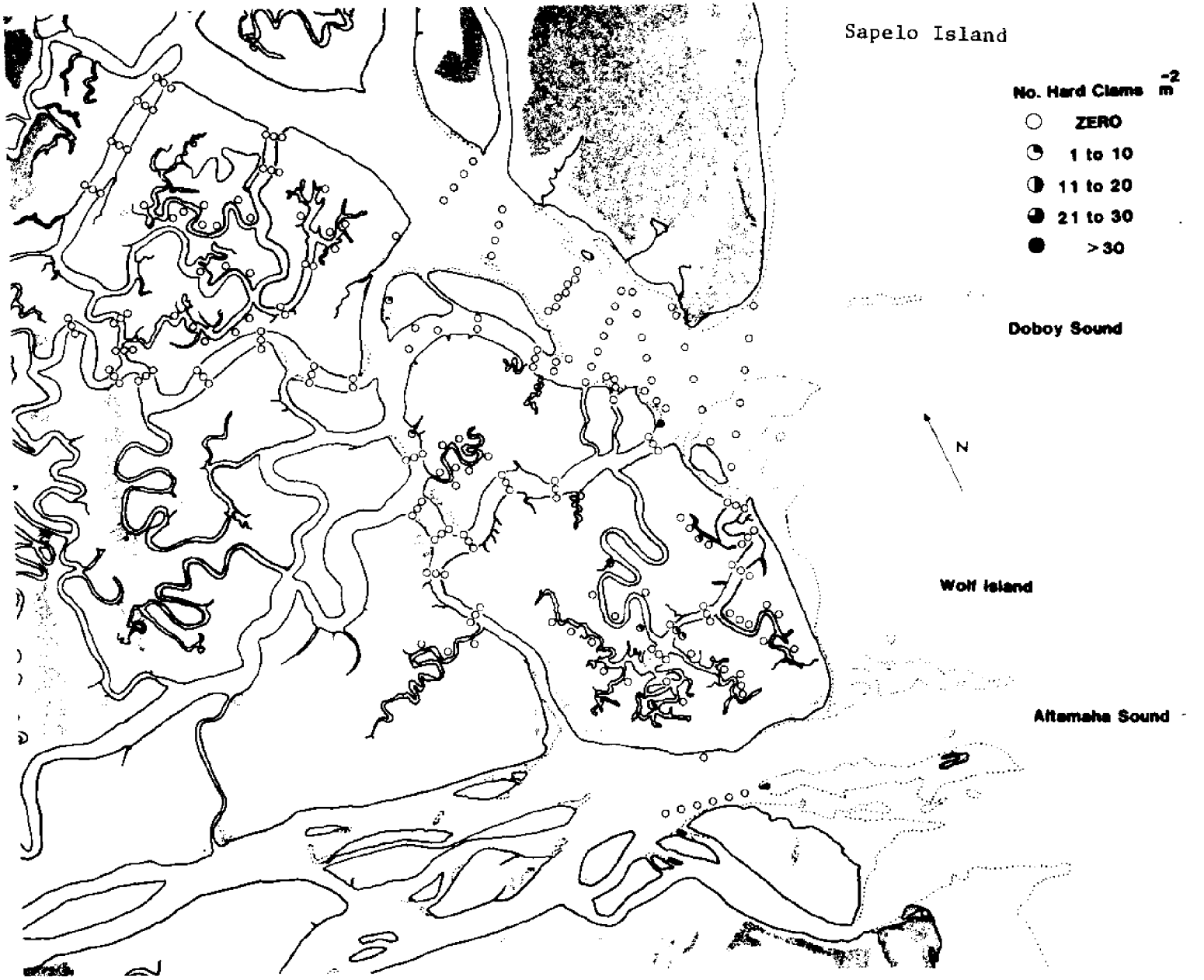

Figure A6. Hard clam distribution for Doboy Sound, Wolf Island, and Altamaha Sound areas

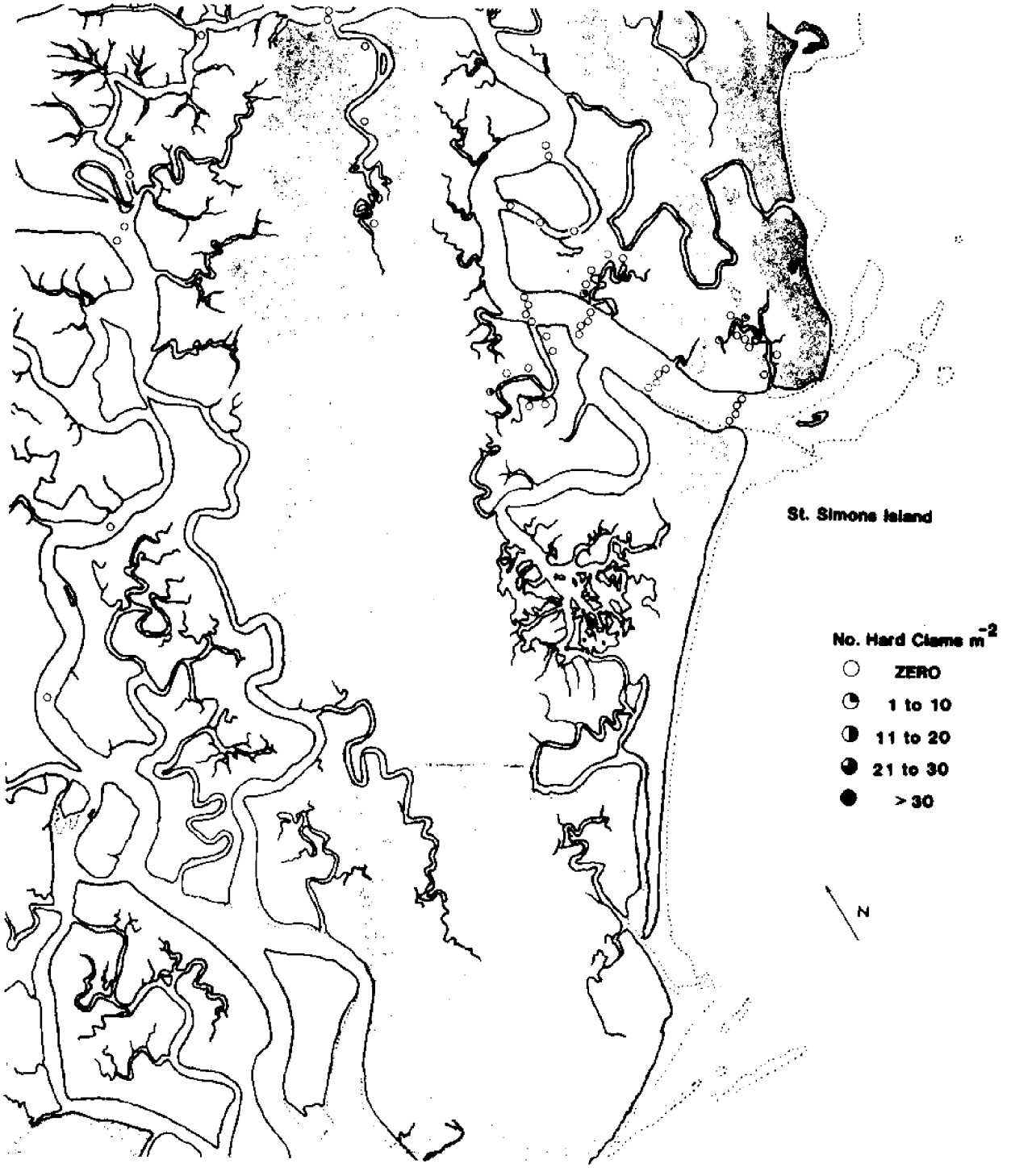

Figure A7. Hard clam distribution for Little St. Simons and St. Simons Island areas

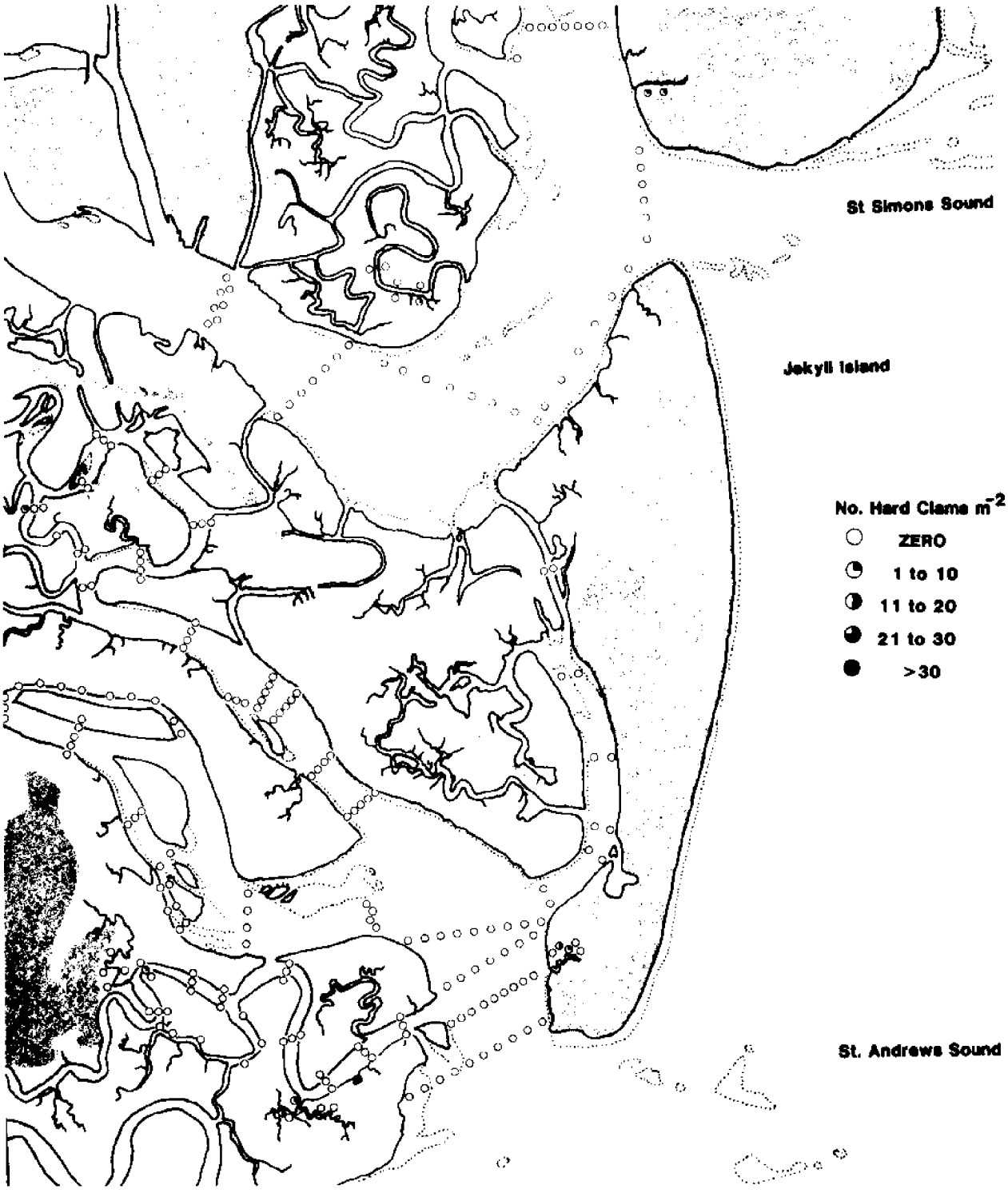

Figure A8. Hard clam distribution for St. Simons Sound, Jekyll Island, and Jekyll Sound areas

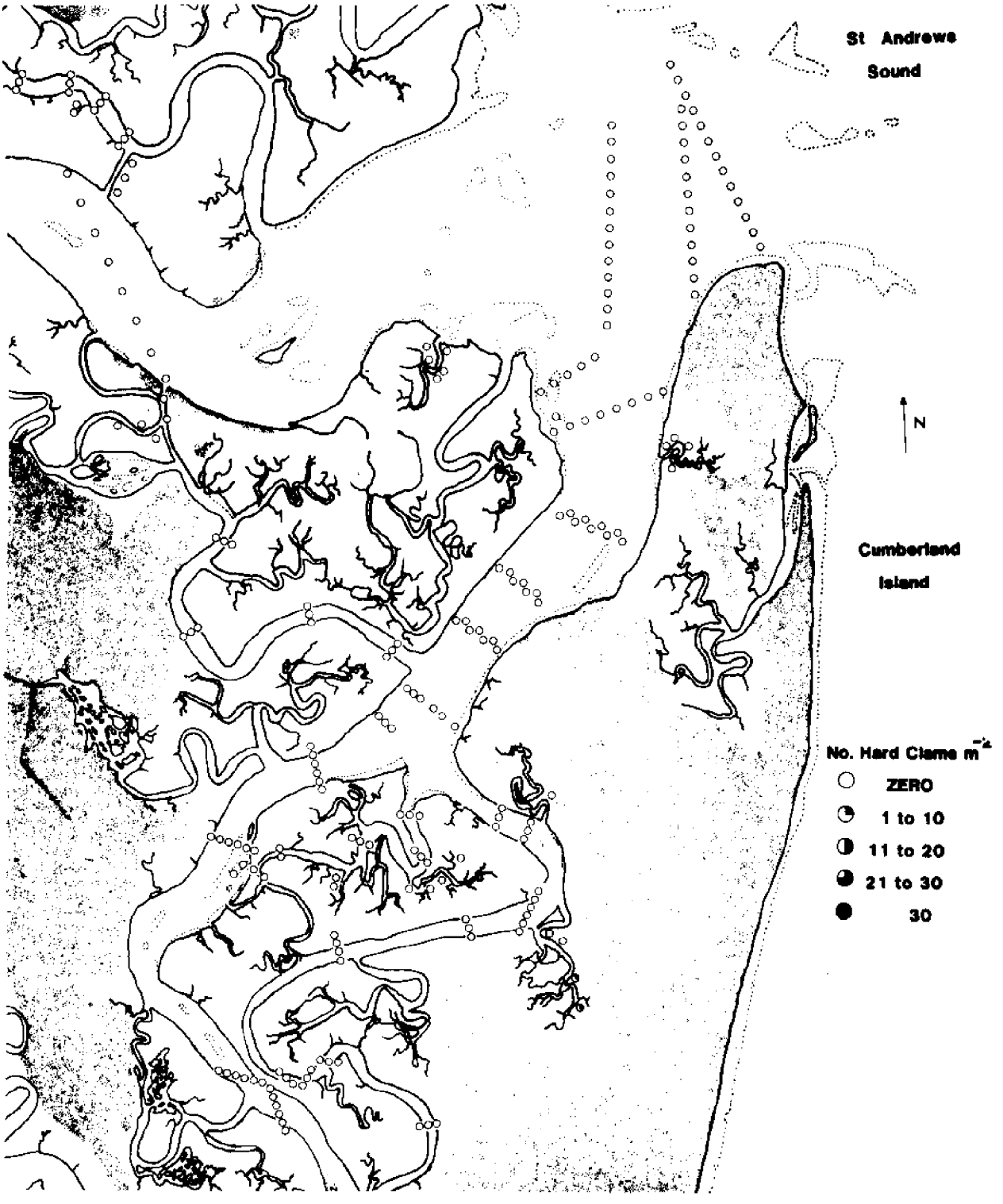

Figure A9. Hard clam distribution for St. Andrews Sound and northern Cumberland Island areas

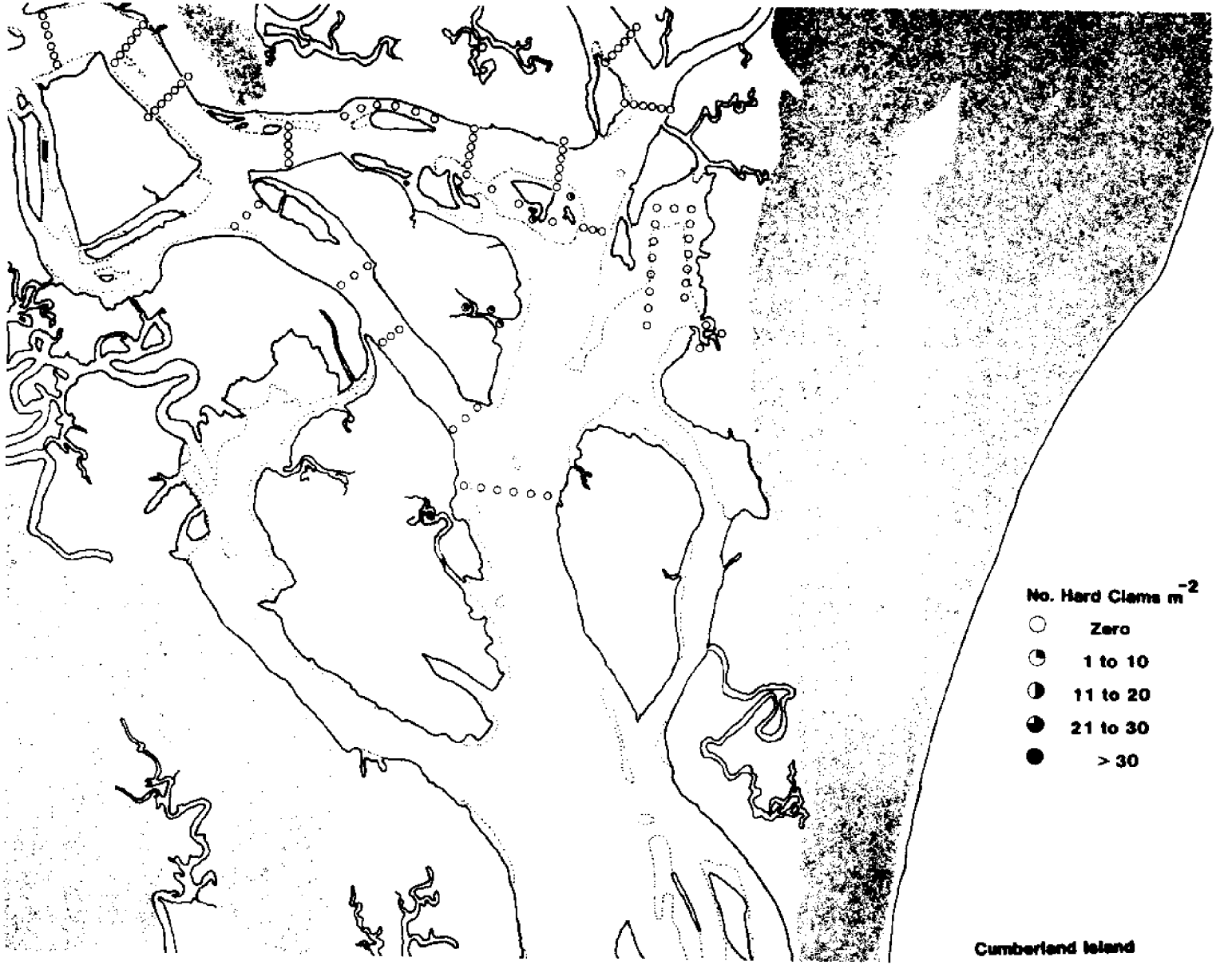

Figure A10. Hard clam distribution for central Cumberland Island area

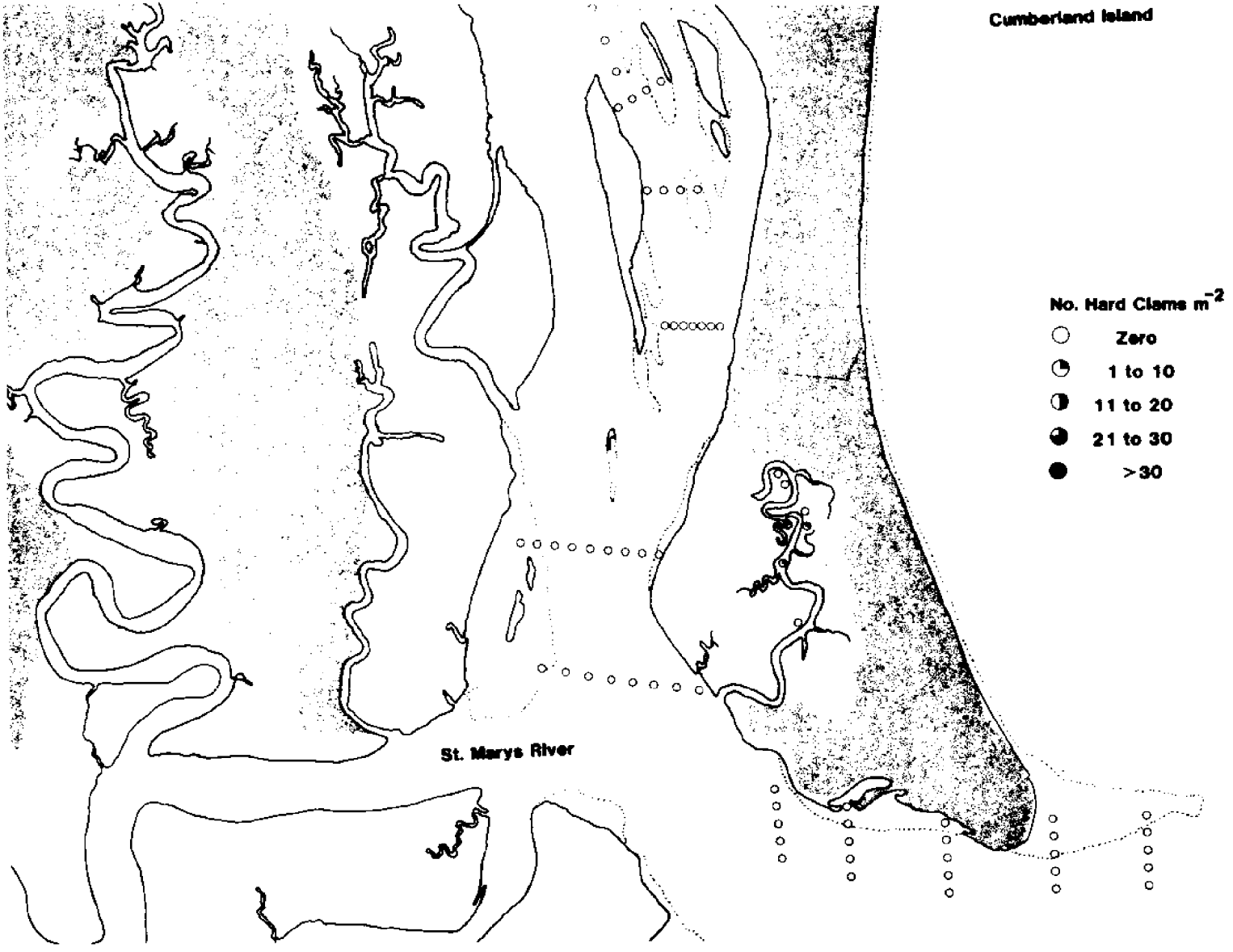

Figure All. Hard clam distribution for southern Cumberland Island and St. Marys River areas

APPENDIX B

TABLES GIVING HYDROLOGICAL DATA AND CLAM ABUNDANCE PER STATION PER SURVEY AREA

Table B1 a. Hydrographic data of Tybee and Little Tybee Island areas. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, and sh = shell. Int = intertidal and ND = not determined.

Station	/ Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	House Creek	0.6	m/sh	24	13
2	"	0.9	m/sh	24	13
3	"	1.5	m/sh	24	13
4	"	2.1	m/sh	24	13
5	"	1.5	m/sh	24	13
6	"	0.9	m	24	13
7	"	0.6	m/sh	24	13
8	"	1.2	m	24	13
9	"	1.2	m/sh	24	13
10	"	int	m	24	13
11	"	0.9	m	24	13
12	"	1.2	m	24	13
13	"	1.2	m	24	13
14	"	1.8	m	24	13
15	"	1.5	m/sh	24	13
16	"	int	m/sh	ND	ND
17	Unnamed creek	int	m	ND	ND
18	Bull River	int	sh	ND	ND
19	"	int	sh	ND	ND
20	"	int	sh/s	ND	ND
21	"	int	sh	ND	ND

Table B1 a. Continued

22	Bull River	int	sh	ND	ND
23	Tybee Cut	0.6	s/m	28	28
24	"	1.5	m	28	28
25	"	1.5	m/sh	28	28
26	"	1.8	m	28	28
27	"	1.8	m	28	28
28	Mud Island	int	s/m	28	28
29	"	int	s/m	28	28
30	"	int	s/m	28	28
31	Half Moon River	7.9	m	28	28
32	"	7.3	m	28	28
33	"	9.1	m	28	28
34	Unnamed creek	0.6	m/sh	28	28
35	"	0.9	m/sh	28	28
36	"	0.9	m/sh	28	28
37	"	int	m/sh	28	28
38	"	0.6	m	28	28
39	"	int	m	28	28

Table B1 b. Hard clam distribution data of Tybee and Little Tybee Island areas. Location, total number of clams collected, average number of clams collected per square meter, average shell length of clams collected and range of shell lengths collected per station.

Station	/ Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1	House Creek	0	0	0	0
2	"	0	0	0	0
3	"	10	10.0 ± 8.0	7.4 ± 1.5	4.1 to 9.3
4	"	7	7.0 ± 6.0	7.6 ± 2.9	3.1 to 10.5
5	"	5	5.0 ± 5.0	7.9 ± 1.2	6.2 to 9.3
6	"	1	1.7 ± 2.9	8.3	8.3
7	"	5	8.3 ± 5.8	8.3 ± 1.3	6.3 to 9.8
8	"	0	0	0	0
9	"	0	0	0	0
10	"	1	1.7 ± 5.8	7.6	7.6
11	"	0	0	0	0
12	"	0	0	0	0
13	"	0	0	0	0
14	"	0	0	0	0
15	"	1	1.7 ± 2.9	8.2	8.2
16	"	39	20.0 ± 5.0	8.5 ± 1.1	6.9 to 10.4
17	Unnamed creek	37	5.0 ± 6.9	9.9 ± 1.1	7.5 to 11.8
18	Bull River	0	0	0	0
19	"	0	0	0	0
20	"	0	0	0	0

Table B1 b. Continued

21	Bull River	0	0	0	0
22		0	0	0	0
23	Tybee Cut	0	0	0	0
24		0	0	0	0
25		0	0	0	0
26		0	0	0	0
27		0	0	0	0
28	Mud Island	0	0	0	0
29		0	0	0	0
30		0	0	0	0
31	Half Moon River	0	0	0	0
32		0	0	0	0
33		0	0	0	0
34	Unnamed tributary	2	3.3 ± 2.9	8.3 ± 0.5	8.0 to 8.7
35		0	0	0	0
36		6	2.0 ± 3.5	7.5 ± 0.8	6.2 to 8.3
37		0	0	0	0
38		0	0	0	0
39		0	0	0	0

Table B2 a. Hydrographic data of Wassaw Sound area. Location, estimated depth at mean low water, substrate type, salinity in ppt, water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Wilmington River	1.2	m	25	28
2	"	8.1	s/m	25	28
3	"	14.7	s	25	28
4	"	7.2	s/sh	25	28
5	"	6.6	s/m	25	28
6	"	3.3	m	25	28
7	"	3.6	m	25	28
8	"	4.5	m	25	28
9	"	4.5	m/s	25	28
10	"	4.5	s/m/sh	25	28
11	"	7.8	s/sh	25	28
12	"	7.5	s/sh	25	28
13	"	7.5	s	25	28
14	"	2.4	m	25	28
15	"	6.0	m	25	28
16	"	6.3	m	25	28
17	"	8.1	s/sh	25	28
18	Wassaw Sound	11.4	s/sh	28	28
19	"	10.5	m	28	28
20	"	5.4	m	28	28

Table B2 a. Continued

21	Wassaw Sound	3.3	s	28	28
22	"	2.4	s	28	28
23	"	3.0	s	28	28
24	"	3.8	m	28	28
25	"	5.7	m	28	28
26	"	7.2	m	28	28
27	"	5.1	s/m	28	28
28	"	1.2	s	28	28
29	"	0.6	s	28	28
30	"	1.2	s	28	28
31	"	6.3	s	28	28
32	"	6.6	s	28	28
33	"	6.0	s	28	28

Table B2 b. Hard clam distribution of Wassaw Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Wilmington River through 17	0	0	0	0
18 Wassaw Sound through 33	0	0	0	0

Table B3 a. Hydrographic data of Wassaw and Little Wassaw Island areas. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. ND = not determined and int = intertidal.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Steamboat Cut	int	sh	ND	ND
2	"	int	sh/m	ND	ND
3	"	int	sh/m	ND	ND
4	Odingsell River	int	sh/s	ND	ND
5	"	int	sh	ND	ND
6	"	int	sh/m	ND	ND
7	"	int	sh/m	ND	ND
8	"	int	sh/m	ND	ND
9	"	int	sh/m	ND	ND
10	"	int	sh/m	ND	ND
11	Curtis Creek	int	sh/m	ND	ND
12	"	int	sh/m	ND	ND
13	"	int	sh/m	ND	ND
14	"	0.9	sh	ND	ND
15	"	1.2	m	ND	ND
16	"	0.9	m	ND	ND
17	"	int	sh	ND	ND
18	"	0.9	sh/m	ND	ND
19	"	0.9	m	ND	ND
20	"	int	s	ND	ND

Table B3 a. Continued

21	Adams Creek	int	sh/m	ND	ND
22	"	int	sh/m	ND	ND
23	"	int	sh/m	ND	ND
24	"	int	sh/m	ND	ND
25	"	int	sh/m	ND	ND
26	"	0.6	sh/m	ND	ND
27	"	1.5	sh/m	ND	ND
28	"	1.2	m	ND	ND
29	"	int	sh	ND	ND
30	Old Romerly Marsh Channel	int	sh/m	ND	ND
31	"	int	m	ND	ND
32	"	int	m	ND	ND
33	Joe's Cut	int	sh/m	ND	ND
34	Old Romerly Marsh Channel	int	m	ND	ND
35	Pine Island	int	m	ND	ND
36	"	int	m	ND	ND
37	"	int	m	ND	ND
38	Odingsell River	1.8	m/sh	ND	ND
39	"	0.6	sh/m	ND	ND
40	"	1.8	s/sh/m	ND	ND
41	"	1.8	m	ND	ND
42	"	int	sh	ND	ND
43	"	0.6	s	ND	ND
44	"	1.5	s	ND	ND
45	"	1.8	s	ND	ND
46	Wassaw Creek	int	m/sh	ND	ND
47	"	int	m	ND	ND
48	"	int	sh	ND	ND

Table B3 a. Continued

49	Wassaw Creek	int	sh	ND	ND
50	"	int	m/sh	ND	ND
51	"	int	sh/m	ND	ND
52	"	int	m/sh	ND	ND
53	"	0.3	m/s	ND	ND
54	"	0.6	m	ND	ND
55	"	int	m	ND	ND
56	"	int	m/sh	ND	ND
57	"	int	sh/m	ND	ND
58	"	int	m	ND	ND
59	"	int	m/sh	ND	ND
60	Wassaw Creek	int	sh/m	ND	ND
61	"	int	sh	ND	ND
62	"	int	m	ND	ND
63	"	int	m	ND	ND
64	"	int	sh/m	ND	ND
65	"	int	sh/m	ND	ND
66	"	int	sh	ND	ND
67	"	int	sh/m	ND	ND
68	"	int	sh/m	ND	ND
69	"	0.6	sh	ND	ND
70	"	int	s	ND	ND
71	"	int	sh/m	ND	ND
72	Rhodes Creek	0.3	m	ND	ND
73	"	int	sh/m	ND	ND
74	"	int	sh/m	ND	ND
75	"	int	m	ND	ND
76	"	int	m	ND	ND
77	"	int	m	ND	ND
78	"	int	m	ND	ND

Table B3 a. Continued

79	Rhodes Creek	int	m	ND	ND
80	"	int	m	ND	ND
81	"	int	s/sh	ND	ND
82	"	int	sh	ND	ND
83	"	int	sh/m	ND	ND
84	"	int	m	ND	ND
85	Odingsell River	1.2	m	ND	ND
86	"	int	sh/m	ND	ND
87	"	int	m/sh	ND	ND
88	"	0.9	sh/m	ND	ND
89	"	int	sh/m	ND	ND
90	"	int	m	ND	ND
91	"	0.6	m	ND	ND
92	"	int	m	ND	ND
93	"	int	sh/m	ND	ND
94	"	int	sh/m	ND	ND
95	"	int	sh/m	ND	ND
96	Odingsell River	int	sh/m	ND	ND
97	"	int	sh/m	ND	ND
98	"	int	sh/m	ND	ND
99	"	int	m	ND	ND

Table B3 b. Hard clam distribution of Wassaw and Little Wassaw Island areas. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected and range of clam shell length collected per station.

Station / Location		Total No.	Average No. Per Square Meter ± S.D	Average Shell Length ± S.D.	Range in cm
1	Steamboat Cut	0	0	0	0
2	"	0	0	0	0
3	"	1	0.7 ± 1.0	8.9	8.9
4	Odingsell River	0	0	0	0
5	"	0	0	0	0
6	"	10	10.0 ± 4.0	7.8 ± 1.7	3.1 to 9.0
7	"	13	26.0 ± 19.8	7.4 ± 1.1	4.9 to 8.4
8	"	4	8.0 ± 0.0	7.0 ± 2.8	3.1 to 9.4
9	"	10	20.0 ± 5.65	8.2 ± 1.3	6.3 to 9.9
10	"	0	0	0	0
11	Curtis Creek	10	40.0 ± 0.0	6.7 ± 1.7	3.7 to 8.4
12	"	0	0	0	0
13	"	2	8.0 ± 0.0	8.6 ± 0.2	8.5 to 8.8
14	"	0	0	0	0
15	"	0	0	0	0
16	"	0	0	0	0
17	"	5	20	7.9 ± 1.3	6.5 to 9.4
18	"	4	5	7.1 ± 0.2	6.8 to 7.4
19	"	0	0	0	0
20	"	0	0	0	0

Table B3 b. Continued

21	Adams Creek, Little Wassaw	5	5.4 ± 1.5	8.2 ± 0.7	7.2 to 9.0
22	"	2	2	7.1 ± 0.4	6.8 to 7.4
23	"	1	1.0 ± 1.3	6.4	6.4
24	"	0	0	0	0
25	Adams Creek, Little Wassaw	0	0	0	0
26	"	3	12	7.5 ± 0.8	6.6 to 8.1
27	"	0	0	0	0
28	"	0	0	0	0
29	"	3	12	8.7 ± 1.0	7.8 to 9.8
30	Old Romerly Marsh Channel	37	18 ± 9	7.6 ± 0.9	3.1 to 9.0
31	Wassaw Island	16	3	8.0 ± 1.6	3.1 to 10.3
32	Wassaw Island	17	0.42	7.4 ± 1.2	3.9 to 8.8
33	Joe's Cut	47	15.3 ± 0.58	8.2 ± 0.8	5.9 to 10.6
34	Old Romerly Marsh Channel	45	18	6.7 ± 1.2	5.4 to 8.9
35	Pine Island	0	0	0	0
36	"	0	0	0	0
37	"	0	0	0	0
38	Odingsell River	0	0	0	0
39	"	41	44.3 ± 10.8	8.4 ± 1.1	4.4 to 9.9
40	"	0	0	0	0
41	"	0	0	0	0
42	"	0	0	0	0
43	Odingsell River	13	14.0 ± 7.6	9.2 ± 0.8	6.7 to 9.9
44	"	19	20.5 ± 1.5	8.3 ± 1.6	3.1 to 9.9
45	"	14	15.1 ± 6.1	7.7 ± 1.8	3.1 to 9.6
46	Wassaw Creek	0	0	0	0
47	"	0	0	0	0
48	"	4	3.0 ± 0.7	8.1 ± 0.5	7.3 to 8.5
49	"	25	27.0 ± 4.6	7.2 ± 1.4	4.0 to 9.2
50	"	0	0	0	0

Table B3 b. Continued

51	Wassaw Creek		0	0	0	0
52		"	0	0	0	0
53		"	84	91 ± 96	7.7 ± 1.2	3.8 to 10.0
54		"	5	5.0 ± 4.6	8.3 ± 0.6	7.7 to 9.2
55		"	2	2.0 ± 0.0	8.2 ± 0.4	7.9 to 8.5
56		"	7	8.0 ± 8.0	7.3 ± 1.6	4.2 to 9.1
57		"	3	3.0 ± 1.5	6.4 ± 1.8	4.5 to 8.0
58		"	3	3.0 ± 1.5	7.9 ± 0.2	7.7 to 8.1
59		"	0	0	0	0
60	Wassaw Creek		15	16.0 ± 4.6	7.1 ± 0.9	5.1 to 8.1
61		"	0	0	0	0
62		"	0	0	0	0
63		"	0	0	0	0
64	Wassaw Creek		0	0	0	0
65		"	0	0	0	0
66		"	1	1.0 ± 1.4	8.5	8.5
67		"	11	12.0 ± 1.5	7.6 ± 0.8	5.6 to 8.4
68		"	0	0	0	0
69		"	0	0	0	0
70		"	0	0	0	0
71		"	0	0	0	0
72	Rhodes Creek		77	8.30 ± 1.5	7.4 ± 0.7	5.5 to 8.9
73		"	0	0	0	0
74		"	0	0	0	0
75		"	0	0	0	0
76		"	0	0	0	0
77		"	0	0	0	0
78		"	0	0	0	0
79		"	3	3.0 ± 1.5	1.5 ± 0.7	5.4 to 9.7
80		"	0	0	0	0

Table B3 b. Continued

81	Rhodes Creek	0	0	0	0
82	"	0	0	0	0
83	"	0	0	0	0
84	"	0	0	0	0
85	Odingsell River	0	0	0	0
86	"	0	0	0	0
87	"	35	38.0 ± 53.7	7.4 ± 0.9	4.6 to 9.2
88	"	0	0	0	0
89	"	50	54.0 ± 18.4	7.6 ± 1.1	5.1 to 9.4
90	"	0	0	0	0
91	"	0	0	0	0
92	"	0	0	0	0
93	"	0	0	0	0
94	"	5	5.0 ± 4.6	9.2 ± 0.5	8.6 to 9.7
95	Odingsell River	20	14.0 ± 14.1	6.4 ± 1.0	4.1 to 7.7
96	"	3	3.0 ± 1.7	6.0 ± 0.1	5.9 to 6.1
97	"	0	0	0	0
98	"	7	7.6 ± 4.6	7.2 ± 1.1	4.9 to 7.8
99	"	0	0	0	0

Table B4 a. Hydrographic data of Ossabaw Sound and Raccoon Key areas. Location, estimate of water depth at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. ND = not determined and int = intertidal.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Ossabaw Sound	3.6	s	ND	28
2	"	4.2	s/m	ND	28
3	"	3.0	s	ND	28
4	"	3.0	s	ND	28
5	"	6.0	s/m	ND	28
6	"	5.4	m/s	ND	28
7	"	9.6	s	ND	28
8	"	3.6	s	ND	28
9	"	10.8	s	ND	28
10	"	3.6	s	ND	28
11	"	1.5	s	ND	28
12	"	14.1	m/s/sh	ND	28
13	"	3.8	s/sh	ND	28
14	"	10.5	s	ND	28
15	"	3.8	s/m	28	28
16	"	6.6	s/m/sh	28	28
17	"	5.4	s/m/sh	28	28
18	"	6.3	s/sh	28	28
19	"	6.0	m/s/sh	28	28
20	"	6.6	s/sh	28	28

Table B4 a. Continued

21	Ossabaw Sound	6.6	s	25	28
22	"	3.9	m	25	28
23	"	3.9	m	25	28
24	"	8.1	sh/s	25	28
25	"	4.2	s	25	28
26	"	3.9	s	25	28
27	"	3.0	m	25	28
28	"	3.0	m	24	28
29	Raccoon Key	int	s	ND	ND
30	"	int	sh/s	ND	ND
31	"	1.2	s	ND	ND
32	"	0.3	sh/m	ND	ND

Table B4 b. Hard clam distribution of Ossabaw Sound and Raccoon Key areas. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of clam shell lengths collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Ossabaw Sound through 28	0	0	0	0
29 Raccoon Key	0	0	0	0
30 "	0	0	0	0
31 "	1	1.0 ± 1.3	7.7	7.7
32 "	4	4.3 ± 3.1	7.0 ± 1.0	6.2 to 8.4

Table B5 a. Hydrographic data of Ossabaw Island area. Location, estimate of water depth at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal and ND = not determined.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Bear Island	int	sh/m	ND	ND
2	Queen Bess Creek	int	m	ND	ND
3		int	m	ND	ND
4		int	m	ND	ND
5		int	m	ND	ND
6		int	m	ND	ND
7		int	m	ND	ND
8		int	m	ND	ND
9		int	m	ND	ND
10	Florida Passage	int	sh/m	ND	ND
11		int	sh/m	ND	ND
12	Buckhead Creek	int	m	ND	ND
13		int	m	ND	ND
14		int	m	ND	ND
15		int	m	ND	ND
16		int	m	ND	ND
17		int	m	ND	ND
18	Bradley River	0.9	m/s	ND	ND
19		0.3	m	ND	ND
20		int	s/m	ND	ND

Table B5 a. Continued

141	Bradley River	3.0	m/sh	24	29
142	"	2.4	m	24	29
143	"	int	m	24	29
144	"	0.6	m/sh	27	29
145	"	0.6	m	27	29
146	"	0.6	m	27	29
147	"	1.2	m/sh	27	29
148	"	1.2	m	27	29
149	"	0.9	m	27	29
150	"	1.5	s/sh	27	29
151	"	1.8	m/sh	27	29
152	"	3.7	s	27	29
153	"	2.1	m	27	29
154	Newell Creek	3.4	s	27	29
155	"	4.9	s	27	29
156	"	4.3	s	27	29
157	"	4.3	s/m	27	29
158	"	4.3	s/m	27	29
159	"	4.3	s/m	27	29
160	"	6.7	s/m	27	29
161	"	6.1	s/m	27	29
162	"	4.9	s	27	29
163	"	4.9	sh/s	27	29
164	"	7.0	m/s	27	29
165	"	6.1	m/s	27	29
166	"	6.4	m/s	27	29
167	"	6.4	m/s	27	29
168	Jekyll Creek	5.8	s	27	29
169	"	0.6	m	27	29
170	"	int	m/s	27	29

Table B5 a. Continued

111	Jekyll Creek	4.6	s	27	29
112	Newell Creek	0.3	m/sh	27	29
113	"	0.6	m/sh	27	29
114	"	1.2	m/s	27	29
115	"	1.2	m	27	29
116	"	1.2	m	27	29
117	"	1.5	m/s	27	29
118	"	1.5	s	27	29
119	"	1.8	m	27	29
120	"	1.8	m	27	29
121	"	2.4	m	27	29
122	"	int	m/sh	27	29
123	"	0.6	m	27	29
124	"	0.3	m	27	29
125	"	0.9	m/sh	27	29
126	"	0.9	m	27	29
127	"	0.9	m	27	29
128	"	1.2	m/sh	27	29
129	"	3.4	m	27	29
130	"	0.6	m/sh	27	29
131	"	2.4	m	27	29
132	"	3.0	m	27	29
133	"	0.9	m	24	29
134	"	0.9	m/sh	24	29
135	"	0.9	m	24	29
136	"	0.9	m	24	29
137	"	0.9	m	24	29
138	"	0.9	m	24	29
139	"	1.5	m/sh	24	29
140	"	1.5	m/sh	24	29

Table B5 a. Continued

81	Newell Creek	1.8	s/m	27	29
82	"	6.1	m	27	29
83	"	3.0	s/m	27	29
84	"	0.9	s/m	27	29
85	"	0.9	m	27	29
86	"	0.6	m	27	29
87	"	3.0	s/m	27	29
88	"	3.7	s/m	27	29
89	"	1.8	s/m	27	29
90	"	2.7	s/m	27	29
91	"	0.9	s/m	27	29
92	"	0.9	sh/m	27	29
93	"	0.6	s	27	29
94	"	int	s	27	29
95	"	2.7	s/m	27	29
96	"	int	m	25	29
97	"	int	m	25	29
98	"	int	m	25	29
99	Jekyll Creek	6.1	m/s	25	29
100	"	int	m/s	25	29
101	"	3.7	s	25	29
102	"	5.5	m/s	25	29
103	"	4.3	m/s	25	29
104	"	0.6	m	25	29
105	"	int	m	25	29
106	"	4.0	s	25	29
107	"	4.6	s	25	29
108	"	3.4	m	27	29
109	"	int	m/s	27	29
110	"	3.0	s	27	29

Table B5 a. Continued

51	Jekyll Creek	0.6	m/sh	26	29
52	"	0.9	m	26	29
53	"	int	m	26	29
54	Unnamed Tributary	int	s/m	25	29
55	"	6.1	m	25	29
56	"	1.2	m	25	29
57	"	0.9	m	25	29
58	"	0.3	m	25	29
59	Unnamed Tributary, Lincoln	12.2	s	25	29
60	Creek	1.5	m	25	29
61	"	1.8	m	25	29
62	"	1.8	s/m	25	29
63	"	1.5	m	25	29
64	Cabbage Creek	3.7	m	25	29
65	"	3.4	m/sh	25	29
66	"	2.4	m	25	29
67	"	2.7	m	25	29
68	Unnamed Tributary, Ossabaw Isl.	0.3	m	27	29
69	"	int	m	27	29
70	"	int	m	27	29
71	Unnamed Creek, Ossabaw Island	4.0	s/m	27	29
72	"	4.6	m	27	29
73	"	1.8	m	27	29
74	"	0.6	s/m	27	29
75	"	0.9	s/m	27	29
76	"	0.9	s	27	29
77	"	0.9	m/sh	27	29
78	"	0.9	m/sh	27	29
79	"	3.0	m	27	29
80	"	2.7	s/m	27	29

Table B5 a. Continued

21	Unnamed Creek, Ossabaw Island	int	sh/m	ND	ND
22	"	int	sh/m	ND	ND
23	"	int	sh/m	ND	ND
24	"	int	sh/m	ND	ND
25	"	1.2	s	ND	ND
26	"	0.6	s/m	ND	ND
27	Unnamed Creek, Ossabaw Island	3.0	m	15	29
28	"	2.4	m	15	29
29	"	5.8	m	15	29
30	"	2.4	m	15	29
31	"	2.4	m	16	29
32	"	1.8	m	16	29
33	"	7.0	s/m	16	29
34	"	10.4	m	16	29
35	"	1.8	m	16	29
36	"	2.4	m	16	29
37	"	2.4	m	17	29
38	"	2.1	m	17	29
39	"	3.4	m	17	29
40	"	2.7	m	17	29
41	"	1.8	m	17	29
42	"	2.1	m	17	29
43	Unnamed Tributary,	0.6	m	26	29
44	Belle Island	0.9	m	26	29
45	"	int	m	26	29
46	"	int	m	26	29
47	Unnamed Tributary	0.9	m	26	29
48	"	0.9	m	26	29
49	"	1.2	m	26	29
50	"	1.8	m	26	29

Table B5 a. Continued

171	Unnamed Tributary	1.5	m/s	27	29
172	"	int	sh	27	29
173	"	1.5	m/s	27	29
174	"	1.5	sh	27	29
175	"	2.4	s	27	29
176	"	int	sh	27	29
177	"	0.6	m	27	29
178	"	1.5	s	27	29
179	"	int	s/m	27	29
180	"	1.5	sh	27	29
181	"	int	sh	27	29
182	"	0.9	sh	27	29
183	"	1.2	s	27	29
184	"	1.2	s/m	27	29
185	"	1.2	s/m	27	29
186	"	int	s/m/sh	27	29
187	"	int	s/m	27	29
188	"	int	m	27	29
189	"	0.3	s/sh	27	29
190	"	1.5	m	27	29

Table B5 a. Continued

191	31°43'42" X	80°47'12"	16	s	30	28
192	"	80°48'09"	15	s	30	28
193	"	80°49'01"	15	s	30	28
194	"	80°49'48"	16	s/sh	30	28
195	"	80°50'42"	14	s/sh	30	28
196	"	80°51'33"	13	s	30	28
197	"	80°52'25"	13	s	30	28
198	"	80°53'15"	12	s	30	28
199	"	80°54'06"	12	s	30	28
200	"	80°55'00"	13	s	30	28
201	"	80°55'51"	11	s	30	28
202	"	80°56'42"	12	s	30	28
203	"	80°57'36"	10	s	30	28
204	"	80°58'24"	9.5	s	30	28
205	"	80°59'18"	8	m/s	30	28
206	"	80°00'06"	6	s	30	28
207	"	80°00'57"	6	s	30	28
208	"	81°01'48"	6	s	30	28
209	"	81°02'70"	5.5	s	30	28
210	"	81°03'33"	5	s	30	28

Table B5 a. Continued

211	"		81°04'24"	4	m/s	30	28
212	31°45'49"	X	81°02'00	3.5	s	30	28
213	"		81°01'06"	3.5	s	30	28
214	"		81°00'36"	3.5	s	30	28
215	"		80°59'18"	3.5	s	30	28
216	"		80°58'24"	6	s	30	28
217	"		80°57'30"	9	s	30	28
218	"		80°56'36"	11	s	30	28
219	"		80°55'45"	12	s	30	28
220	"		80°45'49"	13	s	30	28
221	"		80°54'00"	13.5	s	30	28
222	"		80°53'06"	15	s	30	28
223	"		80°51'18"	15	s	30	28
224	"		80°49'30"	15	s	30	28
225	"		80°47'39"	15	s	30	28
226	31°48'00"	X	80°44'24"	15	s	30	28
227	"		80°46'42"	14	s	30	28
228	"		80°48'33"	14	s	30	28
229	"		80°50'24"	15	s	30	28
230	"		80°52'12"	13	s	30	28

Table B5 a. Continued

231	"		80°53'06"	12	s	30	28
232	"		80°54'00"	14	s	30	28
233	"		80°54'57"	13	s	30	28
234	"		80°55'54"	10	m/s	30	28
235	"		80°56'48"	8	m/s	30	28
236	"		80°57'42"	8	s	30	28
237	"		80°58'39"	6	s	30	28
238	"		80°59'33"	7	s	30	28
239	"		80°00'30"	4	s/sh	30	28
240	31°43'48"	X	81°04'33"	4.6	s	30	28
241	"		81°03'56"	4.3	s	30	28
242	"		81°03'20"	4.9	s	30	28
243	"		81°02'42"	4.3	s	30	28
244	"		81°02'09"	5.8	s/m	30	28
245	31°44'14"	X	81°06'33"	3.4	s	30	28
246	"		81°05'51"	1.5	s/sh	30	28
247	"		81°05'15"	1.5	s	30	28
248	"		81°04'42"	2.4	s	30	28
249	"		81°04'09"	3.4	s	30	28
250	"		81°03'39"	3.4	s/sh	30	28

Table B5 a. Continued

251	"		81°03'03"	4.6	s	30	28
252	"		81°02'24"	4.9	s	30	28
253	"		81°01'42"	4.9	sh/s	30	28
254	31°44'43"	X	81°04'51"	3.0	s	30	28
255	"		81°04'27"	1.8	s	30	28
256	"		81°03'51"	2.1	s	30	28
257	"		81°02'42"	3.0	s	30	28
258	"		81°02'42"	4.0	s/m	30	28
259	"		81°01'39"	3.7	s/m	30	28
260	"		81°01'09"	3.4	s	30	28
261	"		81°00'27"	3.4	s	30	28
262	31°45'12"	X	80°59'58"	6.1	s	30	28
263	"		81°00'24"	5.5	s	30	28
264	"		81°00'05"	4.9	s	30	28
265	"		81°01'03"	3.0	s/sh	30	28
266	"		81°02'09"	2.4	s	30	28

Table B5 b. Hard clam distribution of Ossabaw Island area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Bear Island	0	0	0	0
2 Queen Bess Creek through 9	0	0	0	0
10 Florida Passage	0	0	0	0
11 "	0	0	0	0
12 Buckhead Creek through 17	0	0	0	0
18 Bradley River through 26	0	0	0	0
27 Unnamed creek through 35	0	0	0	0
36 Unnamed creek	1	1.7 ± 2.9	6.4	6.4

Table B5 b. Continued

37 through 42	Unnamed creek	0	0	0	0
43 through 53	Unnamed tributary	0	0	0	0
54	Unnamed tributary	1	1.7 ± 2.9	11.5	11.5
55	"	0	0	0	0
56	"	0	0	0	0
57	"	0	0	0	0
58	"	1	1.7 ± 2.9	7.9	7.9
59 through 63	Lincoln Creek	0	0	0	0
64 through 67	Cabbage Creek	0	0	0	0
68	Unnamed tributary	1	1.7 ± 2.9	9.2	9.2
69	"	0	0	0	0
70	"	0	0	0	0
71	Unnamed tributary	0	0	0	0
72	"	0	0	0	0
73	"	0	0	0	0
74	"	2	3.3 ± 2.8	4.7 ± 1.8	3.5 to 6.0
75	"	1	1.7 ± 2.9	5.6	5.6
76	"	0	0	0	0
77	"	1	1.7 ± 2.9	8.4	8.4

Table B5 b. Continued

78 through 83	Unnamed tributary	0	0	0	0
84	Unnamed tributary	1	1.7 ± 2.9	6.8	6.8
85	"	0	0	0	0
86	"	2	3.3 ± 5.8	7.5 ± 0.9	6.8 to 8.1
87	"	0	0	0	0
88	"	1	1.7 ± 2.9	5.6	5.6
89 through 91	Unnamed tributary	0	0	0	0
92	Unnamed tributary	2	2.5 ± 5.0	6.8 ± 0.1	6.7 to 6.9
93 through 97	Unnamed tributary	0	0	0	0
98	Unnamed tributary	1	1.7 ± 2.9	7.6	7.6
99 through 101	Unnamed tributary	0	0	0	0
102	Unnamed tributary	1	1.3 ± 2.5	9.9	9.9
103 through 111	Unnamed tributary	0	0	0	0

Table B5 b. Continued

112	Newell Creek	2	2.5 ± 2.9	7.2 ± 0.7	6.7 to 7.6
113	"	1	1.3 ± 2.5	6.4	6.4
114	"	0	0	0	0
115	"	0	0	0	0
116	"	0	0	0	0
117	"	2	3.3 ± 2.9	10.5 ± 0.1	10.4 to 10.5
118	"	0	0	0	0
119	"	0	0	0	0
120	"	4	6.7 ± 2.9	5.4 ± 2.5	3.5 to 8.7
121	"	0	0	0	0
122	"	3	3.8 ± 2.5	5.3 ± 1.0	4.4 to 6.3
123	"	1	1.7 ± 2.9	3.5	3.5
124	"	0	0	0	0
125	"	1	1.7 ± 2.9	3.3	3.3
126	"	0	0	0	0
127	"	1	1.7 ± 2.9	7.1	7.1
128	"	1	1.7 ± 2.9	3.7	3.7
129 through 143	"	0	0	0	0
144	"	1	1.7 ± 2.9	8.9	8.9
145 through 167	"	0	0	0	0

Table B5 b. Continued

168	Jekyll Creek	0	0	0	0
169	"	0	0	0	0
170	"	3	5.0 ± 8.7	5.8 ± 1.9	3.7 to 7.2
171	"	1	1.7 ± 2.9	4.91	4.91
172	"	0	0	0	0
173	"	0	0	0	0
174	"	1	1.7 ± 2.9	6.9	6.9
175	"	0	0	0	0
176	"	1	1.7 ± 2.9	7.6	7.6
177 through 182	"	0	0	0	0
183	"	1	1.7 ± 2.9	2.9	2.9
184	"	2	3.3 ± 2.9	6.7 ± 1.9	5.4 to 8.1
185	"	0	0	0	0
186	"	2	2.5 ± 5.0	5.7 ± 1.4	4.7 to 6.7
187	"	0	0	0	0
188	"	0	0	0	0
189	"	1	1.7 ± 2.9	5.0	5.0
190	"	0	0	0	0

Table B6 a. Hydrographic data, St. Catherine Sound area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station / Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1 St. Catherines Sound	5.1	s	28	28
2 "	8.4	s	28	28
3 "	6.3	s	28	28
4 "	6.9	s	28	28
5 "	3.8	s/m	28	28
6 "	12.0	s/m/sh	28	28
7 "	6.3	s	28	28
8 "	12.6	s	28	28
9 "	12.0	s/sh	28	28
10 "	2.1	s	28	28
11 "	10.2	m/s	28	28
12 "	3.6	m	28	28
13 "	5.4	s	28	28
14 "	3.3	m/s	28	28
15 "	5.1	m	28	28
16 "	5.1	m	28	28
17 "	2.1	s/m	28	28
18 "	4.2	m/s	28	28
19 "	14.7	s	28	28
20 "	16.5	s	28	28

Table B6 b. Hard clam distribution of St. Catherines Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of clam shell lengths collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 St. Catherines Sound through 20	0	0	0	0

Table B7 a. Hydrographic data of St. Catherines Island area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, sh = shell. Int = intertidal.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Unnamed tributary, Fourmile Island	1.2	m	18	17
2	"	1.8	m	18	17
3	"	0.9	m	18	17
4	"	int	m	18	17
5	"	int	m	18	17
6	"	0.3	m	18	17
7	"	1.2	m	18	17
8	"	1.2	s/m	18	17
9	"	int	sh/m	18	17
10	"	int	sh/m	18	17
11	"	int	sh/m	18	17
12	"	int	m/sh	24	20
13	Unnamed tributary, Julienton River	0.6	m/sh	24	20
14	"	0.6	sh/m	24	20
15	"	1.2	s/m	24	20
16	Julienton River	2.4	s/m	24	20
17	"	3.7	s/m	24	20
18	"	3.4	s	24	20
19	"	5.5	s	24	20
20	"	6.1	s	24	20

Table B7 a. Continued

21	Julienton River	6.7	s	24	20
22	"	3.7	s	24	20
23	"	7.6	s	24	20
24	"	0.9	s	24	20
25	"	2.7	s	24	20
26	"	int	s	24	20
27	"	int	s	24	20
28	"	0.9	s	24	20
29	"	0.9	s	24	20
30	"	2.7	s	24	20
31	"	4.9	s	24	20
32	"	0.9	m	24	20
33	"	3.4	s	24	20
34	"	3.4	s	24	20
35	"	3.4	s	24	20
36	"	3.4	s	24	20
37	"	3.4	s	24	20
38	"	3.4	s	24	20
39	"	0.6	s	24	20
40	"	3.0	s	24	20
41	Little Mud River	int	sh	24	21
42	"	int	sh	24	21
43	"	int	sh	24	21
44	Shell Creek	2.7	m	24	21
45	"	3.4	m	24	21
46	"	0.9	m	24	21
47	"	10.7	m	24	21
48	"	2.1	s/m	24	21
49	"	1.5	m	24	21
50	"	0.6	m	24	21

Table B7 a. Continued

51	Shell Creek	0.6	m	24	21
52	"	1.8	m	24	21
53	"	1.5	m	24	21
54	"	0.9	sh/m	24	21
55	"	0.3	sh/m	24	21
56	"	int	sh/m	24	21
57	"	0.3	sh/m	24	21
58	"	1.2	sh	24	21
59	"	int	sh	24	21
60	"	int	sh	24	21
61	"	0.3	s/m	24	21
62	"	0.6	sh/m	24	21
63	"	0.6	sh/m	24	21
64	"	0.6	sh/m	24	21
65	"	0.6	sh/m	24	21
66	"	int	m/sh	24	21
67	"	0.9	m	24	21
68	"	0.6	s/m	24	21
69	"	0.6	s/m	24	21
70	"	int	s/m	24	21
71	"	0.3	m	24	21
72	"	3.0	m	24	21
73	"	4.6	m	24	21
74	"	0.3	m	24	21
75	"	1.8	m	24	21
76	"	4.6	m	24	21
77	"	0.3	m	24	21
78	"	2.4	m	24	21
79	"	3.7	m	24	21
80	"	3.0	s/m	24	21

Table B7 a. Continued

81	Shell Creek	2.4	s/m	24	21
82	"	1.8	s/m	24	21
83	Little Mud River	6.4	m	24	21
84	"	7.0	m	24	21
85	"	3.0	m	24	21
86	"	3.7	m	24	21
87	"	3.0	m	24	21
88	"	2.7	m	24	21
89	Unnamed Tributary, Little Mud River	int	sh	24	21
90	"	0.6	sh/m	24	21
91	"	0.9	m	24	21
92	"	0.3	sh/m	24	21
93	"	0.9	m	24	21
94	"	0.6	s	24	21
95	"	6.4	s	24	21
96	"	1.5	s/m	24	21
97	"	0.3	m	24	21
98	Unnamed Tributary, Little Mud River	0.9	s/m	24	21
99	"	int	m	24	21
100	"	0.3	s/m	24	21
101	"	0.6	s/m	24	21
102	"	1.5	s/m	24	21
103	"	0.9	m	24	21
104	"	0.6	s/m	24	21
105	"	0.6	m/sh	24	21
106	"	4.3	s	24	21
107	"	1.8	s/m	24	21
108	"	int	sh/s/m	24	21
109	"	1.5	m	24	21
110	Oldnor Island Creek	1.5	s	24	21

Table B7 a. Continued

111	Oldnor Island Creek	1.8	s/m	24	21
112	"	1.8	sh/m	24	21
113	"	1.8	s/m	24	21
114	"	1.8	s/m	24	21
115	"	int	sh	24	21
116	"	int	sh/m	24	21
117	"	1.2	m	24	21
118	"	1.5	m	24	21
119	"	int	m	24	21
120	Todd River	1.5	m/sh	27	26
121	"	1.5	m	27	26
122	"	1.5	m	27	26
123	"	0.6	sh/m	27	26
124	"	1.5	m	27	26
125	"	1.8	s/m	27	26
126	"	4.6	s/m	27	26
127	"	1.5	s	27	26
128	"	3.0	s	27	26
129	"	3.7	s	27	26
130	"	3.7	s	27	26
131	"	1.8	s/m	27	26
132	"	6.1	s/m	27	26
133	"	6.4	s/m	27	26
134	"	6.4	s/m	27	26
135	"	6.7	s/m	27	26
136	"	1.8	m	27	26
137	"	3.4	s	27	26
138	"	3.7	s	27	26
139	"	3.7	s	27	26
140	"	4.0	s/m	27	26

Table B7 a. Continued

141	Todd River	6.1	s/sh	27	26
142	"	5.5	s	27	26
143	"	3.0	s	27	26
144	"	3.7	s	27	26
145	"	1.8	m/sh	27	26
146	Unnamed Tributary, Johnson Creek	0.6	s	27	26
147	"	0.9	s	27	26
148	"	3.7	s	27	26
149	"	0.6	s	27	26
150	"	int	s/m	27	26
151	Unnamed Tributary, Johnson Creek	0.9	m	27	26
152	"	0.9	m	27	26
153	"	0.6	m/sh	27	26
154	"	int	m	27	26
155	Unnamed Tributary, Johnson Creek	0.9	m	27	26
156	"	3.0	m	27	26
157	"	2.4	m	27	26
158	"	1.5	m/sh	27	26
159	"	0.3	m	27	26
160	Johnson Creek	4.6	m	27	26
161	"	3.7	m	27	26
162	"	3.7	s/m	27	26
163	Unnamed Tributary, Johnson Creek	1.5	s/m	27	26
164	"	0.6	m	27	26
165	"	1.5	s	27	26
166	"	1.8	m/sh	27	26
167	"	0.9	m	27	26
168	Johnson Creek	3.7	m	27	26
169	"	4.3	m	27	26
170	"	3.0	s/m	27	26

Table B7 a. Continued

171	Johnson Creek	4.6	m	27	26
172	"	5.5	m	27	26
173	"	3.0	s/m	27	26
174	Brunsen Creek	int	m	27	26
175	"	int	m	27	26
176	"	3.7	s/m/sh	27	26
177	"	3.7	s/m	27	26
178	"	1.8	m	27	26
179	"	2.4	m	27	26
180	"	1.2	m	27	26
181	"	int	m	27	26
182	"	3.7	s	27	26
183	"	4.6	m	27	26
184	"	4.6	m	27	26
185	"	0.6	m/sh	27	26
186	"	3.0	m	27	26
187	"	2.7	m	27	26
188	Unnamed Tributary, St. Catherine	int	s	27	26
189	Island "	int	s	27	26
190	"	int	s	27	26
191	"	0.6	s	27	26
192	"	0.9	m	27	26
193	Unnamed Tributary , Johnson Creek	int	s	27	26
194	"	0.6	s/m	27	26
195	"	int	m	27	26
196	"	0.6	m	27	26
197	Unnamed Tributary, Wahoo River	0.9	sh/m	25	27
198	"	0.9	m	25	27
199	"	0.9	m	25	27
200	"	1.8	m	27	27
201	"	3.0	m	27	27
202	"	6.1	m	27	27

Table B7 a. Continued

203	Wahoo River	0.9	s/m	27	27
204	"	3.0	s	27	27
205	"	4.0	s/m	27	27
206	"	3.0	m	27	27
207	"	0.6	m	27	27
208	"	1.2	s	27	27
209	"	4.9	s	27	27
210	"	6.1	s	27	27
211	"	7.0	s	27	27
212	"	6.4	s	27	27
213	"	2.7	m	27	27
214	"	3.0	m	27	27
215	"	1.8	m	27	27
216	Unnamed Tributary, South Newport	2.4	m	27	27
217	River "	1.2	m	27	27
218	"	0.9	m	27	27
219	Unnamed Tributary, Swain River	0.9	m	27	27
220	"	int	m	27	27
221	"	int	sh/m	27	27
222	"	0.6	s/m	27	27
223	"	int	m	27	27
224	"	1.2	s/m	27	27
225	"	0.6	sh/m	27	27
226	"	int	s	27	27
227	"	0.6	m	27	27
228	"	int	m	27	27
229	"	int	m	27	27
230	"	int	sh/m/s	27	27
231	"	2.4	sh/m/s	27	27
232	"	1.2	m/s	27	27
233	"	3.0	m	27	27

Table B7 a. Continued

234	Unnamed Tributary, Swain River	1.8	m	27	27
235	Swain River	3.7	m	27	27
236	"	10.0	s/m/sh	27	27
237	"	8.2	s/m	27	27
238	Unnamed Tributary, Swain River	int	m	27	27
239	"	int	m	27	27
240	"	int	m/sh	27	27
241	"	int	m	27	27
242	"	int	m/sh	27	27
243	"	0.6	m/sh	27	27
244	"	0.6	m	27	27
245	"	2.4	m	27	27
246	"	1.2	s/m	27	27
247	Unnamed Creek, Walburg Island	3.4	m	27	29
248	"	1.8	m/sh	27	29
249	"	2.7	m	27	29
250	"	1.2	sh	27	29
251	"	1.8	m	27	29
252	Unnamed Creek, Walburg Island	1.2	m	27	29
253	"	1.8	m/sh	27	29
254	"	1.8	m/sh	27	29
255	"	0.9	sh	27	29
256	Unnamed Creek, Walburg Island	1.2	sh/m	27	29
257	"	0.6	sh/m	27	29
258	"	0.6	m	27	29
259	"	0.3	m/sh	27	29
260	"	int	m	27	29
261	"	int	m	27	29
262	Cow Pen Creek	4.0	m	27	29
263	"	int	m	27	29

Table B7 a. Continued

264	Cow Pen Creek	int	m	27	29
265	"	0.9	s/sh	27	29
266	"	1.5	m/sh	27	29
267	"	2.4	m/sh	27	29
268	"	int	m/sh	27	29
269	"	int	m	27	29
270	"	int	m	27	29
271	"	0.9	m	27	29
272	"	int	m	27	29
273	"	0.9	m	27	29
274	"	1.5	m	27	29
275	"	1.5	m	27	29
276	Unnamed Creek, Walburg Island	0.9	m	27	29
277	"	0.9	m/sh	27	29
278	"	int	m	27	29
279	Walburg Creek	3.7	m	27	29
280	"	6.1	s	27	29
281	Unnamed Creek, Walburg Island	0.9	m	27	29
282	"	0.9	m	27	29
283	"	0.6	m	27	29
284	Necessary Creek, Walburg Island	0.9	m	27	29
285	"	1.2	m	27	29
286	"	int	m	27	29
287	"	2.4	m	27	29
288	"	4.0	m	27	29
289	"	0.9	m	27	29
290	"	1.2	m	27	29
291	Unnamed Tributary, North Newport	int	m	25	29
292	River "	1.5	m	25	29
293	"	int	m	25	29

Table B7 a. Continued

294	"	1.8	m	25	29
295	Mollclark River	int	m	25	29
296	"	1.2	m	25	29
297	"	7.6	m	25	29
298	"	2.4	m	25	29
299	Unnamed Tributary, Mollclark River	1.5	m	25	29
300	"	0.9	s/m	25	29
301	"	0.9	m	25	29
302	"	0.9	m	25	29
303	"	1.8	m	25	29
304	Unnamed Tributary, Mollclark River	0.9	m	25	29
305	"	0.6	m/sh	25	29
306	Mollclark River	2.4	m	25	29
307	"	3.7	m	25	29
308	"	5.5	m/s	25	29
309	"	4.9	m/sh/s	25	29
310	Mollclark River	4.0	s	25	29
311	"	4.0	s	25	29
312	"	3.0	s/m	25	29
313	"	2.4	m	25	29
314	"	3.7	s	25	29
315	"	3.4	m	25	29
316	"	2.4	m	25	29
317	Unnamed Tributary, Mollclark River	1.8	sh/m	25	29
318	"	1.8	sh/m	25	29
319	"	1.2	m	25	29
320	"	1.2	m	25	29
321	North Newport River	5.8	s	25	29
322	"	3.0	s	25	29
323	"	4.9	s	25	29

Table B7 a. Continued

324	North Newport River	7.3	s	25	29
325	"	9.1	s	25	29
326	"	5.5	m	25	29
327	"	6.1	s	25	29
328	"	5.8	s/m	25	29
329	"	0.6	s	25	29
330	"	1.5	s	25	29
331	"	2.4	m	25	29
332	"	2.4	m	25	29
333	"	2.4	s/m	25	29
334	"	0.9	m	25	29
335	Timmons River	5.5	s	25	29
336	"	4.9	s	25	29
337	"	2.4	s	25	29
338	Swain River	0.9	s/m	ND	29
339	"	int	s/m	ND	29
340	"	0,6	s/m	ND	29
341	"	0.6	m	ND	29
342	"	int	s/m	ND	29
343	"	0.9	s/m	ND	29
344	"	5.8	s/sh	ND	29
345	"	3.0	m	ND	29
346	"	3.0	m	ND	29
347	"	4.6	m/sh	ND	29
348	"	1.5	s/m	ND	29
349	"	1.2	s/m	ND	29
350	"	1.8	m	ND	29
351	"	1.2	m	ND	29
352	"	1.2	s/m	ND	29
353	"	1.8	s/m	ND	29

Table B7 a. Continued

354	Swain River		0.9	m/sh	ND	29
355		"	0.6	sh/m	ND	29
356		"	0.9	m/sh	ND	29
357		"	1.5	m	ND	29
358		"	1.2	m	ND	29
359		"	0.3	sh/s	ND	29
360		"	1.2	m/sh	ND	29
361	Swain River		0.6	m	ND	29
362		"	0.6	m	ND	29
363		"	int	m/sh	ND	29
364		"	int	sh	ND	29
365		"	int	m	ND	29
366		"	0.9	m	ND	29
367	Wahoo River		1.5	m/s/sh	ND	29
368		"	int	m/sh	ND	29
369		"	int	m/sh	ND	29
370		"	0.6	m	ND	29
371		"	0.9	m	ND	29
372		"	int	m/sh	ND	29
373		"	0.6	m	ND	29
374		"	0.9	m	ND	29
375		"	0.9	m	ND	29
376		"	2.1	m/sh	ND	29
377		"	0.6	s/m	ND	29
378		"	0.6	s/m	ND	29
379		"	int	m	ND	29
380		"	1.2	s/m	ND	29
381		"	6.1	s	ND	29
382		"	int	m	ND	29
383		"	0.6	m	ND	29
384		"	0.3	s/m	ND	29
385		"	0.9	m	ND	29

Table B7 b. Hard clam distribution of St. Catherines Island area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Unnamed tributary through 3	0	0	0	0
4 "	2	3.3 ± 5.8	4.7 ± 1.1	3.9 to 5.5
5 " through 9	0	0	0	0
10 "	2	3.3 ± 2.9	5.8 ± 2.6	3.9 to 7.6
11 "	10	12.5 ± 13.2	6.9 ± 1.5	3.4 to 8.3
12 "	1	1.7 ± 2.9	5.1	5.1
13 Unnamed tributary	1	1.7 ± 2.9	10.1	10.1
14 "	0	0	0	0
15 "	0	0	0	0
16 Julienton River through 40	0	0	0	0

Table B7 b. Continued

41 through 43	Little Mud River	0	0	0	0
44 through 49	Shell Creek	0	0	0	0
50	"	3	5.0 ± 5.0	7.2 ± 0.6	6.5 to 7.8
51	"	2	3.3 ± 5.8	8.4 ± 0.5	8.0 to 8.7
52	"	0	0	0	0
53	"	0	0	0	0
54	"	2	3.3 ± 2.9	5.9 ± 3.5	3.4 to 8.4
55	"	4	6.7 ± 5.8	6.7 ± 1.5	4.9 to 8.5
56	"	7	11.7 ± 7.6	7.3 ± 2.2	2.6 to 8.7
57	"	3	5.0 ± 5.0	6.4 ± 2.1	4.3 to 8.4
58	"	6	10.0 ± 5.0	6.8 ± 1.3	5.2 to 8.4
59	"	0	0	0	0
60	"	0	0	0	0
61	"	14	23.0 ± 7.6	8.7 ± 0.7	7.4 to 9.8
62	"	0	0	0	0
63	"	2	3.3 ± 2.9	9.6 ± 0.1	9.5 to 9.7
64	"	4	6.7 ± 11.5	9.1 ± 0.6	8.2 to 9.6
65	"	1	1.7 ± 2.9	9.5	9.5
66 through 70	"	0	0	0	0
71 through 88	Little Mud River	0	0	0	0

Table B7 b. Continued

89	Unnamed tributary	5	12.5 ± 3.5	8.2 ± 0.5	7.8 to 9.0
90	"	1	1.7 ± 2.9	2.7	2.7
91	"	0	0	0	0
92	"	3	5.0 ± 5.0	7.4 ± 2.1	5.3 to 9.6
93 through 97	"	0	0	0	0
98	Unnamed tributary	0	0	0	0
99	"	0	0	0	0
100	"	2	3.3 ± 2.9	8.4 ± 0.9	7.7 to 9.0
101	"	0	0	0	0
102	"	0	0	0	0
103	"	0	0	0	0
104	"	0	0	0	0
105	"	1	1.7 ± 2.9	9.3	9.3
106	"	0	0	0	0
107	"	0	0	0	0
108	"	6	10.0 ± 8.7	7.6 ± 1.3	5.0 to 8.5
109	"	21	35.0 ± 60.6	7.9 ± 0.7	6.9 to 9.4
110 through 115	Oldner Island Creek	0	0	0	0
116	"	6	10.0 ± 17.2	8.2 ± 1.2	5.0 to 7.9
117 through 119	"	0	0	0	0

Table B7 b. Continued

120 through 122	Todd River	0	0	0	0
123	"	3	5.0 ± 5.0	8.2 ± 0.2	8.0 to 8.3
124	"	0	0	0	0
125	"	1	1.7 ± 2.9	7.3	7.3
126 through 145	"	0	0	0	0
146 through 149	Unnamed tributary	0	0	0	0
150	"	1	1.7 ± 2.9	8.8	8.8
151 through 157	"	0	0	0	0
158	"	2	3.3 ± 2.9	8.5 ± 0.5	8.2 to 8.9
159	"	0	0	0	0
160 through 162	Johnson Creek	0	0	0	0

Table B7 b. Continued

163 through 167	Unnamed tributary	0	0	0	0
168 through 173	Johnson Creek	0	0	0	0
174 through 184	Brunsen Creek	0	0	0	0
185	"	2	3.3 ± 2.9	8.6 ± 4.5	5.4 to 11.8
186	"	0	0	0	0
187	"	0	0	0	0
188	"	1	1.7 ± 2.9	7.2	7.2
189	"	1	1.7 ± 2.9	9.5	9.5
190	"	6	10.0 ± 13.0	8.0 ± 2.1	6.6 to 9.5
191	"	2	3.3 ± 2.9	9.8 ± 2.3	7.5 to 10.7
192	"	2	3.3 ± 5.8	8.5 ± 1.2	9.1 to 9.1
193 through 196	Unnamed tributary	0	0	0	0
197	Unnamed tributary	0	0	0	0
198	"	1	1.7 ± 2.9	7.4	7.4
199	"	0	0	0	0
200 through 202	Unnamed tributary	0	0	0	0

Table B7 b. Continued

203 through 215	Wahoo River	0	0	0	0
216 through 218	Unnamed tributary	0	0	0	0
219 through 229	Unnamed tributary	0	0	0	0
230	"	1	1.7 ± 2.9	5.3	5.3
231 through 234	"	0	0	0	0
235 through 237	Swain River	0	0	0	0
238	Unnamed tributary	28	46.6 ± 25.7	7.5 ± 0.9	5.0 to 9.1
239	"	1	1.7 ± 2.9	6.6	6.6
240	"	1	1.7 ± 2.9	7.2	7.2
241 through 245	"	0	0	0	0

Table B7 b. Continued

246	Unnamed creek	0	0	0	0
247	"	0	0	0	0
248	"	2	2.5 ± 5.0	10.5 ± 1.7	9.3 to 11.7
249	"	0	0	0	0
250	"	1	1.7 ± 2.9	5.6	5.6
251	"	0	0	0	0
252	Unnamed creek	0	0	0	0
253	"	7	11.7 ± 16.1	6.7 ± 1.5	4.6 to 9.0
254	"	1	1.7 ± 2.9	8.8	8.8
255	"	2	3.3 ± 2.9	7.7 ± 1.1	6.9 to 8.5
256	"	8	13.3 ± 12.6	6.3 ± 2.2	3.5 to 9.5
257	"	8	13.3 ± 7.6	7.8 ± 1.1	6.0 to 9.4
258	"	0	0	0	0
259	Unnamed creek	4	6.7 ± 2.9	6.6 ± 2.9	4.0 to 8.5
260	"	0	0	0	0
261	"	0	0	0	0
262 through 266	Cow Pen Creek	0	0	0	0
267	"	2	3.3 ± 2.9	4.7 ± 1.9	3.3 to 6.0
268	"	4	6.7 ± 11.5	6.6 ± 1.6	4.6 to 8.1
269	"	0	0	0	0
270	"	0	0	0	0
271	"	0	0	0	0
272	"	1	1.7 ± 2.9	6.3	6.3
273	"	0	0	0	0
274	"	0	0	0	0
275	"	0	0	0	0

Table B7 b. Continued

276	Unnamed creek	0	0	0	0
277	"	4	6.7 ± 11.5	8.8 ± 1.5	7.0 to 10.3
278	"	0	0	0	0
279	Walburg Creek	0	0	0	0
280	"	0	0	0	0
281 through 283	Unnamed creek	0	0	0	0
284 through 290	Necessary Creek	0	0	0	0
291 through 294	Unnamed tributary	0	0	0	0
295 through 298	Mollclark River	0	0	0	0
299 through 303	Unnamed tributary	0	0	0	0
304	Unnamed tributary	0	0	0	0
305	"	0	0	0	0
306 through 316	Mollclark River	0	0	0	0

Table B7 b. Continued

317 through 320	Unnamed tributary	0	0	0	0
321 through 334	North Newport River	0	0	0	0
335 through 337	Timmons River	0	0	0	0
338 through 353	Swain River	0	0	0	0
354	"	1	1.7 ± 2.9	4.0	4.0
355	"	1	1.3 ± 2.5	6.2	6.2
356	"	1	1.3 ± 2.5	7.3	7.3
357	"	0	0	0	0
358	"	0	0	0	0
359	"	5	8.3 ± 2.9	8.8 ± 1.1	7.7 to 10.0
360	"	0	0	0	0
361	"	0	0	0	0
362	"	0	0	0	0
363	"	1	1.7 ± 2.9	4.0	4.0
364	"	1	1.7 ± 2.9	8.7	8.7
365	"	0	0	0	0
366	"	0	0	0	0

Table B7 b. Continued

367	Wahoo River	0	0	0	0
368	"	3	5.0 ± 5.0	8.7 ± 2.0	6.5 to 10.5
369	"	0	0	0	0
370	"	0	0	0	0
371	"	0	0	0	0
372	"	1	1.3 ± 2.5	6.1	6.1
373 through 385	"	0	0	0	0

Table B8 a. Hydrographic data of Sapelo Sound area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell.

Station / Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1 Sapelo Sound	11.4	s	30	28
2 "	11.7	s/sh	30	28
3 "	10.5	s/sh	30	28
4 "	11.4	s/sh	30	28
5 "	5.7	m	30	28
6 "	4.2	m/s	30	28
7 "	6.6	s	30	28
8 "	13.5	m/s	30	28
9 "	7.5	s	31	28
10 "	4.5	s	33	28
11 "	13.2	s	33	28
12 "	4.8	sh	33	28
13 "	3.6	s/sh	33	28
14 "	5.4	s	33	28
15 "	6.3	s	33	28
16 "	6.0	s	33	28
17 "	2.7	m	26	28
18 "	7.5	m/s	26	28
19 "	5.1	m	26	28
20 "	4.5	m	30	28
21 "	10.8	m/s	30	28
22 "	9.0	s	30	28
23 "	10.2	s	31	28
24 "	11.1	s	31	28
25 "	6.0	m/s/sh	31	28

Table B8 b. Hard clam distribution of Sapelo Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Sapelo Sound through 25	0	0	0	0

Table B9 a. Hydrographic data of Blackbeard and Sapelo Island areas. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal and ND = not determined.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Unnamed tributary, Front River	1.8	m	22	17
2	"	2.1	sh/m	22	17
3	"	2.7	m	22	17
4	"	2.4	sh	22	17
5	"	2.7	m	22	17
6	"	1.8	m	22	17
7	"	2.7	sh/m	22	17
8	"	1.2	m	22	17
9	"	1.2	m	22	17
10	"	5.5	m	22	17
11	Unnamed tributary, Front River	2.1	m	22	17
12	Crescent River	4.9	m	12	17
13	"	2.4	m	12	17
14	"	int	m	12	17
15	"	int	s	12	17
16	"	3.0	s	12	17
17	"	int	s	12	17
18	"	int	m	12	17
19	"	int	m	12	17
20	Rattlesnake Creek	0.3	m	12	17

Table B9 a. Continued

21	Rattlesnake Creek	0.9	s/m	12	17
22	"	0.9	m	12	17
23	"	0.9	m	12	17
24	"	4.3	m	12	17
25	"	0.3	m	12	17
26	"	0.9	m	12	17
27	July Cut	1.2	m	14	17
28	"	1.2	sh/m/s	14	17
29	"	0.9	s/m	14	17
30	"	1.8	m	14	17
31	"	1.8	m	14	17
32	Back River	int	s/m	14	17
33	"	3.7	m	14	17
34	"	0.6	m	18	17
35	"	0.6	m	18	17
36	"	0.9	m	18	17
37	"	1.5	m	18	17
38	"	0.9	m	18	17
39	"	1.5	m	18	17
40	"	1.8	m	18	17
41	Unnamed tributary	2.7	m	20	17
42	"	int	sh/m	20	17
43	"	1.2	sh/m	20	17
44	"	int	sh/m	20	17
45	"	int	sh/m	20	17
46	Front River	1.2	m	20	17
47	"	4.6	s/m	20	17
48	"	3.7	m	20	17
49	"	1.8	m	20	17
50	"	4.6	s/m	20	17

Table B9 a. Continued

51	Front River	3.4	m	20	17
52	"	3.7	m	20	17
53	"	4.9	m	20	17
54	"	3.0	m	20	17
55	"	3.7	m	20	17
56	"	4.9	m	20	17
57	"	3.0	m	20	17
58	"	3.7	m	20	17
59	"	4.9	m	20	17
60	"	3.0	m	20	17
61	Shellbluff Creek	1.2	m	16	17
62	"	0.9	m	16	17
63	"	1.5	m	16	17
64	"	2.4	m	16	17
65	"	3.0	m	16	17
66	"	4.3	m	16	17
67	"	1.2	m	16	17
68	"	1.5	m	16	17
69	"	0.9	m	16	17
70	"	1.8	m	16	17
71	"	1.8	m	16	17
72	"	0.6	m	16	17
73	"	0.3	m	16	17
74	Crescent River	1.8	m/s	20	20
75	"	2.7	m/s	20	20
76	"	4.9	m	20	20
77	"	2.7	m	20	20
78	"	3.4	m/s	20	20
79	"	2.4	m/s	20	20
80	"	2.7	m	20	20

Table B9 a. Continued

81	Crescent River	0.6	m/s	20	20
82	"	9.1	s	20	20
83	"	6.1	s	20	20
84	Unnamed Tributary	int	m	20	20
85	"	int	m	20	20
86	Crescent River	3.7	s/m	14	17
87	"	4.3	m	14	17
88	"	1.8	m	14	17
89	"	6.1	s	14	17
90	"	7.3	s	14	17
91	"	1.2	m	14	17
92	"	3.4	s	14	17
93	"	4.0	s	14	17
94	Crescent River	3.0	s	14	17
95	"	3.7	s	14	17
96	"	6.1	s	14	17
97	"	3.7	s	14	17
98	"	2.4	s	14	17
99	"	4.6	s	14	17
100	"	5.2	m	14	17
101	Unnamed Tributary	2.7	m	20	20
102	"	2.7	m	20	20
103	"	2.7	m	20	20
104	Old Teakettle Creek	3.0	sh/m	20	20
105	"	6.1	s/m	20	20
106	"	9.1	s	20	20
107	Unnamed Tributary	2.7	m/sh	20	20
108	"	2.4	m/sh	20	20
109	"	2.4	m/sh	20	20
110	"	1.8	m	20	20

Table B9 a. Continued

111	Unnamed Tributary	1.5	m	20	20
112	Branch Creek	2.7	sh/m	20	20
113	"	3.4	sh/m	20	20
114	"	2.7	m	20	20
115	"	5.5	sh/m	20	20
116	"	3.0	s/m	20	20
117	"	2.7	m	20	20
118	"	3.0	m	20	20
119	"	0.9	m	20	20
120	"	0.9	m	20	20
121	"	0.9	m	20	20
122	"	1.8	m	20	20
123	"	1.8	sh/s/m	20	20
124	"	1.8	m	20	20
125	"	1.8	m	20	20
126	"	0.9	m	20	20
127	"	0.9	m	20	20
128	Dark Creek	6.1	s/m	20	20
129	"	4.0	s/m	20	20
130	"	4.9	m	20	20
131	"	2.7	s/m	20	20
132	"	5.5	m	20	20
133	"	6.1	s/m	20	20
134	"	3.4	s/m/sh	20	20
135	"	2.4	s/m	20	20
136	"	6.1	s/m	20	20
137	"	6.1	s/m	20	20
138	"	2.4	m	20	20
139	"	6.1	m	20	20
140	"	2.7	m	20	20

Table B9 a. Continued

141	Dark Creek	3.0	s/m	20	20
142	"	2.7	m	20	20
143	"	2.7	s/m	20	20
144	"	2.4	m	20	20
145	"	2.4	m	20	20
146	"	3.7	m	20	20
147	"	3.0	m	20	20
148	Dark Creek	0.9	m/s	20	20
149	"	2.4	m	20	20
150	"	4.6	m	20	20
151	"	2.7	m	20	20
152	Mary Creek	7.9	sh/m/s	20	20
153	"	6.1	sh/m/s	20	20
154	"	2.7	m	20	20
155	"	3.0	m	20	20
156	"	1.2	m	20	20
157	"	2.7	s	20	20
158	"	2.7	sh/m	20	20
159	"	0.6	m	20	20
160	"	0.9	m	20	20
161	"	0.9	m	20	20
162	"	0.6	m	20	20
163	"	2.7	m	20	20
164	"	4.6	m/sh	20	20
165	"	2.7	m	20	20
166	"	1.2	m	20	20
167	"	1.2	m	20	20
168	"	1.2	m	20	20
169	Marsh Creek	2.7	s/m	20	20
170	"	4.6	m	20	20

Table B9 a. Continued

171	Marsh Creek	3.0	m	20	20
172	"	3.4	m	20	20
173	Unnamed Tributary	1.5	m	22	20
174	"	0.6	m	22	20
175	"	0.6	m	22	20
176	New Teakettle Creek	4.9	s/m/sh	22	20
177	"	4.9	s/m/sh	22	20
178	"	4.9	m	22	20
179	"	6.1	s	22	20
180	"	6.1	s/sh	22	20
181	"	int	m	22	20
182	"	4.0	s/sh/m	22	20
183	"	6.1	s	22	20
184	"	4.0	s/m	22	20
185	"	1.8	sh/m	22	20
186	"	6.1	s	22	20
187	"	3.4	m	22	20
188	"	3.4	s	22	20
189	"	3.4	s	22	20
190	"	3.4	s	22	20
191	"	3.4	m/sh	22	20
192	"	7.6	s	22	20
193	"	1.5	m/s	22	20
194	Unnamed Tributary, Eagle Creek Marsh	int	sh	24	20
195	"	int	s	24	20
196	"	int	s/m	24	20
197	"	int	m	24	20
198	"	int	m/s	24	20
199	Unnamed Tributary, Eagle Creek	int	m/s	24	20
200	Marsh "	int	sh	24	20

Table B9 a. Continued

201	Unnamed Tributary, Eagle Creek Marsh	int	sh	24	20
202	"	0.6	m	24	20
203	"	int	sh	24	20
204	"	int	sh/m	24	20
205	"	int	sh	24	20
206	"	int	m/sh	24	20
207	"	int	sh	24	20
208	"	int	sh	24	20
209	"	int	sh	24	20
210	Eagle Creek Marsh	0.9	m	24	20
211	"	3.4	m	24	20
212		1.5	m	24	20
213	"	int	m	24	20
214	"	7.3	m	24	20
215	"	2.1	m	24	20
216	"	int	m	24	20
217	"	0.3	m	24	20
218	"	1.8	m	24	20
219	"	2.7	m	24	20
220	"	0.9	s/m	24	20
221	"	2.1	m	24	20
222	"	3.7	m	24	20
223	"	1.2	m	24	20
224	"	2.4	s/m	24	20
225	"	1.2	s/m	24	20
226	"	1.2	m	24	20
227	"	1.2	m	24	20
228	"	2.4	s/m	24	20
229	Eagle Creek	0.9	m	24	20
230	"	0.9	s/m	24	20

Table B9 a. Continued

231	Eagle Creek	0.6	sh	24	20
232	"	0.6	sh	24	20
233	"	0.6	s/m	24	20
234	Unnamed Tributary, Eagle Creek	int	m/s	24	20
235	Marsh "	int	sh	24	20
236	"	0.6	m	24	20
237	"	0.6	m	24	20
238	"	1.2	m	24	20
239	"	0.6	m	24	20
240	"	int	m	24	20
241	"	0.6	m	24	20
242	"	int	m	24	20
243	"	int	m/sh	24	20
244	"	0.6	m	24	20
245	"	int	m	24	20
246	"	0.3	m	24	20
247	"	0.3	m	24	20
248	"	1.5	m	24	20
249	"	1.5	m	24	20
250	"	1.8	m	24	20
251	"	int	m	24	20
252	Unnamed Tributary, Blackbeard Isl.	int	s/sh	27	25
253	"	int	sh	27	25
254	"	3.0	m	27	25
255	"	3.7	m/s	27	25
256	"	2.4	s	27	25
257	"	2.7	s/m	25	25
258	Blackbeard Creek	3.0	s/m	27	25
259	"	7.3	s	27	25
260	"	6.7	m	27	25

Table B9 a. Continued

261	Blackbeard Creek	0.9	m	27	25
262	"	0.6	m	27	25
263	"	int	m	27	25
264	"	0.9	m	27	25
265	"	int	s	27	25
266	"	1.8	m	27	25
267	"	1.8	m	27	25
268	"	1.8	s	27	25
269	"	1.8	m	27	25
270	"	int	m/s/sh	27	25
271	"	int	sh/m	27	25
272	"	1.2	m/sh	27	25
273	"	0.9	s	27	25
274	"	0.3	s	27	25
275	"	1.2	s/m	27	25
276	"	1.2	s/m	27	25
277	"	1.8	m	27	25
278	"	1.8	s/m	27	25
279	"	1.8	s	27	25
280	"	1.8	s	27	25
281	"	2.1	s	27	25
282	"	1.5	s	27	25
283	"	int	m	27	25
284	"	0.6	m	27	25
285	"	int	m/sh	27	25
286	"	0.9	m	27	25
287	"	2.4	s	27	25
288	"	2.7	s/m	27	25
289	McCloys Creek	4.3	m	27	25
290	"	0.9	m/sh	27	25

Table B9 a. Continued

291	McCloys Creek	1.2	m	27	25
292	"	1.5	s/m	27	25
293	"	2.4	s	27	25
294	"	2.4	s	27	25
295	"	1.8	s	27	25
296	"	4.0	s	27	25
297	"	1.5	s	27	25
298	"	1.8	s/m	27	25
299	"	int	m	27	25
300	Unnamed Tributary, Creighton Isl.	int	m	26	27
301	"	int	m	26	27
302	"	int	m	26	27
303	"	int	m	26	27
304	Unnamed Tributary, Creighton Isl.	int	m	26	27
305	"	int	m	26	27
306	"	int	m	26	27
307	"	int	m	26	27
308	"	int	sh	26	27
309	"	0.9	m	26	27
310	"	int	m	26	27
311	"	int	m/sh	27	27
312	"	0.3	m/sh	27	27
313	"	0.3	m	27	27
314	"	0.9	s	27	27
315	"	0.9	sh/m/s	27	27
316	Unnamed Tributary, Creighton Island	0.9	sh/m/s	27	27
317	"	0.6	m	27	27
318	Unnamed Tributary, Creighton Island	0.6	m	27	27
319	"	0.9	m/sh	27	27
320	"	1.2	m	27	27

Table B9 a. Continued

321	Unnamed Tributary, Creighton Isl.	2.1	s	27	27
322	"	0.9	m	27	27
323	"	1.2	m	27	27
324	"	4.3	m	27	27
325	"	1.2	m	27	27
326	"	int	sh/m	27	27
327	Ridge River Mouth, Creighton Isl.	int	m	27	27
328	"	0.6	s/m	27	27
329	"	0.9	s/m/sh	27	27
330	"	0.9	s/m/sh	27	27
331	"	1.8	s/m/sh	27	27
332	"	0.6	s/m	27	27
333	"	0.9	m	27	27
334	"	0.9	s/m	27	27
335	"	0.9	s/m	27	27
336	"	0.9	m	27	27
337	"	0.9	m	27	27
338	"	0.9	m	27	27
339	"	1.2	s/m	27	27
340	"	1.8	m/s/sh	27	27
341	"	3.0	s	27	27
342	"	2.4	m	27	27
343	"	3.0	m	27	27
344	"	int	sh	27	27
345	"	0.3	sh/m	27	27
346	Old Teakettle Creek	int	sh	ND	29
347	"	int	m/sh	ND	29
348	"	int	m/sh	ND	29
349	"	int	sh/m	ND	29
350	"	int	sh/m	ND	29

Table B9 a. Continued

351	Old Teakettle Creek	3.0	m/sh	ND	29
352	"	2.4	m/sh	ND	29
353	"	2.7	m/sh	ND	29
354	Old Teakettle Creek	2.4	m/sh	ND	29
355	"	1.8	m/sh	ND	29
356	"	int	m/s	ND	29
357	"	int	m/s	ND	29
358	"	int	m/s	ND	29
359	"	int	m/s	ND	29
360	"	int	m/s	ND	29
361	"	int	m/s	ND	29
362	"	int	m/s	ND	29
363	"	int	m/s	ND	29
364	"	int	m/s	ND	29
365	"	int	m/s	ND	29
366	"	0.6	s/m	ND	29
367	"	0.6	s/m	ND	29
368	"	int	s	ND	29
369	"	int	s	ND	29
370	"	int	s	ND	29
371	"	1.5	s/m	ND	29
372	"	int	s	ND	29
373	"	int	s	ND	29
374	"	int	s	ND	29
375	"	1.2	s/m	ND	29
376	Mud River	int	m	ND	29
377	"	int	m	ND	29
378	"	int	m	ND	29
379	"	int	m	ND	29
380	"	int	m	ND	29

Table B9 a. Continued

381	Mud River	int	m	ND	29
382	"	int	m	ND	29
383	"	int	m	ND	29
384	"	int	m	ND	29
385	"	int	m	ND	29
386	"	int	m	ND	29
387	"	0.3	m	ND	29
388	"	int	m	ND	29
389	"	int	m	ND	29
390	"	int	m	ND	29
391	"	0.3	m	ND	29
392	"	0.3	m	ND	29
393	Mud River *	int	sh/m	ND	ND
394	Mud River *	int	sh/m	ND	ND
395	Crescent River *	int	sh/m	ND	ND
396	Old Teakettle Creek *	int	sh/m	ND	ND
397	Old Teakettle Creek *	int	m/s	ND	ND
398	Duplin River *	int	sh	ND	ND
399	Duplin River *	int	sh/m	ND	ND
400	Duplin River *	int	m/s	ND	ND
401	Duplin River *	int	m/s	ND	ND
402	Deans Creek	0.9	m	28	29
403	"	1.2	m	28	29
404	"	0.6	m	28	29
405	Deans Creek	0.6	s/m	28	29
406	"	0.6	sh/m	28	29
407	"	0.6	m	28	29
408	"	int	m	28	29

* Areas sampled by Thomas Shierling and Jim Whitted

Table B9 b. Hard clam distribution of Blackbeard and Sapelo Island areas. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Unnamed tributary	1	1.7 ± 2.9	7.6	7.6
2 "	1	1.7 ± 2.9	3.4	3.4
2 "	4	20.0 ± 0.0	7.5 ± 0.8	6.5 to 8.5
3 "	0	0	0	0
4 "	6	7.5 ± 8.9	8.8 ± 0.9	7.6 to 9.9
4 "	0	0	0	0
5 "	0	0	0	0
6 "	0	0	0	0
7 "	0	0	0	0
7 "	8	40	6.6 ± 1.2	4.8 to 8.2
8 "	16	26.7 ± 23.1	6.9 ± 2.0	3.5 to 9.3
9 "	5	8.3 ± 2.9	6.5 ± 2.2	4.1 to 8.5
10 "	0	0	0	0
11 "	0	0	0	0
12 Crescent River through 19	0	0	0	0
20 Rattlesnake Creek through 26	0	0	0	0

Table B9 b. Continued

27 through 31	July Cut	0	0	0	0
32	Back River	1	1.7 ± 2.9	10.0 ± 0.0	10.0
33 through 39	Back River	0	0	0	0
40	Unnamed tributary	0	0	0	0
41	"	0	0	0	0
42	"	20	33.3 ± 2.9	6.8 ± 1.3	3.1 to 8.4
43	"	11	18.3 ± 10.4	7.4 ± 1.0	5.4 to 8.6
44	"	7	11.7 ± 2.9	7.8 ± 0.5	7.0 to 8.3
45	"	11	27.5 ± 10.6	6.3 ± 1.3	3.5 to 7.9
46 through 60	Front River	0	0	0	0
61 through 73	Shellbuff Creek	0	0	0	0
74 through 83	Crescent River	0	0	0	0
84	Unnamed tributary	0	0	0	0
85	"	0	0	0	0

Table B9 b. Continued

86 through 100	Crescent River	0	0	0	0
101 through 103	Unnamed tributary	0	0	0	0
104 through 106	Old Teakettle Creek	0	0	0	0
107	Unnamed tributary	3	3.8 ± 2.5	6.0 ± 1.3	5.3 to 7.5
108	"	2	3.3 ± 5.8	6.4 ± 3.1	4.2 to 8.6
109	"	0	0	0	0
110	"	2	3.3 ± 5.8	6.6 ± 2.2	5.0 to 8.1
111	"	0	0	0	0
112	Branch Creek	5	6.3 ± 9.5	8.7 ± 0.5	8.2 to 9.4
113	"	1	1.7 ± 2.9	4.4	4.4
114	"	1	1.3 ± 2.5	4.8	4.8
115	"	0	0	0	0
116	"	1	1.7 ± 2.9	5.1	5.1
117	"	0	0	0	0
118	"	0	0	0	0
119	"	0	0	0	0
120	"	1	1.7 ± 2.9	8.8	8.8
121 through 127	"	0	0	0	0
128 through 132	Dark Creek	0	0	0	0

Table B9 b. Continued

133 Dark Creek	1	1.7 ± 2.9	8.8	8.8
134 " through 146	0	0	0	0
147 "	1	1.7 ± 2.9	7.3	7.3
148 " through 151	0	0	0	0
152 Mary Creek through 160	0	0	0	0
161 "	1	1.7 ± 2.9	8.0	8.0
162 "	0	0	0	0
163 "	0	0	0	0
164 "	1	1.7 ± 2.9	8.3	8.3
165 " through 168	0	0	0	0
169 Marsh Creek through 173	0	0	0	0
174 Unnamed creek through 176	0	0	0	0

Table B9 b. Continued

177 through 181	New Teakettle Creek	0	0	0	0
182	"	4	5.0 ± 4.1	7.2 ± 3.7	3.1 to 10.5
183	"	0	0	0	0
184	"	0	0	0	0
185	"	2	3.3 ± 2.9	7.6 ± 1.3	6.6 to 8.5
186 through 193	"	0	0	0	0
194	Unnamed tributary	0	0	0	0
195	"	0	0	0	0
196	"	2	2.5 ± 5.0	5.3 ± 0.4	5.1 to 5.4
197	"	0	0	0	0
198	Unnamed tributary	0	0	0	0
199	"	4	6.7 ± 5.8	6.6 ± 1.4	5.5 to 8.4
200	"	1	1.7 ± 2.9	3.3	3.3
201	"	1	1.7 ± 2.9	6.8	6.8
202	"	0	0	0	0
203	"	0	0	0	0
204	"	1	1.7 ± 2.9	7.8	7.8
205	"	1	1.7 ± 2.9	1.9	1.9
206	"	2	3.3 ± 2.9	8.0 ± 0.6	7.6 to 8.5
207	"	0	0	0	0
208	"	9	15.0 ± 18.0	6.8 ± 1.1	5.1 to 8.1
209	"	8	13.3 ± 10.8	7.7 ± 1.0	5.5 to 8.7
210	"	0	0	0	0

Table B9 b. Continued

211 through 230	Eagle Creek	0	0	0	0
231	"	2	3.3 ± 2.9	6.7 ± 1.7	5.5 to 7.9
232	"	3	5.0 ± 8.7	5.6 ± 1.7	4.0 to 7.3
233	"	2	3.3 ± 2.9	5.9 ± 2.0	4.4 to 7.3
234	Unnamed tributary	12	20.0 ± 20.0	7.8 ± 1.0	6.3 to 9.2
235	"	8	13.3 ± 10.4	7.6 ± 1.6	3.9 to 8.5
236	"	0	0	0	0
237	"	0	0	0	0
238	"	0	0	0	0
239	"	0	0	0	0
240	"	1	1.7 ± 2.9	8.0	8.0
241	"	0	0	0	0
242	"	0	0	0	0
243	"	2	3.3 ± 5.8	6.5 ± 0.9	5.8 to 7.1
244 through 248	"	0	0	0	0
249	"	2	3.3 ± 2.9	6.3 ± 2.2	4.8 to 7.9
250	"	0	0	0	0
251	"	0	0	0	0
252	Unnamed tributary	1	1.1 ± 1.9	5.4	5.4
253	"	23	25.6 ± 18.2	7.3 ± 1.3	2.7 to 8.6
254 through 261	Blackbeard Creek	0	0	0	0

Table B9 b. Continued

262	"	1	1.7 ± 2.9	3.9	3.9
263	"	0	0	0	0
264	"	0	0	0	0
265	"	4	6.7 ± 5.8	8.0 ± 0.1	7.9 to 8.1
266 through 270	"	0	0	0	0
271	"	8	13.3 ± 12.6	7.7 ± 0.5	7.1 to 8.4
272	"	4	6.7 ± 5.8	4.9 ± 1.8	3.6 to 7.5
273 through 288	"	0	0	0	0
289 through 298	McCloys Creek	0	0	0	0
299	"	1	1.7 ± 2.9	10.6	10.6
300 through 307	Unnamed tributary	0	0	0	0
308 through 310	Unnamed tributary	0	0	0	0

Table B9 b. Continued

311	Unnamed tributary	2	3.3 ± 5.8	8.1 ± 1.0	7.4 to 8.8
312	"	1	1.7 ± 2.9	7.1	7.1
313	"	0	0	0	0
314	"	0	0	0	0
315	"	1	1.7 ± 2.9	8.0	8.0
316	Unnamed tributary	0	0	0	0
317	"	0	0	0	0
318	Unnamed tributary	0	0	0	0
319	"	1	1.7 ± 2.9	7.5	7.5
320 through 325	"	0	0	0	0
326	"	1	1.7 ± 2.9	7.4	7.4
327	Ridge Mouth River	0	0	0	0
328	"	1	1.7 ± 2.9	4.9	4.9
329	"	0	0	0	0
330	"	0	0	0	0
331	"	0	0	0	0
332	"	1	1.7 ± 2.9	9.0	9.0
333	"	0	0	0	0
334	"	2	3.3 ± 2.9	9.5 ± 1.4	8.5 to 10.4
335	"	0	0	0	0
336	"	1	1.7 ± 2.9	8.3	8.3
337 through 344	"	0	0	0	0
345	"	2	3.3 ± 5.8	5.3 ± 1.7	4.1 to 6.5

Table B9 b. Continued

346 through 375	Old Teakettle Creek	0	0	0	0
376 through 392	Mud River	0	0	0	0
393	Mud River*	32	ND	ND	ND
394	Mud River*	52	ND	ND	ND
395	Crescent River*	7	ND	ND	ND
396	Old Teakettle Creek*	1	ND	ND	ND
397	Old Teakettle Creek*	4	ND	ND	ND
398	Duplin River*	0	ND	ND	ND
399	Duplin River*	2	ND	ND	ND
400	Duplin River*	0	ND	ND	ND
401	Duplin River*	1	ND	ND	ND
402	Deans Creek	0	0	0	0
403	"	0	0	0	0
404	"	0	0	0	0
405	"	0	0	0	0
406	"	3	5.0 ± 5.0	6.9 ± 1.1	5.8 to 8.0
407	"	0	0	0	0
408	"	0	0	0	0

* Areas surveyed by Thomas Shierling and Jim Whitted

Table B10 a. Hydrographic data of Doboy Sound area. Location, estimated water depth at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station	/ Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Doboy Sound	3.0	s/m	28	29
2	"	3.6	s/m	28	29
3	"	10.8	sh	28	29
4	"	3.0	m	28	29
5	"	1.2	m	28	29
6	"	int	m	28	29
7	"	int	s/m	28	29
8	"	4.5	m	28	29
9	"	6.0	m	28	29
10	"	10.5	m	28	29
11	"	4.8	s/m	28	29
12	"	int	s/m	28	29
13	"	0.6	m	28	29
14	"	1.2	m	28	29
15	"	4.2	m	28	29
16	"	6.0	s/m	28	29
17	"	15.0	m	28	29
18	"	1.8	m	28	29
19	"	6.0	m	28	29
20	"	9.0	m	28	29

Table B10 a. Continued

21	Doboy Sound	6.0	m	28	29
22	"	6.0	m	28	29
23	"	4.2	m	28	29
24	"	4.5	m	28	29
25	"	0.6	m	28	29
26	"	1.2	m	28	29
27	"	6.0	m	28	29
28	"	6.6	m	28	29
29	"	7.8	m	28	29
30	"	7.8	m	28	29
31	"	7.8	m/sh	28	29
32	"	6.0	s/m	28	29
33	"	9.0	s/sh	28	29
34	"	9.0	s/sh	28	29
35	"	7.5	m/sh	28	29
36	"	7.2	m	28	29
37	"	0.6	s/m	28	29
38	"	3.0	m/sh	28	29
39	"	6.3	m	28	29
40	"	5.1	s/m	28	29
41	"	0.3	m	28	29
42	"	int	m/sh	28	29
43	"	0.6	m	28	29
44	"	int	m/sh	28	29
45	"	0.6	m	28	29

Table B10 b. Hard clam distribution of Doboy Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Doboy Sound through 45	0	0	0	0

Table B11 a. Hydrographic data of Wolf Island area. Location, estimated water depth at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, sh = shell, and r = rock. Int = intertidal and ND = not determined.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Unnamed tributary, North River	1.2	m	25	29
2	"	1.2	m	25	29
3	"	1.2	m	25	29
4	"	1.2	m	25	29
5	"	1,5	m	25	29
6	"	1.5	m	25	29
7	"	1.8	m	25	29
8	North River	2.1	m	25	29
9	"	3.0	m	25	29
10	"	3.9	m	25	29
11	"	2.4	m	25	29
12	"	2.4	m	25	29
13	"	2.4	m	25	29
14	"	1.5	m	25	29
15	"	3.9	m	25	29
16	"	2.4	m	25	29
17	Little Mud River	4.2	m	14	29
18	"	4.2	m	14	29
19	"	1.2	m	14	29
20	"	0.9	m/sh	14	29

Table B11 a. Continued

21	Little Mud River	3.6	m	14	29
22	"	3.9	m	14	29
23	Crooked Creek	1.2	m	10	29
24	"	1.2	m	10	29
25	"	1.8	m	10	29
26	South River	0.9	m	24	29
27	"	0.9	m	24	29
28	"	3.0	m	24	29
29	"	1.5	m	24	29
30	"	3.0	m	24	29
31	"	3.9	s	24	29
32	"	1.5	s	24	29
33	"	6.0	m	24	29
34	"	3.0	m	24	29
35	"	3.0	s/sh	24	29
36	"	5.7	s/sh	24	29
37	"	2.4	m/s/sh	24	29
38	Unnamed Tributary, South River	int	m	24	29
39	"	1.2	m/sh	24	29
40	Back River	1.8	s/m	27	29
41	"	1.3	s	27	29
42	"	6.0	m	27	29
43	Back River	3.3	s	27	29
44	"	3.3	s/sh	27	29
45	"	3.3	s/sh	27	29
46	"	6.0	s	27	29
47	"	3.3	m	27	29
48	"	4.8	m	27	29
49	"	5.4	m	27	29
50	North River	4.2	s	20	29

Table B11 a. Continued

51	North River	4.5	m	20	29
52	"	4.2	s	20	29
53	"	4.5	m	20	29
54	"	1.8	m	20	29
55	"	4.2	m	20	29
56	"	3.0	m	20	29
57	"	7.5	m	20	29
58	"	6.3	m	20	29
59	"	1.2	m	20	29
60	"	1.2	m	20	29
61	"	3.6	m/s	20	29
62	"	1.5	m	20	29
63	"	1.5	s/m	18	29
64	"	4.8	m	18	29
65	"	12.0	m	18	29
66	"	12.9	m	18	29
67	"	8.4	m	18	29
68	"	8.1	m	18	29
69	"	1.8	m	18	29
70	Buzzard Roost Creek	3.0	s	18	29
71	"	1.2	s/m	18	29
72	"	0.6	m	18	29
73	"	3.0	s/m	18	29
74	"	2.4	s/m	18	29
75	"	0.6	m	18	29
76	Carnigan River	1.5	m	18	29
77	"	3.0	m	18	29
78	"	0.9	m	18	29
79	"	3.0	m	18	29
80	"	3.6	m	18	29

Table B11 a. Continued

81	Carnigan River	1.2	m	18	29
82	"	2.4	m	18	29
83	"	3.0	m	18	29
84	"	1.2	m	18	29
85	"	4.5	m	18	29
86	"	3.6	m	18	29
87	"	1.2	s/m	18	29
88	Folley River	1.2	m	18	29
89	"	4.8	m	18	29
90	"	5.4	s	18	29
91	"	4.2	s/sh	18	29
92	"	4.5	m	18	29
93	"	1.8	m	18	29
94	Fox Creek	2.7	m	18	29
95	"	4.5	m	18	29
96	"	3.0	m	18	29
97	"	7.8	s	18	29
98	"	2.7	m	18	29
99	"	3.0	m	18	29
100	"	4.5	m	18	29
101	"	1.2	m	18	29
102	"	2.4	m	18	29
103	"	1.2	m	18	29
104	"	1.8	m	18	29
105	"	1.8	m	18	29
106	Dead River	1.5	m	18	29
107	"	1.5	m	18	29
108	"	int	m	18	29
109	"	1.8	m	18	29
110	"	3.0	m	18	29

Table B11 a. Continued

141	Dead River	2.4	m	28	29
142	Unnamed Tributary, Beacon	0.9	m/sh	28	29
143	Creek	0.9	m/sh	28	29
144	"	0.9	m/sh	28	29
145	"	1.5	m/sh	28	29
146	Beacon Creek	int	m	28	29
147	"	2.4	m	28	29
148	Beacon Creek	3.6	s	28	29
149	"	0.6	m	28	29
150	"	1.8	m	28	29
151	"	1.8	m	28	29
152	"	2.4	m	28	29
153	"	1.8	m	28	29
154	"	0.9	m	28	29
155	"	1.8	m	28	29
156	"	2.1	m	28	29
157	"	0.9	m	28	29
158	"	1.2	m	28	29
159	"	1.8	m	28	29
160	"	1.2	m	28	29
161	"	1.2	m	28	29
162	"	1.2	m	28	29
163	"	3.0	m	28	29
164	"	3.0	m	28	29
165	"	6.0	m	28	29

Table B11 a. Continued

166	Beacon Creek	6.0	m	28	29
167	"	1.8	m	28	29
168	"	1.5	m/sh	28	29
169	"	1.2	m	28	29
170	"	1.5	m	28	29
171	"	0.3	m	28	29
172	South River	int	sh	ND	ND
173	Wolf Island*	int	ND	ND	ND
174	Darien River*	int	m	ND	ND
175	Doboy Sound*	int	m/r	ND	ND
176	North River*	int	m/r	28	29
177	Beacon Creek*	4.2	m		

* Areas sampled by Thomas Shierling and Jim Whitted

Table B11 b. Hard clam distribution of Wolf Island area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Unnamed tributary through 7	0	0	0	0
8 North River through 16	0	0	0	0
17 Little Mud River through 22	0	0	0	0
23 Crooked Creek through 25	0	0	0	0
26 South River through 37	0	0	0	0
38 Unnamed tributary	0	0	0	0
39 "	0	0	0	0

Table B11 b. Continued

40 Back River through 49	0	0	0	0
50 North River through 69	0	0	0	0
70 Buzzard Roost Creek through 75	0	0	0	0
76 Carnigan Creek through 87	0	0	0	0
88 Folley River through 93	0	0	0	0
94 Fox Creek through 105	0	0	0	0
106 Dead River through 117	0	0	0	0
118 Beach Creek through 133	0	0	0	0

Table B11 b. Continued

134 through 141	Beacon Creek	0	0	0	0
142	Unnamed tributary	0	0	0	0
143	"	0	0	0	0
144	"	1	1.7 ± 2.9	6.1	6.1
145	"	0	0	0	0
146 through 164	Beacon Creek	0	0	0	0
165	Beacon Creek	2	3.3 ± 5.8	5.8 ± 4.2	2.9 to 8.8
166	"	1	1.7 ± 2.9	9.6	9.6
167	"	0	0	0	0
168	"	1	1.7 ± 2.9	5.5	5.5
169	"	0	0	0	0
170	"	0	0	0	0
171	"	0	0	0	0
172	South River	120	90.8 ± 6.5	5.4 ± 1.6	1.2 to 8.0
173	Wolf Island*	0	0	0	0
174	Darien River*	1	ND	ND	ND
175	Doboy Island*	1	ND	ND	ND
176	North River*	0	0	0	0
177	Beacon Creek*	0	0	0	0

* Areas surveyed by Thomas Shierling and Jim Whitted

Table B12 a. Hydrographic data of Altamaha Sound area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station / Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1 Egg Island	2.4	s/sh	20	29
2 "	1.5	s/sh	20	29
3 "	1.5	s/sh	20	29
4 "	int	sh	20	29
5 "	0.9	s/m	20	29
6 "	0.9	s/m	20	29

Table B12 b. Hard clam distribution of Altamah Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Egg Island through 6	0	0	0	0

Table B13 a. Hydrographic data of Little St. Simons and St. Simons Island areas. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station	/ Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Unnamed creek	0.9	m	28	29
2	"	int	m	28	29
3	"	int	s/m	28	29
4	"	int	m	28	29
5	"	0.9	m	28	29
6	"	0.9	s/m	28	29
7	"	3.0	m	28	29
8	"	1.2	s/m	28	29
9	Unnamed creek	int	m/sh	28	29
10	"	3.0	m	29	29
11	"	0.6	s/m	29	29
12	Hampton River	3.0	m	29	29
13	"	6.9	s	29	29
14	"	8.4	s/sh	29	29
15	"	6.0	s	29	29
16	"	7.2	m	29	29
17	"	6.9	s/m	29	29
18	"	4.8	s/m	29	29
19	"	2.4	s/m	29	29
20	"	4.4	m	29	29

Table B13 a. Continued

21	Hampton River	4.4	m	29	29
22	"	6.0	m/sh	29	29
23	"	4.2	m/s/sh	29	29
24	"	2.4	m/sh	29	29
25	"	2.4	s/sh	29	29
26	"	3.6	m/s/sh	29	29
27	"	8.1	s	29	29
28	"	9.0	m	29	29
29	"	8.7	m	29	29
30	"	7.8	m	29	29
31	"	6.6	m/s/sh	29	29
32	"	6.0	m/sh	29	29
33	"	7.2	m	29	29
34	"	0.6	s	29	29
35	"	3.6	m	16	29
36	"	3.0	m	16	29
37	"	3.6	m	10	29
38	Pine Creek	4.2	m/s/sh	5	29
39	"	4.8	m/sh	26	29
40	"	6.0	m	26	29
41	Unnamed creek	6.6	s	26	29
42	"	0.6	m	26	29
43	"	0.6	m	26	29
44	"	0.9	m	26	29
45	"	0.9	m	26	29
46	Unnamed creek	0.9	s/m	26	29
47	"	0.9	m/sh	26	29
48	"	0.9	m	26	29
49	"	0.9	s/m	26	29
50	"	1.5	s/sh	26	29

Table B13 a. Continued

51	Unnamed creek	1.8	m	27	29
52	"	0.6	m	27	29
53	MacKay River	2.4	m	0	29
54	"	4.2	m	0	29
55	"	3.6	m	10	29
56	Jones Creek	3.0	m	14	29
57	"	0.6	m	14	29
58	"	int	m	14	29
59	MacKay River	3.0	m	16	29
60	Golf Course Creek	int	s	26	23
61	"	0.3	m/sh	26	23
62	Parson Creek	2.7	m	26	23
63	"	2.7	s	26	23
64	"	2.4	m	26	23
65	"	2.7	s	26	23
66	"	2.7	m	26	23
67	"	2.7	m/sh	26	23

Table B13 b. Hard clam distribution of Little St. Simons and St. Simons areas. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Unnamed creek	3	5.0 ± 5.0	6.7 ± 0.4	6.2 to 6.9
2 "	0	0	0	0
3 "	0	0	0	0
4 "	1	1.7 ± 2.9	7.4	7.4
5 " through 8	0	0	0	0
9 Unnamed creek through 11	0	0	0	0
12 Hampton River through 37	0	0	0	0
38 Pine Creek through 40	0	0	0	0

Table B13 b. Continued

41 through 44	Unnamed creek	0	0	0	0
45	"	1	1.7 ± 2.9	2.2	2.2
46	Unnamed creek	0	0	0	0
47	"	0	0	0	0
48	"	1	1.7 ± 2.9	7.9	7.9
49 through 52	"	0	0	0	0
53 through 55	MacKay River	0	0	0	0
56 through 58	Jones Creek	0	0	0	0
59	MacKay River	0	0	0	0
60	Golf Course Creek	1	1.7 ± 2.9	9.9	9.9
61	"	2	3.3 ± 5.8	6.4 ± 1.8	5.1 to 7.6
62 through 66	Parson Creek	0	0	0	0
67	Parson Creek	1	1.7 ± 2.9	9.8	9.8

Table B14 a. Hydrographic data of St. Simons Sound area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station / Location	Depth in Meters	Substrate Types	Salinity (ppt)	Water Temp. in °C
1 St. Simons Sound	1.2	m	22	23
2 "	4.2	m	22	23
3 "	4.8	m	22	23
4 "	9.0	s	22	23
5 "	6.6	s	22	23
6 "	4.8	s	22	23
7 "	4.2	m	22	23
8 "	1.2	m	22	23
9 "	0.3	s/m	22	23
10 "	2.4	m	22	23
11 "	4.5	s/m	22	23
12 "	6.0	s/m	22	23
13 "	7.2	s	22	23
14 "	6.6	s	22	23
15 "	2.4	s	22	23
16 "	5.4	s/m	22	23
17 "	5.4	s	22	23
18 "	6.3	m	22	23
19 "	6.3	m	22	23
20 "				

Table B14 a. Continued

21	St. Simons Sound	6.0	m	22	23
22	"	4.2	m	22	23
23	"	1.2	m	22	23
24	"	2.4	m	22	23
25	"	6.3	s	22	23
26	"	6.6	s	22	23
27	"	7.2	s	22	23
28	"	10.8	s	22	23
29	"	12.0	m	22	23
30	"	13.5	s/sh	22	23
31	"	8.4	m/sh	22	23
32	"	8.7	m	22	23
33	"	6.6	m	26	23
34	"	6.0	s	26	23
35	"	4.8	m	26	23
36	"	int	m	26	23
37	"	3.0	m	26	23
38	"	3.0	m/s	26	23
39	"	0.3	m/s	26	23
40	"	2.4	m	26	23
41	"	2.7	m	26	23
42	"	2.7	s	26	23
43	"	int	m	26	23

Table B14 b. Hard clam distribution of St. Simons Sound area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 St. Simons Sound through 43	0	0	0	0

Table B15 a. Hydrographic data of Jekyll Island area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate type are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand and sh = shell. Int = intertidal.

Station / Location		Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	Unnamed creek	int	m	30	29
2	"	int	m	30	29
3	"	int	m	30	29
4	"	0.3	m	30	29
5	"	0.6	m	30	29
6	Jekyll Creek	3.9	m	30	29
7	"	0.6	m	30	29
8	"	5.7	m	30	29
9	"	0.9	m	30	29
10	"	5.4	m	30	29
11	"	0.6	m	30	29
12	"	4.8	m	30	29
13	"	0.9	m	30	29
14	"	4.2	m	30	29
15	"	int	m	30	29
16	"	4.5	m	30	29
17	"	4.8	m	30	29
18	Jointer Creek	4.2	m	26	23
19	"	4.2	m	26	23
20	"	4.2	m	26	23

Table B15 a. Continued

21	Jointer Creek	1.5	m	26	23
22	"	int	m	26	23
23	"	3.0	m	26	23
24	"	3.0	m	26	23
25	"	4.2	m	26	23
26	"	6.3	m	26	23
27	"	1.5	m	26	23
28	"	0.6	m	26	23
29	"	0.9	m	26	23
30	"	2.4	m	26	23
31	"	2.4	m	26	23
32	"	3.6	m	26	23
33	"	2.7	m	26	23
34	"	2.7	m	26	23
35	"	1.8	m	26	23
36	"	6.0	m	26	23
37	"	6.9	s	26	23
38	"	6.3	m/s	26	23
39	"	2.4	s/m/sh	26	23
40	"	0.9	s	26	23
41	"	4.2	s	26	23
42	"	1.2	m/s	26	23
43	"	2.4	s	26	23
44	"	0.3	m/s/sh	26	23
45	"	0.6	m	26	23
46	"	3.6	m	26	23
47	"	1.8	m	26	23
48	"	2.4	m	26	23
49	"	0.6	m	26	23
50	"	3.6	m	26	23

Table B15 a. Continued

51	Jointer Creek	2.4	m	26	23
52	"	1.5	m	26	23
53	"	1.8	m	26	23
54	"	3.0	m	26	23
55	"	1.2	m	26	23
56	"	0.3	m	26	23
57	"	0.9	m	26	23
58	"	2.4	m	26	23
59	"	1.2	m	26	23
60	"	7.2	m	26	23
61	"	3.9	m	26	23
62	"	0.9	m	26	23
63	"	0.6	m	26	23
64	"	0.6	m	26	23
65	"	0.9	m	26	23
66	"	0.9	m	26	23
67	"	0.9	m	26	23
68	Little Satilla River	6.0	m	26	23
69	"	6.6	s	26	23
70	"	2.4	m	26	23
71	"	0.6	m	26	23
72	"	2.4	s	26	23
73	"	6.0	s	26	23
74	"	6.0	s	26	23
75	"	2.4	m	26	23
76	"	int	m	26	23
77	"	1.8	m	26	23
78	"	1.8	m	26	23
79	"	4.8	m	26	23
80	"	1.2	m	26	23

Table B15 a. Continued

81	Little Satilla River	0.3	m	26	23
82	"	1.8	m	26	23
83	"	1.8	m	26	23
84	"	1.8	m	26	23
85	"	1.5	m	26	23
86	"	6.0	s	26	23
87	"	6.0	s	26	23
88	"	6.0	s	26	23
89	"	4.2	s	26	23
90	"	4.2	s	26	23
91	"	4.5	s	26	23
92	Little Satilla River	4.8	s	26	23
93	"	4.2	s	26	23
94	"	4.2	s	26	23
95	"	2.7	s	26	23
96	"	0.6	m	26	23
97	"	0.3	s/m	26	23
98	"	0.6	s/m	26	23
99	"	0.9	m	26	23
100	"	2.4	s/m	26	23
101	"	3.0	s/m	26	23
102	"	0.9	m	26	23
103	"	0.9	m	26	23
104	"	2.7	s/m	26	23
105	Umbrella Creek	1.8	m	26	23
106	"	3.9	m	26	23
107	"	3.9	s/m	26	23
108	"	3.6	s/m	26	23
109	"	3.3	s/m	26	23
110	"	3.9	s/m	26	23

Table B15 a. Continued

111	Umbrella Creek	3.9	m	26	23
112	"	6.3	s/sh	26	23
113	"	6.0	s	26	23
114	"	6.0	m	26	23
115	"	6.3	m	26	23
116	"	6.0	m	26	23
117	"	3.9	m/sh	26	23
118	"	4.8	s	26	23
119	"	1.2	m	26	23
120	"	5.7	m/sh	26	23
121	"	6.0	m	26	23
122	"	1.5	m	26	23
123	"	4.8	m	26	23
124	"	6.9	m	26	23
125	"	1.2	m	26	23
126	"	1.5	m	26	23
127	"	5.7	m	26	23
128	"	5.1	m	26	23
129	"	4.2	s/m	26	23
130	"	4.8	s/sh	26	23
131	"	1.5	m	26	23
132	Unnamed Tributary	1.8	s	25	23
133	"	1.5	s	25	23
134	"	1.2	s	25	23
135	"	1.8	s/m	25	23
136	Unnamed Tributary	int	m	25	23
137	"	2.4	m	25	23
138	"	1.8	m	25	23
139	"	1.8	m	25	23
140	"	0.6	m/sh	25	23

Table B15 a. Continued

141	"	3.3	m	25	23
142	Unnamed Tributary	1.5	m/sh	25	23
143	Unnamed Tributary	0.9	m	25	23
144	"	0.9	m	25	23
145	"	0.6	m/sh	25	23
146	"	1.2	m	25	23
147	Noyes Cut	4.5	m	22	23
148	"	3.6	m	22	23
149	Dover Creek	3.9	m	22	23
150	"	3.3	m	22	23
151	"	5.4	m	22	23
152	"	6.0	m	22	23
153	"	2.4	m	22	23
154	"	9.0	m	22	23
155	"	6.9	m	22	23
156	"	4.8	m	22	23
157	"	0.3	m	22	23
158	"	5.4	m	22	23
159	"	4.8	m	22	23
160	"	2.4	m	22	23
161	"	5.7	m	22	23
162	"	0.6	m	22	23
163	"	5.1	m	22	23
164	"	5.1	m	22	23
165	"	5.1	m	22	23
166	"	2.4	m	22	23
167	"	2.4	m	22	23
168	"	2.7	m	22	23
169	Unnamed Tributary	0.6	m	22	23
170	"	0.3	m	22	23

Table B15 b. Hard clam distribution of Jekyll Island area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Unnamed creek	0	0	0	0
2 "	9	15.0 ± 21.8	7.1 ± 1.0	4.7 to 8.1
3 "	1	1.7 ± 2.9	8.1	8.1
4 "	0	0	0	0
5 Jekyll Creek through 17	0	0	0	0
18 Jointer Creek through 43	0	0	0	0
44 "	1	1.7 ± 2.9	4.3	4.3
45 " through 67	0	0	0	0
68 Little Satilla River through 104	0	0	0	0

Table B15 b. Continued

105 through 131	Umbrella Creek	0	0	0	0
132 through 135	Unnamed creek	0	0	0	0
136 through 141	Unnamed creek	0	0	0	0
142	Unnamed creek	1	1.7 ± 2.9	7.7	7.7
143	"	0	0	0	0
144	"	0	0	0	0
145	Unnamed creek	7	11.7 ± 7.6	6.9 ± 1.0	5.6 to 8.2
146	"	0	0	0	0
147	Noyes Cut	0	0	0	0
148	"	0	0	0	0
149 through 168	Dover Creek	0	0	0	0
169 through 170	Unnamed creek	0	0	0	0

Table B16 a. Hydrographic data for St. Andrews and Jekyll Sound areas. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station	/ Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1	St. Andrews Sound	6.0	s/m	29	29
2	"	7.8	s	29	29
3	"	10.2	m	29	29
4	"	1.8	m	29	29
5	"	4.8	m	29	29
6	"	4.2	s/m	29	29
7	"	2.4	s	29	29
8	"	2.4	s/m	29	29
9	"	0.6	s/m	29	29
10	"	1.2	s/m	29	29
11	"	int	s/m	29	29
12	"	0.6	m	29	29
13	"	2.4	m	29	29
14	"	4.8	s/m	29	29
15	"	1.2	m	29	29
16	"	2.4	m	29	29
17	"	1.2	m	29	29
18	"	2.4	m	29	29
19	"	1.2	m	29	29
20	Jekyll Sound	1.8			

Table B16 a. Continued

21	Jekyll Sound	5.4	m	29	29
22	"	2.4	m	29	29
23	"	4.8	m	29	29
24	"	3.0	s/m	29	29
25	"	2.4	s/sh	29	29
26	"	1.2	m	29	29
27	"	int	m	29	29
28	"	0.9	m	29	29
29	"	3.6	s/m	29	29
30	"	3.0	s/m	29	29
31	"	3.0	m	29	29
32	"	3.6	m	29	29
33	"	2.4	m	29	29
34	"	3.0	m	29	29
35	"	0.6	m	29	29
36	St. Andrews Sound	3.6	m/sh	26	23
37	"	8.1	s	26	23
38	"	6.0	s	26	23
39	"	4.5	s	26	23
40	"	3.0	s	26	23
41	"	2.4	s	26	23
42	St. Andrews Sound	2.4	s	26	23
43	"	2.1	s	26	23
44	"	6.0	m	26	23
45	"	6.9	s	26	23
46	"	15.0	s	26	23
47	"	9.0	s/m	26	23
48	"	0.6	s	26	23
49	"	9.0	s/m	26	23
50	"	12.0	m	26	23
51	"	9.0	m	26	23
52	"	10.8	m	26	23
53	"	13.5	m	26	23

Table B16 a. Continued

54	St. Andrews Sound	12.4	m	26	23
55	"	4.5	m/s	26	23
56	"	1.5	s	26	23
57	"	1.5	s	26	23
58	"	2.4	s/m	26	23
59	"	3.0	m	26	23
60	"	4.2	s	26	23
61	"	9.9	s	26	23
62	"	1.2	s	26	23
63	"	1.5	s	26	23
64	"	0.9	s	26	23
65	"	0.9	s	26	23
66	"	1.2	s	26	23
67	"	3.0	s	26	23
68	"	6.3	s/m	26	23
69	"	6.0	s/m	26	23
70	"	1.8	s	26	23
71	"	4.8	s/m	26	23
72	"	4.5	s	26	23
73	"	3.0	s	26	23
74	"	2.4	m/s	26	23
75	"	2.4	m/s	26	23
76	"	1.8	s	26	23
77	"	0.9	m	26	23
78	"	int	sh	26	23
79	"	0.3	m	26	23
80	"	1.2	m	26	23
81	"	2.4	s	26	23
82	"	6.3	m	26	23
83	"	6.9	m	26	23
84	"	6.0	m	26	23
85	"	0.6	m/s/sh	26	23
86	"	int	s	26	23

Table B16 b. Hard clam distribution of St. Andrews and Jekyll Sound areas. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 St. Andrews Sound through 19	0	0	0	0
20 Jekyll Sound through 35	0	0	0	0
36 St. Andrews Sound through 86	0	0	0	0

Table B17 a. Hydrographic data of Little Cumberland and Cumberland Island areas. Location, estimated water depth at mean low water, substrate type, salinity in ppt, and water temperature. Substrate types are: m = mud, m/sh = mud /shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station	/ Location	Depth in Meters	Substate Type	Salinity (ppt)	Water Temp. in °C
1	Shell Creek	int	s/sh	26	23
2	"	0.3	m/sh	26	23
3	"	0.9	m	26	23
4	Cumberland River	0.9	m	26	23
5	"	1.2	m	26	23
6	"	1.5	m	26	23
7	"	1.2	m	26	23
8	"	6.3	s	26	23
9	"	7.2	s	26	23
10	"	7.8	m	26	23
11	"	6.3	m	26	23
12	"	3.9	m	26	23
13	"	1.2	m	26	23
14	Unnamed creek	1.5	m/sh	26	23
15	"	1.2	m	26	23
16	"	1.8	m	26	23
17	"	1.2	m	26	23
18	"	1.2	m	26	23
19	Satilla River	1.2	s	26	23
20	"	1.5	s	26	23

Table B17 a. Continued

21	Satilla River	2.4	m	26	23
22	"	0.9	s	26	23
23	"	0.6	s	26	23
24	"	0.9	s	26	23
25	"	1.5	s	26	23
26	"	2.4	s/m	26	23
27	"	0.6	m	26	23
28	"	3.3	m	26	23
29	"	3.6	m/s	26	23
30	"	3.3	m	26	23
31	"	5.4	m	26	23
32	"	5.1	m	26	23
33	"	3.3	m	26	23
34	"	2.4	m/s	26	23
35	"	3.6	m	26	23
36	"	3.6	m	26	23
37	Todd Creek	0.6	s/m	26	23
38	"	0.6	s/m	26	23
39	"	0.6	m	26	23
40	Floyd Creek	3.6	s	26	23
41	"	2.7	s/m	26	23
42	Floyd Creek	3.0	m	28	22
43	"	5.1	s	28	22
44	"	3.9	m	28	22
45	"	4.8	m	28	22
46	"	6.0	s	28	22
47	"	5.7	m	28	22
48	"	1.8	m	28	22
49	"	4.8	s	28	22
50	"	3.0	m	28	22

Table B17 a. Continued

51	Floyd Creek	5.4	m	28	22
52	"	6.3	m	28	22
53	"	4.8	m	28	22
54	Mud Creek	4.8	m	28	22
55	"	6.0	m	28	22
56	"	1.8	m	28	22
57	"	2.4	m	28	22
58	"	12.6	m	28	22
59	"	4.2	m	28	22
60	"	1.2	m	28	22
61	"	2.1	m	28	22
62	"	6.0	m	28	22
63	"	2.1	m	28	22
64	"	4.5	m	28	22
65	"	12.0	m	28	22
66	"	3.0	m	28	22
67	"	0.6	m	28	22
68	"	1.8	m	28	22
69	"	1.8	m	28	22
70	"	1.8	m	28	22
71	"	2.4	m	28	22
72	"	0.3	sh/m	28	22
73	Cumberland River	4.2	m	28	22
74	"	5.1	m	28	22
75	"	7.5	s	28	22
76	"	6.6	s	28	22
77	"	6.9	m	28	22
78	"	6.0	m	28	22
79	"	4.5	m	28	22
80	"	2.4	m	28	22

Table B17 a. Continued

81	Cumberland River	3.6	m	28	22
82	"	8.1	m	28	22
83	"	7.8	s	28	22
84	"	9.6	s	28	22
85	"	9.3	s	28	22
86	"	3.6	m	28	22
87	"	1.5	m	28	22
88	"	3.6	m	28	22
89	"	11.4	s	28	22
90	"	6.6	s	28	22
91	Cumberland River	1.2	s/m	28	29
92	"	2.4	m	28	29
93	"	3.6	m	28	22
94	"	3.6	m	28	22
95	"	2.4	m	28	22
96	"	int	m	28	22
97	"	4.8	m	28	22
98	"	9.0	s	28	22
99	"	12.0	s	28	22
100	"	6.0	m	28	22
101	"	5.4	m	28	22
102	"	4.2	m	28	22
103	"	0.6	m	28	22
104	"	int	s/m	28	22
105	"	7.2	m	28	22
106	"	8.4	s/sh	28	22
107	"	3.3	s	28	22
108	"	2.4	s	28	22
109	"	int	m	28	22
110	"	int	m	28	22

Table B17 a. Continued

111	Hawkins Creek	1.5	m	28	22
112	Malkin Took Creek	3.0	m	28	22
113	"	2.1	m	28	22
114	"	0.6	m/sh	28	22
115	"	0.6	m/s	28	22
116	Brickhill River	7.2	s	28	22
117	"	4.8	m	28	22
118	"	4.5	m	28	22
119	"	3.3	m	28	22
120	"	0.6	s	28	22
121	"	7.2	s	28	22
122	"	1.2	m	28	22
123	"	1.8	m	28	22
124	"	1.8	m/s	28	22
125	"	3.3	m	28	22
126	"	3.3	m	28	22
127	"	3.9	m	28	22
128	"	4.2	m	28	22
129	"	4.8	m	28	22
130	"	3.0	m	28	22
131	"	2.4	s	28	22
132	"	3.6	s	28	22
133	"	3.0	m	28	22
134	"	3.0	m	28	22
135	"	2.4	m	28	22
136	"	6.6	s	28	22
137	"	7.2	m	28	22
138	"	6.9	s/sh	28	22
139	Brickhill River	4.5	s	28	22
140	"	4.5	m	28	22

Table B17 a. Continued

141	Brickhill River	4.2	m	28	22
142	"	4.5	m	28	22
143	"	int	m	28	22
144	"	3.0	m	28	22
145	"	4.2	s	28	22
146	"	3.0	m	28	22
147	Beach Creek	0.6	m	32	22
148	"	1.2	m	32	22
149	"	1.8	m	32	22
150	"	1.5	m/sh	32	22
151	"	int	sh	32	22
152	"	0.9	s/m	32	22
153	Cumberland Sound	0.9	m	30	22
154	"	2.7	s/m	30	22
155	"	5.4	s	30	22
156	"	7.5	s	30	22
157	"	6.6	s	30	22
158	"	3.0	s/m	30	22
159	"	1.5	s/m	30	22
160	"	int	s/m	30	22
161	"	int	s/m	30	22
162	"	1.5	s/m	30	22
163	"	2.4	s/m	30	22
164	"	4.8	s/m	30	22
165	"	9.9	s	30	22
166	"	5.4	m	30	22
167	"	4.8	s/m	30	22
168	"	3.0	s/m	30	22
169	"	5.4	m	30	22
170	"	0.6	m	30	22

Table B17 a. Continued

171	Cumberland Sound	3.6	s/m	30	22
172	"	3.6	s/m	30	22
173	"	2.4	m	30	22
174	"	1.2	m	30	22
175	"	4.8	m/s	30	22
176	"	4.8	s/m	30	22
177	"	0.9	m	30	22
178	"	4.5	s/m	30	22
179	"	0.9	s	30	22
180	"	int	s	30	22
181	"	2.4	m	30	22
182	"	1.2	s	30	22
183	"	0.9	s/m	30	22
184	"	int	s/m	30	22
185	"	0.6	s/m	30	22
186	"	0.9	s/m	30	22
187	"	0.3	s/m	30	22
188	Cumberland Sound	1.5	m	29	22
189	"	9.0	s	29	22
190	"	6.9	s	29	22
191	"	2.4	s	29	22
192	"	2.4	s	29	22
193	"	int	m/s	29	22
194	"	1.2	m	29	22
195	"	3.6	m	29	22
196	"	2.4	m/s	29	22
197	"	int	m	29	22
198	"	int	m	29	22
199	"	int	m	29	22
200	"	int	m	29	22

Table B17 a. Continued

201	Cumberland Sound	int	m	29	22
202	"	int	m	29	22
203	"	int	m	29	22
204	"	int	m	29	22
205	"	int	m	29	22
206	"	int	m	29	22
207	"	0.2	m	29	22
208	"	int	m	29	22
209	"	0.3	m	29	22
210	"	0.3	m	29	22
211	"	0.3	m	29	22
212	"	0.6	m	29	22
213	Unnamed Creek	0.6	m	29	22
214	"	int	m	29	22
215	"	0.3	m	29	22
216	Unnamed Creek	0.3	m	29	22
217	"	0.6	m/sh	29	22
218	"	0.3	m	29	22
219	Cumberland Dividings	1.5	s	28	22
220	"	5.7	s	28	22
221	"	1.2	sh/s	28	22
222	"	2.7	s	28	22
223	"	3.3	s	28	22
224	"	0.6	m	28	22
225	"	int	m	28	22
226	"	0.3	s	28	22
227	"	0.3	s	28	22
228	"	0.6	s	28	22
229	"	6.3	s	28	22
230	"	2.7	s	28	22

Table B17 a. Continued

231	Cumberland Dividings	int	s/m	28	22
232	"	int	s/m	28	22
233	"	0.9	s/m	28	22
234	"	6.0	s/m	28	22
235	"	5.1	s/m	28	22
236	"	4.2	m	28	22
237	"	int	s	28	22
238	"	int	s	28	22
239	Cumberland Dividings	int	s	28	22
240	"	6.3	s	28	22
241	"	5.7	s	28	22
242	"	0.6	m	28	22
243	Crooked River	4.2	s/sh	28	22
244	"	4.8	s/sh	28	22
245	"	4.5	s	28	22
246	"	4.2	s	28	22
247	"	6.0	s/sh	28	22
248	"	6.3	m	28	22
249	"	6.0	s	28	22
250	"	6.0	s	28	22
251	"	6.0	s	28	22
252	"	6.0	s	28	22
253	"	5.7	s	28	22
254	"	6.6	s	28	22
255	"	1.8	s	28	22
256	"	2.7	s	28	22
257	"	6.0	s	28	22
258	"	6.3	s	28	22
259	"	6.6	s	28	22
260	"	4.5	s	28	22

Table B17 a. Continued

261	Crooked River	int	s	28	22
262	"	2.7	s	28	22
263	"	6.0	s	28	22
264	"	6.6	s	28	22
265	"	5.7	s	28	22
266	"	int	s/m	28	22
267	"	6.0	s	28	22
268	"	4.3	s	28	22
269	"	2.7	s	28	22
270	"	0.6	s	28	22
271	"	int	s	28	22
272	"	int	s	28	22
273	"	0.6	s	28	22
274	"	int	s	28	22
275	"	int	s	28	22
276	"	0.6	s	28	22
277	"	1.5	s	28	22
278	"	1.5	s	28	22
279	"	int	s/m	28	22
280	"	0.6	s/m	28	22
281	"	1.5	s/m	28	22
282	"	2.7	s/m	28	22
283	"	3.0	s/m	28	22
284	"	1.5	s/m	28	22
285	"	2.4	s	28	22
286	"	3.0	s	28	22
287	"	3.9	s	28	22
288	"	3.6	s	28	22

Table B17 a. Continued

289	Crooked River	0.6	s	28	22
290	"	int	s/m	28	22
291	"	int	s	28	22
292	"	1.5	s/m	28	22
293	"	2.4	s/m	28	22
294	"	3.6	s/m	28	22
295	"	4.2	s/m	28	22
296	"	1.5	s/m	28	22
297	"	int	s/m	28	22
298	"	int	m	28	22
299	"	int	m	28	22
300	"	int	m	28	22
301	"	int	m	28	22

Table B17 b. Hard clam distribution of Little Cumberland and Cumberland Island areas. Location, total number of clams collected, average number of clams per square meter, average shell lengths of clams collected, and range of shell lengths of clams collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 Shell Creek through 3	0	0	0	0
4 Cumberland River through 13	0	0	0	0
14 Unnamed creek through 18	0	0	0	0
19 Satilla River through 36	0	0	0	0
37 Todd River through 39	0	0	0	0
40 Floyd Creek through 53	0	0	0	0

Table B17 b. Continued

54 through 72	Mud River	0	0	0	0
73 through 110	Cumberland River	0	0	0	0
111	Hawkins Creek	0	0	0	0
112	Malkintook Creek	0	0	0	0
113	"	1	1.7 ± 2.9	8.1	8.1
114	"	1	1.7 ± 2.9	6.1	6.1
115	"	0	0	0	0
116 through 146	Brickhill River	0	0	0	0
147	Beach Creek	0	0	0	0
148	"	0	0	0	0
149	"	0	0	0	0
150	"	1	1.7 ± 2.9	7.6	7.6
151	"	1	1.7 ± 2.9	8.6	8.6
152	"	0	0	0	0
153 through 170	Cumberland River	0	0	0	0
171 through 212	Cumberland Sound	0	0	0	0

Table B17 b. Continued

213 Unnamed creek through 215	0	0	0	0
216 Unnamed creek	1	1.7 ± 2.9	8.8	8.8
217 "	6	10.0 ± 5.0	7.5 ± 1.2	5.8 to 8.9
218 "	2	3.3 ± 5.8	7.3 ± 2.2	7.6 to 8.3
219 Cumberland Dividings through 230	0	0	0	0
231 Cumberland Dividings	1	1.7 ± 2.9	7.5	7.5
232 Cumberland Dividings through 242	0	0	0	0
243 Crooked River through 301	0	0	0	0

Table B18 a. Hydrographic data of St. Marys River area. Location, estimated depth of water at mean low water, substrate type, salinity in ppt, and water temperatures. Substrate types are: m = mud, m/sh = mud/shell, m/s = mud/sand, s = sand, and sh = shell. Int = intertidal.

Station / Location	Depth in Meters	Substrate Type	Salinity (ppt)	Water Temp. in °C
1 St. Marys River	int	s	34	22
2 "	0.9	s	34	22
3 "	3.6	s	34	22
4 "	7.2	s	34	22
5 "	12.0	s	34	22
6 "	11.4	s	34	22
7 "	10.8	s	34	22
8 "	6.9	s	34	22
9 "	5.4	s	34	22
10 "	0.6	s	34	22
11 "	7.4	s	34	22
12 "	7.7	s	34	22
13 "	6.9	s	34	22
14 "	2.7	s	34	22
15 "	1.8	s	34	22
16 "	9.6	s	34	22
17 "	9.0	s	34	22
18 "	0.9	s/m	34	22
19 "	int	s/m	34	22
20 "	int	s/m	34	22
21 "	6.9	s/m	34	22
22 "	10.8	s/m/sh	34	22
23 "	6.0	s/m	34	22
24 "	4.2	s/m	34	22
25 "	0.6	s/m	34	22

Table B18 b. Hard clam distribution of St. Marys River area. Location, total number of clams collected, average number of clams per square meter, average shell length of clams collected, and range of shell lengths collected per station.

Station / Location	Total No.	Average No. Per Square Meter ± S.D.	Average Shell Length ± S.D.	Range in cm
1 St. Marys River through 25	0	0	0	0