ANNUAL REPORT
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BAY SCALLOP PROJECT

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INTRODUCTION

The year 1994 was busy and productive for the Florida Marine Research Institute (FMRI) bay scallop project. Increased funding provided the opportunity to expand the project to include, in addition to our original reseach site in Homosassa Bay, research sites in Pine Island Sound, Anclote Estuary, Steinhatchee, St. Joseph Bay, and St. Andrew Bay/Sound. Actions by the Florida Marine Fisheries Commission (MFC) publicized bay scallop (Argopecten irradians concentricus) resource problems in Florida and also resulted in the implementation of the first serious management efforts to stem the receding tide of bay scallop abundance in the state.

Bay scallop research was initiated by the FMRI in 1991, but only as a small project designed to determine the status of the animal in the state. By 1993, it was apparent that the A. i. concentricus resource had significant problems, exemplified by the historic and recent disappearance of populations in some areas of the state (e.g. Sarasota Bay, Tampa Bay) and the very low abundance of animals comprising populations in other areas of the state (e.g. Tarpon Spring, Homosassa Bay). In response to those observations, bay scallop research funding was substantially increased, and that provided the opportunity for a more synoptic approach to bay scallop research in 1994. We now provide a brief summary of available research results from 1994 and provide guidelines for 1995 research efforts.

ADULT POPULATION SURVEYS

Surveys of adult bay scallop abundance were conducted in Pine Island Sound, Anclote Estuary, Homosassa Bay, Steinhatchee, St. Joseph Bay, and St. Andrew Bay/Sound (Figure 1) during June, with follow-up surveys conducted in Anclote Estuary, Steinhatchee, and St. Joseph Bay during October. The adult sampling protocol involved SCUBA-assisted diver surveys of twenty randomly-located 300 m transects at each site (see Figures 2-7 for station locations). Survey results indicate that bay scallop density varies substantially among study sites. The three northern sites (Steinhatchee, St. Joseph Bay, St. Andrew Bay/Sound) generally exhibited higher densities than the three southern sites (Pine Island Sound, Anclote Estuary, Homosassa Bay), although a spatially-restricted but dense patch of scallops was detected at the Anclote Estuary site. Note that density data is presented in both graphical and tabular form; graphical contour plots are smoothed over five nearest-neighbors, a process that tends to damp extreme density variations.

Pine Island Sound: During June, no scallops were observed at any of the stations within the Pine Island Sound study site. Telephone survey results from 1992 and 1993 indicated that a low-density population of bay scallops does exist in Pine Island Sound, but closure of that area in 1994 precluded an effective telephone survey. Pine Island Sound was not resampled in October due to the lack of bay scallops discovered in that area during the June survey.

Anclote Estuary: During June, bay scallop densities in the southern and central portions of the Anclote study site ranged from 0 to 20 scallops per 600 m^2 transect (PT; Figure 8, Table 1). However, a localized high density (20 to 90 scallops PT) population was discovered in the northern portion of the study site. Scallop density was still relatively high in October (Figure 9, Table 2); densities of 0 to 5 scallops PT typified the southern and central portions, and densities of 5 to 40 scallops PT typified the northern portion. Overall mean bay scallop density at the Anclote study site decreased by 51% between June (14.65 scallops PT) and October (7.15 scallops PT), but the overall decrease was not statistically significant ($t'=1.13$, $df=19$).

Homosassa: Density of A. i. concentricus ranged from 0 to 20 scallops PT in most portions of the study site during June, although one area in the northern portion of the study site exhibited a density of 35 scallops PT (Figure 10, Table 3). This compares with densities of from 0 to 22 scallops PT during June, 1993 (Figure 11), although density was highest in the southern portion of the Homosassa study site during 1993. We did not resample Homosassa Bay in October because the overall density of scallops was too low to obtain a statistically meaningful comparison between June and October results. In 1993, density decreased by approximately 80% between June and October (Figure 12).

Steinhatchee: This site supports one of the most abundant bay scallop populations in Florida. In June, 1994, bay scallop density was consistently high (>100 scallops PT) throughout the site (Figure 13, Table 4), with an overall mean density of 159.0 scallops PT. By October, overall density had decreased by 85% (Figure 14, Table 5), to a mean of 31.3 scallops PT. The October mean density was significantly lower than that observed in June ($t'=3.59$, $df=19$), with the most substantial decrease observed closest to the Steinhatchee river mouth. Stations at the northern (stations 1-7) and southern (stations 18-20) extremes of the Steinhatchee study site lost 79% of the scallop population between June and October, whereas the central stations (8-17) lost essentially 100% of the scallop population between June and October (Tables 4 and 5). One explanation of this observation is that fishing effort is higher near the Steinhatchee River; alternatively, freshwater from the river may be a significant source of mortality for scallops influenced by that freshwater plume. At present, we cannot distinguish between these alternative explanations.

St. Joseph Bay: Bay scallops are confined almost exclusively to the southern portion of the bay (Figure 15, Table 6). During June, densities up to 100 scallops PT were recorded in the southern portion of the study site, and the mean overall density was 35.8 scallop PT. By October, those densities had decreased by over 96%; mean overall density was 2.9 scallops PT, and many areas were almost completely devoid of scallops (Figure 16, Table

7). However, the decrease in mean overall density between June and October was not significant ($t'=1.89$, $df=19$).

St. Andrew Bay and Sound: The bay scallop population in St. Andrew Bay, where 13 sampling stations (stations 1-13) were located, is confined exclusively to the shallow seagrass flats along the perimeter of the seaward extent of the bay, especially along Shell Island. Scallops were very dense (mean = 83.2 scallops PT) in St. Andrew Bay during June (Table 7; contour map not yet available), but the population apparently was obliterated during the July floods (David Wiggins, FDEP, pers. comm.). Seven stations (stations 14-20) were located in St. Andrew Sound (Crooked Island Sound). Mean density was 11.3 scallops PT. Discussions with David Wiggins suggest that the St. Andrew Sound population was extant until November, 1994. Wild Goose Lagoon, a small offshoot of St. Andrew Sound, apparently supports a healthy bay scallop population; our vessel was not appropriate for sampling in Wild Goose Lagoon in 1994 but we hope to correct that in 1995. We did not resample the St. Andrew Bay/Sound system in October because of the loss of that population during July.

Summary: The three southern sampling sites (Pine Island Sound, Anclote Estuary, Homosassa Bay) tend to have lower overall densities of bay scallops when compared with the three northern sites (Steinhatchee, St. Joseph Bay, St. Andrew Bay/Sound). Furthermore, among the three sites that were resampled in October (Anclote Estuary, Steinhatchee, St. Joseph Bay), the decrease in density between June and October tends to be more pronounced from

south to north. The former trend (lower density at the southern sites relative to the northern sites) is consistent with our original premise that scallop populations along the southern Gulf coast of Florida are more depleted than those along the northern Gulf coast. However, we do not yet have an unequivocal explanation for that trend. The latter trend (density decrease from June to October) simply may be due to environmental conditions; northern populations experience decreased water temperature earlier in the fall than do southern populations, which may induce earlier mortality. Alternatively, it is possible that increased fishing effort in the northern areas is responsible for the higher level of mortality. The St. Joseph Bay population is relatively confined and easily accessible and may experience high levels of fishing mortality. The Steinhatchee population is more spread out, although density decreases do appear to be more pronounced near the Steinhatchee River and less pronounced both north and south of that river. The Anclote population is not fished and experienced the lowest percent mortality. Research on mortality patterns at each of those sites is needed to more clearly define and explain observed trends.

Freshwater also may have a profound effect on bay scallop populations in Florida. The scallop population in St. Andrew Bay was decimated by freshwater inputs during July, although the population in the nearby St. Andrew Sound apparently was not affected. Distribution and abundance of scallops in Steinhatchee

also may be strongly influenced by freshwater inputs during what was a very wet year in north Florida.

EFFORT SURVEYS

Two aerial surveys were conducted on July 3, 1994, one from Anclote Estuary to Dallus Creek and the other from Dallus Creek to St. Andrew Bay. A seasonal closure south of the Suwanee River was effective because we saw few if any scallopers south of that point. Boats were plentiful around Steinhatchee, in spite of inclement weather from Tropical Storm Alberto, and also in St. Joseph Bay and St. Andrew Bay. Outside of those areas, few scallopers were seen.

Telephone survey results substantiated the results of the aerial survey. Most respondents commented that inclement weather combined with confusion over newly implemented regulations reduced effort considerably. However, respondents in Steinhatchee and St. Joseph Bay generally commented that the season was good and people were doing well when the weather allowed. There were several reports of an abundant scallop population in Big Lagoon near Pensacola. Dr. Paul Hamilton of the University of West Florida commented that the Big Lagoon population only survived until the middle of July when runoff from heavy rains killed those scallops. We are concerned that publicity surrounding bay scallop management efforts may have biased telephone survey results, as many responses appeared to be tailored to the desires of the respondent. A more comprehensive and statistically valid survey method is needed.

GROWTH

In the peninsular populations of Anclote Estuary (Figure 17), Homosassa Bay (Figure 18), and Steinhatchee (Figure 19), shell growth is largely complete by August, when most animals are 50 mm shell height (SH=maximum distance from umbo to ventral margin) or larger. The panhandle population in St. Joseph Bay follows a similar pattern (Figure 20). In contrast, bay scallop growth in St. Andrew Bay appears to lag behind the other populations (Figure 21). Even in July, no scallops larger than 50 mm SH were collected from St. Andrew Bay. Unfortunately, loss of the St. Andrew Bay population in July prevented us from obtaining a complete growth series for that population. August and September growth data in Figure 21 are from St. Andrew Sound, but animals in that population tend to be larger than animals contemporaneously sampled from the St. Andrew Bay population. Dependent upon the availability of animals, we hope to obtain a more complete shell growth data set from all monitored populations during 1995.

We determined the relationship between shell height and adductor muscle weight based upon samples collected from Homosassa Bay during 1993 (Figure 22). That relationship is described by the following equation:

$$(\text{adductor muscle weight}) = (4.55 \times 10^{-7})(\text{shell height}^{3.58}),$$

for a sample size of 136 animals and with an r^2 of 0.65. That

equation indicates that meat weight increases by 46% between 45 mm SH and 50 mm SH, by 41% between 50 mm SH and 55 mm SH, and by 36% between 55 mm SH and 60 mm SH.

On July 19, 1994, we collected bay scallops from the Gulf of Mexico near Steinhatchee to determine the number of scallops in a 5-gallon bucket and to determine the number of adductor muscle meats in an 8-ounce cup. Mean shell height of scallops at that time was 54.99 mm, with a sample standard deviation of 3.50 mm. We required 311, 308, and 310 of those scallops to fill a standard 5-gallon bucket flush to the rim during three separate trials. We also determined that to fill an 8-ounce container flush to the top with adductor muscle meats required approximately 95 of those 55 mm SH scallops. From that information, we calculated that 760 scallops (55 mm SH) will yield 1/2 gallon of shucked meats (the legal limit during 1994 based on meat count), although the legal limit during 1994 based upon shellstock was only 310 scallops. These data provided the impetus for the MFC to modify and equalize bay scallop bag limits.

REPRODUCTION AND RECRUITMENT

During 1994, we collected 20 scallop samples each from Steinhatchee, Homosassa Bay, and Anclote Estuary for histological analysis of gonadal condition. In conjunction with that study, we conducted a recruitment monitoring study at each of those sites. As of mid-January, 1995, we are still collecting animals for histological analysis and we still have spat samplers in the

water, so data analyses are not complete and the data are not yet available. Preliminary data indicate that recruitment may be roughly correlated with adult population density, as has been noted for bay scallop populations in North Carolina.

RESEARCH DIRECTIONS

Bay scallop research for 1995 needs to continue the following programs:

a) monitoring of adult populations at previously selected sites to further our knowledge of intra- and inter-annual population variation within sites;

b) reproduction/recruitment monitoring to determine if recruitment is correlated with adult abundance, and;

c) monitoring of water column physical parameters (temperature and salinity) to determine the relationship between those physical parameters and spawning, recruitment, and mortality of scallops.

Components of bay scallop research that should be eliminated include the aerial survey and the telephone survey. The aerial survey should be eliminated because it has served its purpose by providing us with a snapshot of the dense concentrations of scallopers that may occur in certain areas along the coast. However, additional information provided by the aerial survey can be obtained by other means that are less temporally biased. The telephone survey should be eliminated and replaced by a more comprehensive, license-based survey scheme that targets the individual scalloper rather than scallop interest groups. Our

telephone survey provided valuable information on the extent of bay scallop populations in the state. However, now that scallops are a "hot" item, telephone responses are in many cases obviously biased to reflect the interests of the respondent. Although the results of any survey scheme must be interpreted with caution, we feel that by contacting the individual scalloper rather than a dive shop, chamber of commerce, or government employee, we will obtain a more balanced and comprehensive result.

To fully appreciate the effects of recent bay scallop rule modifications, and to determine if additional modifications are needed, we should redirect several components of the bay scallop research project. We need a comprehensive study of short-term bay scallop mortality patterns in fished and unfished areas. We need to determine if scallops in St. Andrew Bay are always smaller than conspecifics from other areas of the state or if that was a just a one-year phenomenon. We need to identify and quantify as many Florida bay scallop populations as possible (especially west Florida populations), and we need to estimate gene flow among those populations. Finally, we need to determine the minimum bay scallop density required to support a reproductively viable population. By effectively utilizing available bay scallop research funds, and by developing imaginative approaches to the research needs listed above, we are confident that we can provide the basic biological information necessary to turn the tide of bay scallop abundance and availability in Florida.

Figure 1: Map of Florida, showing sampling sites and other important locations referenced in the text.

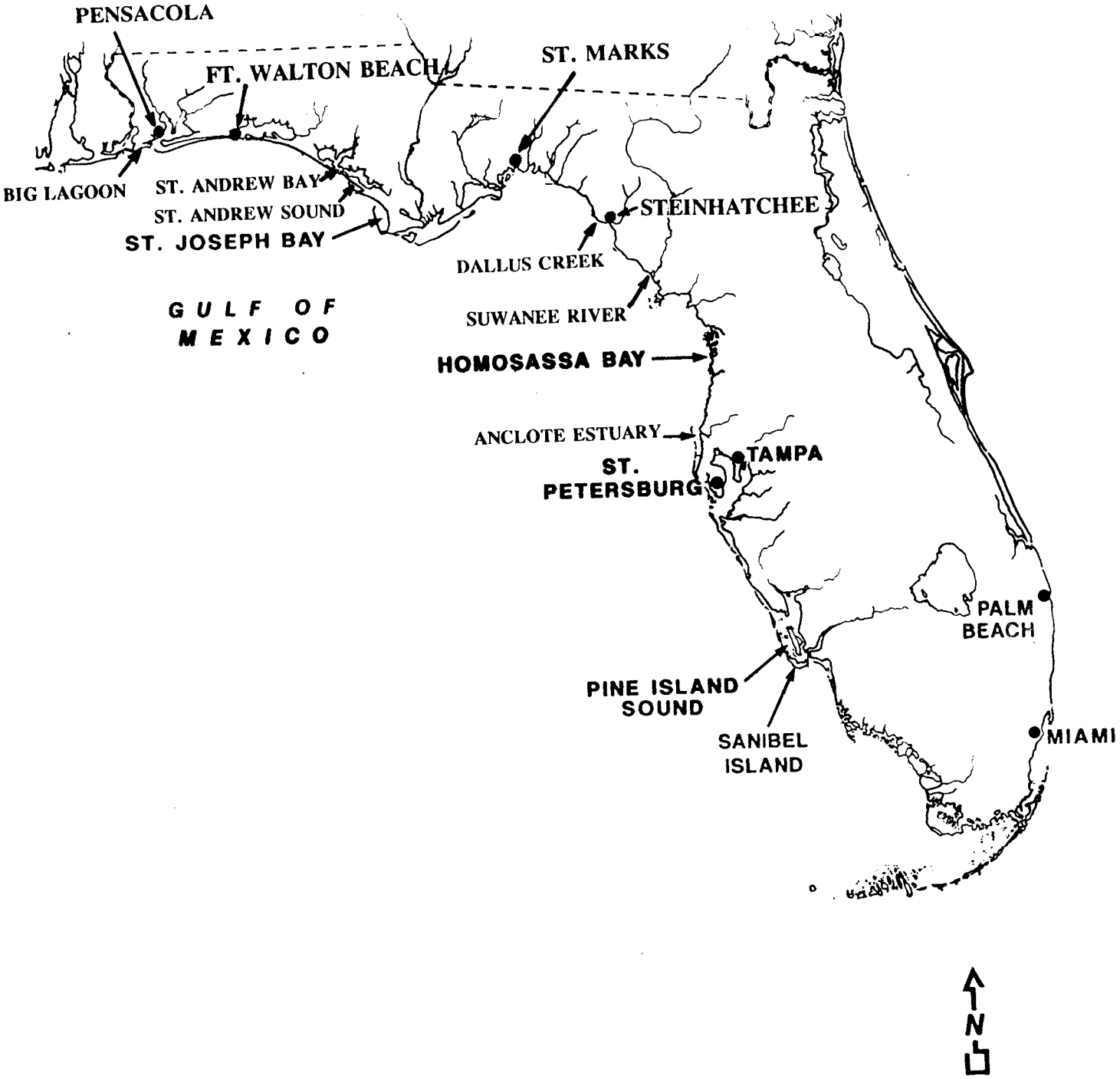

PENSACOLA
FT. WALTON BEACH
ST. MARKS
BIG LAGOON
ST. ANDREW BAY
ST. ANDREW SOUND
ST. JOSEPH BAY
STEINHATCHEE
DALLUS CREEK
SUWANEE RIVER
GULF OF MEXICO
HOMOSASSA BAY
ANCLOTE ESTUARY
TAMPA
ST. PETERSBURG
PALM BEACH
PINE ISLAND SOUND
SANIBEL ISLAND
MIAMI
N

Figure 2: Map of the Pine Island Sound study site, showing the location of the twenty sampling sites occupied during June, 1994, for bay scallop adult density monitoring.

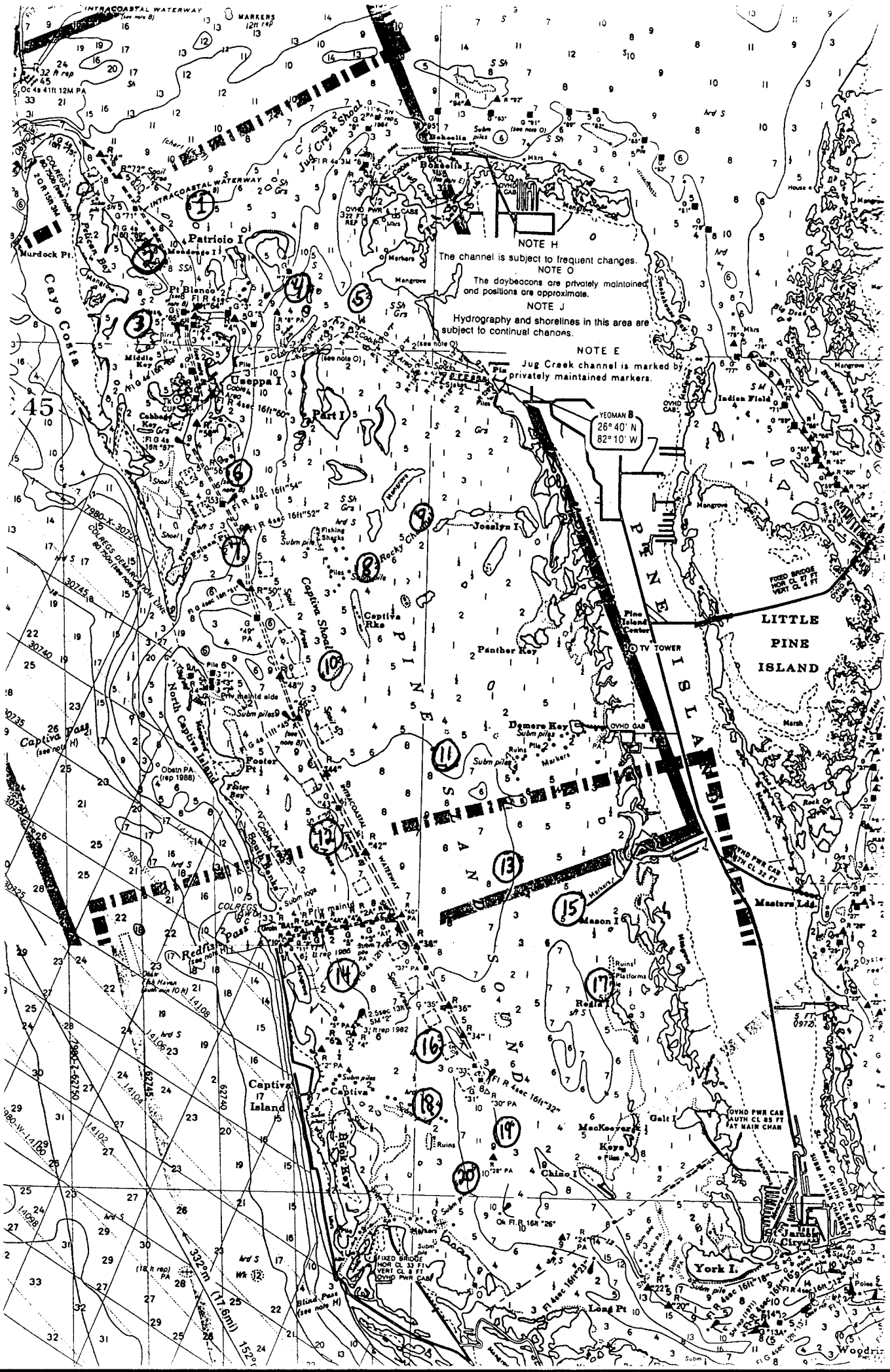

NOTE H
The channel is subject to frequent changes.
NOTE O
The daybeacons are privately maintained and positions are approximate.
NOTE J
Hydrography and shorelines in this area are subject to continual changes.
NOTE E
Jug Creek channel is marked by privately maintained markers.
YEOMAN B
26° 40' N
82° 10' W
PINE ISLAND SOUND
LITTLE PINE ISLAND
Cayo Costa
Captiva Pass
Redfish Pass
Blind Pass
Captiva Island
Patricio I
Useppa I
Part I
Joselyn I
Panther Key
Demere Key
Mason I
Galt I
MacKeever Keys
Chino I
York I.
Long Pt
Jug Creek Shoal
Captiva Shoal
Rocky Channel
North Captiva Island
Foster Pt
Bocilla I.
Indian Field
Masters Ldg
Murdock Pt.
Pt Blanco
Middle Key
Cabbage Key
Captiva Rks
Pine Island Center
TV TOWER
FIXED BRIDGE HOR CL 33 FT VERT CL 8 FT OVHD PWR CABS
FIXED BRIDGE HOR CL 87 FT VERT CL 4 FT
OVHD PWR CAB AUTH CL 85 FT AT MAIN CHAN
OVHD PWR CAB AUTH CL 32 FT
INTRACOASTAL WATERWAY
COLREGS DEMARCATION LINE
332°m (17.6mi)
152°

Figure 3: Map of the Anclote Estuary study site, showing the location of the twenty sampling sites occupied during June and October, 1994, for bay scallop adult density monitoring.

Anclote

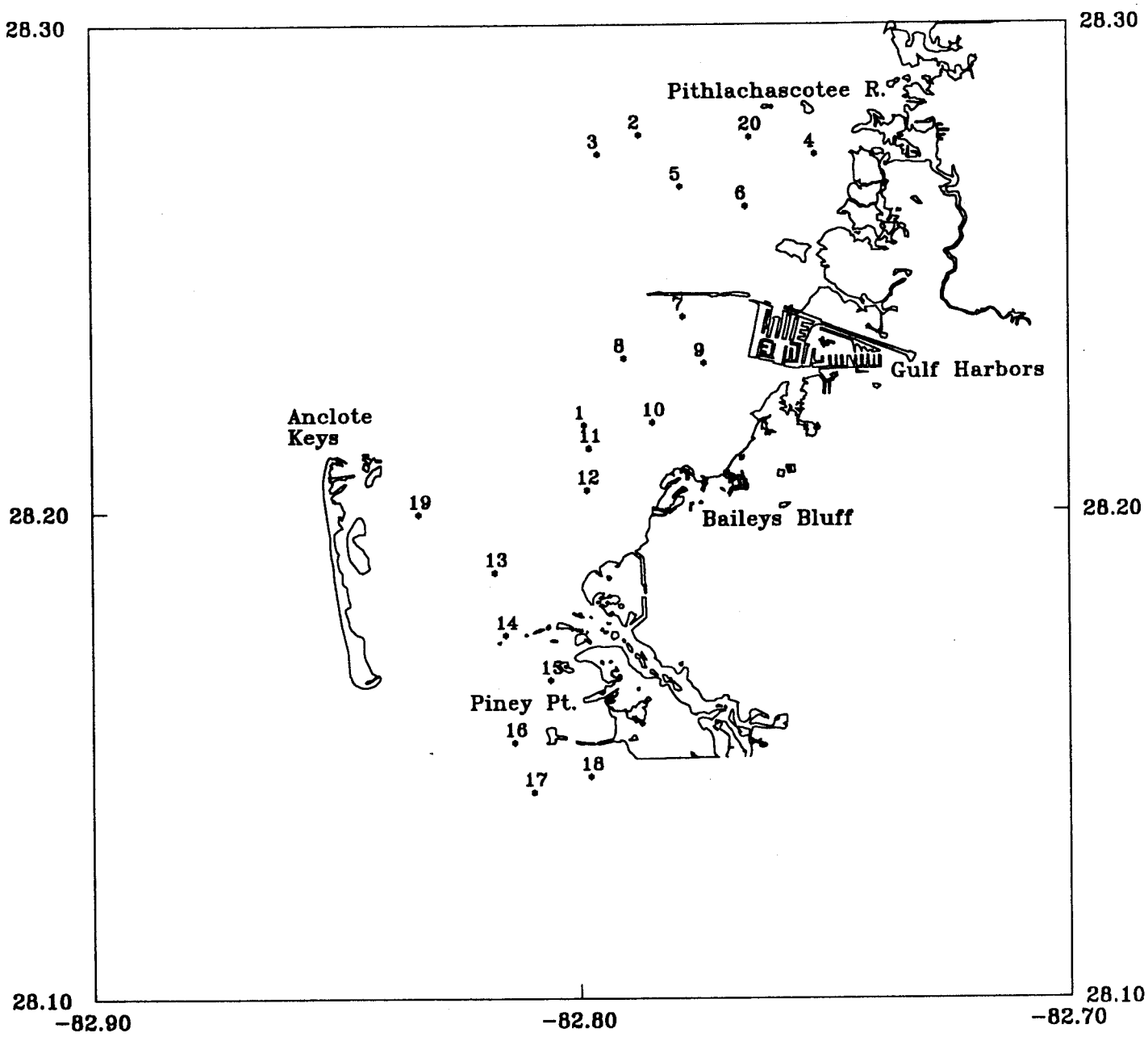
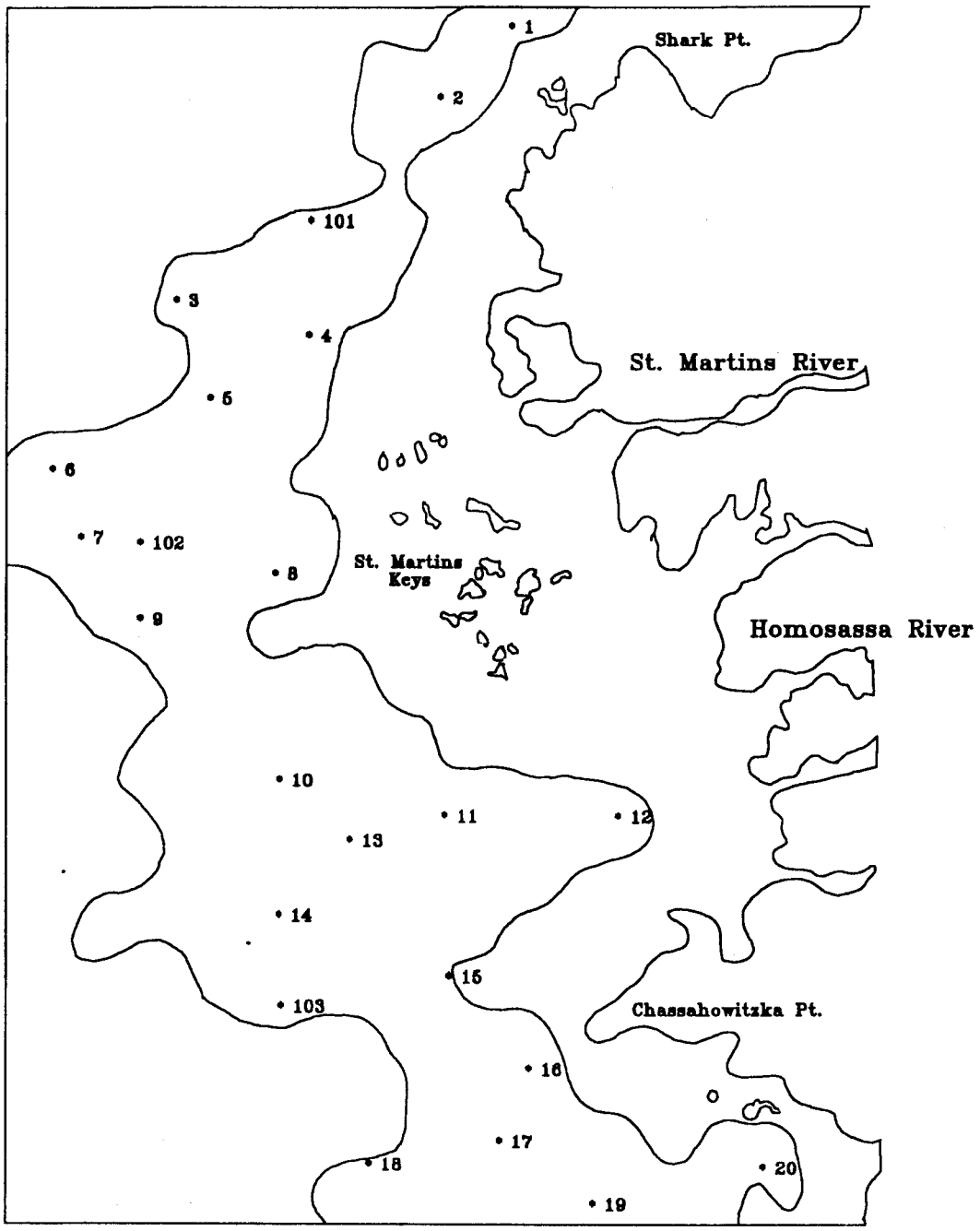

28.30
28.30
Pithlachascotee R.
2
20
3
4
5
6
8
9
Gulf Harbors
Anclote
Keys
1
10
11
12
19
28.20
28.20
Baileys Bluff
13
14
15
Piney Pt.
16
18
17
28.10
28.10
-82.90
-82.80
-82.70

Figure 4: Map of the Homosassa Bay study site, showing the location of the twenty sampling sites occupied during June, 1994, for bay scallop adult density monitoring.

28 53' N
82 50' W

HOMOSASSA



28 40' N
82 40' W

Figure 5: Map of the Steinhatchee study site, showing the location of the twenty sampling sites occupied during June and October, 1994, for bay scallop adult density monitoring.

Steinhatchee

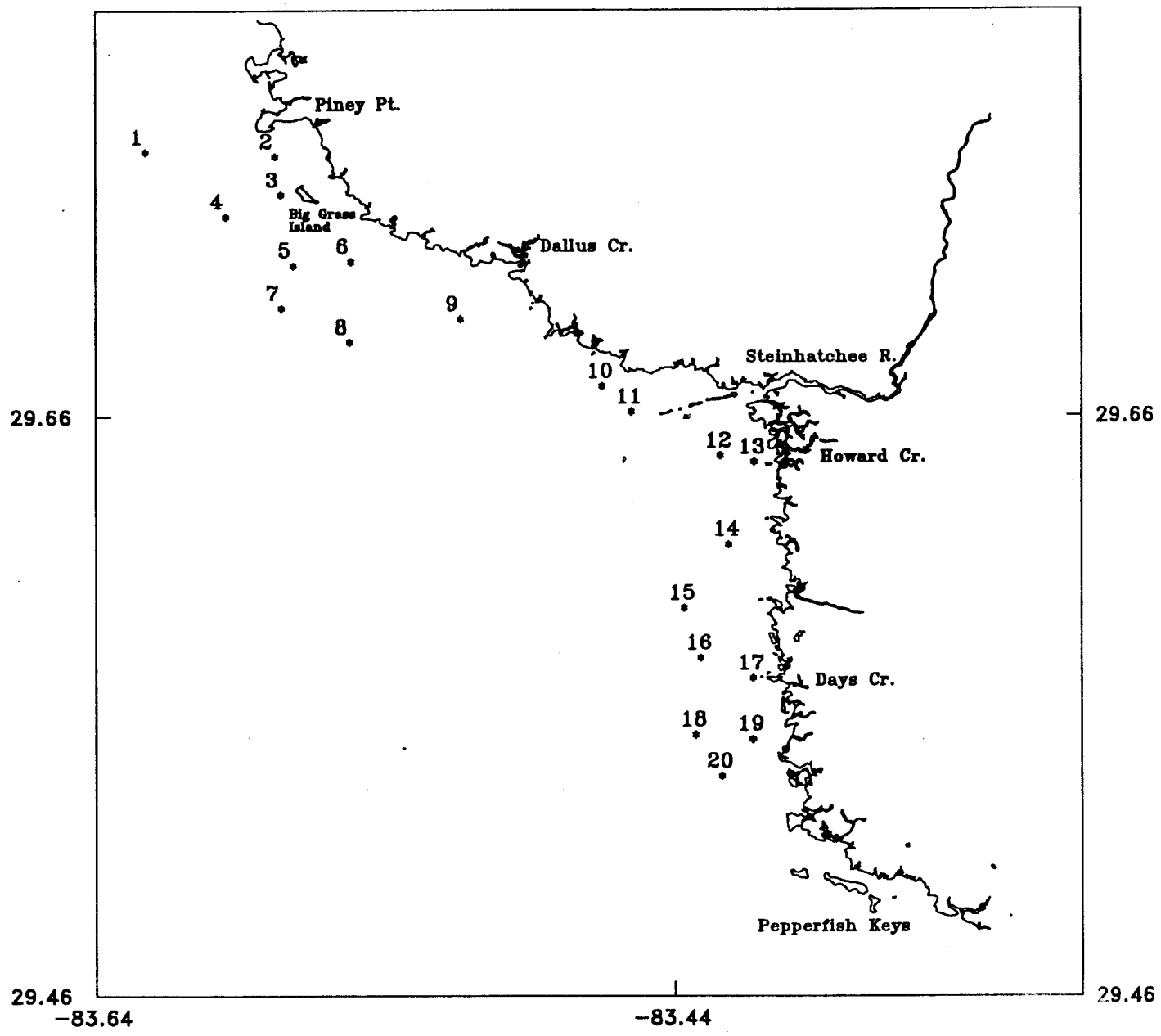


Figure 6: Map of the St. Joseph Bay study site, showing the location of the twenty sampling sites occupied during June and October, 1994, for bay scallop adult density monitoring.

St. Joseph Bay

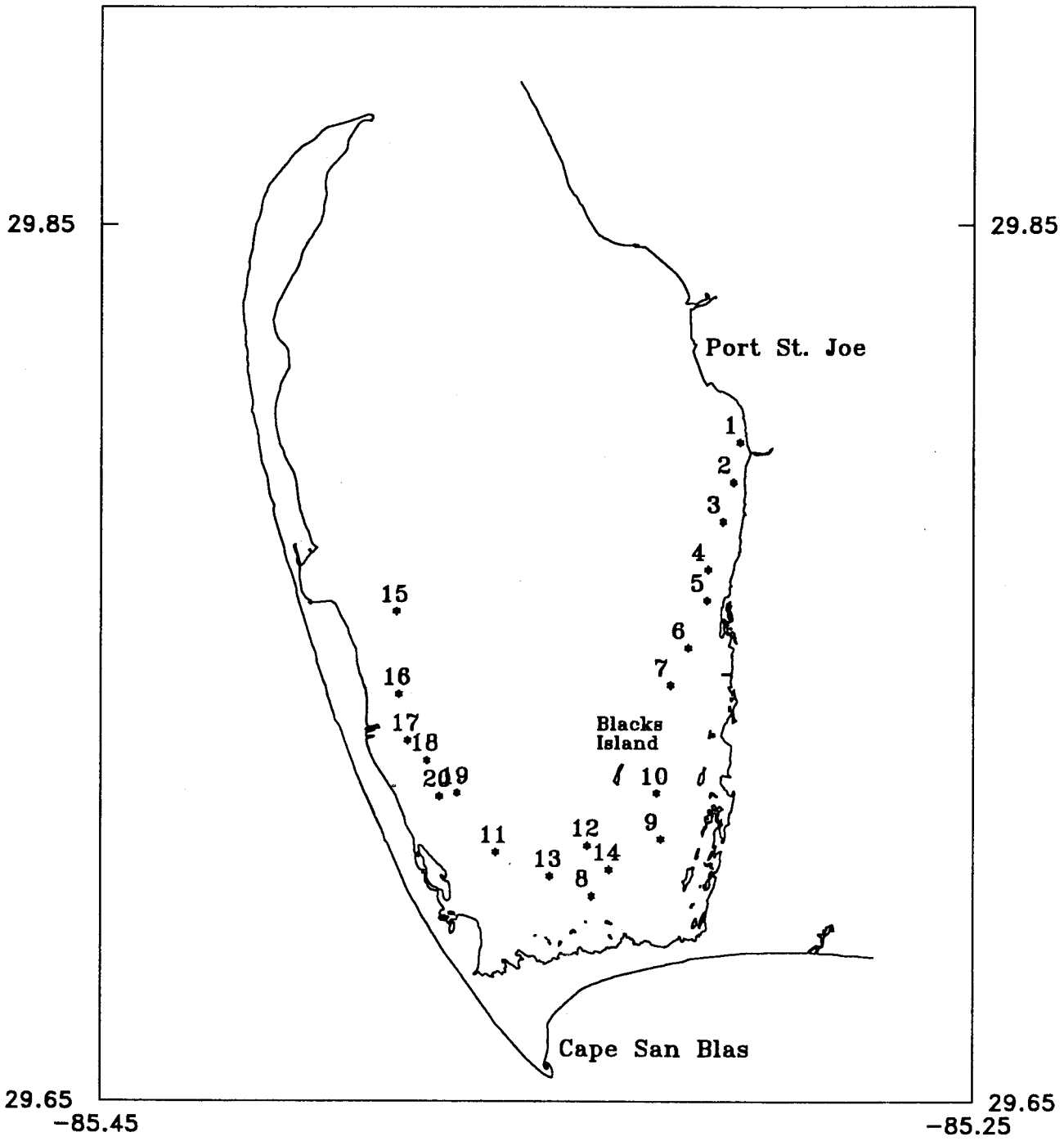


Figure 7: Map of the St. Andrew Bay and St. Andrew Sound study site, showing the location of the twenty sampling sites occupied during June, 1994, for bay scallop adult density monitoring.

St. Andrews Bay & Crooked Island Sound

June 1994

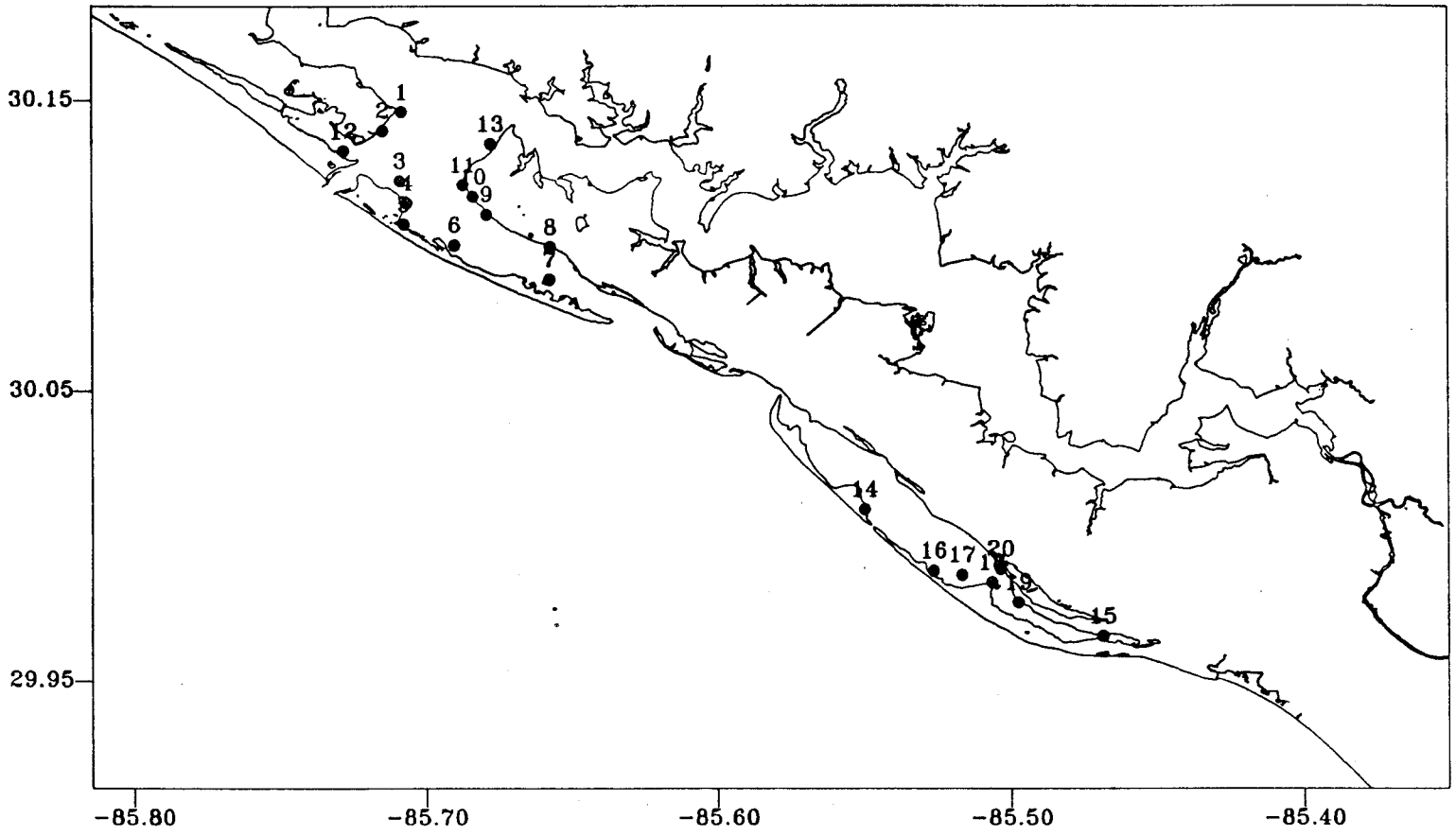


Figure 8: Map of the Anclote Estuary study site, showing patterns of adult bay scallop abundance during June, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

Anclote - June 1994

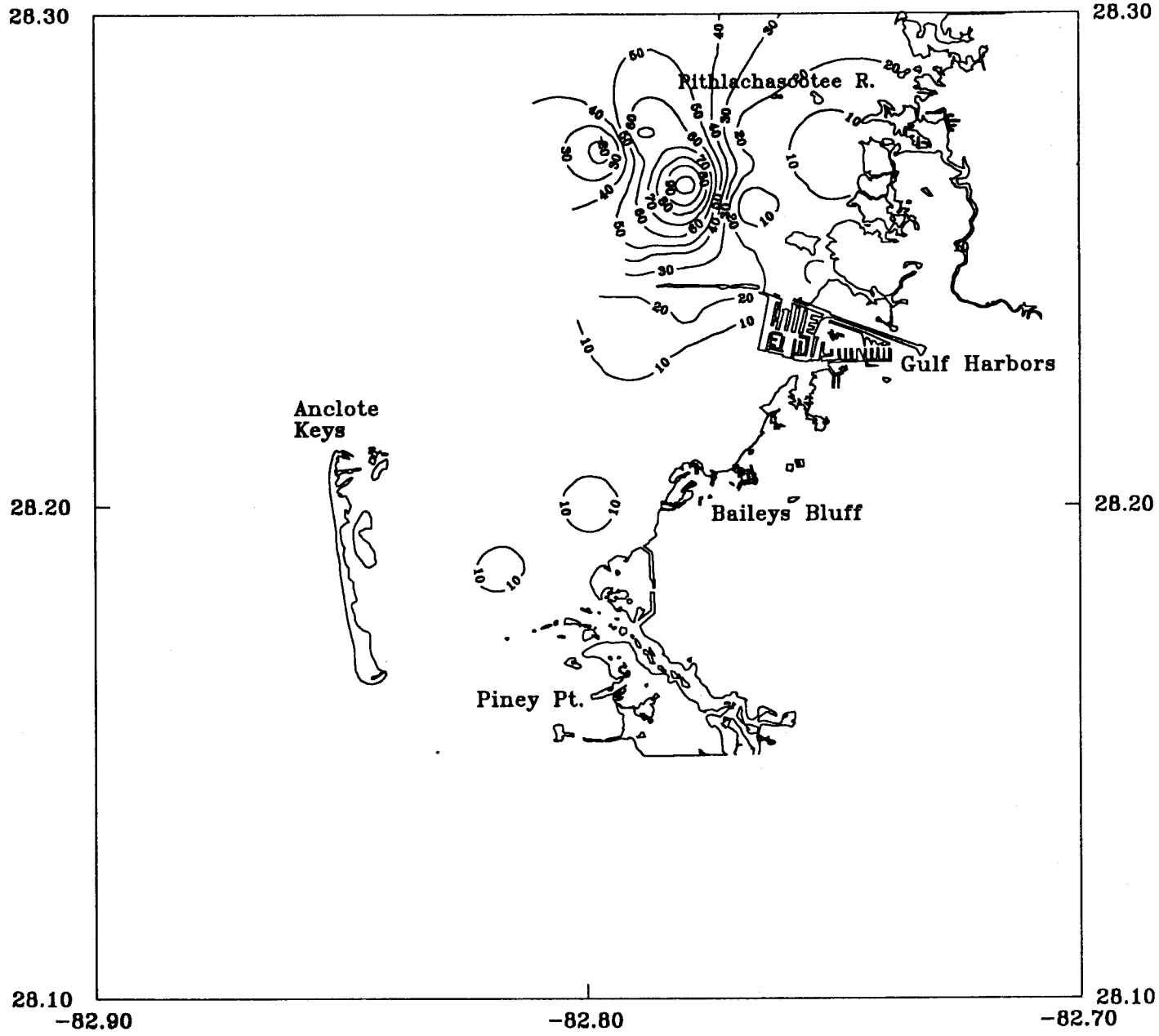


Table 1: Adult bay scallop density at each of 20 stations sampled at the Anclote Estuary study site during June, 1994.

JUNE '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, ANCLOTE

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
ANC	1	1	0.00
ANC	2	72	0.12
ANC	3	15	0.03
ANC	4	0	0.00
ANC	5	106	0.18
ANC	6	3	0.01
ANC	7	21	0.04
ANC	8	14	0.02
ANC	9	2	0.00
ANC	10	1	0.00
ANC	11	1	0.00
ANC	12	14	0.02
ANC	13	12	0.02
ANC	14	0	0.00
ANC	15	1	0.00
ANC	16	5	0.01
ANC	17	9	0.02
ANC	18	1	0.00
ANC	19	1	0.00
ANC	20	14	0.02

Mean: 14.65/600m^2
sd: 26.80
n=20

Figure 9: Map of the Anclote Estuary study site, showing patterns of adult bay scallop abundance during October, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

Anclote - October 1994

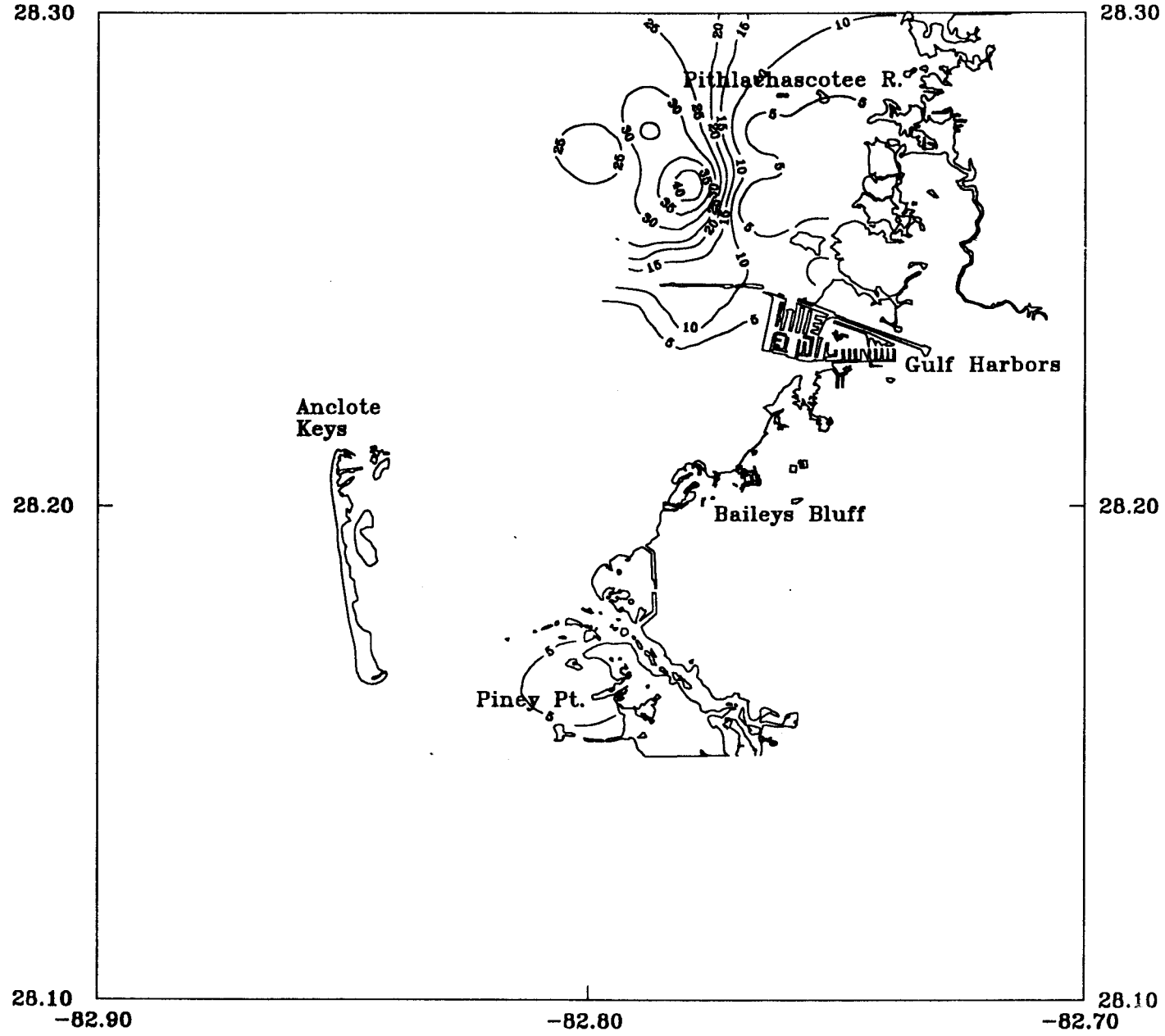


Table 2: Adult bay scallop density at each of 20 stations sampled at the Anclote Estuary study site during October, 1994.

OCTOBER '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, ANCLOTE

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
ANC	1	3	0.01
ANC	2	36	0.06
ANC	3	22	0.04
ANC	4	0	0.00
ANC	5	44	0.07
ANC	6	0	0.00
ANC	7	13	0.02
ANC	8	0	0.00
ANC	9	0	0.00
ANC	10	2	0.00
ANC	11	2	0.00
ANC	12	0	0.00
ANC	13	0	0.00
ANC	14	1	0.00
ANC	15	9	0.02
ANC	16	0	0.00
ANC	17	3	0.01
ANC	18	5	0.01
ANC	19	0	0.00
ANC	20	3	0.01

Mean: 7.15/600m^2
sd: 12.58
n=20

Figure 10: Map of the Homosassa Bay study site, showing patterns of adult bay scallop abundance during June, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

HOMOSASSA JUNE 1994

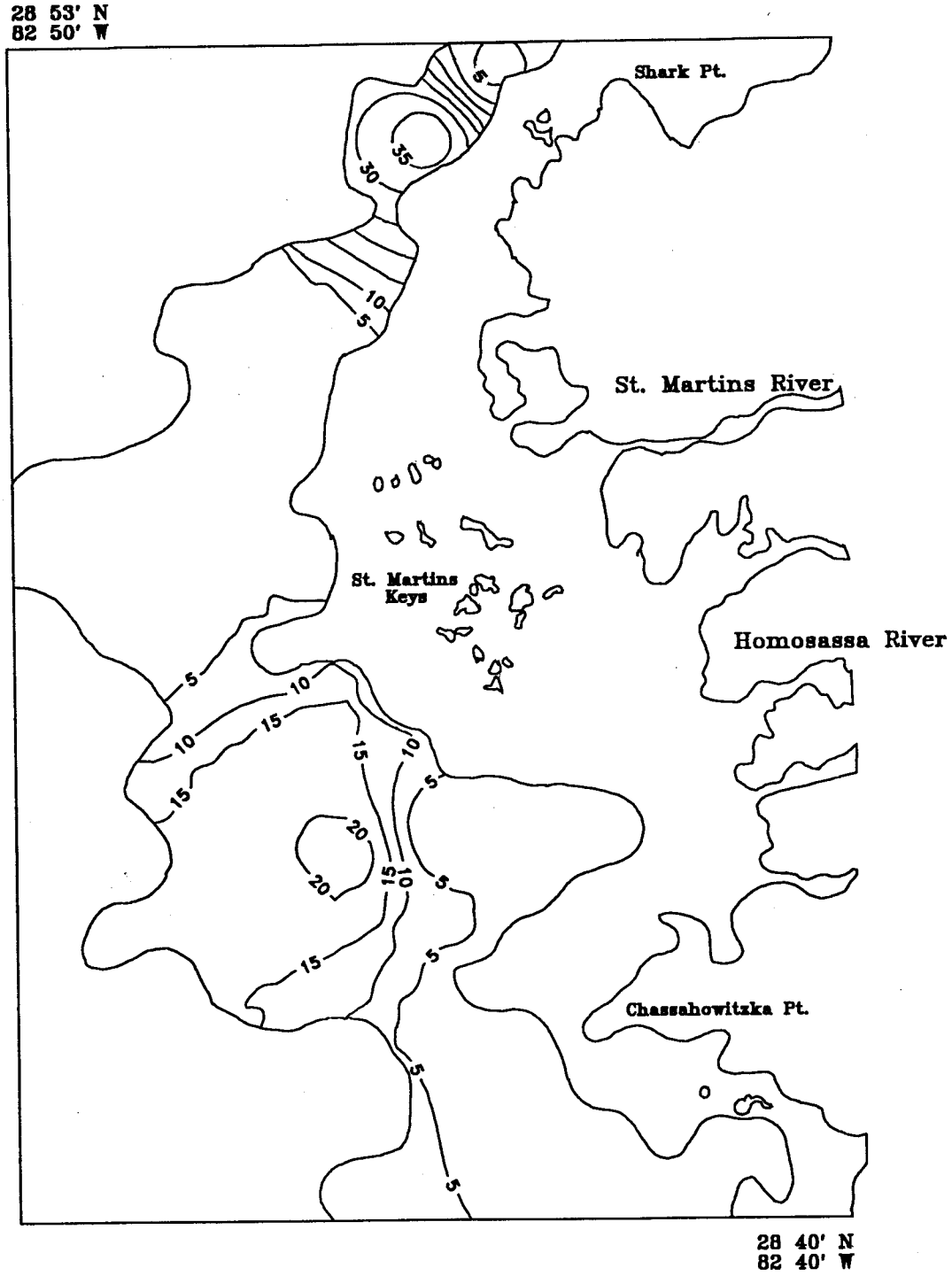


Table 3: Adult bay scallop density at each of 20 stations sampled at the Homosassa Bay study site during June, 1994.

JUNE '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, HOMOSASSA

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
HOM	1	3	0.01
HOM	2	38	0.06
HOM	3	5	0.01
HOM	4	1	0.00
HOM	5	0	0.00
HOM	6	0	0.00
HOM	7	1	0.00
HOM	8	5	0.01
HOM	9	3	0.01
HOM	10	19	0.03
HOM	11	0	0.00
HOM	12	0	0.00
HOM	13	23	0.04
HOM	14	15	0.03
HOM	15	4	0.01
HOM	16	3	0.01
HOM	17	3	0.01
HOM	18	9	0.02
HOM	19	5	0.01
HOM	20	0	0.00

Mean: 6.85/600m^2
sd: 9.82
n=20

Figure 11: Map of the Homosassa Bay study site, showing patterns of adult bay scallop abundance during June, 1993. Density contours are plotted as number of scallops per 600 m^2 transect.

HOMOSASSA JUNE 1993

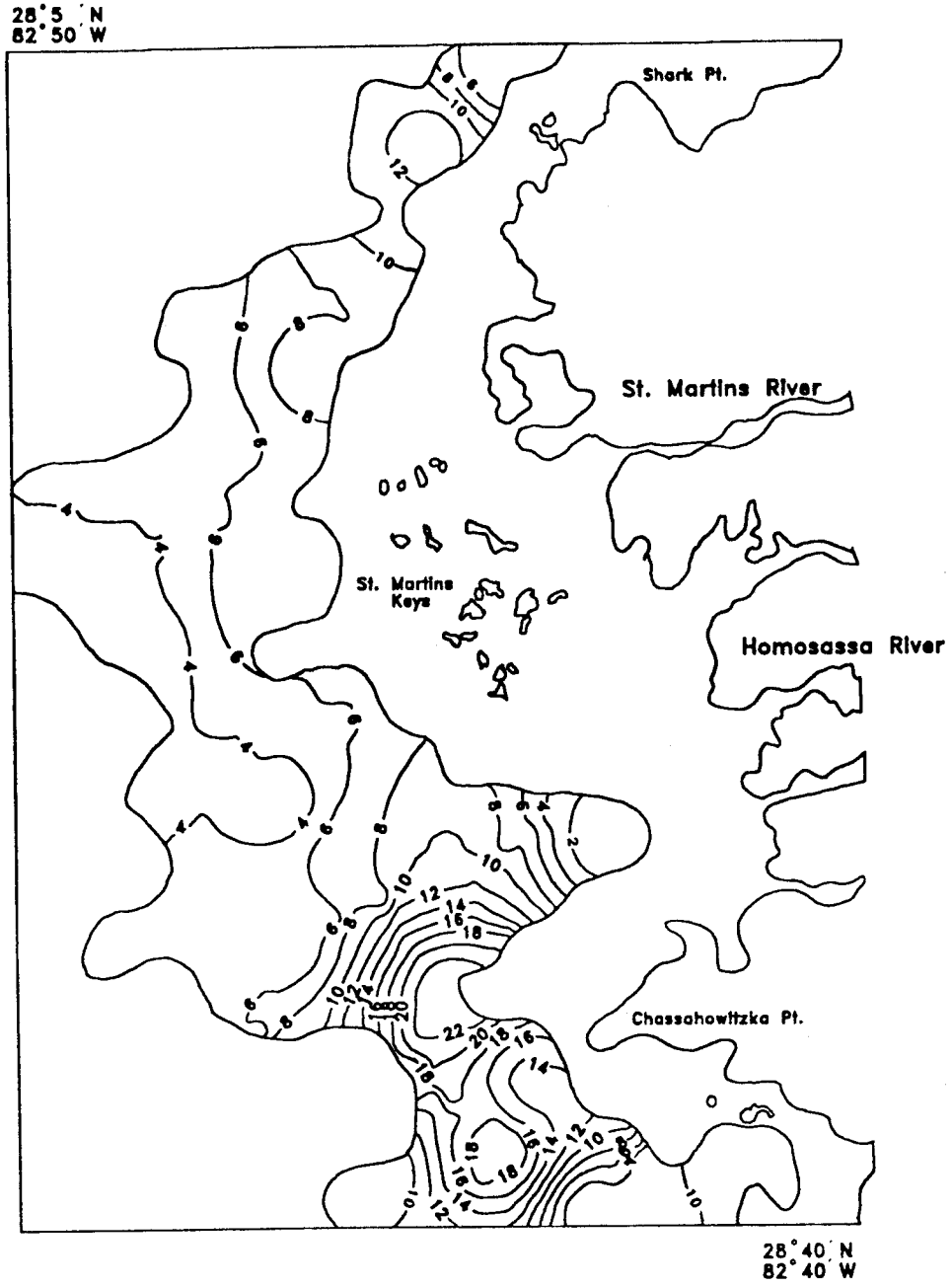


Figure 12: Map of the Homosassa Bay study site, showing patterns of adult bay scallop abundance during October, 1993. Density contours are plotted as number of scallops per 600 m^2 transect.

HOMOSASSA OCTOBER 1993

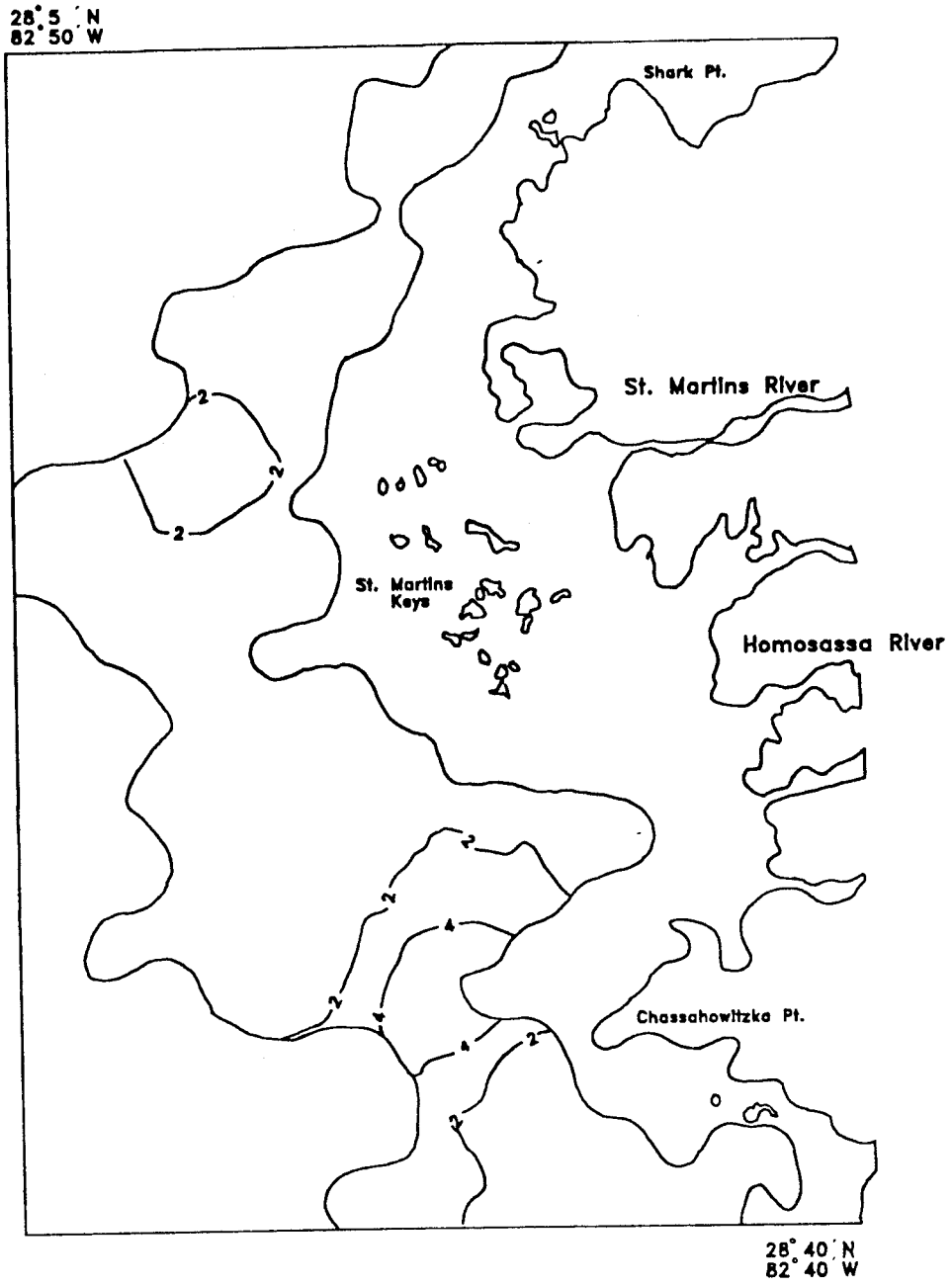


Figure 13: Map of the Steinhatchee study site, showing patterns of adult bay scallop abundance during June, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

Steinhatchee - June 1994

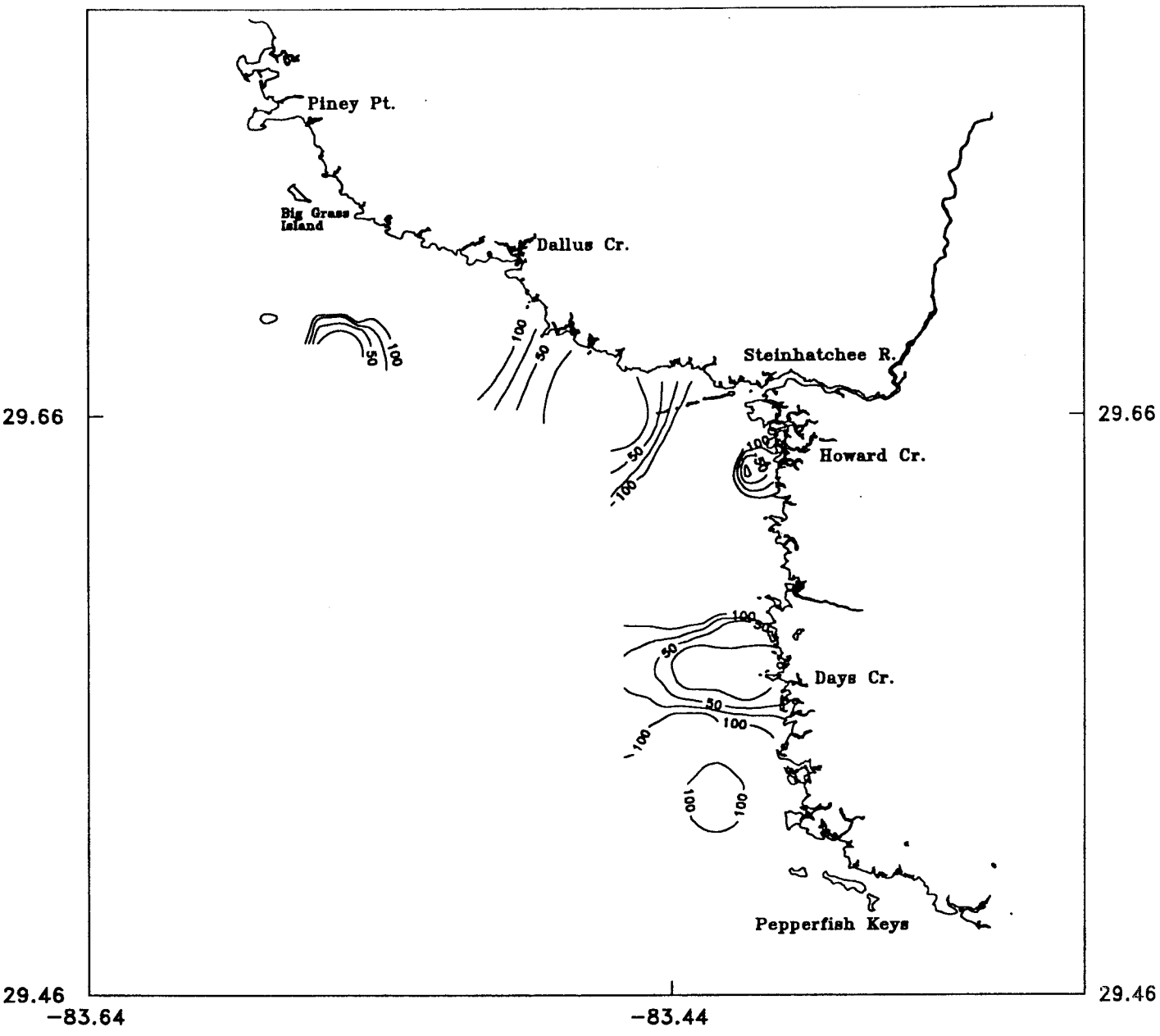


Table 4: Adult bay scallop density at each of 20 stations sampled at the Steinhatchee study site during June, 1994.

JUNE '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, STEINHATCHEE

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
STN	1	189	0.32
STN	2	284	0.47
STN	3	89	0.15
STN	4	338	0.56
STN	5	650	1.08
STN	6	234	0.39
STN	7	81	0.14
STN	8	0	0.00
STN	9	169	0.28
STN	10	10	0.02
STN	11	1	0.00
STN	12	281	0.47
STN	13	10	0.02
STN	14	259	0.43
STN	15	120	0.20
STN	16	1	0.00
STN	17	13	0.02
STN	18	133	0.22
STN	19	121	0.20
STN	20	85	0.14

Mean: 153.40/600m^2
sd: 159.05
n=20

Figure 14: Map of the Steinhatchee study site, showing patterns of adult bay scallop abundance during October, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

Steinhatchee - October 1994

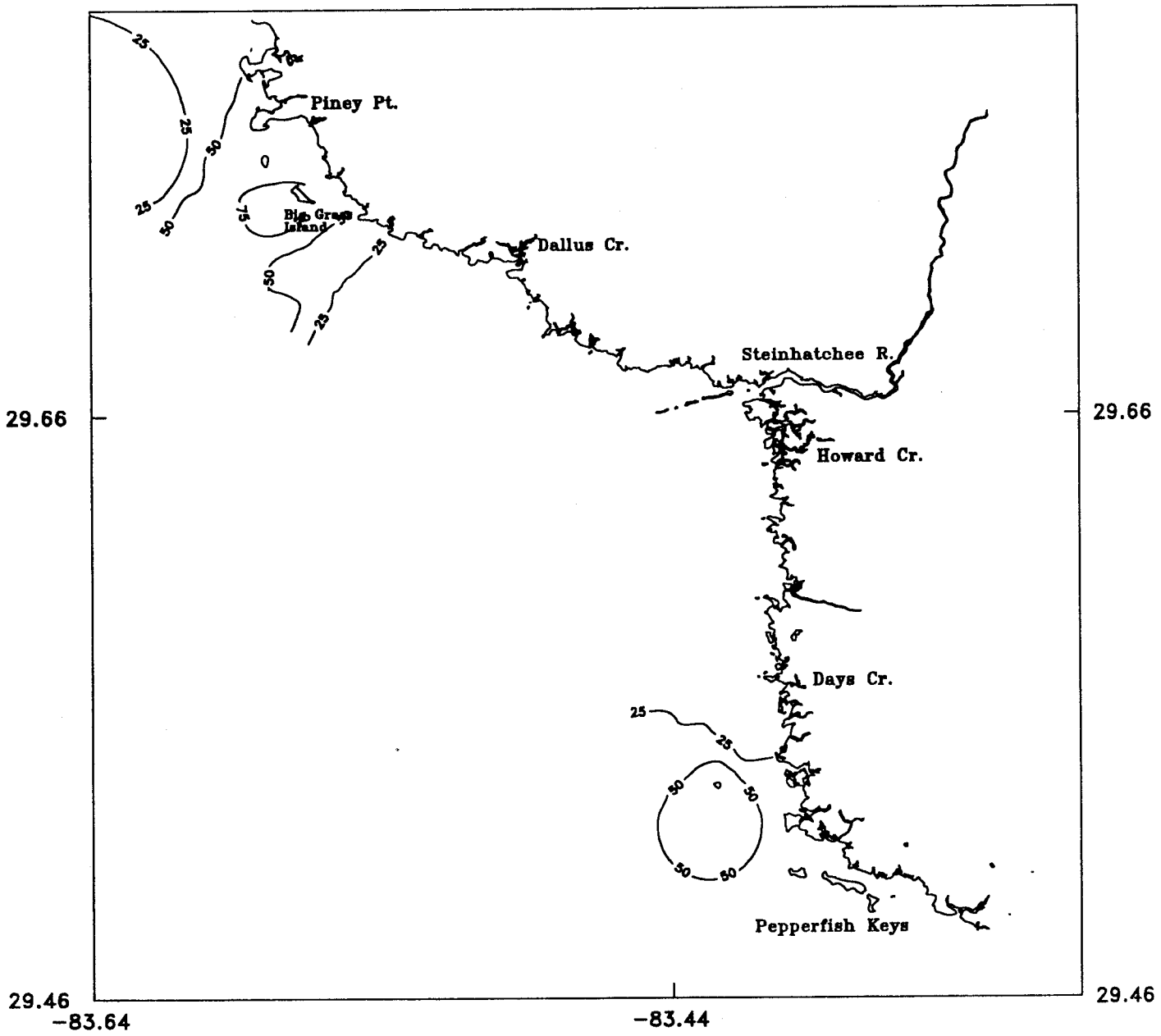


Table 5: Adult bay scallop density at each of 20 stations sampled at the Steinhatchee study site during October, 1994.

OCTOBER '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, STEINHATCHEE

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
STN	1	1	0.00
STN	2	48	0.08
STN	3	100	0.17
STN	4	61	0.10
STN	5	45	0.08
STN	6	25	0.04
STN	7	61	0.10
STN	8	0	0.00
STN	9	0	0.00
STN	10	0	0.00
STN	11	0	0.00
STN	12	1	0.00
STN	13	0	0.00
STN	14	0	0.00
STN	15	0	0.00
STN	16	0	0.00
STN	17	0	0.00
STN	18	26	0.04
STN	19	18	0.03
STN	20	77	0.13

Mean: 23.15/600m^2
sd: 31.30
n=20

Figure 15: Map of the St. Joseph Bay study site, showing patterns of adult bay scallop abundance during June, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

St. Joseph Bay – June 1994

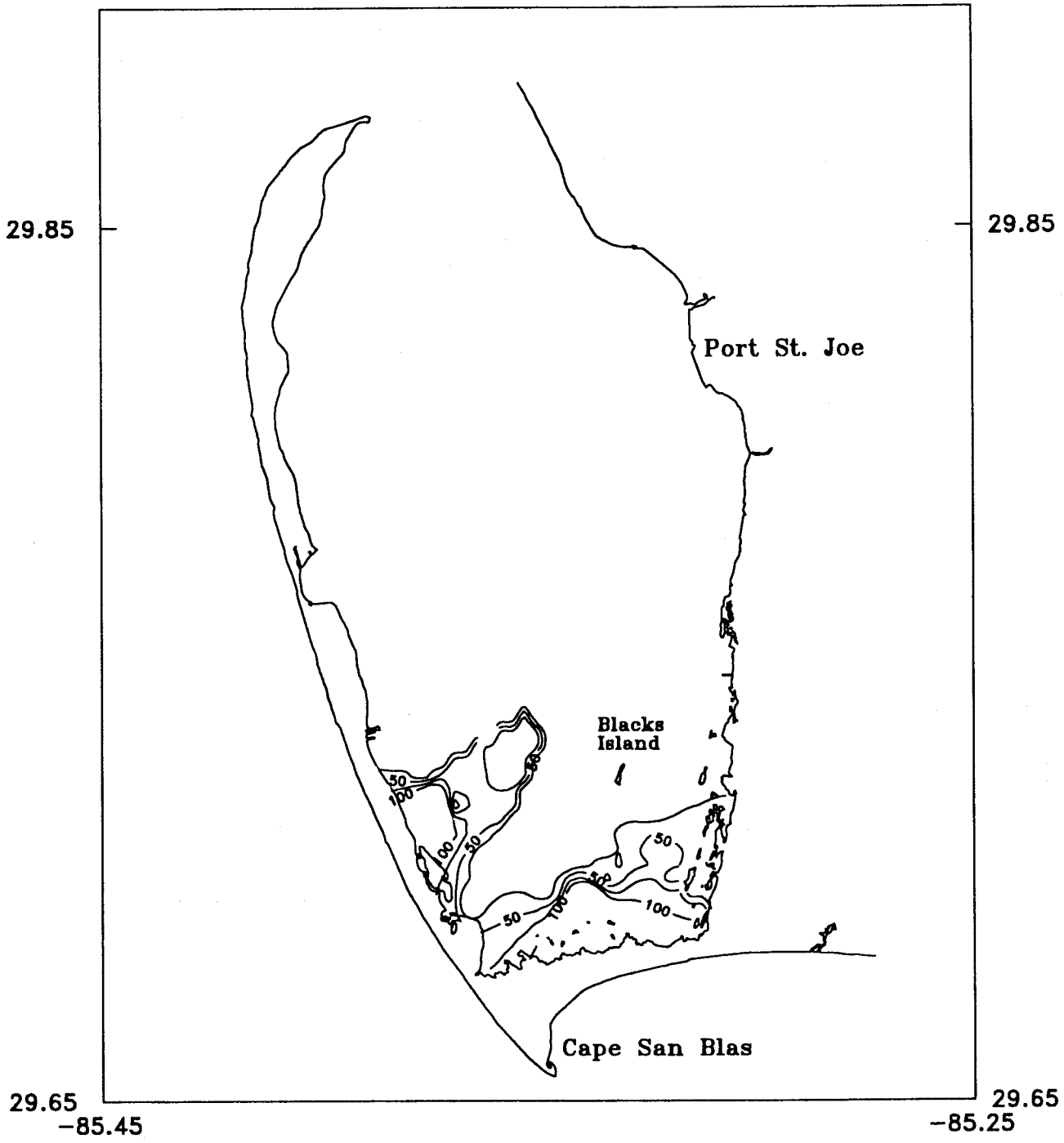


Table 6: Adult bay scallop density at each of 20 stations sampled at the St. Joseph Bay study site during June, 1994.

JUNE '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, ST JOE BAY

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
SJB	1	16	0.03
SJB	2	2	0.00
SJB	3	12	0.02
SJB	4	1	0.00
SJB	5	8	0.01
SJB	6	15	0.03
SJB	7	5	0.01
SJB	8	265	0.44
SJB	9	61	0.10
SJB	10	7	0.01
SJB	11	0	0.00
SJB	12	5	0.01
SJB	13	3	0.01
SJB	14	19	0.03
SJB	15	5	0.01
SJB	16	9	0.02
SJB	17	2	0.00
SJB	18	1	0.00
SJB	19	2	0.00
SJB	20	279	0.47

Mean: 35.85/600m^2
sd: 81.87
n=20

Figure 16: Map of the St. Joseph Bay study site, showing patterns of adult bay scallop abundance during October, 1994. Density contours are plotted as number of scallops per 600 m^2 transect.

St. Joseph Bay - October 1994

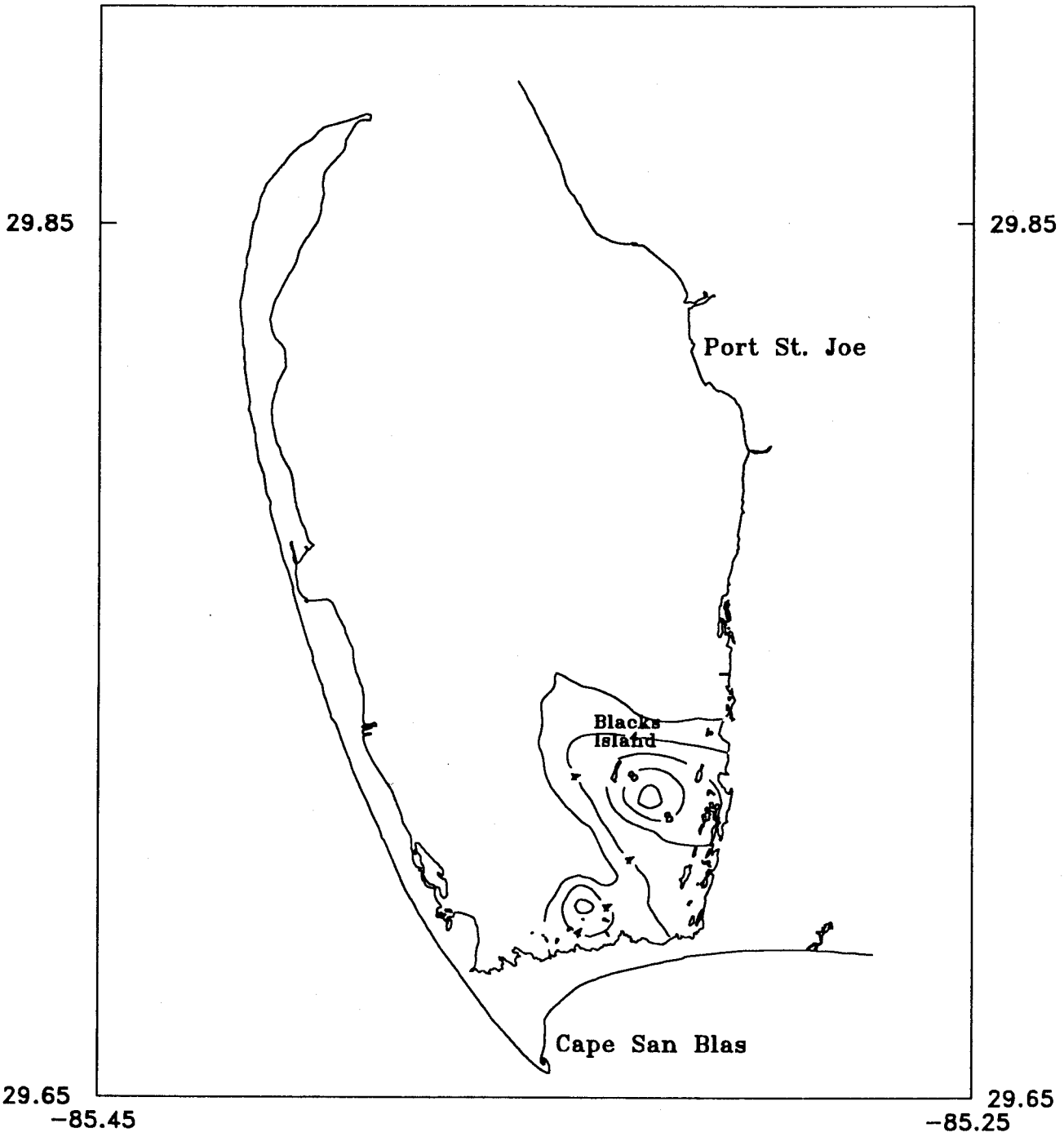


Table 7: Adult bay scallop density at each of 20 stations sampled at the St. Joseph Bay study site during October, 1994.

OCTOBER '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, ST JOE BAY

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
SJB	1	0	0.00
SJB	2	0	0.00
SJB	3	0	0.00
SJB	4	0	0.00
SJB	5	0	0.00
SJB	6	0	0.00
SJB	7	1	0.00
SJB	8	7	0.01
SJB	9	5	0.01
SJB	10	11	0.02
SJB	11	0	0.00
SJB	12	0	0.00
SJB	13	0	0.00
SJB	14	1	0.00
SJB	15	0	0.00
SJB	16	0	0.00
SJB	17	1	0.00
SJB	18	0	0.00
SJB	19	0	0.00
SJB	20	0	0.00

Mean: 1.3/600m^2
sd: 2.94
n=20

Table 8: Adult bay scallop density at each of 20 stations sampled at the St. Andrew Bay/St. Andrews Sound study site during June, 1994.

JUNE '94 BAY SCALLOP SURVEY
SCALLOPS FOUND PER STATION, ST ANDREWS BAY

STATION LOCATION	STATION	SCALLOPS FOUND/600m^2	#/m^2
SAB	1	1	0.00
SAB	2	5	0.01
SAB	3	70	0.12
SAB	4	244	0.41
SAB	5	50	0.08
SAB	6	96	0.16
SAB	7	144	0.24
SAB	8	173	0.29
SAB	9	149	0.25
SAB	10	68	0.11
SAB	11	69	0.12
SAB	12	6	0.01
SAB	13	6	0.01
SAB	14	24	0.04
SAB	15	0	0.00
SAB	16	0	0.00
SAB	17	2	0.00
SAB	18	5	0.01
SAB	19	24	0.04
SAB	20	0	0.00

Mean: 56.8/600m^2
sd: 70.77
n=20

Figure 17: Bay scallop size frequency distribution at the Anclote Estuary study site during 1994.

Anclote Estuary

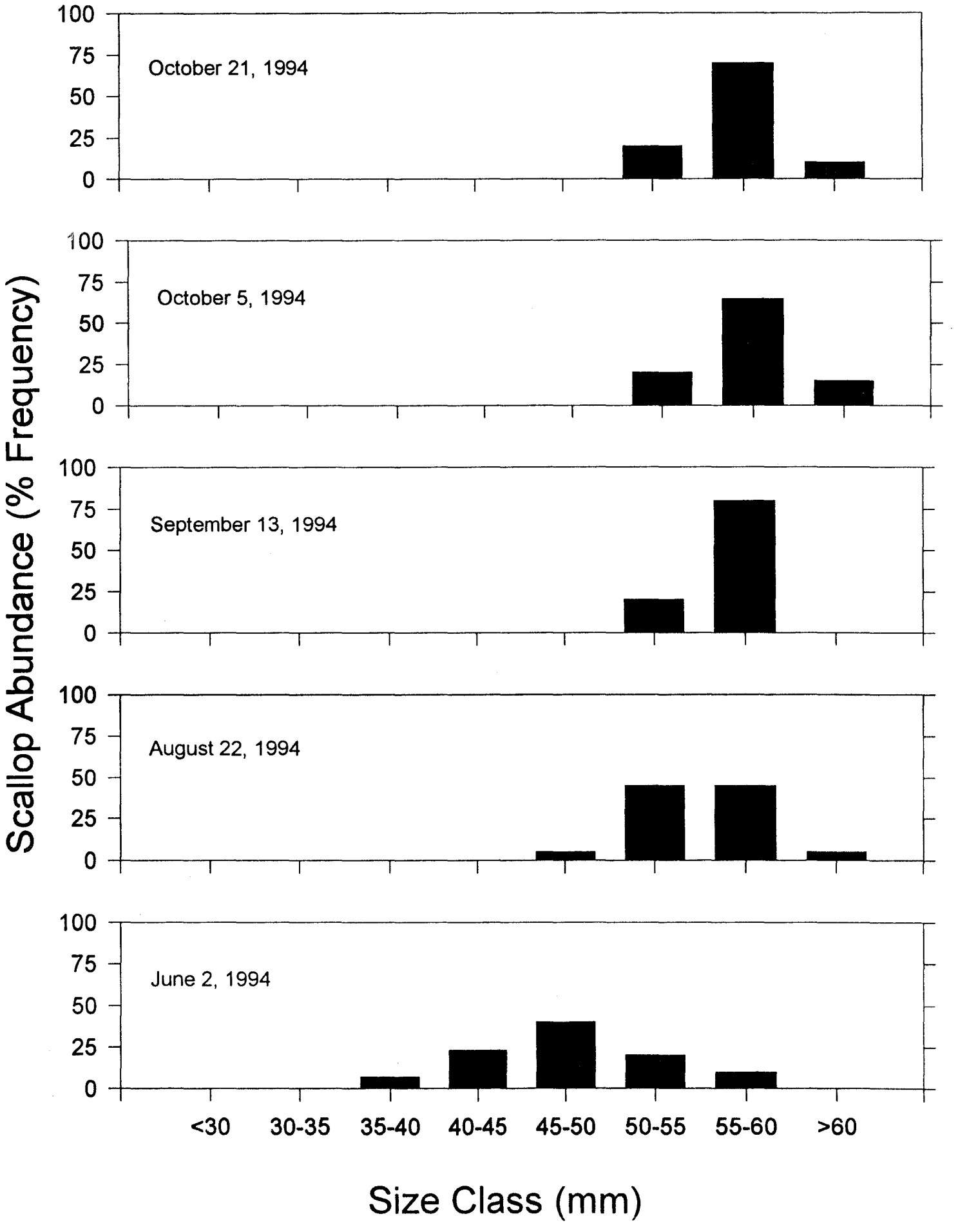


Figure 18: Bay scallop size frequency distribution at the Homosassa Bay study site during 1994.

Homosassa Bay

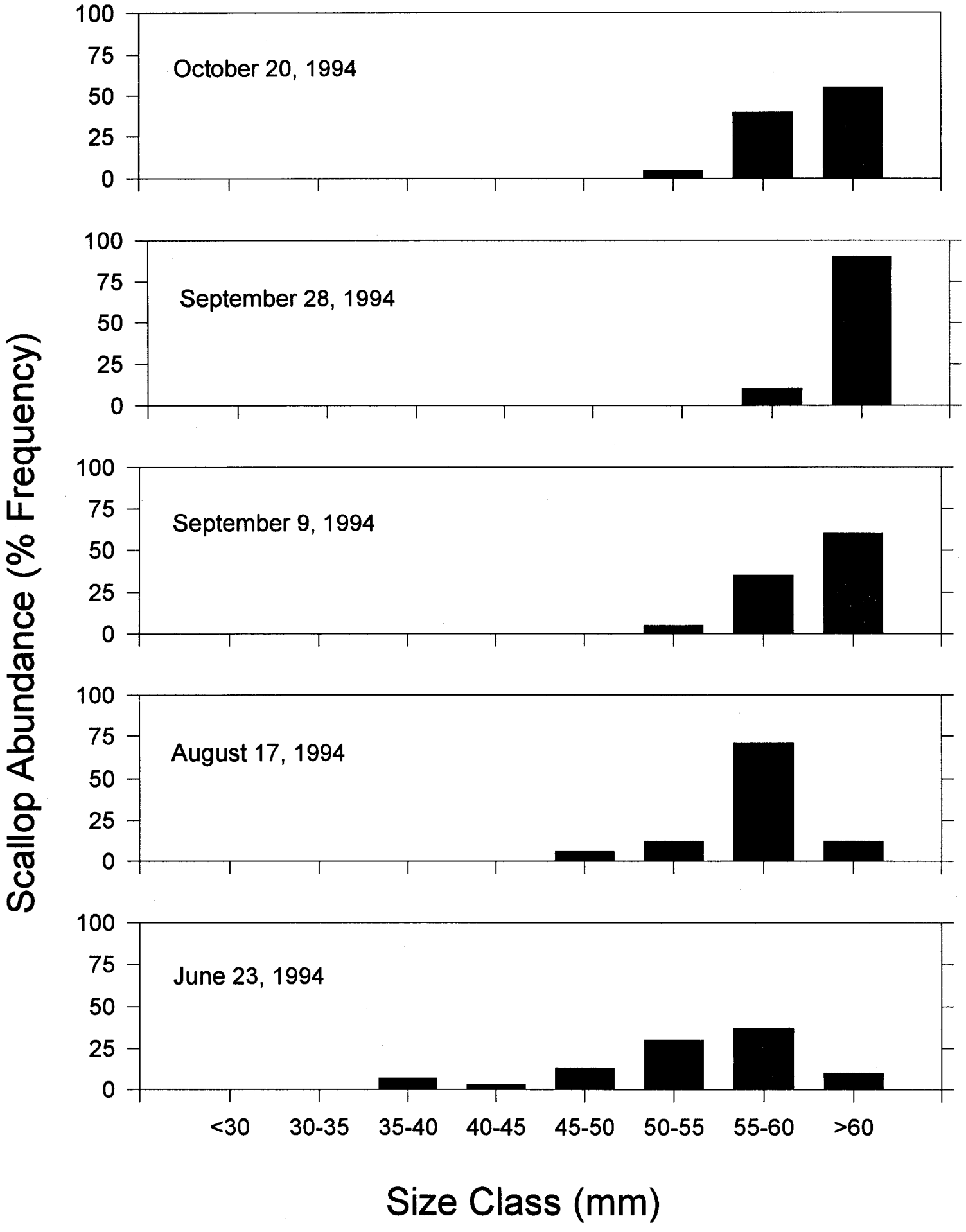


Figure 19: Bay scallop size frequency distribution at the Steinhatchee study site during 1994.

Steinhatchee

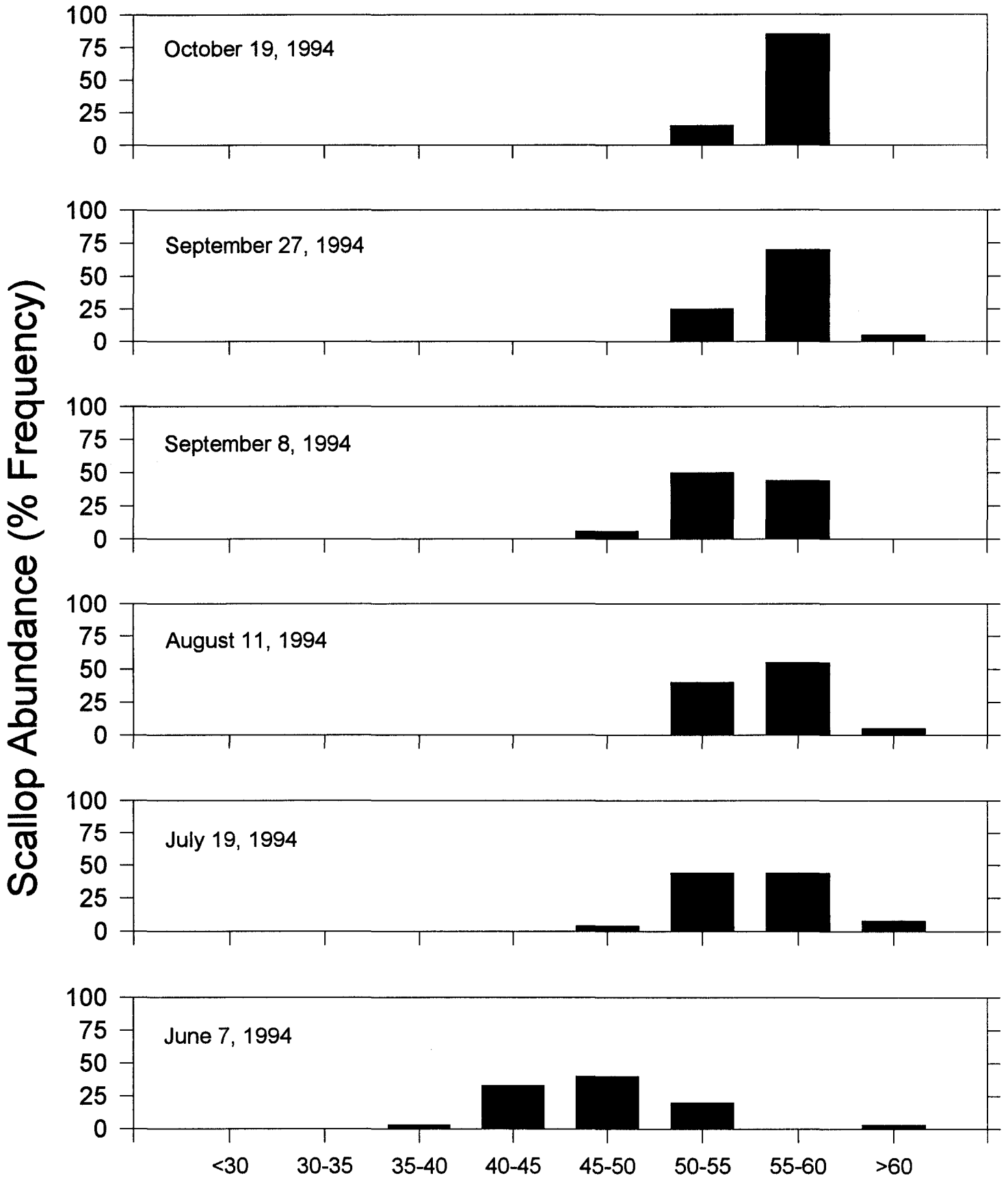


Figure 20: Bay scallop size frequency distribution at the St. Joseph Bay study site during 1994.

St. Joseph Bay

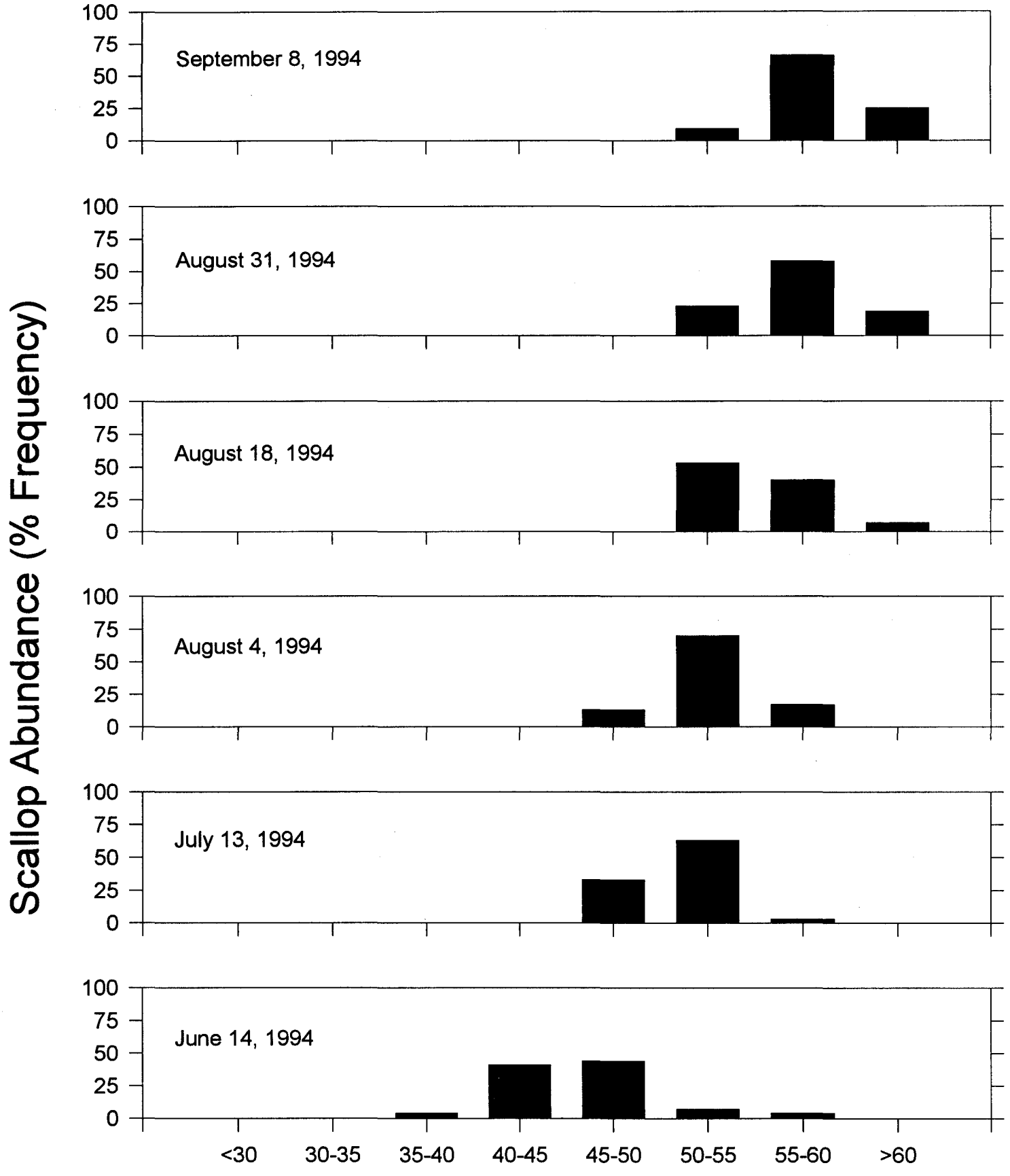


Figure 21: Bay scallop size frequency distribution at the St. Andrew Bay/St. Andrew Sound study site during 1994.

St. Andrews Bay/Sound

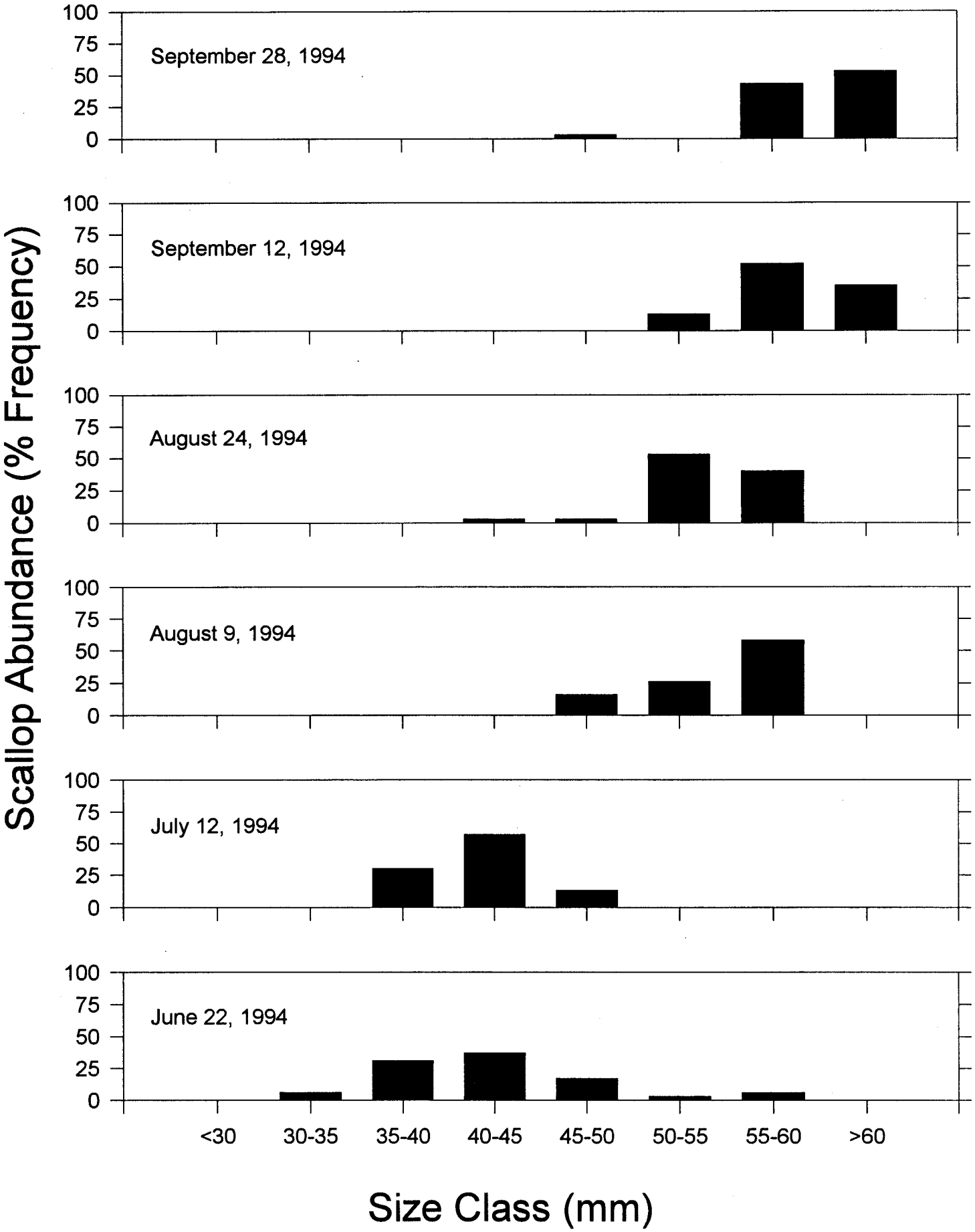
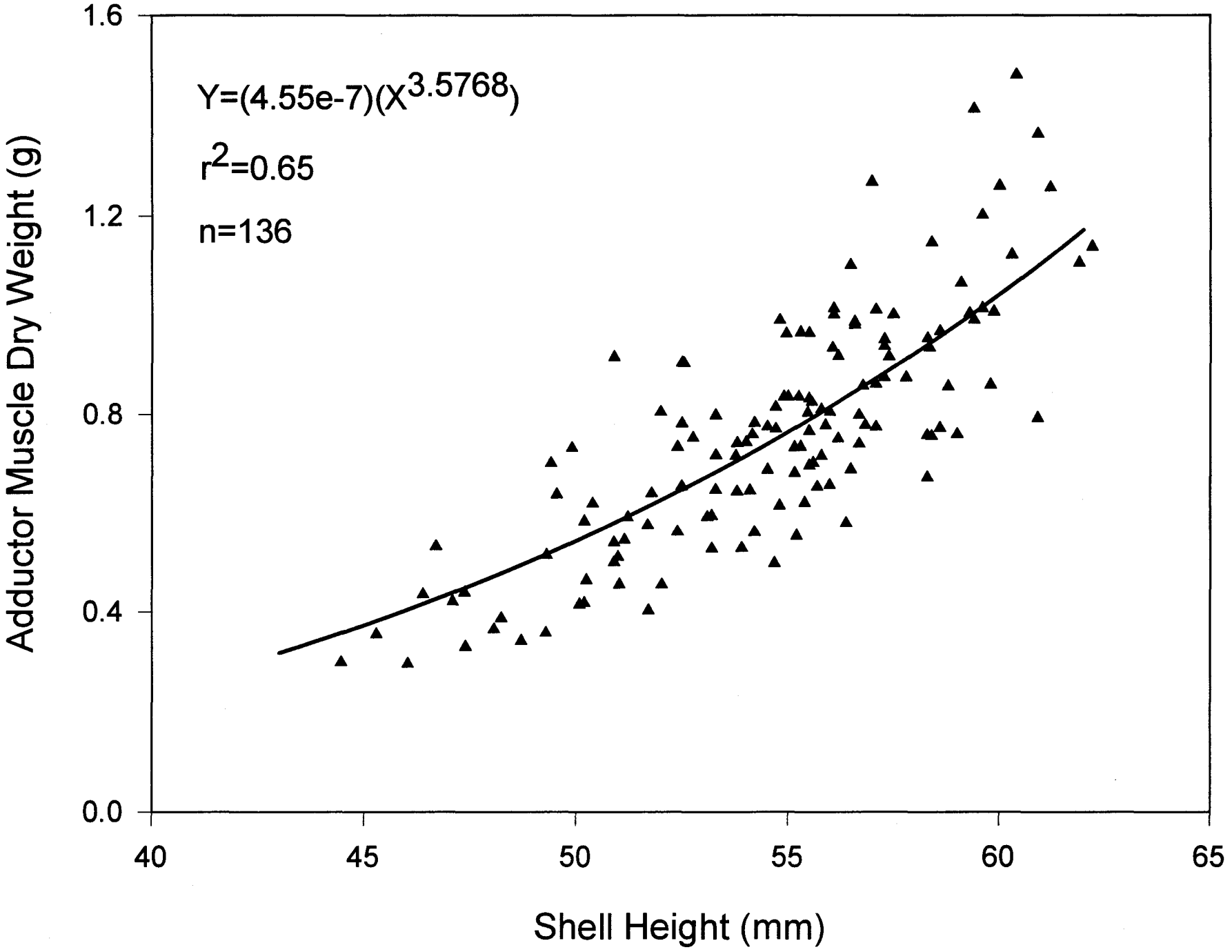


Figure 22: Nonlinear curve fit of bay scallop shell height (mm) against adductor muscle dry weight (g).


Y=(4.55e-7)(X^3.5768)
r^2=0.65
n=136
Adductor Muscle Dry Weight (g)
1.6
1.2
0.8
0.4
0.0
40
45
50
55
60
65
Shell Height (mm)