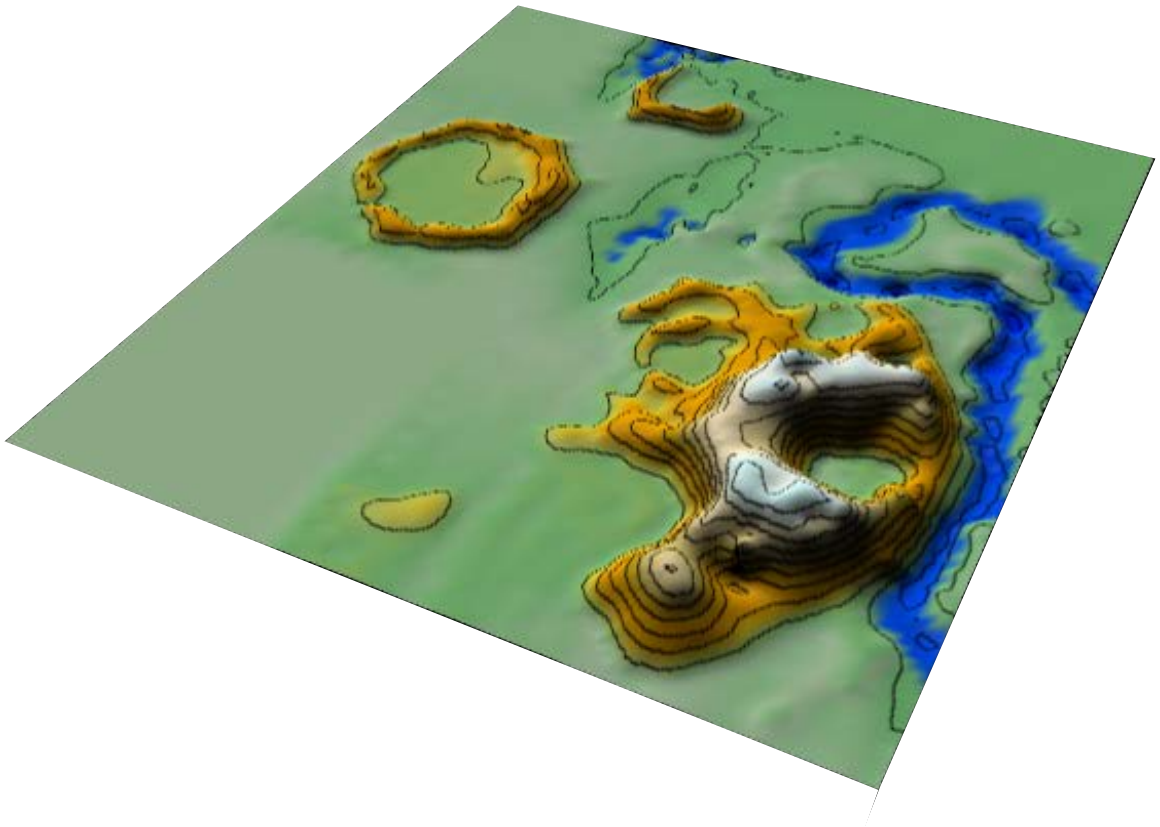
Archaic Shell Rings of the Southeast U.S.

National Historic Landmarks
Historic Context



Southeast Archeological Center
National Park Service
Tallahassee

United States Department of the Interior
National Park Service

National Register of Historic Places
Multiple Property Documentation Form

_X_ New Submission ____ Amended Submission

A. Name of Multiple Property Listing

Archaic Shell Rings of the Southeast U.S. Historic Context

B. Associated Historic Contexts

The following contexts are all relevant to the coasts of South Carolina, Georgia, Florida, and Mississippi in the southeast United States between 5000 and 3000 B.P.

Context 1 Archaic Shell Rings as Early Large-Scale Architecture
Context 2 Mounds and Other Architecture Associated with Shell Rings
Context 3 America's First Potteries, 5000–3000 B.P.
Context 4 Development of New Technologies: Shell & Bone Tool Kits
Context 5 Expansion of Exchange Networks
Context 6 Establishment of Sedentary Cultures
Context 7 Changing Mortuary Practices
Context 8 Establishment of Tribal Identities
Context 9 Settlement and Environment
Context 10 Sociopolitical Development and Shell Rings

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D. Certification

As the designated authority under the National Historic Preservation Act of 1966, as amended, I hereby certify that this documentation form meets the National Register documentation standards and sets forth requirements for the listing of related properties consistent with the National Register criteria. This submission meets the procedural and professional requirements set forth in 36 CFR Part 60 and the Secretary of the Interior's Standards and Guidelines for Archeology and Historic Preservation. (See continuation sheet for additional comments.)

_____ _____
Signature and title of certifying official Date

_____ _____
Signature of Federal Agency or Tribal Government Date

I hereby certify that this multiple property documentation form has been approved by the National Register as a basis for evaluating related properties for listing in the National Register.

_____ _____
Signature of Federal Agency or Tribal Government Date

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E. Statement of Historic Contexts

Introduction

Since 1998, the National Park Service has been developing a National Historic Landmark Historic Context on Late Archaic (5000–3000 B.P.) shell ring sites in the southeastern United States. The purpose of this study is to provide the archeological and historical context for nominating nationally significant Late Archaic shell-ring sites for designation as National Historic Landmarks. Shell rings are circular to horseshoe-shaped piles of shell (primarily oyster) ranging in size from 50 to up to 250 meters across and located along the coasts of South Carolina, Georgia, Florida, and Mississippi. Hunter-gatherer societies became increasingly complex during the Late Archaic in the southeastern United States. Monument construction, such as shell rings, and new technologies like pottery are evidence of this complexity. Evidence of the first permanent settlements, the first inter-coastal exchange patterns, the development of founding new coastal cultural traditions and the increase in social complexity can all be studied through examination of shell ring sites.

Accompanying this historic context as an example of how evaluations of shell ring sites for National Historic Landmark status are carried out is the National Historic Landmark nomination of the Fig Island shell-ring complex (38Ch42). Two of the Fig Island rings (2 and 3) were listed in the National Register of Historic Places in 1970. Recent investigations reveal that the site is larger and more complex than was known in 1970. In fact, the site is the best preserved example of early large-scale monumental architecture on United States coasts. By volume, the complex is larger than any other single Archaic shell-ring site.

The ten historic contexts identified in Section B are described herein. These establish as nationally significant the contexts of architecture, settlement, exchange, technology, ethnic identity, cultural traditions, and social organization as they relate to Late Archaic shell rings. All are intrinsically tied into the NPS's Thematic Framework, which includes the broader applicable themes of Peopling Places, Expressing Cultural Values, Expanding Science and Technology, and Transforming the Environment. Shell rings hold superlative positions relative to the NPS's thematic framework because rings represent the first, earliest, oldest, largest, or most complex examples of architecture, settlement, exchange, technology, ethnic identity, cultural traditions and social organization of this period in this large region of the United States and thus constitute national levels of significance.

Context 1: Archaic Shell Rings as Early Large-Scale Architecture
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values

Shell rings have been identified as nationally significant based on their architectural form and early construction. Preceding the Woodland and Mississippian mound-building periods by thousands of years, shell rings are among the earliest large-scale architectural features found in the United States. The Rollins and Oxeye shell rings respectively represent the largest and oldest standing architecture in the National Park Service (NPS) (Figure 1).

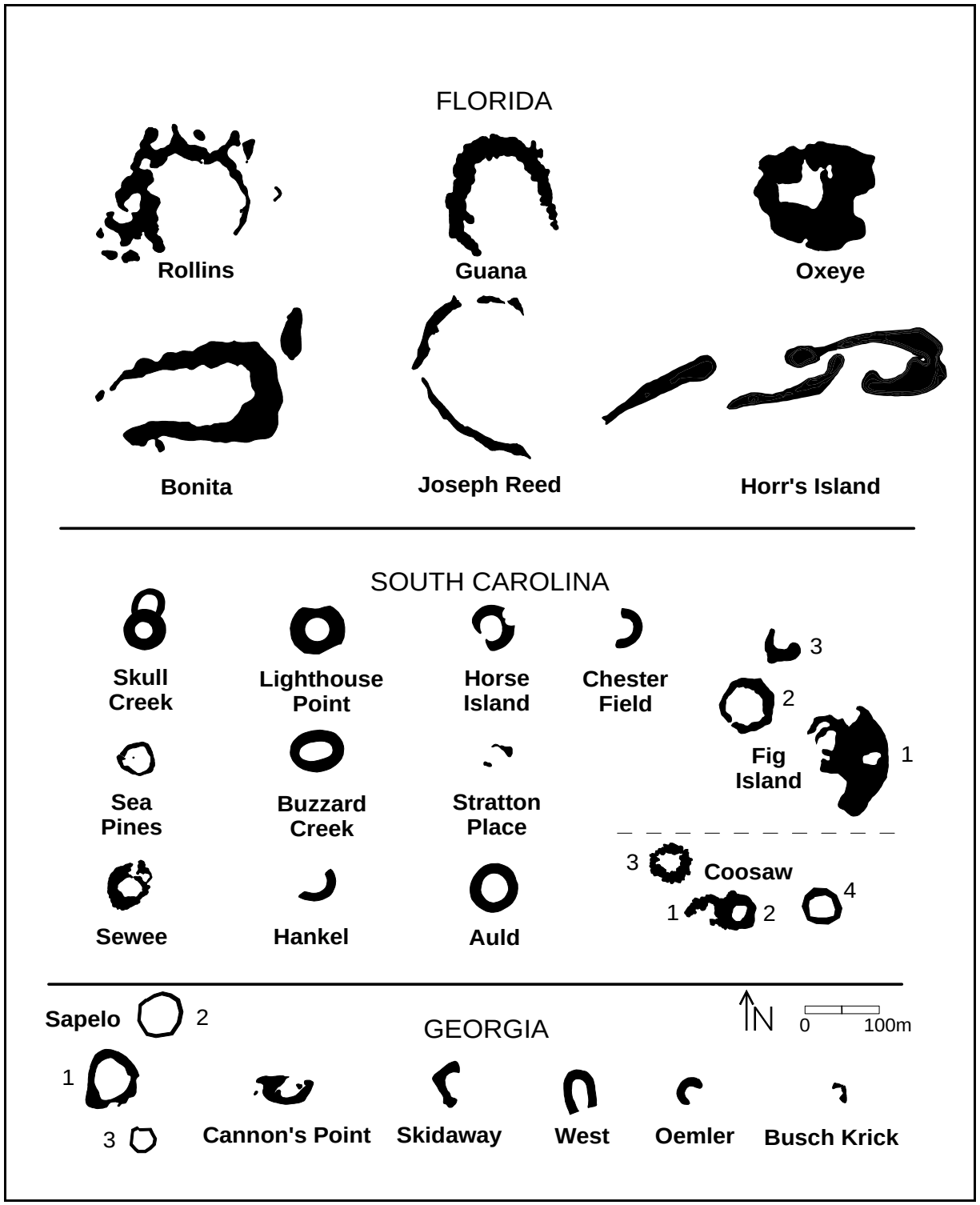


Figure 1. Late Archaic shell-ring footprints in the southeast U.S.

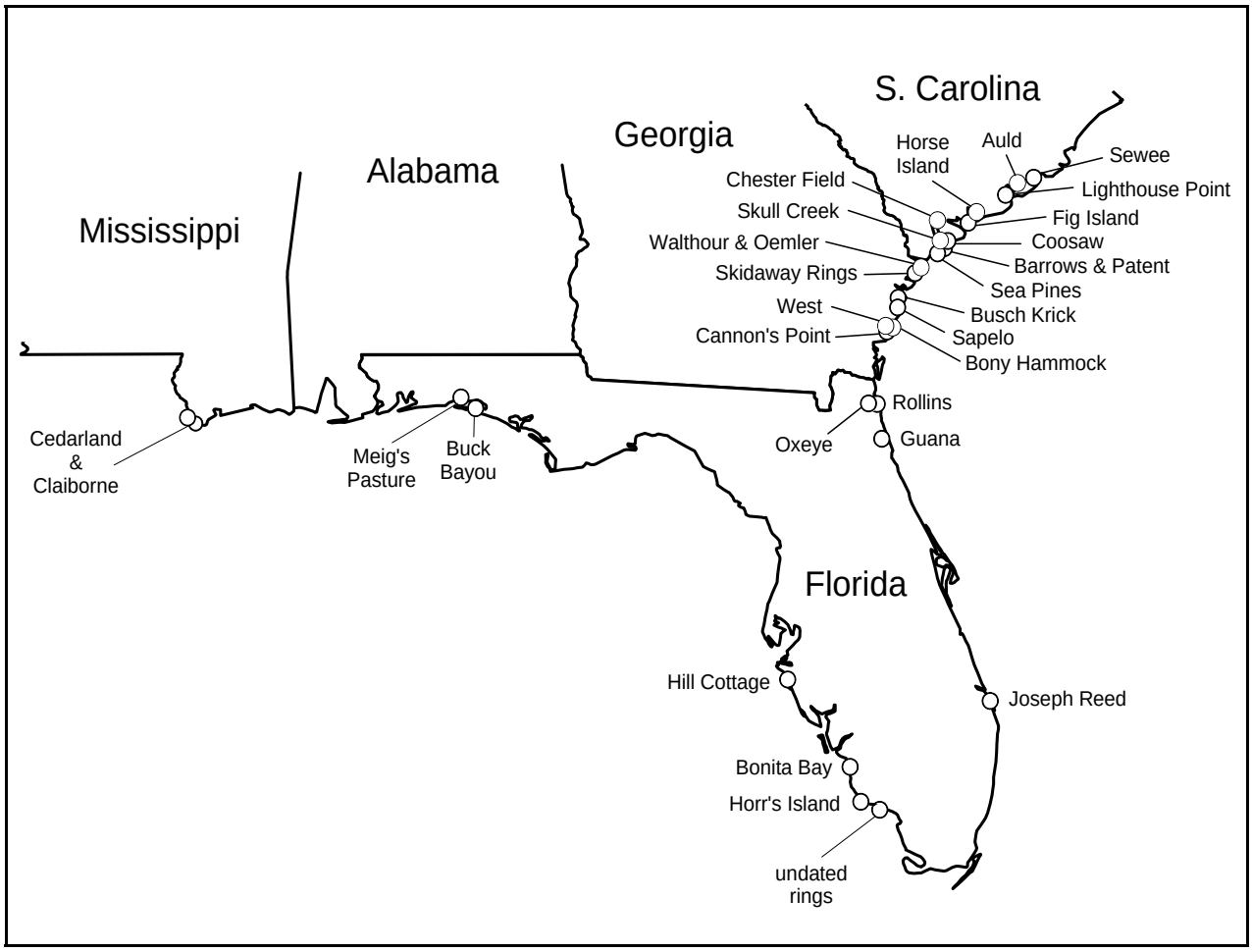


Figure 2. Late Archaic shell-ring location.

From South Carolina to Mississippi, Archaic shell rings are found among coastal settings on islands, the mainland, river banks, and buried beneath marshes (Figure 2). Wherever oysters were abundant 3,000 to 5,000 years ago, Late Archaic people exploited them (along with other resources). In areas where the use of shell rings was a tradition, ring builders deposited the shells in circular and semi-circular piles ranging in size from 30 to 250 meters in diameter and 1 to 6 meters in height. These enormous monuments are so me of the earliest large-scale public works in the United States. There is little to no evidence of significant human occupation in the coastal zone of the southeastern United States before shell rings appeared. Most Middle Archaic (8000–5000 B.P.) peoples of the southeastern United States are best known from non-coastal settings and are thought to have been migratory hunter-gatherer bands that moved among upland and riverine environments in rhythm with the seasons. By the Late Archaic (5000–3000 B.P.), however, the first extensive evidence of significant human occupations appear on the coast. Late Archaic coastal sites vary from isolated finds, small camps, and minor middens to large amorphous shell middens. But the founding coastal settlements are made most conspicuous by the presence of the large shell rings, which have yielded over 100 radiocarbon ages (Table 1).

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
South Carolina							
Sea Pines (38BU7)							
I-2848	20–26 inches	clam	0	3400	110	3810	Calmes 1968:26 (163) ; Buckley and Willis 1969:79
I-2847	0–6 inches	conch	0	3110	110	3520	" " "
Skull Creek Shell Ring, Large (38BU8-1)							
I-2849	30" above charcoal (I-2850) in periwinkle layer and 27" bs	oyster	0	3120	110	3530	Calmes 1968:25 (162); Buckley and Willis 1969:79
I-2850	level 9, 56–57" bs, bottom half of shell deposits	charcoal	-25	3585	115	3585	" " "
Skull Creek Shell Ring, Small (38BU8-2)							
I-3047	Base of midden, level 4, 18–24"	charcoal	-25	3890	110	3890	Calmes 1968:26 (163); Buckley and Willis 1969:79
Barrows (38BU300)							
Beta-213398	NW baulk, base of shell, below water table, 100–105 cmbs	oyster	-3.7	3200	60/70	3550	Beta Analytic 2006a
Patent (38BU301)							
Beta-213396	N Wall Profile, top of shell, 10–15 cmbs	oyster	-2.8	3490	70/80	3850	Beta Analytic 2006b
Beta-213397	Base of shell, NE, 30–40 cmbs	oyster	-1.5	3280	70/80	3660	" "
Coosaw River Shell Ring 1 (38BU1866)							
GX-29192	EU1 base, 90–95 cmbs	oyster	-2	3420	70	3790	Heide 2003:9; Russo and Heide 2003:31
Coosaw River Shell Ring 2 (38BU1866)							
GX-29193	EU2 base, 110–120 cmbs	oyster	-2.1	3190	70	3560	Heide 2003:11; Russo and Heide 2003:31
GX-29527	EU2 top, 25–30 cmbs	oyster	-1.8	3230	70	3610	" " "
CAMS 87990	EU2 90–100 cmbd	quahog	0	NA	30	3800	Russo and Heide 2003:31
Coosaw River Shell Ring 3 (38BU1866)							
GX-29194**	EU3 base, 25–30 cmbs	oyster	-2.5	3440	70	3810	Heide 2003:13; Russo and Heide 2003:31
Lighthouse Point (38CH12)							
Uga 2901	230R60, Level 2	charcoal	-25	3190	70	3190	Trinkley 1980:209–210 (191–192)
Uga 2902	230R70, Level 2	charcoal	-25	3275	55	3275	" " "
Uga 2903	Feature 33, south half, base of level 2	charcoal	-25	3180	65	3180	" " "
Uga 2904	Feature 33, north half, base of level 2	charcoal	-25	2885	175	2885	" " "
Uga 2905	Feature 37, north half, ash zone, base of level 2	charcoal	-25	3345	70	3345	" " "
Auld Shell Ring (38CH41)							
M-1209	Upper Level	oyster	0	3770	130	4180	Williams 1977:330–331

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
South Carolina (cont.)							
Fig Island, Shell Ring 1 (38CH42)							
Wk-9746	TU2, 90 cmbs	oyster	-1.1	3467	46	3861	Saunders 2002:114; Russo and Heide 2003:15
Wk-10103	TU2, top	oyster	-0.9	3420	54	3816	" " "
Wk-10105	TU1, top	oyster	-0.5	3550	47	3953	" " "
Fig Island, Shell Ring 2 (38CH42)							
GX-2276****	Trench E, 0.5 – 1.0'	charcoal	-25	1635	160	1635	Geochron Laboratories 1971; Saunders 2002:114
Wk-9762	ST 4, Feature 4b	oyster	-0.9	3714	50	4112	Saunders 2002:114; Russo and Heide 2003:15
Wk-10102	ST 4, 30 cmbs	oyster	-0.3	3602	55	4009	" " "
Fig Island, Shell Ring 3 (38CH42)							
Wk-9763	TU5, Posthole test	oyster	-0.6	3627	50	4030	Saunders 2002:114; Russo and Heide 2003:15
Wk-9747	TU2, Feature 1 base	oyster	-0.8	3594	49	3993	" " "
Wk-10104	TU 1, 23–30 cmbs	oyster	-0.4	3667	48	4074	" " "
Fig Island, Between Rings (38CH42)							
WK-10106	ST3, 30 cmbs	oyster	NA	NA	47	3709	Saunders 2002:114
Sewee Shell Ring (38CH45)							
GX-2279	NE Quadrant, C–1, 2' bs	oyster	0	3295	110	3675	Trinkley 1980b:5; Russo and Heide 2003:15
GX- 30186	EU1, 33–48 cmbd	oyster	-1.8	3630	70	4010	Russo and Heide 2003:14–15
GX- 30187	EU1, 150 cmbd, ring base	oyster	-2.3	3740	70	4120	" "
Spanish Mount (38CH62)							
UGA-583	basal stratum of shell midden, extracted from profile of cut bank	charcoal	NA	3820	185	NA	Sutherland 1974:31; Cable 1993:172; Judge and Smith 1991:30; Sassaman and Anderson 1995:241
UGA-584	basal stratum of shell midden, extracted from profile of cut bank	charcoal	NA	4170	350	NA	" " "
Georgia							
Cannon's Point (9GN57)							
UM-521	Marsh shell ring, sq.18N, 3E, 13cmbs, level 3, last occupation	oyster	0	3675	90	4085	Marrinan 1975:49
UM-520	Marsh shell ring, base of midden deposits 1.47 m bs, initial occupa-tion	oyster	0	4190	90	4600	Marrinan 1975:48–49
West Ring (9GN76)							
UM-523	West Shell Ring Test 1, 12–20 cmbs (level 2), last occupation	oyster	0	3605	110	4015	Marrinan 1975:35
UM-522	West Shell Ring Test 1, 45–55 cmbs (lev. 4), initial occupation	oyster	0	3860	90	4270	" "

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
Georgia (cont.)							
Sapelo Island Ring 1 (9MC23-1)							
M-39 (a)	L. Archaic Lev, w/plain fiber-tempered pottery	oyster	0	3600	350	4010	Crane 1956:665; Williams 1977:329
M-39 (b)	L. Archaic Lev, w/plain fiber-tempered pottery	oyster	0	3800	350	4210	" "
UGA-73**	1 mbs in ring 50 m diam, 2–3 high	oyster	0	3430	65	3840	Noakes and Brandau 1974:133
UGA-74**	2 mbs in ring 50 m diam, 2–3 high	oyster	0	3430	70	3840	" "
UGA-15084	Unit 1, Level 2, 10–20 cmbs	sooted sherd	-17.04	3480	50	3610	Thompson 2006:183
UGA-15085	Unit 1, Level 2, 10–20 cmbs	sooted sherd	-18.94	3630	60	3730	" "
Sapelo Island Ring 2 (9MC23-2)							
UGA-75**	2 mbs in remnant of ring next to one with UGA-73, 74 assays	oyster	0	3545	65	3955	Noakes and Brandau 1974:133
Sapelo Island Ring 3 (9MC23-3)							
UGA-15082	Unit 9, Level 4	charcoal	-27.52	3600	50	3560	Thompson 2006:183
UGA-15083	Unit 9, Level 7	charcoal	-25.46	3740	50	3730	" "
UGA-15086	Unit 11, Level 4	charcoal	-25.57	3740	50	3730	" "
Sapelo Island (9MC23)							
RL-580***	Refuse pit, 80–135 cmbs in unit approx 30 m south of Shell Ring I	hickory nut	-25	4120	200	4120	Simpkins 1975:22
UGA-15081	Unit 3, Lev 10, 90–100 cmbs	charcoal	-26.19	4080	50	4060	Thompson 2006:183
UGA-15087	Unit 2, Lev 9, 80–90 cmbs	charcoal	-25.03	3070	50	3070	" "
A. Bush Krick (9MC187)							
Uga-226	5.7–6.0'	conch	0	3215	80	3625	Brandau and Noakes 1972:494–495
Uga-227	4.6 '	charcoal	0	3470	85	3880	" " "
Florida							
Horr's Island, Mound B (8CR206)							
Beta 35347	Mound B, burial, FS 533	human	-13	4030	230	4230	Russo 1991:423–424; Russo 1994:90
Beta 40276	Mound B, Stratum G, FS 369	charcoal	-25	6070	90	6070	" " "
UM 1919	Mound B, Stratum C	quahog	0	4215	75	4615	" " "
UM 1920	Mound B, Stratum C	oyster	0	6330	85	6730	" " "
UM 1921	Mound B, Stratum A	oyster	0	4245	85	4645	" " "
Horr's Island, Mound C (8CR207)							
UM 1918	Mound C, Stratum A	whelk	0	4460	105	4860	" " "
UM 1922	Mound C, Stratum A	conch	0	4470	75	4870	" " "

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
Florida (cont.)							
Horr's Island, Mound A (8CR208)							
Beta 35344	Mound A, Z1, FS 464	human	-13	3420	100	3620	" " "
Beta 35345	Mound A, Z5, FS 501	charcoal	-25	4760	170	4760	" " "
Beta 35346	Mound A, Z 10, FS 507	charcoal	-25	4270	60	4270	" " "
Beta 36466	Mound A, Fire Pit, FS 243	charcoal	-25	4140	60	4140	" " "
Beta 36467	Mound A, Z 3, FS 462	charcoal	-25	4260	80	4260	" " "
UM 1923	Mound A, Zone 1, Stratum A	cockle	0	4335	70	4735	" " "
UM 1924	Mound A, Zone 2, Stratum B	oyster	0	4025	75	4425	" " "
UM 1925	Mound A, Zone 4, Stratum A	oyster	0	4055	75	4455	" " "
Horr's Island, Shell Ring (8CR209)							
UM 1926	Test 9, Stratum H	oyster	0	3895	75	4295	Russo 1991:423–424; McMichael 1982:54; Russo 1996:182–183
UM 1927	Test 9, Stratum B	oyster	0	3895	85	4425	" " "
UM 1928	Test 9, Stratum A	whelk	0	4120	85	4520	" " "
UM 1929	Test 9, Stratum D	quahog	0	4080	80	4480	" " "
UM 1930	Test 9, Stratum C	oyster	0	3975	85	4375	" " "
UM 1931	Test 9, Stratum J	whelk	0	3890	80	4290	" " "
Beta 37724	Test 8, FS 188	oyster	0	2310	70	2720	Russo 1991:423–430
Beta 1273	Test 7, Stratum B	oyster	0	3615	75	4015	Russo 1991:423–431; McMichael 1982:55; Russo 1996:182–183
Beta 1274	Test 7, Stratum D	oyster	0	4100	110	4500	" " "
Beta 1275	Test 6, Stratum D	oyster	0	3885	100	4285	" " "
Beta 1276	Test 11, Stratum D	oyster	0	4070	80	4470	" " "
Beta 1277	Test 11, Stratum B	oyster	0	4260	90	4660	" " "
Beta 1278	Test 11, Stratum A	oyster	0	3790	85	4190	Russo 1991:423–436
Horr's Island, Mound D (8CR211)							
Beta 35348	Mound D, submound, FS 587	charcoal	-25	4450	190	4450	Russo 1991:423–424; Russo 1994:90
Oxeye (8DU7478)							
Beta 119814	ST 1262, 2 mbs	oyster	-1.8	4500	80	4580	Russo and Heide 2000:57
WK7437	EU5m 10–15 cmbs	estuarine shell	0	3990	60	4400	" "
Beta 119815	Trench 1, Unit 5, btm of shell	oyster	-4.1	4230	70	4570	" "
Beta 47531	TP3, 60–80 cmbs	oyster	-1.9	3990	70	4370	Russo 1992:110; Russo 1996:182–183

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
Florida (cont.)							
Rollins Bird Sanctuary (8DU7510)							
WK7433	Unit 3197, 10–20 cmbs, midden	oyster	0	2280	60	2690	Russo and Heide 2000:57
Beta 119816	Trench 1, Unit 2, Feat. 1, btm deposit, 90–100 cmbs	oyster	-2.5	3300	70	3670	" "
Beta 119817	Unit 3197, 80–90 cmbs, midden	oyster	-0.3	3300	70	3710	" "
Beta 50155	4850N,250E, 60–65 cmbs	oyster	0	3350	60	3760	Russo 1992:110; Russo and Heide 2000:57
WK 7438	Trench 1, Unit 1, Feat 1, 35 cmbs	oyster	0	3230	60	3600	Russo and Heide 2000:57
GX 25750	Trench 1, Feature 11, base, 200 cmbs	bulk carbon	-25.6	3740	80	3730	Geochron Laboratory 1999; Alexander Cherkinsky, Geochron Lab, to R. Saunders 2006
GX-29516	TU 1097, Ringlet I, pit feature (in profile)	oyster	-3	2100	70	2460	Alexander Cherkinsky,Geochron Lab, to G. Heide 2002
GX-30737	TU 10, base of shell	oyster	-2.1	3556	80	3930	Alexander Cherkinsky, Geochron Lab, to R. Saunders 2006
GX-30378	TU 12, base of shell	oyster	-2	3462	70	3840	" "
GX-30379	TU 11, base of shell	oyster	-3.6	3278	70	3630	" "
GX-30340	TU 11, Feature 28 (below ringlet base)	oyster	-2	3438	70	3820	" "
Beta 45925	120 cmbs	oyster	NA	3730	60	4150	Russo 1996:182–183
Bonita Bay (8LL717)							
Beta 90529	Unit 546–547, E550, 10–20 cmbs	marine shell	0	3710	70	4120	Houck 1996:31
Beta 90530	Unit 546–547, E550, 100–110 cmbs	marine shell	0	3460	70	3870	" "
Beta 48533	FS 17, 0–10 cmbs	marine shell	0	3850	70	4260	Dickle 1992:161
Beta 48534	FS 18, 100–110 cmbs	marine shell	0	3770	70	4180	" "
Reed Shell Ring (8MT13)							
WK 7435	EU 1, Feature 3	oyster	0	2870	60	3280	Russo and Heide 2000:47
WK 7436	EU 2, 155 cmbd	oyster	0	2930	60	3340	" "
GX 25977	EU 2, 48 cmbd	oyster	0.3	3015	75	3425	" "
GX 25976	EU 1, 180–190 cmbd	oyster	-0.6	3055	80	3455	" "
GX-26118	EU 1, feature 2, 122 cmbd	charcoal	-26.6	2860	130	2850	" "
GX 26119	EU 4, 0–20 cmbd	oyster	-0.7	2880	80	3280	Alexander Cherkinsky, Geochron Lab, to M. Russo 2002
Meig's Pasture (8OK102)							
Beta 21253	Trench 2, Feature 3	conch	-0.8	3700	80	4100	Curren 1987:71
Beta 21254	Trench 3, Feature 17	conch	-0.8	3670	80	4070	" "
Beta 21255	Trench 3, Feature 17	conch	-0.8	3630	90	4030	" "
Dicarb 3295 A	Zone 2	marine shell	0	3220	50	3630	Thomas and Campbell 1993, Technical Synthesis and App:506
Dicarb 3295 B	Zone 4	marine shell	0	3280	50	3690	" " "
Dicarb	Not Reported	shell	NA	NA	60	3036	" " "

Table 1. Radiocarbon Dates from Shell-Ring Sites

SITE NAME SAMPLE NO.	PROVENIENCE	MATERIAL	C/12–C/13	MEAS. DATE	STND. DEV.	CONV. DATE	REFERENCES
Florida (cont.)							
Guana River Shell Ring (8SJ2554)							
GX-31906	Feature 1, top	oyster	-2	2362	70	2740	Saunders and Rolland 2006:7
GX-31908	Feature 1, center	oyster	-1.5	2497	70	2880	" "
GX-31909	Feature 5, center	clam	-0.8	3220	70	3620	" "
Guana River Shell Ring (8SJ2554) (cont.)							
GX-31907	Feature 2/4, top	oyster	-1.5	3355	70	3740	" "
Beta 166869	340N, 440E	clam	-0.5	3310	60	3720	" "
Beta 154816	340N, 540E	oyster	-0.2	3450	60	3860	Saunders and Rolland 2006:7; Russo et al. 2002:29
GX-29517	469N, 453E	oyster	-1.3	3430	70	3820	Saunders and Rolland 2006:7
Beta 154817	469N, 453E	oyster	-1.2	3210	50	3600	Saunders and Rolland 2006:7; Russo et al. 2002:29
Beta 165598	380N, 400E	oyster	-2.2	3120	60	3490	" " "
Beta 165599	410N, 520E	oyster	0.5	3180	70	3590	" " "
Hill Cottage Midden (8So2)							
G-596	Test A, 1foot deep	busycon	NA	3350	120	4040*	Bullen 1976:13
G-597	Test A, 2–2.5 feet deep	venus	NA	3225	120	3625*	" "
G-598	Test A, 4 feet deep	busycon	NA	3575	120	3975*	" "
G-599	Test A, 8 feet deep	busycon	NA	4050	125	4450	Bullen 1976:13; Russo 1996:182–183
G-600	Test A, 11 feet deep	busycon	NA	4100	125	4500	" "
Mississippi							
Cedarland (22CH30)							
G-561	Top of midden	charcoal	-25	3200	130	3200	Gagliano and Webb 1970:69
Clairborne (22CH35)							
I-3705	Base of midden	charcoal	-25	3100	110	3100	Gagliano and Webb 1970:69
UGA-1693	few cm to more than 50 cm deep	charcoal	-25?	3385	140	3385	Bruseth 1991:15, 18
TX-1404	NA	NA	NA	3470	160	NA	Webb 1982:3
TX-1403	NA	NA	NA	3990	80	NA	" "

* Hill Cottage Midden: Same procedure used in Russo 1996:182–183.

** Sapelo Island Ring 1 and Coosaw River SR3: Date believed to be from these sites based on reference.

*** Sapelo Island Ring 1: Date believed to have been taken from between Ring 1and Ring 3.

**** Fig Island: GX-2276 is the same sample as the unknown sample in Saunders (2002) on pp. 53, 114.

Why shell rings are shaped the way they are and why they were of such large size are questions that have intrigued archeologists. One theory is that shell rings resulted from the deposition of shell in piles and pits next to house structures (Thompson 2006; Trinkley 1980a; Waring and Larson 1968). As the incidental debris of daily meals accumulated underfoot, the ring builders moved their domiciles to the top of the rising rings of shell (Figure 3) (Edwards 1965; Trinkley 1997). Under these interpretations rings represent the remains of house and circular village foundations. Encircling the interior plaza, they are integral parts of the architectural landscape, providing a public stage for ceremony and other community interaction. Such rings have been identified at Sapelo 3, Lighthouse Point, and Stratton Place.

At other ring sites, archeologists have found that houses and hearths in the early stages of ring occupation disappear during later stages (Russo 1991, 2004; Saunders and Russo 2002). Large-scale ceremonies are evident in feast remains found in mounded ring walls consisting primarily of piled shell. The public consumption of huge quantities of shellfish, fish, and other foods results in the refuse being purposely and rapidly piled in contiguous formation to make the solid ring walls. Shell deposits are placed so quickly, steeply and high that they preclude domiciliary occupation on their summits. Steep, tall rings are found at Horr's Island, Sewee, Sapelo 1, and Fig Island 1 (Figure 4). At these sites, living may not have occurred on the ring, but nearby. Evidence of associated villages has been found near Horr's Island, Rollins, Guana, and Sapelo 1 (Russo 1991, 1992; Russo et al. 2002; Saunders and Russo 2002; Simpkins 1975; Thompson 2006). Elsewhere, rings seem to lack associated living areas, for example at Sewee (Russo and Heide 2003), Reed (Russo and Heide 2002), and Hill Cottage (Bullen and Bullen 1976; Sarney 1994)

Some sites are characterized by multiple rings. These vary greatly in shape and size. Two or more rings of approximately equal size may be connected as a Figure "8," such as at Skull Creek 1 and 2 and Coosaw 1 and 2 (Figure 5) (Calmes 1967; Heide and Russo 2003). Some sites may have smaller rings attached to a large, primary ring, such as at Fig Island 1 and Rollins (Figure 6) where four and nine rings, respectively, are attached to the main rings (Russo 2004; Saunders 2004; Saunders and Russo 2002). Still others may exist as a grouping of separate rings in close proximity, such as those found at the Fig Island, Coosaw, and Sapelo shell-ring complexes where three major rings (not counting attached rings) are found at each site (Heide and Russo 2003; Saunders and Russo 2002; Thompson 2006). The functions of rings in these complexes—habitation and ceremony—mirror those identified at single ring sites.

Although the name implies a certain symmetrical circularity, shell rings vary greatly in shape. They can be C-shaped, U-shaped, oval, or circular, while attached ring shapes defy easy description (Figure 1). Minimally and common to all is a curvilinear ridge of shell encompassing an area with little or no shell, generally interpreted as a plaza. Because shell rings often lie in marsh settings, many have been impacted by coastal erosion; distinguishing their current from their original form must be undertaken with subsurface, geophysical, or historical analyses. For example, comparison of the current shell-ring configuration of the Oxeye site, which lies partially buried in the marsh, was aided by historic aerial photos that show a greater portion of the circular ring above the marsh line (Figure 7) (Russo 2004). Comparison of Moore's (1897) sketch map of Sapelo 1 to Simpkins's (1975) contour map reveals extensive removal and spread of shell on the south side of the ring, resulting today in an elliptical ring that was formerly more of a symmetrical circle (Figure 8). The Lighthouse Point shell ring is known from historical accounts to have once been a closed circle of shell (Drayton 1802), although by the time it was investigated in the 1970s, it was too disturbed from erosion and mining for its shape to be identified (Trinkley 1980a).

Understanding the shape of the rings is important because the social organization of ring builders has been linked to shape. Trinkley (1980a, 1985) suggests that circular shapes indicate an egalitarian social formation, implying that no status distinctions are apparent in a symmetrical circle (Figure 3).

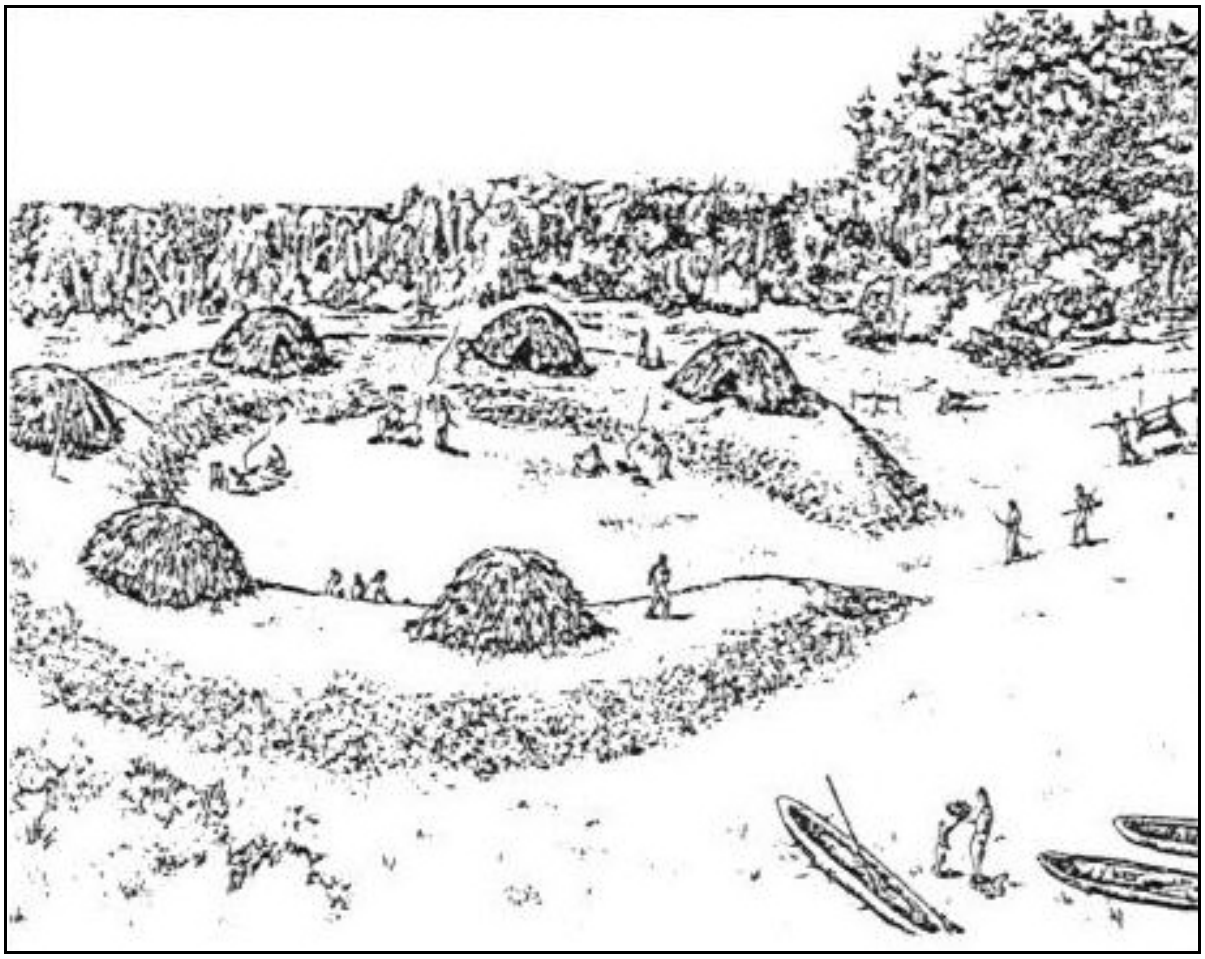


Figure 3. Interpretation of a shell ring as an egalitarian village (Trinkley 1997).

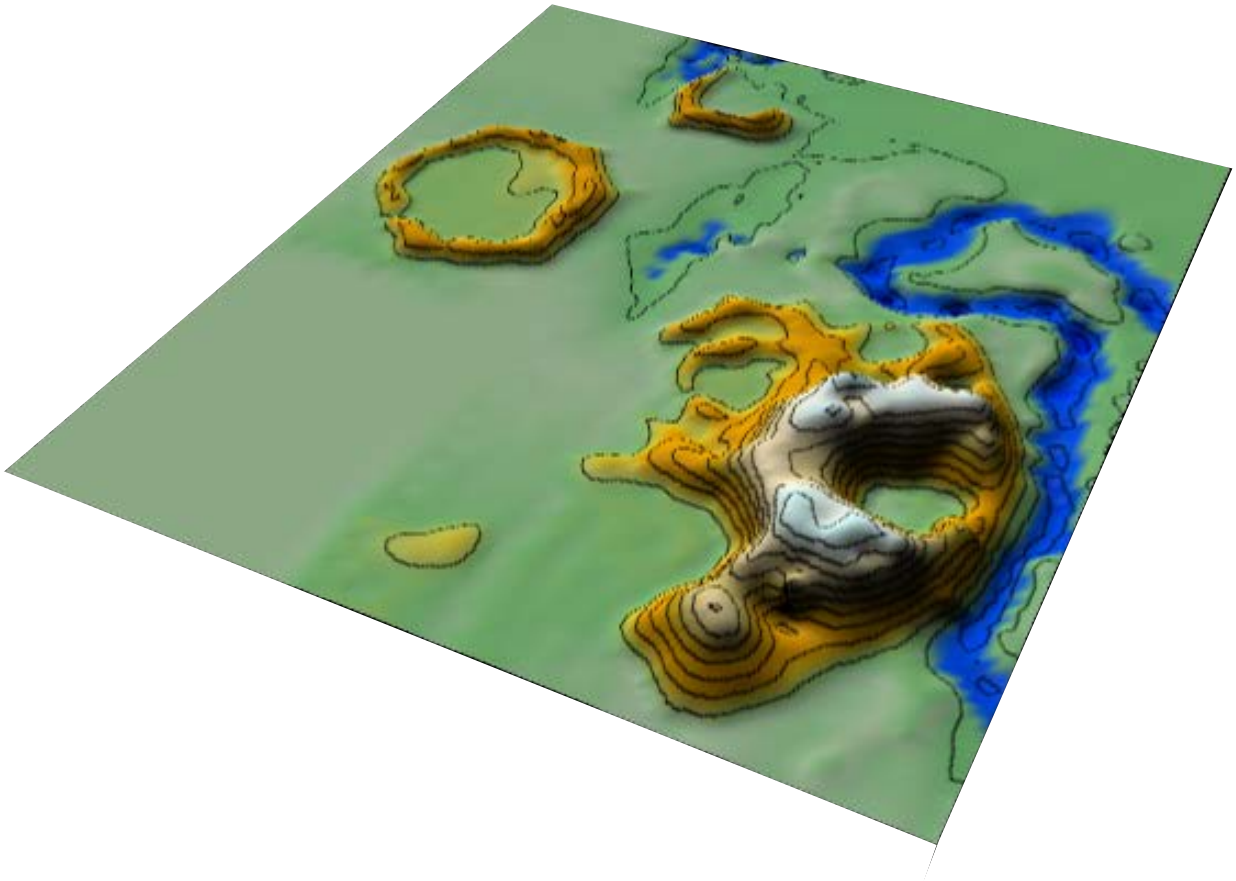


Figure 4. Fig Island rings 1, 2, and 3 showing steep-sided Fig Island 1.

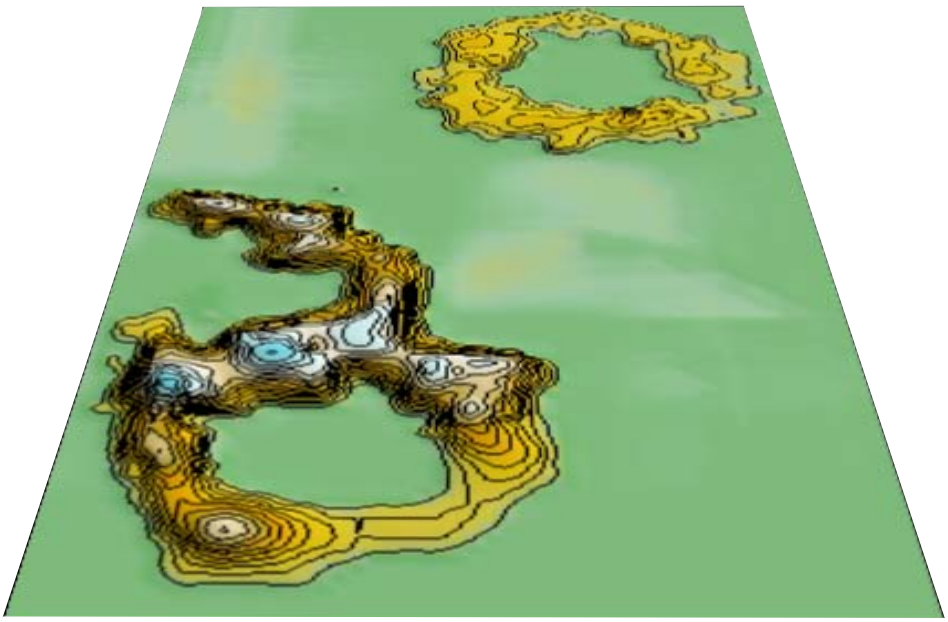


Figure 5. Coosaw rings 1, 2, and 3 showing "figure 8" configuration of rings 1 and 2.

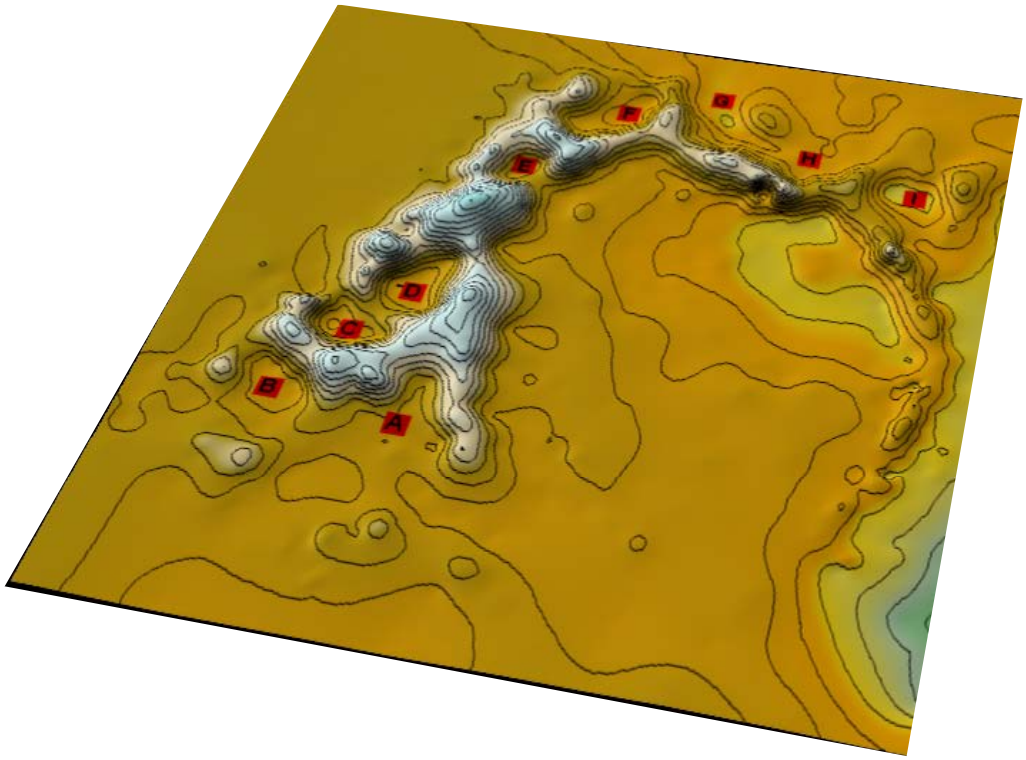


Figure 6. Rollins shell ring and ringlets

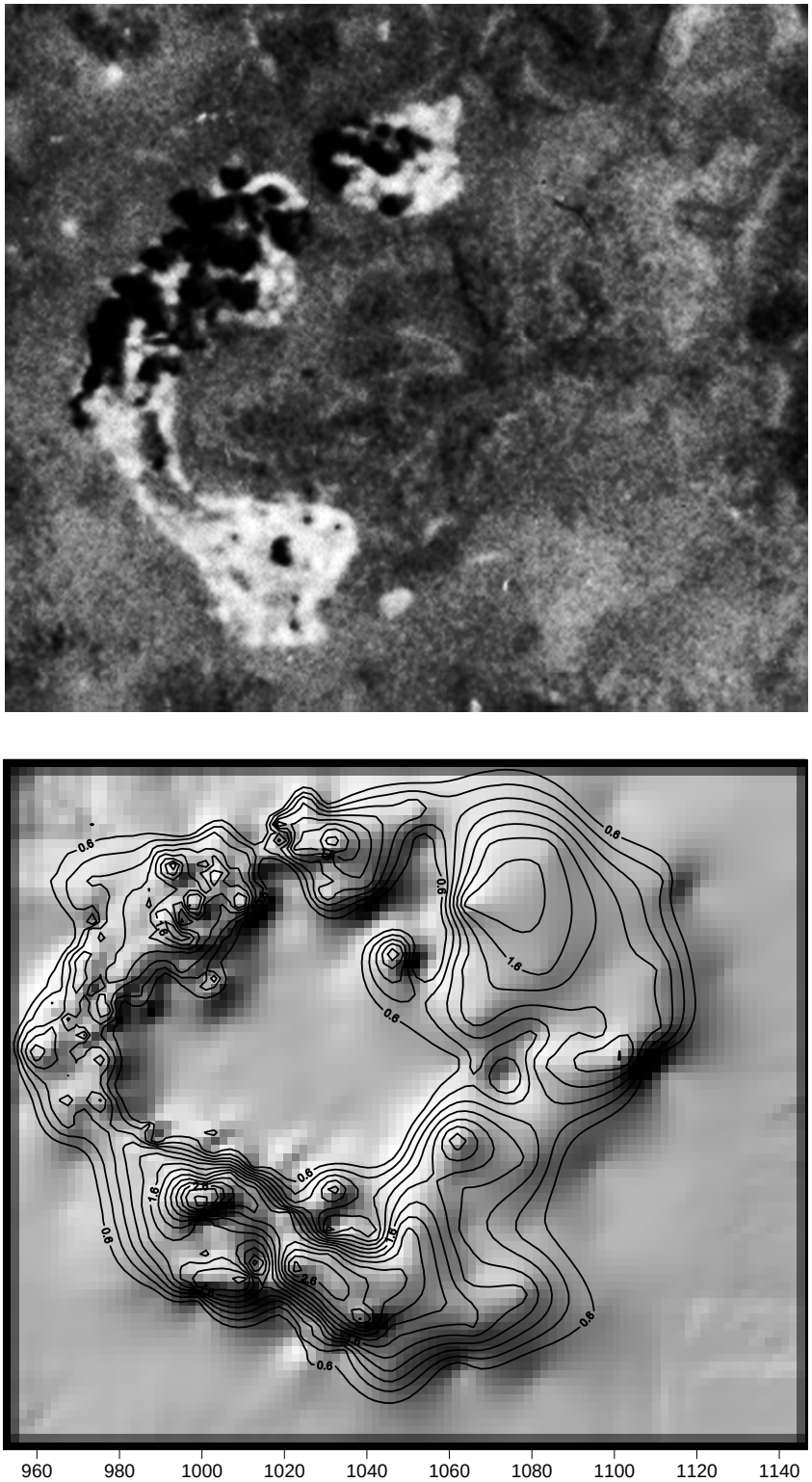


Figure 7. Oxeye shell ring 1943 aerial (above) showing western ring above marsh, eastern side below; 1999 probe map (below) showing shell ring distribution above and below marsh.

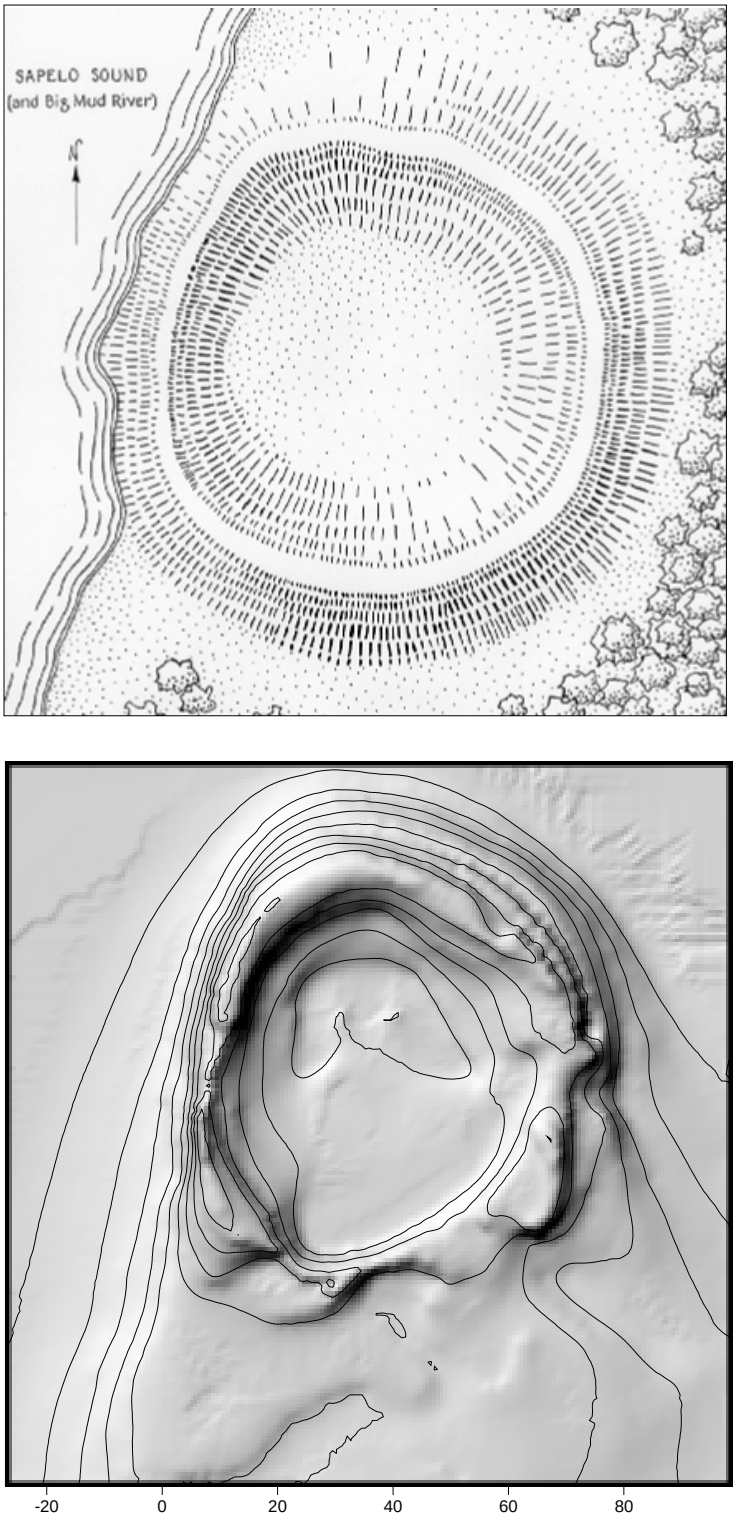


Figure 8. Sapelo 1 shell ring sketch map (above) by Moore (1897) showing circular form; Simpkins (1975) surface contour map (below) showing elliptical shape wrought by mining.

In line with this reasoning, Russo (2004) has suggested that since a number of rings have extremely asymmetrical shell distributions, which may reflect asymmetries in social relations. That is, the greater volumes of shell in certain places may be associated with special status. In C- and U-shaped ring formations, for example, the closed end of the ring typically contains the greatest volume and height of shell. Comparing these rings to ethnographic examples of similarly shaped villages, the shell distribution mirrors the placement of the architecture associated with high-status individuals at the closed end of village plazas. The accumulation of more shell in certain ring areas may be related to spiritual oblations or offerings to ancestors if the ring served as a monument or a place of ceremony. Or, the larger piling of shell at the closed end of rings may be the result of efforts by self-aggrandizers common to "big-men" societies. Such agents seek status in the display of food wealth, the hosting of community feasts, the construction of edifices as monuments to their attained status, and their location in the community at that point considered the most prestigious—all efforts to symbolize their greater status in the community (see Figure 9).

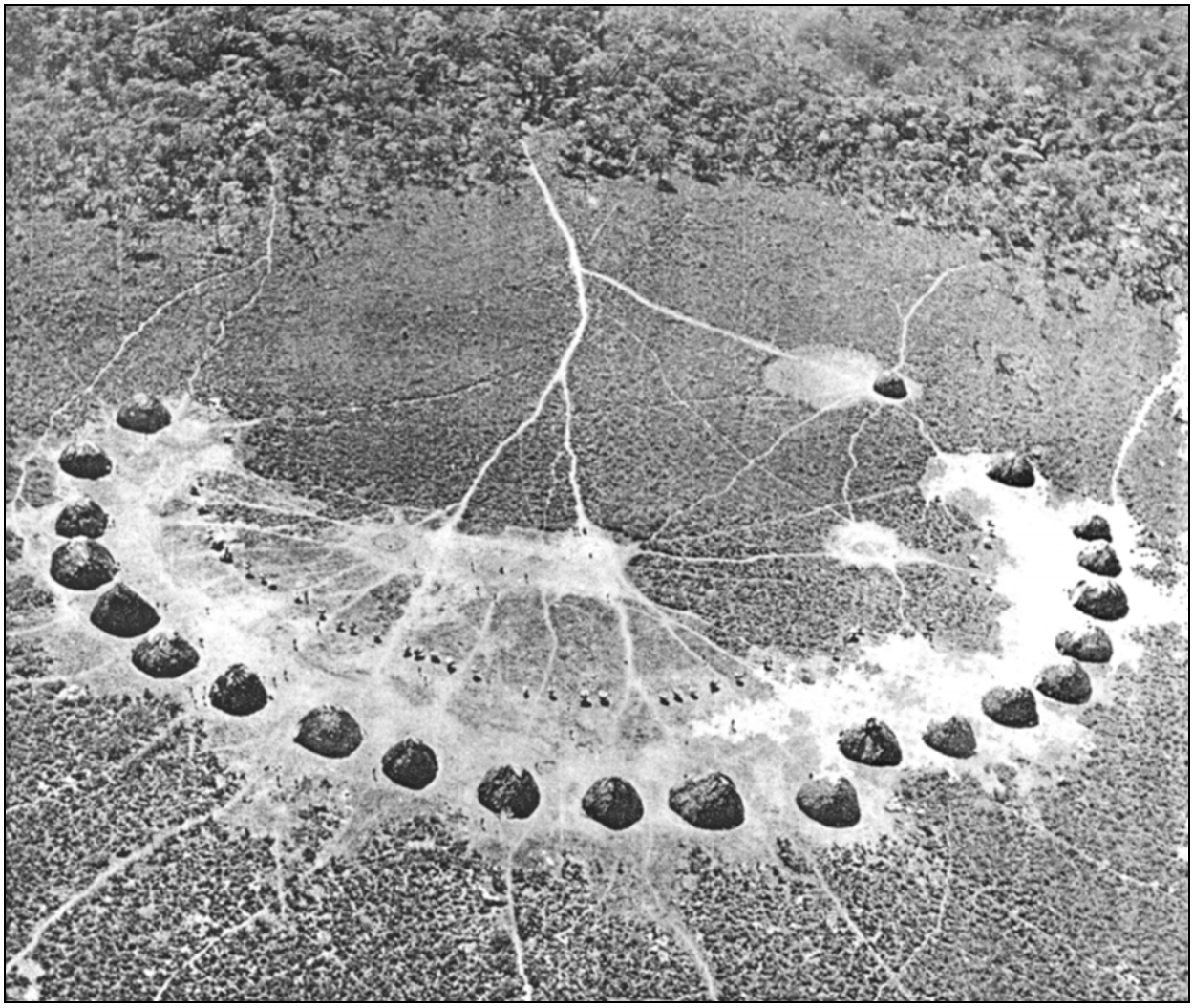


Figure 9. South American Shavante village showing C-shape layout with high status symbolized by placement of single house at closed end of C slightly towards center of plaza (Fraser 1968, fig. 73).

The shape and height of shell pilings has been shown to be distinctively asymmetrical at Sewee (Russo and Heide 2003), Rollins (Russo and Saunders 1999; Saunders 2004), Fig Island 1 (Russo 2002a), and Horr's Island (Russo 1991). Combined with other signs of status, such as ceremonial mounds, these ring sites have been interpreted as among the earliest evidence for the development of distinct non-gender and non-age status differences among community members in the United States during the precontact period.

Ring size may be related to population. In Georgia and South Carolina, shell rings are usually circular or C-shaped and average 53 and 64 meters in diameter, respectively. In Florida, shell rings are typically U-shaped and average 178 meters in length (Figure 1; Table 2). Whether shell rings were used as villages, places of ceremony, or both, differences in ring sizes indicate that different numbers of people could have occupied the site at any one time. Since population size may be correlated with complexities involved in organizing societies, shell-ring size can potentially shed light on the socio-political developments arising out of the Late Archaic coastal settlements.

Kelly (1995) has shown that mobile hunter-gatherer groups ethnographically average twenty-five members, while settled hunter-gatherer groups can reach up to 1,000 permanent inhabitants. These larger populations may manage to maintain a basic egalitarian form of social organization, but to do so, they require the adoption of more complex social maintenance strategies. Positions of temporary or earned status or authority are often granted, large-scale solidarity ceremonies and feasts are held to reinforce social bonds, and monuments and markers of group identity and social boundaries may be erected to distinguish one group from another. Shell rings such as Horr's Island, Reed, and Fig Island have been shown to have supported large, settled populations whose maintenance would have required these or other complexes organizing mechanisms to hold the societies together. As such, the sizes of rings and associated architecture provide a potential tool for gaining an understanding of the development of social organization among incipiently complex societies (Russo 2004).

Along with size and shape, the construction techniques behind shell rings may be linked to the specific kinds of social organization behind the groups that built them. While the initial stages of the smaller rings seem to represent little more than the incidental discard of food refuse coincidentally placed in the same planar layout in which the builders lived, larger rings were built rapidly with the shell remains of feasts. Shell was discarded in large piles, probably by corporate groups rather than individual households. The largest of the rings may have wholly or partially been constructed through various forms of corporate labor. At Fig Island 2 and 3, the rings were built from primary refuse of feasting episodes. But at Fig Island 1, the upper reaches of the tallest of all known shell rings seem to have been constructed of shell quarried elsewhere and brought to the site specifically for the purpose of raising the ring higher (Cable 1997; Russo 2002a; Saunders 2002). That is, this phase of Fig Island 1 ring construction differs from other rings, which resulted, to variable extents, from the epiphenomena of food consumption. At smaller rings and early stage of ring construction, the ring is raised through the incidental discard of small quotidian refuse remains, reflecting largely egalitarian organization. In later stages, larger public construction with feast remains suggests some form of corporate direction of on site remains. While at the largest of rings, construction appears to proceed as labor-intensive, public works projects requiring quarrying, transport, and hierarchical organic solidarity to manage the complex project (Tuzin 2001). Such massive building projects at shell rings are among the earliest known in the United States (Saunders et al. 1994). While all shell rings likely served as monuments subsequent to their making, these larger corporate efforts are distinctive in that their primary use seems to have been as a monument. Determining the methods of construction of shell rings is thus essential in determining their function and the organization of the societies that constructed them.

Table 2. Shell-Ring Metrics

Ring/Site	*Site No.*	*Diameter Max.*	*– Min.*	*Plaza*	*Rise*	*Shell*	*References*
South Carolina							
Sea Pines	38BU7	60	55	42	1.0	0.7	Calmes 1967; Trinkley 1980:39
Skull Creek, Large	38BU8	55	na	24	2.1	1.9	Calmes 1967
Skull Creek, Small	38BU8	43	na	27	2.1	0.6	Calmes 1967
Guerard Point	38BU21	40	na	20	0.7	na	Moore 1898:147
Chester Field	38BU29	54	27	30	1.5	1.8	Flannery 1943; Ritter 1933
Barrow's	38BU300	60	40	22	2.0	2.0	Saunders et al. 2006
Patent Point	38BU301	60	45	45	1.0	0.9	Saunders et al. 2006
Bull Island	38CH23	62	na	na	0.9	na	Bragg 1925; Hemmings 1970a
Coosaw 1	38BU1866	60	55	30	1.4	1.7	Heide and Russo 2003
Coosaw 2	38BU1866	60	55	30	1.4	1.7	Heide and Russo 2003
Coosaw 3	38BU1866	60	55	38	0.3	0.6	Heide and Russo 2003
Coosaw 4	38BU1866	na	na	na	0.4	na	Heide and Russo 2003
Hanckel Mound	38CH7	62	na	na	2.4	na	Hemmings 1989
Lighthouse Point	38CH12	76	76	37	3.0	na	Drayton 1802; Trinkley 1980, 1985
Horse Island	38CH14	61	na	na	3.0	na	Anonymous 1969; Hemmings 1989
Buzzards Island	38CH23	62	na	na	0.9	na	Judge and Smith 1991:36
Stratton Place	38CH24	50	40	21	0.6	na	Trinkley 1980; 1985
Auld	38CH41	56	50	na	1.8	na	Dorroh 1971; Judge and Smith 1991:36
Fig Island 1	38CH42	157	111	30	4.7	5.5	Heide 2002; Russo 2002
Fig Island 2	38CH42	82	77	58	1.4	2.1	Heide 2002; Russo 2002
Fig Island 3	38CH42	49	44	30	1.4	1.9	Heide 2002; Russo 2002
Sewee	38CH45	75	61	31	3.0	3.2	Russo and Heide 2003:31
Crow Island	38CH60	60	na	na	na	na	Trinkley 1980:246
Average S. Carolina		**64**	**57**	**32**	**1.7**	**1.9**	
Georgia							
Oemler	9CH14A	23	na	na	1.2	na	DePratter 1991; Waring 1968:182
Walthour	9CH16	23	na	na	1.2	na	Waring 1968:182
Cane Patch	9CH35	na	na	na	3.0	na	DePratter 1976:72, 107–109; 1974
Skidaway 9, Large	9CH63	61	na	na	1.5	na	Beasley 1970:118-119
Skidaway 9, Small	9CH63	30	na	na	1.5	na	Beasley 1970:118-119
Skidaway 21	9CH75	na	na	na	na	na	Beasley 1970:119, 122
Skidaway	9CH77	77	58	35	2.3	na	DePratter 1975:17; Howard et al. 1980:251
Odingsell	9CH111	47	37	na	1.5	na	DePratter 1975:23-28
Ossabaw 77	9CH203	45	na	na	0.9	na	DePratter 1974:281
Bony Hammock	9GN53	30	na	na	2.1	na	DePratter 1976:130
Cannon's Point	9GN57	79	46	35	1.5	1.8	DePratter 1976:131-132; Marrinan 1975:129

Table 2. Shell-Ring Metrics (cont.)

Ring/Site	*Site No.*	*Diameter Max. – Min.*		*Plaza*	*Rise*	*Shell*	*References*
Georgia (cont.)							
West	9GN76	58	43	43	na	0.7	Marrinan 1975:31, 129
Long Field Crescent	9LI231	na	na	na	na	0.7	Thomas 2006
Sapelo I	9MC65	80	75	55	2.7	2.7	McKinley 1873; Thompson 2006; Waring and Larson 1968
Sapelo 2	9MC65	75	60	55	0.9	0.5	McKinley 1873; Thompson 2006; Waring and Larson 1968
Sapelo 3	9MC65	55	40	40	0.9	0.9	McKinley 1873; Thompson 2006; Waring and Larson 1968
A. Busch Krick	9MC87	40	18	18	1.6	2.4	Crusoe and DePratter 1976
Barbour Island	9MC320	65	25	na	4.0	na	Georgia Site File
Average Georgia		**53**	**45**	**40**	**1.8**	**1.4**	
Florida							
Rollins	8DU7510	235	190	75	3.0	3.5	Russo and Saunders 1999; Saunders 2004
Oxeye	8DU7478	160	130	65	2.2	3.0	Russo and Saunders 1999; Russo 2004:51
Horr's Island	8CR208	160	100	125	3.0	4.5	Russo 1991, 2004:51
Guana	8SJ2554	170	150	140	1.3	1.3	Russo 2004:51; Russo et al. 2003
Joseph Reed	8MT13	250	150	200	1.5	1.7	Russo 2004:51; Russo and Heide 2002
Bonita Bay	8LL717	230	140	210	1.1	1.1	Dickel 1992; Russo 2004:51
Meig's Pasture	8OK102	77	66	58	0.3	0.9	Curren et al. 1987
Hill Cottage	8SO2	140	120	84	4.2	3.7	Bullen and Bullen 1976
Buck Bayou	8WL90	125	41	41	1.5	na	Thomas and Campbell 1991:105, 1993:530
Average Florida		**172**	**121**	**111**	**2.0**	**2.5**	
Mississippi							
Cedarland	22HC30	165	165	105	4	1.0	Gagliano and Webb 1970:49
Claiborne	22HC35	200	175	130	2	1.5	Bruseth 1991:16
Mississippi Average		**183**	**170**	**118**	**3**	**1.3**	
AVERAGE ALL		**86**	**77**	**60**	**1.8**	**1.9**	

Note: All measurements are in meters; na = data not available
Diameter= largest and smallest measures of outside diameter; Plaza = widest measure of plaza diameter;
Rise = tallest point above plaza; Shell = maximum thickness of shell deposit.

Shell rings are a subset of precontact architectural features known as mounds. Temple, burial, house, conical, flat-topped, and domiciliary mounds are common features of the Woodland and Mississippian cultures that followed the ring builders of the Late Archaic. The mounding of shell into large-scale circular and semi-circular formations (i.e., shell rings), however, was rarely seen after the Late Archaic. While subsequent coastal cultures definitely organized their settlements in circles and mounded the refuse of shell into large pilings, the combination of circles and shell pilings never became a tradition after the Late Archaic (Russo et al. 2006). Late Archaic shell rings represent unique significant structures in the annals of United States architectural history. Their significance is compounded because of their connection to the first sedentary settlements found on United States coastlines and the changing social formations that arose with them.

Context 2: Mounds and Other Architecture Associated with Shell Rings
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values

Shell rings were the first, large-scale architectural features constructed along the United States coasts and among the first in the entire United States. At a number of shell-ring sites, however, other architectural features were collaterally constructed. These include causeways, ramps, walls, ridges, and ceremonial mounds. Ceremonial mound construction was once thought to have been a strictly a Woodland (3000–1000 B.P.) and more recent phenomenon, appearing some two thousand years after shell rings. But at a number of shell-ring sites, large mounds and other public works were constructed wholly or partially from shell.

Four ring sites have been linked to ceremonial mounds. These include four mounds at Horr's Island (Russo 1991, 2004) and one mound each at Fig Island 1 (Russo 2002a), Bonita Bay (Dickel 1992), and the Cedarland/Claiborne shell-ring complex (Bruseth 1991; Gagliano and Webb 1970). Of these, the Horr's Island and Fig Island mounds have been most securely associated with shell rings. The Bonita Bay mound requires more study. The Cedarland/Claiborne mound has been destroyed, and its association with shell rings may never be positively confirmed.

Horr's Island Mound A has yielded radiocarbon ages on charcoal and shell between 4760 and 4270 B.P. Abutting the northern arm of the U-shaped shell ring, it is 30 meters in diameter and rises 6 meters above the ring plaza and 14 meters above the adjacent Gulf Coast bay, making it the highest point along the coast for miles. Mound B lies some 100 meters east of the ring abutting a ridge of shell midden on its western flank. Before its destruction by developers, it stood 20 meters in diameter and 1.5 meters in height. Two radiocarbon assays on shell from the mound yielded ages of 4645 B.P. and 4615 B.P.

Mound C lies 75 meters southeast of Mound A in what may be either an extension of the southern arm of the ring or a separate ridge of midden. Before its destruction, it stood 1. 5 meters high and was about 15 to 20 meters in diameter, although its setting within a raised ridge of midden made it difficult to determine its exact shape and size. Two radiocarbon assays on shell from the mound yielded ages of 4870 B.P. and 4860 B.P. Mound D lies 350 meters east of the ring, is 25 meters in diameter, and stands 4 meters high. The single age from charcoal at its base was 4450 B.P. Allowing for standard deviations the radiocarbon ages of all four mounds correlate with the ring's radiocarbon ages, which range between 4660 and 4015 B.P. (Russo 1991).

The Fig Island 1 mound is 35 meters in diameter and stands 4 meters above the surrounding marsh. As at Horr's Island Mound A, the association of the Fig Island 1 mound is physical in that it is directly con-

nected to Ring A by an elevated causeway of shell. No radiocarbon dates have been obtained for artifacts from the mound.

At Bonita Bay, an elliptical mound lies 20 meters from the east edge of the shell ring. It measures 30 by 65 meters and rises 2 meters above the surrounding ground surface. Archeologists have not excavated the mound, but have found human bone and a Woodland sherd near the surface (Dickel 1992), leaving its cultural affiliation in question. The presence of a single sherd does not preclude an Archaic period of construction. The mounds most persuasive link to the Late Archaic shell ring, however, is its proximity.

Gagliano and Webb (1970:49) identified a conical earth mound 300 meters east of the Claiborne shell ring. It measures 30 meters in diameter and is 1.2 meters tall. No investigations into the mound were conducted before it was completely bulldozed. Its association with the shell ring is based on its proximity and a reconnaissance of the area before and after the bulldozer activity, which revealed an absence of artifacts. The absence of artifacts, particularly pottery, suggests an Archaic rather than a Woodland or Mississippian mound. But confirmation of the mound's cultural affiliation may never be known.

All of these mounds are built wholly or partially from shell. With the possible exception of Mound C at Horr's Island, they are more than simple shell refuse piles. These mounds are identified as ceremonial based on their shape, size, and internal construction. Mound A at Horr's Island is the best studied. A series of trenches placed 15 meters into the mound near its center reveals in profile that the original ground surface was burned prior to mound construction. A mound of sand was then placed on top of that surface. The sand was mined from the adjacent bay rather than the dune upon which the mound sits. A layer of shell more than two meters deep was then placed on the sand mound, followed by alternating layers of multicolored sands, each layer up to a meter thick, and finally a capping layer of shell over 2 meters thick. The ritual burning of ground preparatory to mound construction, the careful layering of mound deposits, the use of distantly quarried materials, and evidence of the basket loading of multicolored sands identify Mound A as a ceremonial structure.

The presence of an initial mound of sand buried deep beneath capping layers of shell has also been identified with probes at the Fig Island 1 mound, and in profile at Mounds B and D on Horr's Island (Russo 1991:454, 482; 2002a), suggesting similarities in construction rituals. Not much is known of the Claiborne Mound. It seems to have been constructed mostly of earth, with only a little shell (Gagliano and Webb 1970:49). At Bonita Bay, the quarry pit adjacent to the mound indicates that a core mound of sand/earth may lie beneath the shell that caps the mound. The use of both sand and shell for these shell-ring mound features demonstrates that they were purposeful constructions, and not simply haphazard discards of food debris.

Debate over the significance of mound construction has been fueled by the recent discovery that Middle and Late Archaic peoples constructed large-scale ceremonial mounds along the interior rivers and coasts of the southeast United States (Russo 1994a; Saunders et al.1994). Some researchers believe that migratory hunter-gatherers were capable of constructing mounds without having to alter their migratory and egalitarian ways of life (J. Saunders 2004). Others see changes in social organization as necessary for the construction of public works, particularly the large and multiple works common at a number of Archaic mound complexes and shell rings (Russo 2004; Sasssaman and Heckenberger 2004). Organizing the necessary labor for large-scale public works requires the permanent or situational establishment of social hierarchies to compel and guide construction. As such, the first appearance of mounds on the southeastern United States landscape during the Archaic is seen as a hallmark in the development of precontact societies, signifying a switch from egalitarian to more complex forms of social organization.

Coastal Archaic mounds are among the first large structures made from both earth and shell (Russo 1994). Combined with the shell-construction techniques applied to rings, the building techniques employed by ring builders were famously followed by the shell-works–building cultures of east and southwest Florida until historic contact. Architecturally, the construction of mounds and rings during the Late Archaic marks the beginning of a long tradition of shell-works construction.

Because shell rings and mounds are so large, ring-builders found it necessary to construct appurtenances to gain access to high points, facilitate ingress and egress to the mounds and rings, and drain enclosed spaces. The Horr's Island ring, which rises steeply to 9 meters above the surrounding mangrove swamp, has a shell ramp constructed on its western flank to facilitate access from the swamp to the ring (Russo 1994). The elliptical shape of the mound at Bonita Bay may be an artifact of a shell ramp designed to facilitate the placement of shell on the uppermost reaches of the mound during construction. Similarly, a number of the lower-level ring walls attached to the primary Ring A at Fig Island 1 likely served double duty as a ring wall and a ramp, providing inclined access to the top of Ring A, whose own ring walls were otherwise too steep to climb. Similar ramps are found at Coosaw 2 and Rollins. At the nearby Fig Islands 2 and 3, distinctive ramps can be seen directly opposite each other. A path of shell constructed between the rings connects these ramps in a straight line (Heide 2002; Russo 2002a). Between the mound and Ring A at Fig Island 1, a substantial causeway 20 meters long and 4 meters high was constructed of shell.

With the construction of such large features as rings and mounds, problems arose with drainage. At some rings sites, the interiors may have been drained by ditches cut through the ring wall (e.g., Fig Island 2, Reed). At other sites, rings were left open, perhaps, in part, to accommodate drainage (e.g., Fig Island 3; Fig Island 1, Ring C; Rollins). It is often difficult for archeologists to determine if apparent drainage sloughs date to the Late Archaic or historic times (Fryman et al. 1980; Russo and Heide 2002), and care must be taken in assigning ownership of construction.

Other shell features at rings include isolated ridges or walls separate from the ring (e.g., Horr's Island). Common to many shell-ring *sites*, though not the rings themselves, are postmolds, usually of a small size, 10 to 25 centimeters in diameter. These have been found at Horr's Island (Russo 1991), Lighthouse Point (Trinkley 1985:113), Stratton Place (Trinkley 1980a:256), Guerard Point (Gantt and Styer 2006:53), and Skull Creek (Calmes 1967:9). Almost universally, these postmolds have been found *beneath* shell rings in the underlying sands/soils and not in the rings themselves. The absence of posts in the shell rings suggests at a number of alternative explanations. Either ring-builders moved or quit building the structures altogether at ring sites after the shell was piled on to make the ring. Or, as most archeologists believe, postmolds are simply rarely preserved in the shell matrices.

Interpreting postmolds at ring sites suffers from two opposing conditions—too few, or too many postmolds. At most sites, excavation units are too small and postmolds are insufficient to identify a structural footprint. At Horr's Island, the opposite was true. Here, hundreds of overlapping posts were identified in plan view. These probably represented numerous domiciliary structures being rebuilt in the same area over and over through time. The palimpsests of rebuilding, unfortunately, obscured the footprint of any single structure. By mapping only the deepest of the posts, a circular structure 3 meters in diameter was tentatively identified, with overlapping portions of other domiciliary huts present (Figure 10) Russo (1991). At other rings, interpretations of posts include smaller structures, such as lean-tos (Trinkley 1985:113). In any case, the presence of wooden structures at shell rings represents another shell-ring architectural feature with the potential to illuminate the settlement patterns of the earliest coastal cultures. Combined with large-scale corporate architecture found in mounds and the rings themselves, shell-ring sites have the potential to reveal cultural values in the changing social landscape attendant with the initial permanent occupations of the coast.

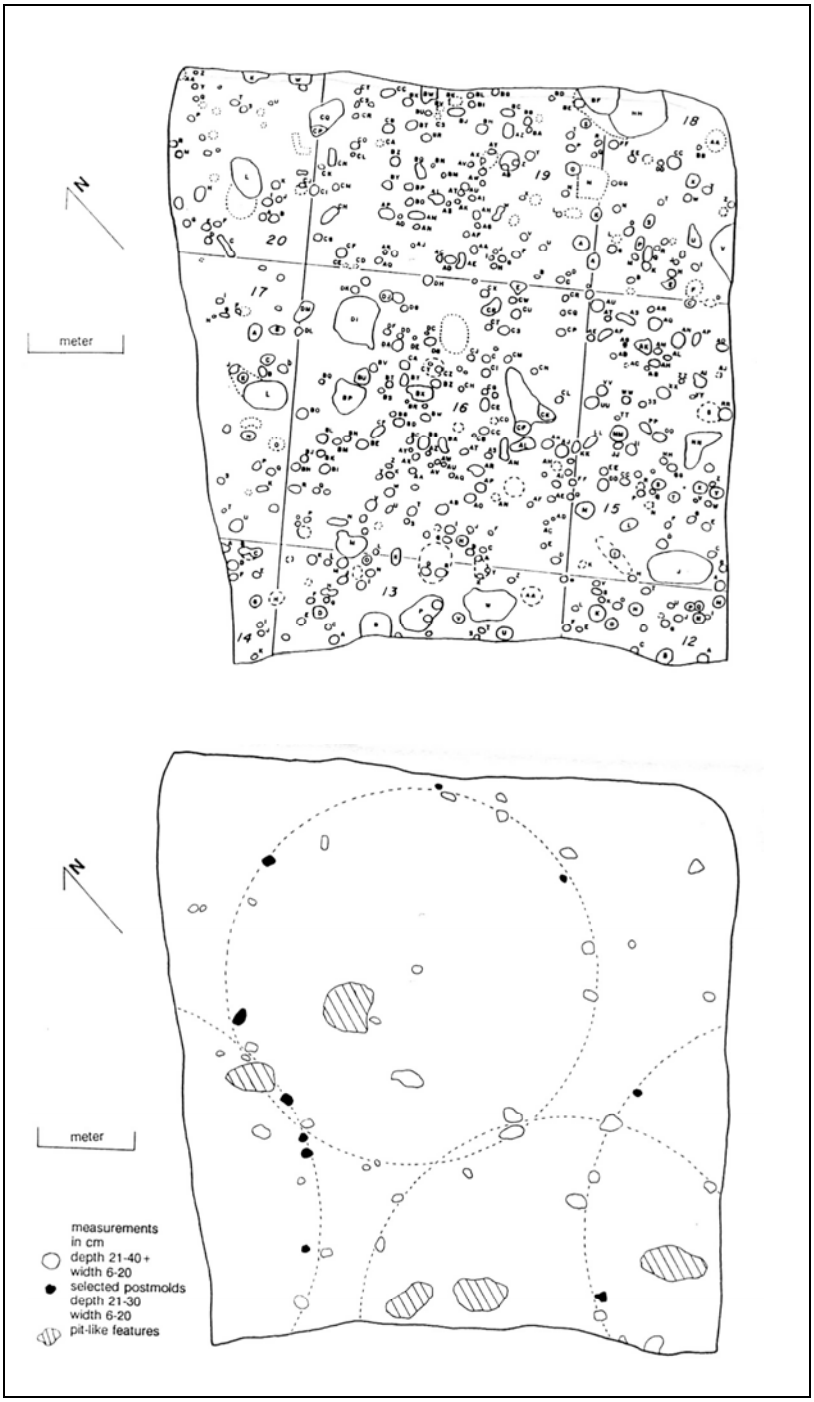


Figure 10. Horr's island post-molds, pit and hearth features below shell ring (above); all but the stratigraphically-lowest features removed to reveal circular structures associated with hearths and pits (below).

Context 3: America's First Potteries, 5000–3000 B.P.
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values; VI. Expanding Science and Technology

The geometrically intriguing rings and the large mounds occasionally associated with them are, of course, the most phenomenal of the cultural features at shell-ring sites. But they are not the only materials of significance. Many shell rings are associated with the regional introduction of ceramic technologies, and these ring sites often hold the earliest evidence of pottery in their regions. Other shell rings predate the adoption of pottery and have yielded evidence of baked clay objects or other indirect methods of cooking, such as cooking stones. The early ceramic production at ring sites make them ideal archeological laboratories for investigating the development of new technologies and the causes for their adoption. The historic context, America's First Potteries, identifies the links between shell rings and the rise of ceramic technologies.

For archeologists, changing technologies may present material correlates of social transitions. In the southeastern United States, changes in cooking technology may be correlated with (although not necessarily the cause of) changes in social organization. At ring sites, the most obvious correlates in changing technologies can be seen between the initial appearance of pottery and the initial appearances of the shell rings themselves.

Construction of shell rings represent significant changes in social organization, manifested as either the first occurrences of large-scale ceremonial architecture or the first occurrences of sedentary villages in their regions. These co-occurrences of initial pottery and initial shell-ring construction can be observed at the Thoms Creek pottery (Figure 11) producing sites in South Carolina, where Auld, Sewee, and Fig Island shell rings have yielded some of the earliest ages for the type, dating between 4200 and 4100 B.P. (Russo and Heide 2003:16). For early coastal Stallings/St. Simons wares (Figure 12) in South Carolina and Georgia, similar age ranges have been obtained from shell rings such as Cannon's Point and Sapelo 1 (Sassaman 1993:25, 240–241). On the south Florida Atlantic coast, the earliest dates for both spicule- (St. Johns) and sand-tempered (Glades) wares have been identified at the Reed shell ring. Fiber-tempered Orange wares (Figure 13) were identified directly above preceramic midden strata at the Hill Cottage shell ring, indicating that ring occupation occurred during the technological transition to pottery, if not during the initial ring construction (Bullen and Bullen 1976:13; Sarney 1994). In the St. Marys region of northeast Florida, the Oxeye and Rollins shell rings, less than four miles apart, uniquely span the period of transition from preceramic (Oxeye) to ceramic (Rollins) production, providing a set of rings ideally suited for comparative studies on the transition from one ceramic technology (baked clay objects) to another (pottery).

Fiber-tempered ceramic wares have long been thought to represent the earliest pottery in North America. Even before the advent of radiocarbon dating, the relatively soft paste, thick walls, irregular surfaces, and incised designs of these wares led archeologists to conclude that the pottery was somehow connected to the earliest attempts at a new technology. It was seen as crude, primitive, and so inadequate as to present doubts about its functional use as a cooking technology. Its earliest production in the form of pottery occurred relatively distant from the coast, along the mid-reaches of the Savannah River at Rabbit Mount.

But, due to an already well-established cooking technology there—indirect cooking (e.g., roasting) using soapstone (or steatite) slabs—pottery did not flourish in the interior. Rather, it took root and spread along the coast from the mouth of the Savannah, to the north and south along the St. Johns River, and to the eastern and western (Orange/Norwood) seaboards of central peninsular Florida. The inclusion of fibers as

a tempering agent was a common feature of the earliest pottery in these regions; the style, surface design, vessel form, and period of production, however, differed among regional cultures in Florida (Orange),

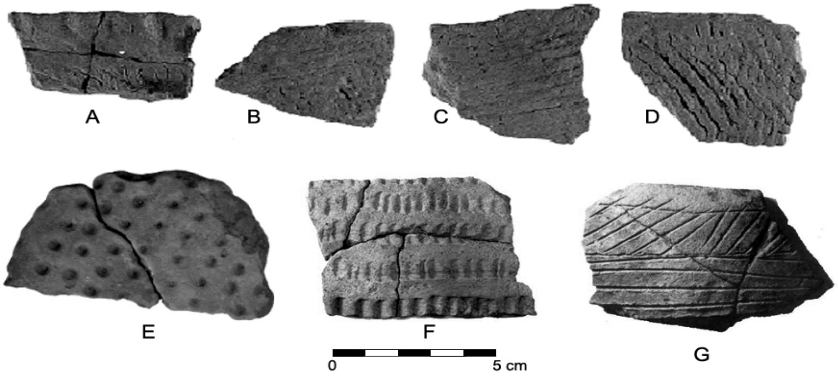


Figure 11. Thoms Creek pottery: A. Incised (Sanborn and Abbott 1999:Figure 6); B–D. Cord Marked (Sanborn and Abbott 1999:Figure 6);E. Punctate from Coosaw Island Shell Ring Complex (Heide and Russo 2003:Figure 14); F. Fingernail Punctate from Johannes Kolb site in SC (Judge and Steen 2004:Figure 26); G. Incised from Johannes Kolb site in SC (Judge and Steen 2004:Figure 26).

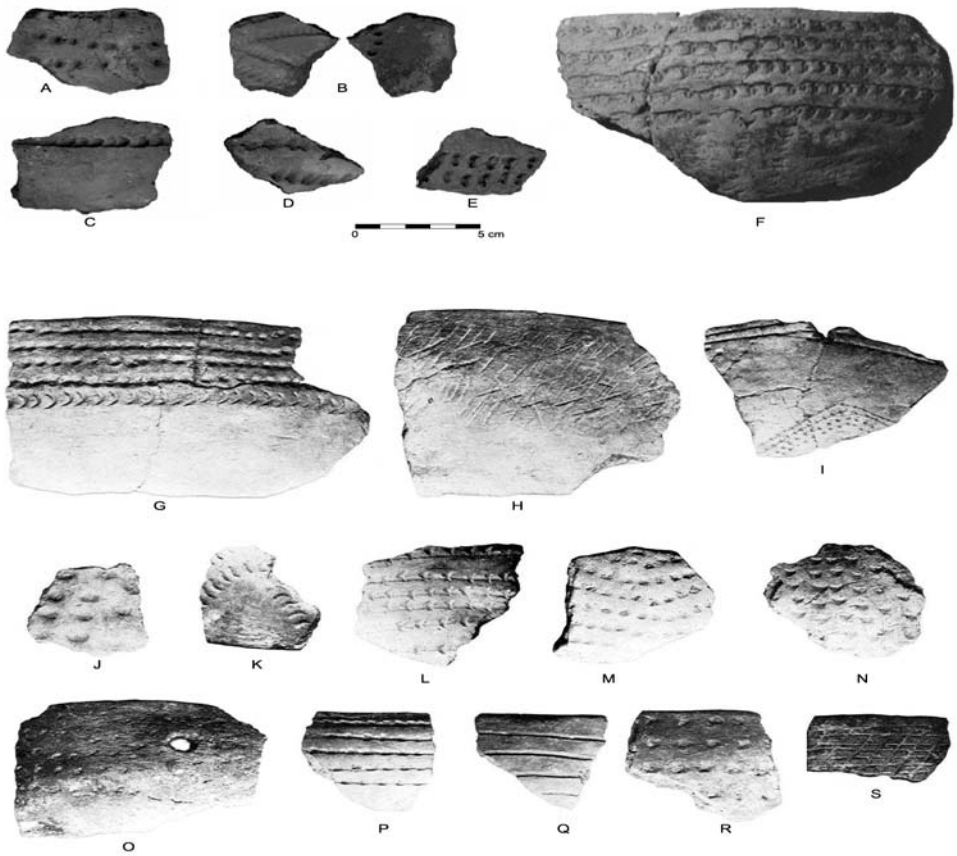


Figure 12. Stallings/St. Simons pottery: A–E. Stallings (Punctate and Drag and Jab) from Coosaw Island Shell Ring Complex (Heide and Russo 2003:Figure 13); F. Stallings from SC (Chicora 2003); G–I. St. Simons (Waring 1968a:Figure 58); J–N. St. Simons (Waring 1968:Figure 56); O–S. St. Simons (Waring 1968:Figure 57).

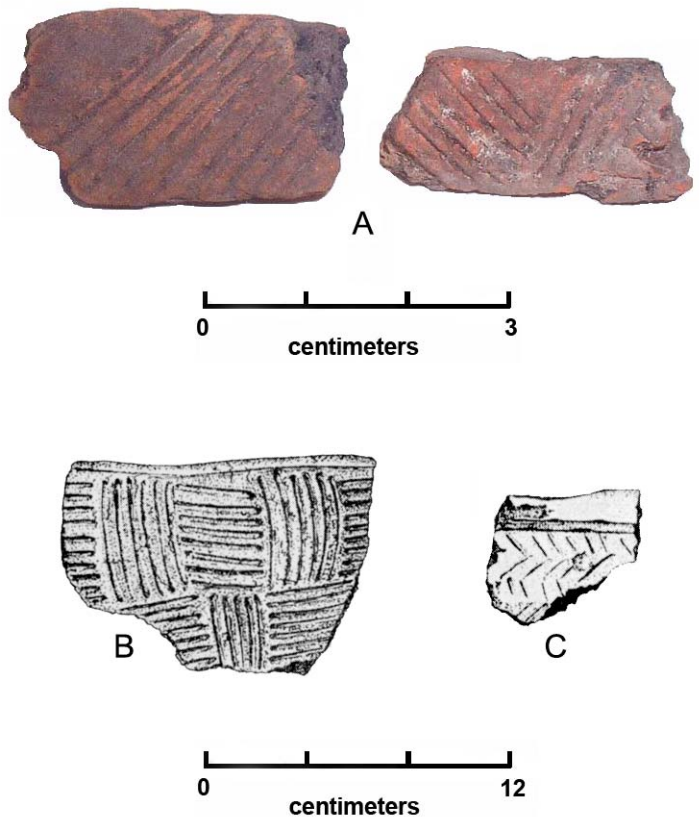


Figure 13. Orange pottery: A. Orange incised from Guana shell ring; B–C. Decorated fiber-tempered from Tick Island (Moore 1893:608).

Georgia (St. Simons or Stallings), and South Carolina (Stallings). Some of the earliest pottery makers, in fact, forewent the use of fiber, using sand as a temper instead. Sand-tempered Thoms Creek pottery dominates the pottery at most of the South Carolina shell rings.

The period of this early pottery (4500–3000 B.P.) coincided with intensified shellfish collections along rivers such as the Savannah and St. Johns, and along the Florida, Georgia, and South Carolina coasts in particular. As such, archeologists have speculated that the development of pottery was intricately linked to imperatives linked to shellfish exploitation at coastal and riverine environments. Goodyear (1988) suggested that pottery increased the efficiency of processing small coastal food sources, such as small fish, snails, and clams. Stoltman (1974:233) suggested that pottery increased the efficiency of storing and cooking shellfish. In these views, the development of early pottery is directly connected to the construction of shell rings, which required large amounts of shellfish in short periods of time to sustain feasting ceremonies held at ring sites. Sassaman (1993:216–217) has posited that the labor-saving aspects of using pottery in processing shellfish were critical to the appearance of shell rings. The collection and processing of shellfish, seen by Sassaman as primarily a woman's domain, required vast amounts of time. To counter

this intensification of labor, women living along the coast developed pottery to facilitate the collection, storage, and processing of shellfish. The innovation of pottery was so successful that women became the more important contributor to the family's subsistence diet, heretofore more reliant on game hunting. Not only was food-collection time decreased with the adoption of pottery, the amount of food that could be collected at any one time increased exponentially. This increase and the ready access to the virtually endless supply of rapidly regenerative oyster beds allowed for the hosting of ceremonies, with attendant large-scale feasts. Shell rings were constructed for, and were the result of these feast ceremonies (Russo 2004), and pottery was critical to supplying the feast items in the form of on-demand shellfish resources (Sassaman 1993:227).

On the other hand, Oxeye, Horr's Island, Bonita Bay, the early stages of Hill Cottage, Buck Bayou, Cedarland, and Claiborne represent large shell rings or ring components that were constructed in the absence of pottery. There also exist a number of shell rings that, while not totally devoid of pottery, have yielded very little (e.g., Oemler, Reed). The construction of shell rings at these sites demonstrate that while pottery may have facilitated the collection and processing of shellfish, it was not requisite for shell-ring construction or feasting ceremonies dependent on shellfish. At Reed, Russo and Heide (2004) identified the pottery as the earliest ever produced in the region. At the site, it was only sparsely found in excavations. As such, the pottery was not likely used for the large-scale processing of oysters and other foods. Rather, the novelty and rarity of the early pottery made it a prestige item at feasting ceremonies, where it was likely used for display, either as an ostentatious gift or in the presentation of food.

Such special purposes for shell rings as reflected in their artifact assemblages have been discussed by a number of archeologists (e.g., Michie 1979:96; Sassaman 1993:62), but few studies have been undertaken. At Rollins, Saunders (2004) found that pottery had been adopted in the region for hundreds of years prior to the construction of the ring. In the region, pottery was no longer a novelty and was quite commonly used as utilitarian wares at all habitation sites surrounding the shell ring. At the ring itself, however, the pottery found was far more frequently elaborately decorated, suggesting that the pottery used in shell-ring contexts had special purposes. Saunders proposed these included displaying and serving the food at ceremonial feasts.

As these examples show, the relationship between pottery and shell rings promises insights into the impetuses for the adoption of pottery, its variable functions at ring sites, and changes in forms and styles over the course of ring occupations. Pottery also provides a window into the technological transformations that occurred across the southeast United States when old cooking methods were abandoned in favor of pottery cooking. At a number of shell rings, baked clay objects have been recovered. These objects are often viewed as indications of the first stage of ceramic technologies, immediately preceding and leading into ceramic pot technologies. Manufactured from clay mixed with other soils and tempers, the baked clay objects could withstand the heat of ovens and heating or be placed in water-holding containers, thus allowing food to be cooked by baking, boiling, simmering, or other indirect methods.

At Oemler, Bony Hammock, Sapelo 1, Stratton Place, Sewee, Oxeye, Meig's Pasture, Buck Bayou, and most abundantly at Claiborne, baked clay objects have been found in ring contexts. At a number of rings, ceramic pottery is not present at all (e.g., Oxeye, Meig's Pasture, Buck Bayou, Claiborne), suggesting that the baked clay objects were a preferred cooking technology during occupation. Radiocarbon ages suggest that these sites actually predated the local adoption of pottery, although pottery was present in the Southeast at the time most these rings, except Oxeye, were built. Some have suggested that resistance to pottery may have arisen at sites where the inhabitants had established strong relations in the steatite trade network and, thus, viewed pottery as a threat both to the utility of steatite in cooking and to the prestige gained from trading in it (Campbell et al. 2004:148; Sassaman 1993).

A number of ring sites have baked clay objects, cooking stones or steatite vessel fragments (Figure 14) found primarily in the lower levels of the ring, with pottery in the upper levels (Sapelo 1: Waring and Larson 1968:274; Sewee: Edwards 1965:25), (Oemler: DePratter 1975:28; Bony Hammock: DePratter 1975:66; Hill Cottage: Sarney 1994). These contexts suggest that shell rings were being occupied precisely at the time when changes from indirect cooking technologies (i.e., baked clay cooking balls, cooking stones, and steatite vessels) to direct cooking (i.e., pottery) were taking place. At these sites, measures of changes in faunal exploitation between the transitions may lend insight into the persistent assumption that the adoption of pottery increased exploitation efficiency. Changing technologies and cultural expression in vessel form, temper, and surface designs provide the potential for shell-ring pottery studies to address contexts of national significance relative to peopling of the southeast United States (Table 3).

Context 4: Development of New Technologies: Shell and Bone Tool Kits
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values; VI. Expanding Science and Technology

Evidence of Middle Archaic estuarine exploitation has been identified intermittently along the Southeast coast. The smallness of some sites suggest at least seasonal use of the coast by interior, migratory terrestrial hunter-gatherers. At coastal ring sites dating to the early Late Archaic, occupation occurred as the first permanent settlements on the coast (Russo 1996). In either case, ancestral linkage to interior hunter-gatherer groups is apparent at coastal sites. However, the tool kits of these interior hunter-gatherers, which were replete with worked chipped and groundstone tools, could not be relied on along the coast where the basic stone resources were lacking—lithic tools are comparatively rare at shell-ring sites (Table 4). The exploitation of new resources such as shellfish and fish required entirely different technologies such as nets, net weights, fish hooks, and woodworking tools for constructing canoes. If not invented by the Late Archaic shell ring builders, these technologies were expanded upon and fully developed by these groups.

Shell replaced or supplemented lithics as a basic endurable resource for the manufacture of tools. The coastal shellfish collectors fashioned shell into many and intricate objects that were used to capture, process, and aid in the consumption of fishery staples. At Late Archaic shell rings, the range of tool types and ornaments fashioned from shell is extensive. It includes pounders, hammers, gouges, chisels, adzes, celts, planes, hoes, dippers, cups, spoons, scoops, pendants, beads, anvils, choppers, preforms, manos, net mesh gauges, net weights, and various columella awls, fids, pins, and picks (Figure 15). All or most of these types of shell tools are found at the earliest of the shell rings, indicating that the tools were essential to the construction and use of the rings. That is, early on, shell tools were utilized in exploiting the resources (shellfish) that formed the building materials for the rings themselves. The tool kit was so highly developed, that virtually no innovations in shell-tool technology would follow at coastal sites for the remaining millennia of precontact history. Those shell tool types that were being used at the time of European contact, can all be found in Late Archaic shell rings.

Shell technology was of undoubted importance to ceremonial life and the trade and subsistence economies of shell-ring builders. Beads made from gastropod columellas, as well as their outer whorls and whole shells, whole snails, and bivalves are found at ring sites, but were also items of trade. Shells indigenous to the shell-ring coasts have been recovered at interior southeastern United States sites, and in burial and other ceremonial contexts at sites as far away as the Northeast and Midwest.

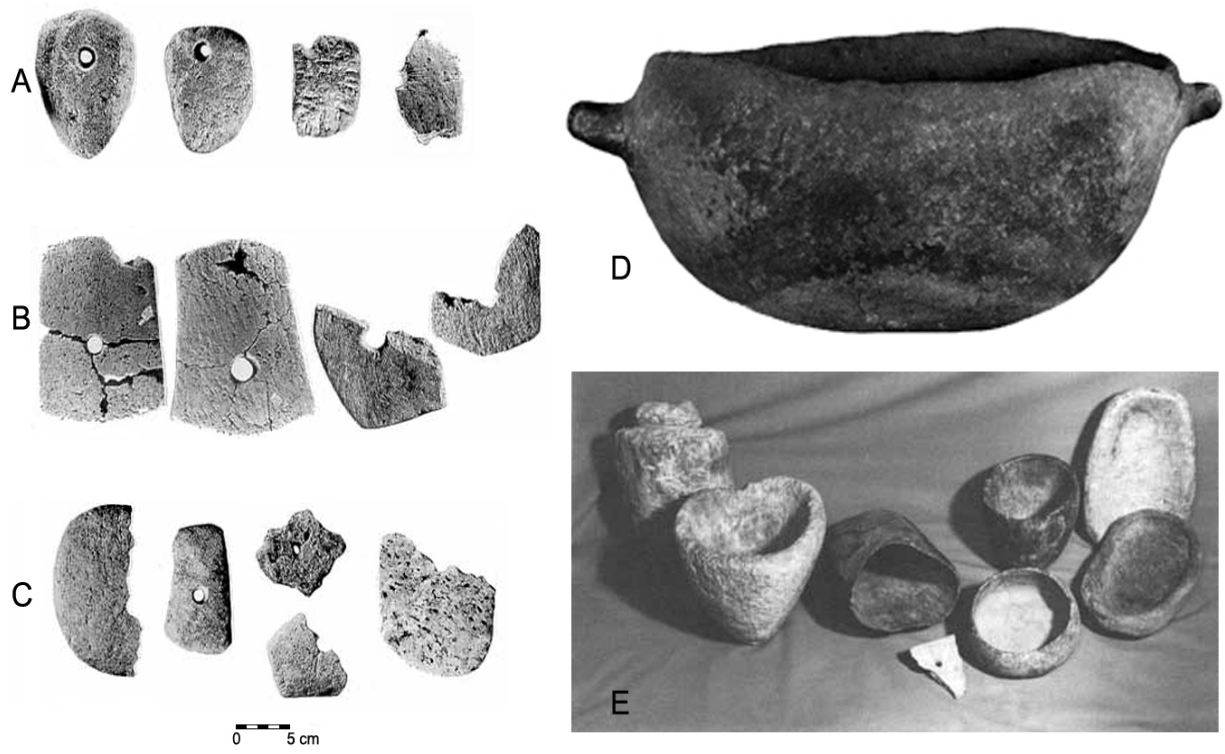


Figure 14. Steatite objects and vessels from the Southeast and greater U.S. steatite trade network. A. Objects from Sarah's Ridge (Kane and Keeton 1993:Figure 30); B. Objects from Paris Island South (Kane and Keeton 1993:Figure 30); C. Objects from Rocky River (Kane and Keeton 1993:Figure 30); D. Bowl (Ward and Davis 1999:Figure 3.11); E. Vessel Form Variety (NPS 2004).

Table 3. Pottery

Ring/Site	*Archaic Pottery*	*Baked Clay*	*Sherd Abrader*
South Carolina			
Sea Pines	127	—	—
Skull Creek	983	—	3
Guerard Point	>99	—	—
Chester Field	398	—	—
Barrows	#	—	—
Patent	#	—	—
Coosaw 1	172	—	—
Coosaw 2	500	—	—
Coosaw 3	54	—	—
Coosaw 4	—	—	—
Hanckel Mound	48	—	—
Lighthouse Point	11,192	—	—
Horse Island	85	—	—
Buzzards Island	>153	—	—
Stratton Place	1,521	2	4
Auld	#	—	—
Fig Island 1	1,294	—	—
Fig Island 2	1,772	—	—
Fig Island 3	332	—	—
Sewee	>10,156	11	10
Spanish Mount	5,432	—	—
Total S. Carolina	**>34,318**	**13**	**17**
Mississippi			
Cedarland	#	—	—
Claiborne	—	>12,000	—
Total Mississippi	?	>12,000	—

Ring/Site	*Archaic Pottery*	*Baked Clay*	*Sherd Abrader*
Georgia			
Oemler	44	2	—
Cane Patch	>1,000	2	
Skidaway	173	—	—
Odingsell	210	4	—
Ossabaw 77	5	—	—
Bony Hammock	>4	2	—
Cannon's Point	639	—	—
West	92	—	—
Long Field Crescent	266	—	—
Sapelo 1	1,453	102	—
Sapelo 2	368	—	—
Sapelo 3	663	—	—
Busch Krick	566?	—	—
Barbour Island	37	—	—
Total Georgia	**>5,667**	**112**	—
Florida			
Horr’s Island	—	—	—
Oxeye	>15?	122	—
Rollins	9,522	—	—
Bonita Bay	—	—	—
Reed	63	—	—
Meig's Pasture	—	#	—
Guana	>1,205	—	—
Hill Cottage	45	—	—
Buck Bayou	—	#	—
Total Florida	**>10,850**	**>122**	—

Table 4. Projectile Points (PP) and Other Lithics

Ring/Site	*PP*	*Other*
South Carolina		
Sea Pines	—	—
Skull Creek	2	—
Guerard Point	—	2 flakes; 1 graver
Chester Field	5?	—
Barrows	—	—
Patent	—	2
Coosaw 1	—	1 biface
Coosaw 2	—	—
Coosaw 3	—	1 flake
Coosaw 4	—	—
Hanckel Mound	—	—
Lighthouse Point	10	28 what?; 3 steatite
Horse Island	—	—
Buzzards Island	—	—
Stratton Place	1	1 flake; 15 other
Auld	—	—
Fig Island 1	1	—
Fig Island 2	—	1 biface
Fig Island 3	—	2 beads; 1 flake
Sewee	2	1 bead; 1 flake
Spanish Mount	1	—
Total S. Carolina	**22**	**58**
Mississippi		
Cedarland	#	# flakes
Claiborne	#	# flakes; # steatite
Total Mississippi	?	?

Ring/Site	*PP*	*Other*
Georgia		
Oemler	—	—
Cane Patch	—	1flake
Skidaway	—	—
Odingsell	2	—
Ossabaw 77	—	—
Bony Hammock	—	—
Cannon's Point	2	1 groundstone; # flakes
West	—	56 flakes
Long Field Crescent	—	—
Sapelo 1	—	4
Sapelo 2	—	—
Sapelo 3	1	81 flakes
Busch Krick	—	# flakes
Barbour Island	—	—
Total Georgia	**7**	**>138 flakes; 4 GS**
Florida		
Horr’s Island	1	102 limestone; 3 balls
Oxeye	—	1 ochre; 2 flakes
Rollins	—	10 flakes; 35 others
Bonita Bay	—	1 limestone
Reed	—	4 flakes; 316 lime/sandstone
Meig's Pasture	—	2 sandstone
Guana	2	9 steatite
Hill Cottage	—	1 limestone; 7 balls
Buck Bayou	—	# steatite
Total Florida	**3**	**422 lime/sandstone; 10 balls; 14 flakes; >9 steatite; 35 other**

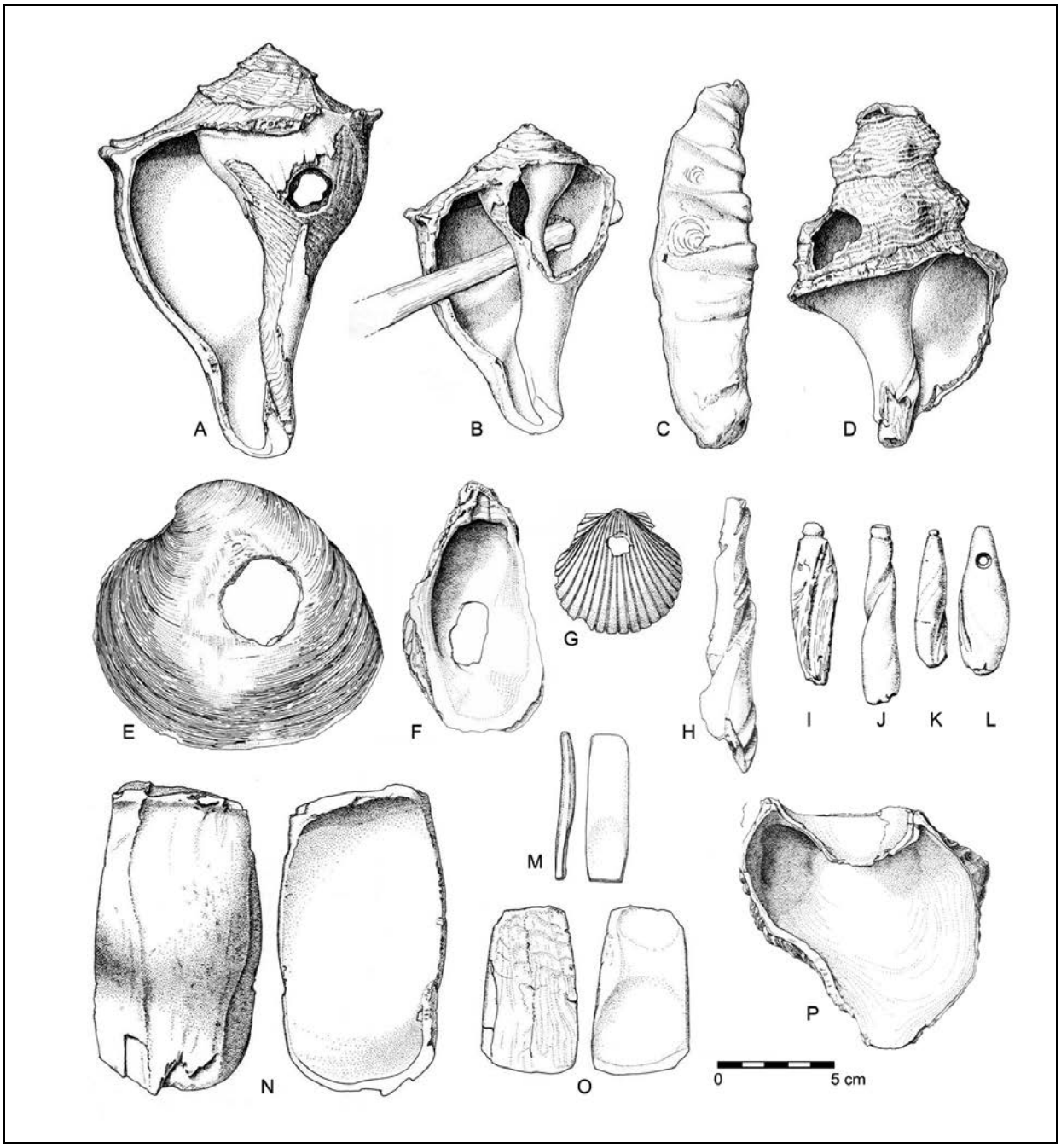


Figure 15. Shell Tools common at Late Archaic sites from the southwest Florida Coast. A. type B1 cutting-edged tool; B. type A cutting-edged tool; C–D. unhafted hammer; E–G. perforated bivalves; H. columella plan; I–L. columella sinkers; M. shell net mesh gauges—two views; N. shouldered adze—two views; O. adze/celt—two views; P.cup (Marquardt 1992).

Shell tools were necessary to collect and process other resources. The shells of bivalves were perforated and used as net weights. They were notched and sharpened for use as hoes, adzes, and celts. The long columellas of whelks and conchs were ground down and fashioned into compound fish hooks, pounders to cull oysters, and chisels to carve wood (Walker 1992:298–299). They were scribed for use as net weights and attached to handles for use as hammers. The outer whorls of whelks and conchs were squared off and used as mesh gauges in the fabrication of fish nets. They were sharpened and shaped into adzes and celts, or chipped into spoons, dippers, and scoops for use in cooking and serving foods.

Despite their importance in varied aspects of shell-ring cultural life, not all shell rings have had shell tools identified with them (Table 5). This may be due to archeologists' failure to recognize shell tools, or the difficulty in distinguishing food refuse from modified shell (e.g., Marrinan 1975:65). Only recently has the wide range of shell tools been classified into formal types (Marquardt 1992; Torrence 1996). This typology identifies not only a large number of tool types, but specific uses and variations in use for a variety of the types. Not only are chisels and hammers identified, but various types of columella cutting-edge tools and whelk and conch hammers are distinguishable.

Equally likely, contributing to the absence of reported shell tools is the fact that relatively few shell rings have been excavated, particularly in South Carolina and Georgia. In South Carolina, archeologists have reported, on average, ten shell tools for every shell ring identified; in Georgia, the average is less than one per ring. But only seven (Stratton Place, Lighthouse Point, Chester Field, Fig Island 1–3, and Sewee) out of twenty-two known rings in South Carolina, and three (Sapelo 1 and 3 and Cannon's Point) out of sixteen in Georgia have been excavated to any significant degree. At these sites the averages are 30 and 7, respectively. In contrast, Florida shell rings average far more shell tools—285 per ring (Table 5). If only those rings that have been extensively excavated are counted (i.e., Horr's Island, Hill Cottage, Rollins, and Guana), the average increases to 640 per site. These data indicate that certain shell-ring–building cultures used shell as tools more intensively and in greater diversity than others. Specifically, the shell-ring-building cultures on the southwest coast of Florida were preeminent in their use of shell tools. A number of reasons were behind this intensified use. The southwest Florida shell rings were the most distant from lithic resources, located at the periphery of the steatite trade network (Campbell et al. 2004; Sassaman 1993). Here ring builders either did not use pottery at all, or did not use it to any significant degree.

The diversity of shell tools used by southwest Florida ring builders was great. Virtually all shell tools found at other ring sites were whelk hammers (Table 5)(e.g., Edwards 1965; Marrinan 1975; Trinkley 1980a; cf. Saunders [2002:118–119], who additionally identified whelk columella punches, gouges, and a net spacer at Fig Island). In contrast, the tools at Horr's Island included pounders, hammers, gouges, chisels, adzes, celts, planes, hoes, dippers, cups, spoons, scoops, pendants, beads, anvils, choppers, preforms, manos, net mesh gauges, net weights, and various columella awls, fids, pins, punches, and picks—a nearly complete shell tool assemblage. The shell tools from Hill Cottage, although not as diverse, are numerous. In part, this is due to the identification of shell tool debitage as well as the tools themselves. Much in the same vein as chipped lithic tools, the manufacture of shell tools can result in identifiable debitage. Analysis of this debitage can be used to identify the processes of reduction the shell went through to make the tool (Marquardt 1992; Torrence 1996). Identifying this debitage is an important consideration, which, unfortunately, most archeologists have not made. It can lead directly to recognizing the activities that went on at shell rings and interpreting the functions they may have served, e.g., habitation or ceremony.

Table 5. Shell Tools

Ring/Site	*Shell Tools*	*Other*
South Carolina		
Sea Pines	#	—
Skull Creek	—	—
Guerard Point	—	1 bead
Chester Field	—	—
Barrows	—	—
Patent	—	—
Coosaw 1	1	—
Coosaw 2	—	—
Coosaw 3	—	—
Coosaw 4	—	—
Hanckel Mound	—	—
Lighthouse Point	15	—
Horse Island	—	—
Buzzards Island	#	—
Stratton Place	10	—
Auld	—	—
Fig Island 1	106	—
Fig Island 2	>2	—
Fig Island 3	17	—
Sewee	60	1 bead
Spanish Mount	—	—
Total S. Carolina	**>209**	**2 bead**
Mississippi		
Cedarland	#	—
Claiborne	#	—
Total Mississippi	?	—

Ring/Site	*Shell Tools*	*Other*
Georgia		
Oemler	—	—
Cane Patch	2	—
Skidaway	—	—
Odingsell	—	—
Ossabaw 77	1	—
Bony Hammock	—	—
Cannon's Point	21	2 bivalves
West	—	—
Long Field Crescent	—	—
Sapelo 1	—	1 bead
Sapelo 2	—	—
Sapelo 3	—	—
Busch Krick	1	—
Barbour Island	—	—
Total Georgia	**30**	**3**
Florida		
Horr's Island	1,654	—
Oxeye	2	—
Rollins	36	—
Bonita Bay	7	—
Reed	—	—
Meig's Pasture	2	—
Guana	21	—
Hill Cottage	847	3 beads; 19 bivalves
Buck Bayou	—	# beads
Total Florida	**2,569**	**3 beads; 19 bivalves**

Shell-ring sites are renowned for bone tools and ornaments, specifically decorated bone pins. This is perhaps another elaboration of material culture kindled in response to a paucity of lithic and other resources common elsewhere in the southeast United States. Trinkley (1980a:298) suggests that "next to pottery, the most visible artifact category is worked bone." But he was speaking not only of shell rings but of Late Archaic coastal sites in general, as well as interior sites. Unlike the shell tools found at shell-ring sites, the bone tools have clear precedents in the Middle Archaic and contemporary usage pan-regionally (Figure 16). As such, and in the general absence of lithic points, it is the often abundant and near ubiquitous presence of bone tools at shell rings that provide a material connection to the involvement of the coast in trade and other relations with the greater Southeast. However, a close look at the actual numbers of bone tools found at shell rings suggests, that like shell tools, some of the ring-building cultures lay outside the mainstream traditional bone tool technology. Florida, in general seems to yield fewer bone pins than other ring builders (Table 6). This suggests they may have been marginalized from the greater Southeast regional trade and communication networks.

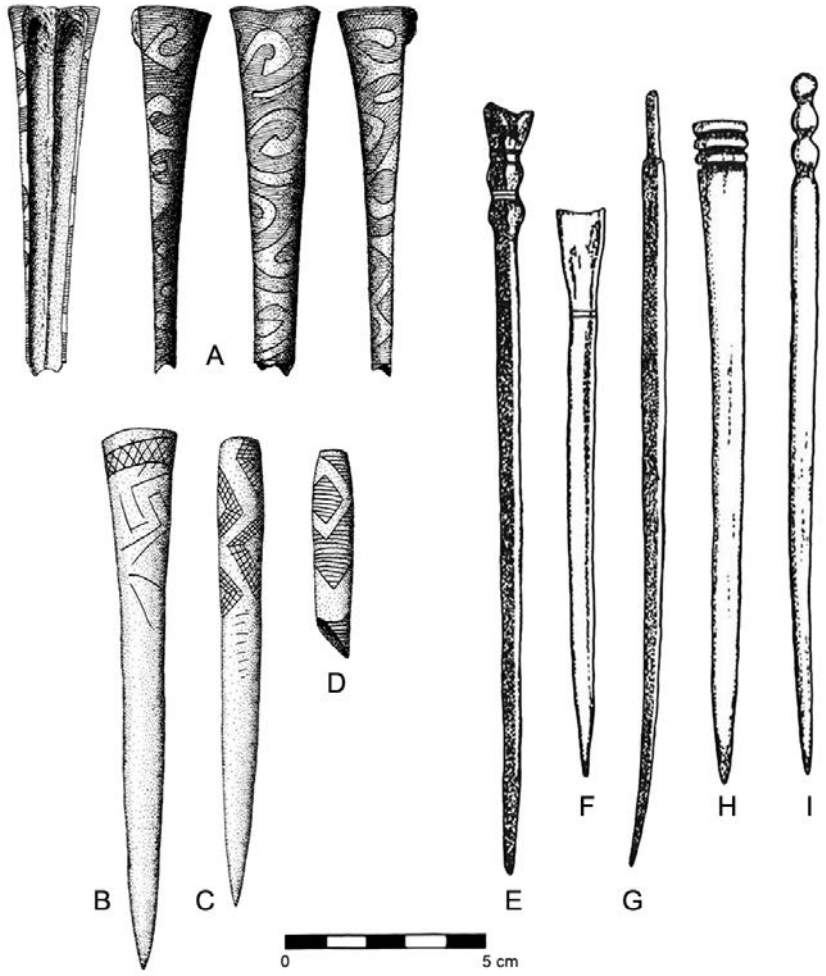


Figure 16. Bone pins. A. Incised bone pin from Ossabaw Island (Waring 1968a:Figure 64); B-D. Incised bone pins from the Chester Field site (Waring 1968a:Figure 64; E-I. Engraved bone pins from Tick Island (Jahn and Bullen 1978).

Table 6. Bone Pins and Other Artifacts

Ring/Site	*Bone Pins*	*Other Bone*	*Other*
South Carolina			
Sea Pines	—	—	—
Skull Creek	2	—	3 antler
Guerard Point	—	—	—
Chester Field	7	—	# antler
Barrows	#	—	—
Patent	—	—	—
Coosaw 1	—	—	—
Coosaw 2	1	—	—
Coosaw 3	—	—	—
Coosaw 4	—	—	—
Hanckel Mound	—	—	—
Lighthouse Point	125	9	45 antler
Horse Island	—	—	—
Buzzards Island	—	—	—
Stratton Place	1	—	6 antler
Auld	—	—	—
Fig Island 1	20	—	—
Fig Island 2	>1	—	# antler
Fig Island 3	7	—	—
Sewee	—	4	3 antler
Spanish Mount	#	—	—
Total S. Carolina	**>164**	**4**	**>57**
Mississippi			
Cedarland	#	—	—
Claiborne	#	—	—
Total Mississippi	?	—	—

Ring/Site	*Bone Pins*	*Other Bone*	*Other*
Georgia			
Oemler	1	—	—
Cane Patch	10	2	# antler
Skidaway	—	—	—
Odingsell	1	—	—
Ossabaw 77	—	—	—
Bony Hammock	—	—	—
Cannon's Point	25	15	3 antler
West	15	5	1 antler
Long Field Crescent	—	—	—
Sapelo 1	15	8	1 antler
Sapelo 2	—	—	—
Sapelo 3	—	—	—
Busch Krick	—	—	# antler
Barbour Island	—	—	—
Total Georgia	**81**	**32**	**>5**
Florida			
Horr’s Island	—	—	—
Oxeye	1	2	1 antler
Rollins	23	3	—
Bonita Bay	4	—	—
Reed	2	—	—
Meig's Pasture	1	—	—
Guana	8	2 bead	—
Hill Cottage	23	2 bead	4 fossil
Buck Bayou	#	—	—
Total Florida	**>62**	**9**	**5**

Context 5: Expansion of Exchange Networks
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values; VI. Expanding Science and Technology

The commonalities of material culture indicate extensive intercommunication between ring-building cultures, while the lack of evidence for intensive use of certain of the technologies suggest limited participation in the wide-ranging trade and communication networks among some of the ring builders. In fact, it is these differences in the relative use of specific cultural technologies that suggest an increasing regionalism was taking hold during the late Archaic. For example, greater numbers of exotic trade items, such as steatite and chipped lithics and groundstone artifacts, as well as bone tools, suggests that the Atlantic coast ring builders held closer ties to extra-regional trade and information networks involving interior southeast U.S. groups than did Gulf coast ring-builders. In the Gulf coast area, the absence of pottery at certain regional shell rings has been viewed as evidence that those trade and information connections were resisted by certain groups or otherwise lay outside the greater southeast U.S. networks (Campbell et al. 2004; Dickel 1992; Russo 1991).

At the same time, the shell and bone tool technologies abundant at Gulf coast ring sites, but less intensively used along the Atlantic coast, suggest that the Gulf coast groups participated in closer trade and communication networks among themselves than with their Atlantic contemporaries. Bullen and Bullen (1976:12) have suggested that the intensive development of shell tool technologies at the Gulf coast Hill Cottage shell ring indicate the occupants may have been borrowed their ideas from Late Archaic cultures on the east coast of Florida. But, based on additional radiocarbon testing, the southwest Florida shell tool traditions actually hold chronological priority over the Atlantic coast ring builders (Russo 1991; Torrence 1996). Diffusion of these technologies may have instead flowed from the Gulf coast to the Atlantic coast, where they were widely, but not intensively adopted, perhaps due to competition with in situ lithic and ceramic technologies that prospered through traditional exchange networks.

Some have suggested that shell rings' use as ceremonial centers was directly related to the furtherance of exchange networking and information gathering traditions. Cable (1997) suggested that shell rings were used annually to host ceremonies at which the exchange of mates and material occurred. Russo (2004) has suggested that the feasting that is so evident at shell rings is commonly associated with rituals involving material and social exchange. Yet, exactly what items, information, or people were being exchanged at shell rings remains something of a mystery. Based on their more limited artifact inventory, Michie (1979:96) has suggested that South Carolina shell rings were more restrictively used than were non-ring base camps whose artifact inventory included items such as lithic bifaces, debitage, hammerstones, steatite not typically found at shell rings. As such, shell rings have been interpreted as ceremonial centers (Sassaman 1993:62) with the apparent exclusion of certain utilitarian objects at rings implying aura of sacred ceremonialism. This argument, however, has been largely undercut by Trinkley (1980a:311–12), who have shown that shell rings have similar artifact assemblages as any of the amorphous base camps cited by Michie. If exchange and information networks with interior groups involved coastal shell ring cultures, the communal plazas of shell rings likely served as points of exchange.

Interpretations of shell rings have consistently avoided analogies with the contemporary "Shell Mound Archaic" cultures of the mid-Southern interior river valleys (cf. DePratter and Howard 1980:8). Archeologists have formulated settlement models for these valleys in which small wandering hunter-gatherers, widely dispersed away from the rivers much of the year, come together or aggregated along the river at other times (e.g., summer and spring) to take advantage of seasonally abundant fish and

shellfish resources (e.g., Worth 1994). Undoubtedly, shell rings functioned as sorts of aggregation sites during periods of ceremonies and feasts. But the coastal populace were settled permanently at the rings and nearby along the coast throughout the year. Hence, the use of shell rings as subsistence aggregation sites is not likely despite the great abundances of shell remains that signify otherwise in interior sites. Shellfish were present along coastal estuaries throughout the year and rings were used throughout the annual cycle. As such, the evidence suggests that rings were most likely places social interchanges and material exchanges during ritual, ceremony, feasting and other social occasions.

The investigation of the material culture shell rings offers great potential for resolving questions of trade, the diffusion of ideas, the identification of cultural affiliations, and social connections among ring building and non-ring building traditions. Establishing the direction of flow and strength of connections between the various ring-building cultures is critical to addressing thematic questions related to the establishment of tribal identities, the peopling of the coastal zone, and the trade networks that linked the many shell-ring-building cultures to the greater Southeast.

Context 6: Establishment of Sedentary Cultures
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values

The shell at ring sites not only provide insight into the molluscan fauna that was consumed, but has served to provide a protective environment for other fragile subsistence remains, such as bone and, to a lesser extent, botanical remains, which has allowed a broad assessment of the food and other resources used at shell rings (e.g., Marrinan 1975; Russo 1991; Trinkley 1980a). To date, more faunal analyses have been undertaken on shell-ring assemblages than on those from any other type of coastal Archaic site. These analyses have provided insight into the seasons of settlement at ring sites and, by extension, the permanency of Archaic coastal settlement. Are shell rings permanently settled villages? Seasonal camps? Periodically visited congregation or ceremonial sites? These are all critical questions that have been asked and, to some extent, answered by faunal studies. The answers speak to the importance of studying the cultural change that occurs when nomadic, egalitarian hunter-gatherers settle year-round in one place. Do attendant changes in social organization occur that lead to complex and hierarchical social formations?

Fauna move and grow in cycle with the seasons of the year. The record of those seasonal cycles may be found in the skeletal material left behind at shell-rings deposits. Growth marks in shellfish and fish skeletons, the absence/presence of species specific to the area only at certain times of the year, and the sizes of individuals all provide signatures as to the collection season, and, by extension, when and for how long shell rings were occupied throughout the annual cycle. From analyses of faunal and botanical remains, which also reveal seasonal markers, shell rings can be identified as temporary or seasonal sites or permanently occupied. Using faunal and other evidence, archeologists have variously identified shell rings as permanently settled villages (Russo 1991; Trinkley 1980a), seasonally occupied aggregation sites (Michie 1979; Saunders 2004:261 FA), or year-round habitation/ceremonial centers (Russo 2004).

Identifying the seasons and resources used at shell-ring sites requires analysis of large numbers of subsistence remains from a wide variety of shell-ring contexts (e.g., plazas, rings, pits, and hearths), which together potentially reflect the total spectrum of seasonal activities that might occur at a site. At Cannon's Point, Marrinan (1975) was the first archeologist to analyze subsistence remains from a shell ring using fine-mesh recovery techniques (cf. Edwards 1965). Recovering faunal remains with fine mesh allows for the recognition of vertebrate species that would otherwise have been lost in standard archeological exca-

vations. The recovery of the broad spectrum of species utilization (mostly fish and shellfish) at Cannon's Point led to the recognition of year-round collection strategies there. Using similar analyses, Trinkley (1980a:175) found evidence of year-round settlement at Lighthouse Point. Thompson (2006) identified a similar pattern at Sapelo 3. Over one million fragments of shell and bone were analyzed from Horr's Island, leading Russo (1991) to conclude that year-round occupation took place there. Russo (1993) also found multi-seasonal remains at Rollins, leading to the same conclusion.

In the face of limited data, however, others have concluded that shell rings were built from the debris collected during temporary stays or visits to the rings (Michie 1979). At some ring sites, such as Fig Island and Reed, the faunal analyses were too limited to conclude year-round site occupation, even though a broad range of species were identified (Russo 2002b; Russo and Heide 2000). Rather than interpreting Fig Island and Reed as seasonal occupations, however, the authors note that there is plenty of archeological information remaining at Fig Island that may be studied and more data recovery would provide insight into such questions.

Taken together, the large sizes of shell rings and the seasonality studies that have shown the rings to be occupied throughout the year are the primary evidence that ring sites represent the first permanent settlements on the southeast coast. As such, seasonality and subsistence studies serve to provide tests for competing hypotheses that rings represent either seasonal or permanent settlements (DePratter 1979:35). Subsistence studies, however, also provide evidence of the kinds of changes in subsistence strategies that were necessary when terrestrially oriented hunter-gatherers became reliant on estuarine resources. The collection of shellfish and fish required significant changes in technologies as outlined in Contexts 3 and 4. But they also required changes in social behavior. The construction of canoes, the use of nets, the ownership of shellfish beds and fishing grounds all arose when settlement on the coast became permanent. These significant changes in social organization are, in part, reflected in the shell rings themselves as identified in the kinds of food remains present and the distribution and mounding of shellfish to demarcate public and ceremonial space and mark ethnic or kin-based territories as outlined in Context 1.

Context 7: Changing Mortuary Practices
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values

Of some fifty shell rings, perhaps four have yielded human remains in secure archeological contexts. Most of these remains are isolated fragments of bone, not full burials. The reasons for this scarcity may be many, including the fact that relatively little archeology has been undertaken at shell rings. In the general absence of burial remains, it may seem difficult to argue that shell rings may hold evidence of mortuary practices that are of national significance. But clearly whatever ring builders were doing with the remains of their dead, it differed dramatically from traditions that preceded (e.g., cemetery and pond burials) and followed (e.g., mound burials) those of the ring builders. At shell rings, mortuary as well as isolated human remains are of national significance because they speak to questions of stability and change associated with the cultural practices of societies undergoing increasing numbers, establishing territories, and symbolizing ethnic identities through material culture and architecture. The disposal of human remains and associated burial furniture is a significant research agenda that can address issues of ethnic identity, social organization, ceremony and ritual, demography and health, and settlement patterns.

Few burials have been identified at shell rings and other contemporary coastal sites. The sites containing human remains have usually yielded fragmentary bones in ambiguous contexts, a situation that has not provided much insight into patterns of burial (e.g., Bellamo 1995; Michie n.d.). In South Carolina, Georgia, and Florida, so few coastal Late Archaic burials have been identified that any discussion of mortuary

practices is wholly and largely excluded from settlement models (e.g., Elliott and Sassaman 1995; Milanich 1994; Sassaman 1993; Sassaman and Anderson 1994:154).

Speaking of shell rings and associated shell middens, Trinkley (1980a:324) wrote that "skeletal materials are perhaps the most neglected archeological data in South Carolina today." He noted that only one non-ring, midden site, Daws Island (38BU9), had revealed "evidence of intentional burials, and at even this site none of the burials have been removed under satisfactory archeological conditions." So even at Daws Island, the burial patterns are not well understood.

Despite the lack of discovery and investigation of human burials from Late Archaic coastal sites, shell rings are seen by some as ceremonial burial sites (e.g., Elliott and Sassaman 1995:146). This misunderstanding may have evolved from Trinkley's comments on burials. In his review of human remains from South Carolina shell rings and contemporary midden sites, Trinkley clearly stated that "during shell-ring excavation ***occasional*** [emphasis added] heavily fragmented human bones have been found." He then lists only five shell-ring sites, but also one non-shell-ring site as his examples, unintentionally inflating the rate of occurrence of human remains at ring sites. Trinkley then discusses two other non-rings sites with burials, Daws Island and Stallings Island. Subsequently, archeologists citing Trinkley have mistakenly suggested that "nearly all shell rings and other shell middens on the coast have yielded human skeletal remains" (Elliott and Sassaman 1995:146; Sassaman 1993:63; Sassaman and Anderson 1994:154). Sarney (1994:147) inflated the occurrence rate of human remains at ring sites by misinterpreting the non-ring Daws Island site as a shell ring and adding it to her list of shell rings containing human remains. Speaking of shell rings, Sarney (1994:169) concluded that "at least 50 percent of the sites contain fragmentary human remains." As the discussion below demonstrates, human remains from shell ring sites are not nearly so ubiquitous.

Few human remains have actually been identified from the shell rings themselves. As Table 7 shows, human remains have been attributed to at least thirty shell-ring contexts from fifteen sites. Some of these contexts can be summarily dismissed from consideration. As stated, one site, Daws Island, is mistakenly identified as a shell ring (Sarney 1994:147). In addition, the human remains attributed to Guana are from a context 200 meters away from the shell ring (Newman 2002), not from the ring itself. The burials attributed to the Reed shell ring were identified from a newspaper account as eroding out of a beach, which may or may not be connected to the shell ring; while the context of the lone skull attributed to the ring—the only curated human remain attributed to the site—is unknown. The flexed burials at Hill Cottage are from a mixed context in the upper portions of the ring that date to Woodland periods, not the Archaic (Sarney 1994). The crania fragment from Bonita Bay was not found in the ring, but rather in an upper mound context, which may or may not be temporally associated with the adjacent shell ring. And the Sewee mandible fragment probably came from a midden context just outside the shell ring (Russo and Heide 2003:2, 25).

Other human remains with shell-ring attributions may be Late Archaic and likely came from rings, but suffer from contextual problems. The two human remains from Sapelo, a temporal bone fragment and a deciduous tooth, are from contexts not clearly identified (Moore 1897). And their assignation to the Late Archaic is problematic because non-Archaic materials have been recovered from both Sapelo Ring 1 and Sapelo Ring 2. The Skull Creek 1 mandible fragment with two teeth in it seems to be from a secure ring plaza context, Level 2, with ceramics and non-ceramic artifacts associated with the Late Archaic. But Calmes (1967:23) fails to provide a listing of all artifacts from the provenience and notes that the excavation unit was "shallow and cut through plow-disturbed zones." This does not exclude the mandible fragment from being attributable to a Late Archaic shell-ring context, it just presents doubts. Also suspect are two of the contexts of the deciduous teeth found at Rollins. Saunders (2003:24) noted that one tooth came

Table 7. Human Remains and Burials from Shell Rings and Nearby Sites

Site/Ring	*#*	*Element(s)*	*Provenience*	*Ring vs. Non-Ring*	*References*
South Carolina					
Skull Creek 1 (38BU8)	1	"jaw" fragment with 2 teeth in place	Y–12, level plaza	unclear	Calmes 1967:23
Daws ` (38BU9)	6	burials	eroding shoreline	non-ring	Trinkley 1980a:322
Barrows (38BU300)	1	crania fragment	Bu300, surface	unclear	observed in field
Coosaw 1 (38BU1866)	1	molar	Ring 1, EU1, L12–23 cmbd	ring	Heide & Russo 2003:18
Fig Island 2 (38CH42)	1	shaft, proximal left femur fragment	Fig. 2, ST5, s. profile of Hemmings' trench	"	Saunders 2002:140
Sewee (38CH45)	1	mandible fragment	G2, 12–18 in., outside ring	non–ring	Edwards 1965:18, 47
Georgia					
Cannon's Pt. (9GN57)	2	1 femur, 1 tibia	9S/15E, L2	ring	Marrinan 1975:82–83
" " "	1	calcaneus	6S/15E, L1	"	" " "
" " "	1	molar	6S/15E, L8	"	" " "
" " "	1	cranium	18N/0E, L31	"	" " "
" " "	1	pelvis	18N/0E, east baulk	"	" " "
" " "	1	incisor	18N/3E, L24	"	" " "
" " "	1	parietal	24S/24E, 75–85cmbs	non–ring	" " "
Sapelo 1 (9MC23)	1	temporal bone fragment	plaza	ring plaza	Moore 1897:73; Marrinan 1975:128
Sapelo 2 (9MC23)	1	"deciduous tooth"	Ring 2, or possibly Ring 1	unclear	Simpkins & McMichael 1976:99
Florida					
Horr's Island (8CR206)	1	burial	Mound B	intrusive in mound, not ring	Russo 1991
Horr's Island (8CR208)	2	burials	Mound A/ring	" "	" "
Oxeye (8DU7478)	1	molar	TR1, EU3, L9; FS29	ring	Catalog on file SEAC
Rollins (8DU7510)	1	deciduous incisor	EU140; FS 338	unclear	Saunders 2003:24
" " "	1	" "	EU2011; FS 202	ring	" " "
" " "	1	tooth	TR1, EU4, Z2/1; FS 172	"	Saunders 2003:26
" " "	1	"	TR1, EU6, Z1; FS 168	"	Saunders, p. comm. 2006
" " "	1	"	TR1, EU8, Z1; FS 309	"	Saunders, p. comm. 2006
Bonita Bay (8LL716)	1	crania fragment	Mound 8LL716, 30 cmbs	in mound, not ring	Dickel 1992:142
Reed (8MT13)	1	skull; uncounted remains	unknown	unclear	Carr et al. 1995; Fl. Atlantic Univ. catalogue cards
Guana (8SJ2554)	3	1 crania, 1 long bone, 1 mandible	200 m northeast of ring	non–ring	Newman 2002
Hill Cottage (8SO2)	2	2 flexed burials; scattered remains	Unit A, upper 3–12 in.	Intrusive ring burials?	Bullen & Bullen 1976:89; Sarney 1994:40
" " "	1	incisor	2 x 2 m unit, 95–115 cmbs	ring	Sarney 1994:51, 80–82, 88
" " "	1	molar	2 x 2 m unit, feat. 3	"	Sarney 1994:53, 80–82, 88
" " "	1	incisor	2 x 2 m unit, 135–155 cmbs	"	Sarney 1994:53–54, 80–82, 88

 # = number of fragments or burials reported; cmbd = centimeters below datum; cmbs = centimeters below surface; feat. = feature; TR = trench; EU = excavation unit; L = level; Z = zone; ST = shovel test; FS =field specimen

from an excavation unit with a Woodland feature. In addition, that unit lies well outside the ring (Saunders 2003:6).The other unit lies in a gap in the ring that was contaminated by "slopewash" (Saunders 2003:6, 24), although the associated artifacts are almost totally Orange period. Three other teeth from Rollins were from secure Late Archaic shell-ring contexts.

Of three occurrences from Horr's Island, one was an intrusive burial into Mound B, not the ring. Technically, it does not qualify as a shell-ring burial because it was placed into the mound after the ring and mound were constructed. But it does shed light on a pattern of burial by the Horr's Island ring builders. That is, they did not place burials into their associated mounds, but their descendants may have. The other two burials came from a context where Mound A adjoins the shell ring. As such, the burials could be attributed to either the mound or the ring. But like the burial from Mound B, both were intrusive, postdating the construction of the mound and ring. This does not necessarily exclude them from classification as ring burials. Like the Mound B burial, they can shed light on post-ring burial patterns. Radiocarbon dates on two of the burials indicate they occurred hundreds of years after the construction of the ring (Russo 1991:423). These dates suggest that the Horr's Island ring may not have been used as a cemetery during its occupation, but may have subsequently functioned as a sacred monument or cemetery where burials were placed. These speak to the questions brought up in Contexts 1 and 2 concerning the evolving functions of shell rings and associated mounds throughout their periods of use.

This synopsis leaves five shell-ring sites—Hill Cottage, Oxeye, Coosaw 1, Fig Island 2, and Cannon's Point—with seemingly unequivocal evidence of human remains in Late Archaic contexts The human remains consist of seven teeth and fragments of two femur, one tibia, two crania, a pelvis, and a calcaneus. (The Cannon's Point parietal came from a non-ring context). If shell rings with only teeth are eliminated (isolated teeth being more simply attributable to natural loss, rather than burial), then Fig Island 2 and Cannon's Point are the only shell rings that have definitively yielded fragmentary human remains, and Sapelo1 and Skull Creek 1 are likely contributors. No complete or near complete burials have been recovered from any ring site in contexts securely dated to the periods of ring construction. Regarding Cannon's Point, the ring site with the greatest number of human remains, Marrinan (1975:95) stated that the "skeletal material…is admittedly not well represented; nor is human skeletal material from any other ring site."

If shell rings were not formal cemetery sites, what did shell-ring societies do with their dead? One suggestion is that in Stallings/St. Simons coastal sites cremation was a Late Archaic mortuary practice (Elliott and Sassaman 1995:121–122; Thomas and Larson 1979:64). Of course, another obvious explanation for the presence of a few burned or other fragments, or the lack of formal burials is that most of the cremation or burial activities may have occurred off site (Trinkley 1980a:323). For example, Daws Island (38BU9), which did have burials, is near both the Barrows and Patent shell rings, so it may represent a cemetery related to the two shell rings. Or, archeologists may have simply not looked in the right places for Late Archaic burials. Mound burials, known during the Middle Archaic (Aten 1999; Russo 1994) and common during the Woodland (e.g., Thomas and Larsen 1979), may be one place to look. Late Archaic mounds have been found at Horr's Island and Fig Island and possibly at the Bonita Bay, Cedarland, and Claiborne rings (Bruseth 1991:15; Gagliano and Webb 1970:49). Although Mound A at Horr's Island has revealed only intrusive burials, the center of the mound was never excavated. Another possible burial location, particularly in Florida, may be mortuary ponds—a common Middle Archaic environment for burial (Milanich 1994).

Plaza burials may be yet another possibility. At Woodland coastal-ring middens, burials have been located within plazas (Bense 1994). Certainly, ethnographically, village plazas are known to be cemetery locations (e.g., Malinowski 1929). And the mandible from Skull Creek 1 was recovered from the plaza. If Late Archaic shell-ring plazas were burial areas, archeologists may have missed them because relatively

few plazas have been investigated (e.g., Hemmings1970f; Russo 1991; Trinkley 1985). Also, the general absence of shell in plazas provides a relatively poor environment for bone preservation compared to that of the adjacent shell ring.

But plaza burials do not easily account for the occasional presence of human remains in shell rings. Marrinan (1975:82) listed a number of possibilities for the inclusion of only crushed, fragmentary remains at the Cannon's Point shell ring. These include the borrowing of shell from off-site cemeteries to build the ring and the "haphazard" burial of secondarily deposited remains. However, evidence for borrowed shell is generally absent at rings (see Russo and Heide 2003 for a discussion of the evidence for borrowing). And supporting evidence for secondary deposit (e.g., bundle burials) is lacking: Marrinan noted that no evidence of burial pits or burial goods were associated with any of the human remains at Cannon's Point. The possibility that bodies were exposed on the surface of the shell rings and later collected for reburial has also been proposed (Marrinan 1975:82; Trinkley 1980a:323). This would readily account for the occasional presence of human bone in shell rings. But it still leaves open the question of where most of the human remains ended up.

Of course, mortuary practices of shell-ring builders may not have involved in-ground burials at all. Cremation was mentioned. But offshore burial, tree or scaffold burial, or abandonment are all possible explanations for the absence of articulated remains in shell rings. Often the presence of isolated human bone and teeth in Late Archaic shell rings, and shell middens in general, has been attributed to cannibalism. Waring (1968a:191) links the "presence of cracked and fire-blackened human bone scattered throughout the midden" at Bilbo as supporting evidence that cannibalism is a "true trait of the Archaic period in Alabama, Georgia, and Florida" (see also Wyman 1875:60–78). Michie (1979:77) suggested that the scattered human remains he found at the non-ring shell midden at the Bass Pond site "evoked suspicion" of cannibalism. But it is important to note, that none of these suggestions directly involved any evidence from shell rings. Although Marrinan (1975:95) cited Moore (1897) and Waring (1968a) as presenting evidence of "post mortem consumption" of humans at shell rings, they did not. Moore simply identified the temporal bone he found at Sapelo 1 without comment on its context, condition, or possible origin. Waring (1968c:245) made no mention of human remains from any shell ring in particular. Rather, his comments on possible Archaic cannibalism are general, based, in part, on Wyman's (1875) observations of human remains from shell middens, none of which were found at Archaic shell rings.

Only Edwards (1965) has offered cannibalism as one possibility to account for human remains at shell rings, in particular the burned femur at Sewee. Marrinan (1975:82), on the other hand, criticizes assumptions of cannibalism when human remains are found in shell middens. She notes specifically that there was "no solid evidence of cannibalism" in the Cannon's Point human remains. Cut marks were apparently the "solid evidence" to which she refers, and these were lacking on the remains she found. Phelps and Burgess (1964:200), however, have suggested that in addition to evidence of cut marks or burning, other evidence of cooking (e.g., the presence of clay cooking balls) and offerings (e.g., a bear claw necklace) may be used to support the interpretation of fragmentary human remains as resulting from cannibalism. Ritual may be associated with cannibalism. But it is also associated with burial, and specific contexts must be analyzed to distinguish between the alternate possible sources of ritual.

It is clear that if cannibalism is to be proposed as an explanation for the presence of fragmentary human remains, the context of the remains must be understood. In shell rings, the remains are most often associated with fish and shellfish food remains. Thus, a connection to consumption of humans as food items is often made, as if humans were just another food item. However, if cannibalism is the source of the occasional human remains at ring sites, more likely it would have occurred in ritual contexts, which may result in little or no actual preparation or consumption observable on the remains. Such ritual use could result in

a random distribution of human remains at both shell-ring and non-ring sites. Speaking of fragmentary remains at shell rings, Sarney (1994:158) stated that "the scarcity of defined burial pits or grave offerings indicates a general lack of mortuary care." This, of course, presumes that human remains are always deposited as a mortuary act. Human bones may be kept as trophy items, for use in tool manufacture, or as spiritual tokens (Jacobi and Hill 2002). Their deposit in shell rings may be intentional or accidental, but does not necessarily reflect a tradition of mortuary practice.

Because ring builders were members of a number of broadly-related but independent cultures, it is possible that each shell-ring culture treated human remains differently. Among Thoms Creek and St. Simons cultures, off-site cemetery or cremations have been suggested (Trinkley 1980a:323). In southwest Florida, shell rings may have served as cemeteries or sacred architectural memorabilia (see Dillehay 1990:233) into which burials were placed, but only *after* ring abandonment (Russo 1991, 2004; Sarney 1994). At the two Mississippi shell rings, Bruseth (1991:13, 17) noted that despite the extensive excavations, no human remains were ever recovered from either ring. He did suggest, however, that off-site burial traditions may have included mound burial, indicating the presence of a nearby sand mound "associated" with the rings in some unspecified way (Bruseth 1991:13, 15; Gagliano and Webb 1970:49). Somewhat contradictorily, he also suggested that a cache of steatite vessels and copper and lapidary objects from a shell-free area of the Claiborne ring might represent funerary objects, absent human remains because of poor preservation in the sandy soils (Bruseth 1991:17; cf. Gagliano and Webb 1970:59). Thus, as with all shell-ring cultures, it is unclear what the mortuary practices of the Mississippi shell-ring builders were.

Despite assumptions to the contrary, not all Late Archaic shell rings contain isolated human remains; not all isolated human remains represent artifacts of mortuary practices; and of the few known intentional burials, none took place at the time of ring construction. These glimpses into the possible differences in the presence/absence of human remains in shell rings speak to thematic issues related to site function, cultural traditions, and ethnic identification.

Context 8: Establishment of Tribal Identities

NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values; VI. Expanding Science and Technology

To this point, all the historic contexts have reflected on how shell-ring cultures shared with and differed from other cultures across the Late Archaic southeast United States. The architecture built, the pottery made, the tools used, the environment settled, the resources exploited, the disposal of the dead—together these contexts point the way to identifying social boundaries and tribal identities.

The rise of regionalism characterizes Woodland and Mississippian cultures and serves, in part, to distinguish them from earlier Paleoindian and Archaic archeological cultures. With greater populations arising during the late Archaic, territories became restricted, and kin, tribal, and political associations formed to exploit and protect their territories. Symbols of group identity became ubiquitous and necessary to aid in the maintenance of these socio-political associations. For archeologists, pottery is the most common material used to identify and distinguish among Woodland and Mississippian groups. But not all Late Archaic, and certainly none of the earlier Archaic or Paleoindian groups, made the pottery that provided archeologists with these potential symbols of group identity. Paleoindians and Early Archaic groups undoubtedly had group identities and markers that symbolized those identities. But these groups were largely mobile, covered enormous territories, and left behind little in the material record that would enable archeologists to identify group distinctions.

With the Late Archaic, territories were smaller and more stable, and identifiable markers of group identity, such as distinctive pottery types, were left behind. Attempts have been made to recognize cultural affiliations among Late Archaic pottery producing cultures. Most broadly, cultures that made Thoms Creek, Stallings, and Orange series pottery have been linked geographically to South Carolina, Georgia, and Florida respectively. But in these cases equating pottery series with ethnic identities results more from loose use of the series' names than the belief, for example, that all peoples making or using Orange pottery in Florida were of the same tribal or other group. The expansive distribution of Orange pottery over such a large geographic area as the Florida peninsula suggests trade, diffusion, or wide-scale use of the same pottery by various ethnic or tribal entities rather than a single tribe. In this case, more than just pottery is needed to identify tribal boundaries.

Combining pottery series and designs with other materials found at ring sites provides an initial entrée for determining the earliest ethnic identities of groups that settled the coast in the Late Archaic. Common to all groups is a dependence on coastal shellfish and other fishery resources, although specific species vary among regions depending on local availability. Figure 17 shows broad culture areas in which pottery, burials, tool technologies, and architecture can be use to distinguish among the various coastal Archaic groups. Shell-ring shape, size, and presence/absence are significant traits that separate at least twelve culture areas.

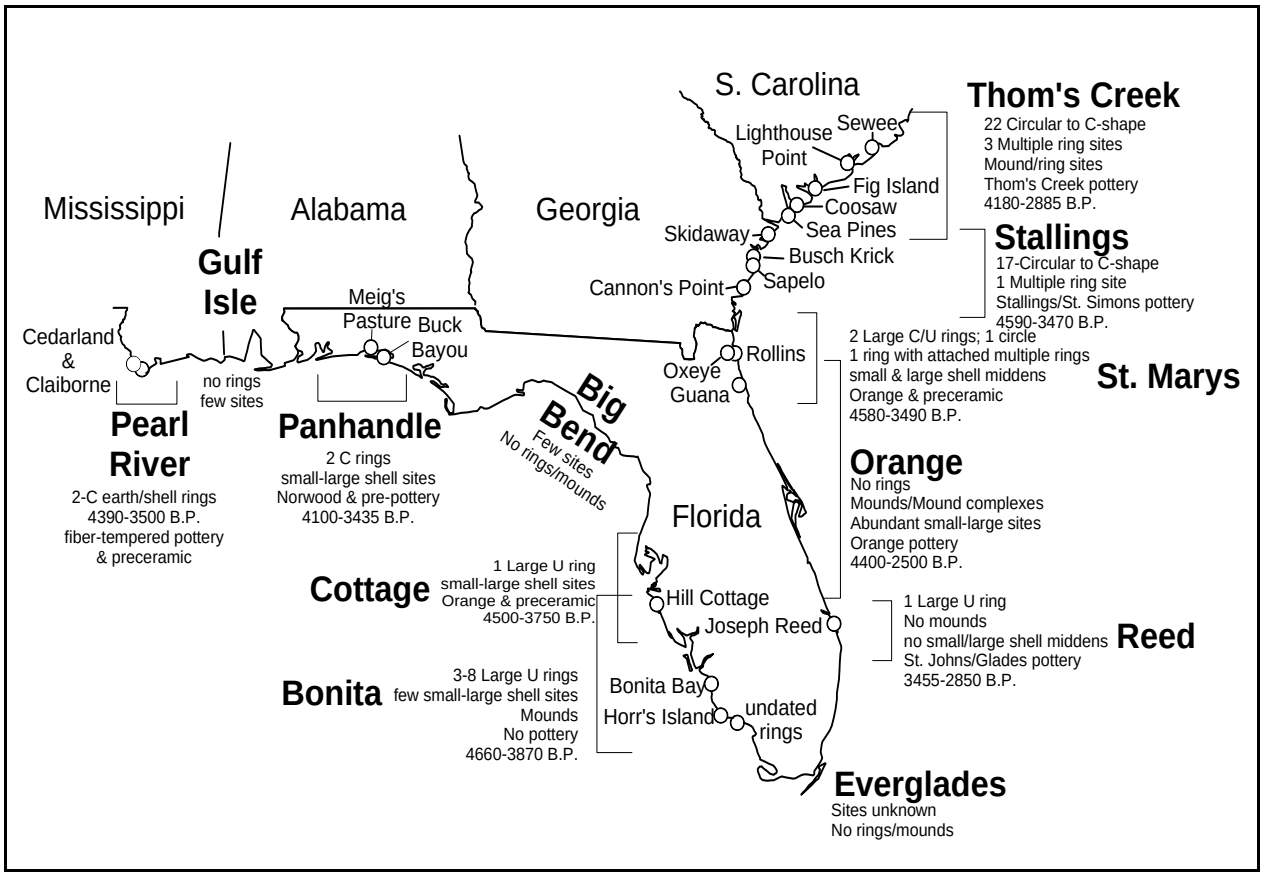


Figure 17. Shell-ring culture regions of the southeast U.S.

1. Thoms Creek

The Thoms Creek region is found in South Carolina, extending from the middle coast at Sewee shell ring to the Savannah River. New discoveries by DePratter (2005), however, indicate that shell rings may be found even farther north. Pottery found at shell rings is predominantly sand-tempered Thoms Creek ware, with minor amounts of fiber-tempered Stallings ware occasionally present. Radiocarbon dates range from 4180 to 2885 B.P., with the most recent dates coming from the Lighthouse Point ring—a site whose dates seem out of sync with most other Thoms Creek ring dates, which typically range between 4100 and 3600 B.P. Rings range in size from 45 to 100 meters in diameter, are circular to C-shape, and may occur in isolation, multiple groupings, or conjoined with other rings, as found at Fig Island 1, Coosaw 1 and 2 and Skull Creek. The pottery and radiocarbon dates indicate contemporaneity of the rings at each of these multiple- and conjoined-ring sites or, at least, an overlap in occupation. Hence, larger populations and more complicated levels of social organization are found at these sites than at the single-ring sites. Thoms Creek rings range from relatively low-lying and even shell distributions, such as at Fig Island 2 and Patent, to hypertrophic and asymmetrical distributions, such as at Fig Island 1. This constructional asymmetry has been linked to asymmetry in social organization. The larger shell rings and mounds and ring complexes reflect differences in group size and in status and power among group members (Russo 2004). At Fig Island, Ring 1 exceeds 6 meters in height, while Ring 2 is only 2 meters high.

The use of shell tools at Thoms Creek shell rings is relatively rare, with only sixteen tools reported for rings other than Fig Island and Sewee. It is possible, however, that these tools have gone unrecognized or under reported at Thoms Creek shell rings. At Fig Island, for example, one of the specific project goals was to recover a large sample and range of shell tools. In total, 125 shell tools and fragments were identified, more than at all other Thoms Creek shell-ring assemblages combined. Gouges, hammers, awls, net spacers and spokeshaves were recovered (Table 5) (Saunders 2002:118–119). Bone pins, identified at ten of the known Thoms Creek rings, are more evenly distributed (Table 6). Projectile points have been recovered from seven shell rings, and baked clay objects from two. (Tables 3 and 4).

In terms of the place of shell rings in the larger pattern of settlement, other non-ring sites associated with shell rings are not well known. One model suggests that amorphous middens represent base camps, while shell rings served as communal centers (Michie 1979). Another suggests that shell rings were the base camps or villages of Thoms Creek coastal settlement (Trinkley 1980a:312). A third suggests that shell rings may represent both villages and ceremonial centers, and it is up to the archeologist to figure out the function of each shell ring empirically rather than typologically (Russo 2004).

Regardless of which model best fits the data, no “amorphous” middens are known to be directly linked to shell rings, or even nearby. Some amorphous middens lie within a few miles of rings (e.g., Bilbo, Daws Island, Venning Creek, Bass Pond). The pattern seems to be that shell rings and ring complexes are isolated from other site types by considerable distances. The general paucity of large non-ring middens in the coastal area suggests that rings functioned as nucleated centers, both permanently occupied and periodically enlarged by rural coastal populations, upland interior guests, and/or other visitors attending feasts and other rituals held at the rings. Thoms Creek sites are found in the interior, upriver locales, suggesting a cultural connection of ring occupants with folks from the interior coastal plain, although the precise nature of those connections are not yet known. The most detailed attempt to link coastal and interior groups diachronically and culturally has been forwarded by Sassaman (1993), who identified specific Thoms Creek groups distinguishable from each other by pottery characteristics. Such analyses hold the promise to define more precisely the ethnic groups that made up Thoms Creek ring-building cultures. Shell rings in the Thoms Creek regions exhibit contact with the Stallings/St. Simons ring builders to the south by the presence of Stallings pottery, which is usually more abundant in rings closer to the Stalling/St. Simons boundary (Heide and Russo 2003).

In summary, Thoms Creek shell rings are characterized by: circular and C-shapes up to 6 meters in height; Thoms Creek sand-tempered pottery; moderate amounts of pointed bone tools and ornaments; occasional baked clay objects; few shell tools; and few lithic projectile points. The rings seem to have functioned as nucleated villages and ceremonial centers, with a few supporting larger populations and greater ranges of status as evidenced by multiple rings and mound architecture. Other habitation sites and resource procurement stations in the area lack evidence of ceremonial or monumental architecture.

2. Stallings/St. Simons

The Stallings/St. Simons region extends from the Savannah River along the coast of Georgia to St. Simons Island, some 30 miles north of the Florida border. The region is identified by coastal shell rings whose size range, 35 to 85 meters in diameter, reflects those found at Thoms Creek sites. Like Thoms Creek rings, Stallings/St. Simons rings are generally circular or C-shaped, with one ring, the West ring on St. Simons Island, apparently U-shaped. (No contour map of the site exists.) It is perhaps here that influence from the southern ring builders in Florida, characterized by their U-shaped rings, can be seen. As in the Thoms Creek region, multiple ring sites are present, as exemplified by the Sapelo complex. There, two large rings, approximately 85 meters in diameter each, were separated by a small tidal creek. A third smaller ring stood nearby.

Aside from ring sites, large coastal sites are few, while smaller sites are more numerous (Howard and DePratter 1980:247). This suggests that nucleation occurred at the larger ring sites, which were probably permanently inhabited (Marrinan 1975; Waring 1968c:245). As with Thoms Creek shell rings, periodic aggregation related to ceremony and ritual likely occurred as groups from the coast and interior uplands met at the rings. Unlike Thoms Creek, at least one large amorphous midden is known to be directly connected with shell rings at the Sapelo complex (Simpkins 1975; Thompson 2006). This suggests larger populations at Sapelo than the sizes of the rings alone would indicate.

In determining the range of this ring-culture area, no rings have been found along the south Georgia coast between Cannon's Point and Rollins, some 60 miles. This is a great distance compared to the frequency of Thoms Creek and Stallings/St. Simon ring distribution further north, which ranges on average from 7 to 10 miles between rings. This suggests a cultural boundary, an idea reinforced by pottery. In the Stallings/St. Simons region, Stallings/St. Simons fiber-tempered wares are predominantly found, except in the southernmost rings and nearby sites where Florida Orange pottery may alternately dominate (e.g., Marrinan 1975). To the north, Thoms Creek wares are found as minority wares in the Stallings/St. Simons rings (Thompson 2006), suggesting some sort of cultural interaction between the Thoms Creek and Stallings/St. Simons regions. Shell tools are comparatively rare, with a total of only thirty reported from seventeen rings. Bone pins are reported from six ring sites, but one of these is Walthour, which is probably not a Late Archaic ring. Possible baked clay objects have been reported from four rings, with one, Sapelo 1, yielding the vast majority. Only seven lithic projectile points have been reported. Radiocarbon dates range from 4590 to 3470 B.P., with most dates falling between 4200 and 3600 B.P. at the few rings that have been dated. This age pattern reflects the time period associated with Thoms Creek rings.

In summary, Stallings/St. Simons shell rings are characterized by: circular and C-shapes up to 3 meters in height; Stallings/St. Simons fiber-tempered pottery; moderate amounts of pointed bone tools and ornaments; occasional baked clay objects; few shell tools; and few lithic projectile points. The rings seem to have functioned both as nucleated villages and ceremonial centers, with one supporting larger populations and greater ranges of status as evidenced by multiple rings and associated habitation areas within the ring complex. Other habitation sites and resource procurement stations in the area lack evidence of ceremonial or monumental architecture.

3. St. Marys

The St. Marys region extends some 80 miles from Cumberland Island, Georgia, to St. Augustine, Florida. The northern half of the territory is marked by small, non-mounded shell middens with no shell rings, while the southern half contains: two large U-shaped shell rings (Guana and Rollins); a large circular ring (Oxeye); large, mounded shell middens; widely scattered small shell middens; and large extensive sheet middens. The absence of shell rings in the northern part of the region is not understood. But Florida shell rings are generally more widely dispersed. Compared to the distribution of Thoms Creek and Stallings/St. Simons rings every 7 to 10 miles, the contemporary St. Marys rings are 30 miles apart. This distribution suggests that ceremonies held at St. Marys rings drew from a more widely dispersed population base along the coast.

Common to both the north and south portions of the region is the use of fiber-tempered Orange pottery at all types of sites. At Rollins and Guana, lithic projectile points and baked clay objects are rare. But at the pre-pottery Oxeye site, baked clay objects are common, suggesting a different cooking technology. Pointed bone tools and ornaments were recovered from all three rings, while shell tools were present, but not common.

Unlike most Thoms Creek and Stallings rings, each of the St. Mary's rings lies adjacent to large amorphous shell middens (that is, villages) and are surrounded by smaller household shell middens. This suggests association with both rural homesteads, or hamlets, and nucleated villages in the immediate area (Russo 1993; Russo et al. 1993, 2002). The question of whether the rings themselves served as permanent nucleated villages is still being debated (Russo 2004; Russo and Heide 2002; Russo and Saunders 1999; Saunders 2003). But whether it was the rings that were permanently occupied, serving as both habitation and ceremonial centers, or the nearby village with the rings serving as their ceremonial centers, the St. Marys rings are larger in size and, presumably, home to larger occupations than most of the Thoms Creek and Stallings ring sites. The three rings in the region range from 150 to 250 meters in outside diameter or length, three times the average of the Thoms Creek and Stallings rings. The openness of the U-shape of the two largest rings suggests that expanding or variable populations were attendant with ceremonial activities. At Rollins, up to nine ringlets are attached to the main ring. These suggest communal areas for smaller groups, where activities of smaller scope take place than those in the greater ring. It is intriguing to postulate that these smaller rings may have served as guest, kin, or sodality-based areas for ceremonies. They are contemporary with the main ring rather than the later add-ons.

Different shape, size, distribution pattern, and associated settlement features separate the Thoms Creek and Stallings/St. Simons rings from the St. Marys rings. One reason for these differences lies in the region's physiographic setting. Absent in the St. Marys region are the piedmont drainages of the interior uplands along rivers entering the Atlantic perpendicular to the coast. The two main rivers in the region, the St. Marys and the St. Johns, drain interior lowlands. Both lack recognizable Late Archaic sites away from the coast. In addition, the Okefenokee Swamp presented a barrier between the interior uplands and the St. Marys coastal region. Combined, these features suggest that permanent populations and ceremonial aggregations of people at ring sites in the region were likely derived almost exclusively from people living in the coastal zone, whereas periodic visits from interior groups are suggested for Thoms Creek and Stallings/St. Simons coastal cultures.

While the construction of Oxeye around 4600 B.P. preceded the adoption of pottery, Rollins and Guana, contemporary at around 3800 to 3500 B.P., yielded fiber-tempered Orange pottery. These rings are large, have associated amorphous shell middens nearby that may represent villages, and are surrounded by smaller sites suggestive of rural homesteads. Aside from surface designs, the pottery does not differ significantly from Stallings/St. Simons wares. So too, the shell, bone, and lithic assemblages are similar and

occur in roughly the same frequencies. The rings do not seem to have had direct access to interior sites as did the Thoms Creek and Stallings/St. Simons cultures.

4. Orange

The coastal Orange region is characterized by the absence of shell rings. It stretches some 200 miles along the coast paralleling the north-flowing St. Johns River, which lies only 10 to 30 miles inland. The areas along both the coast and the St. Johns River are densely packed with Late Archaic sites marked by the presence of Orange pottery. If shell rings are aggregation sites for interior peoples who brought with them exotic goods (e.g., lithics), then the absence of rings in the Orange region may be due to the lack of interaction with the interior populations who had ready access to prestige items (i.e., chippable lithics, which are not found on the St. Johns River). Some have suggested that the interior and coastal sites actually represent two seasonal aspects of the same population (Milanich and Fairbanks 1980). While others have suggested that both the St. Johns River and coastal sites were settled permanently, and though the populations may have been closely related (e.g., they made the same pottery), they represent distinct social groups (Russo et al. 1992).

Important to the understanding of why and how cultures built and used shell rings, the Orange region provides a controlled laboratory in which many of the temporal, environmental, and social aspects that characterize most ring-building traditions are found, but in which rings were not constructed. If rings were used for large-scale feasting, the large coquina shell and oyster shell mounds found in the region may have been alternative feasting sites, supplanting or precluding the need for shell rings. In fact, the region is best known for its enormous shell mounds, along both the St. Johns River and the Atlantic coast, that far exceed the size and numbers of any contemporary constructions in the Southeast. These shell mounds are known for the presence of human burials, both scattered remains and full burials (articulated or bundled) (Rouse 1951:129), which suggests that mortuary traditions differed from those of ring-building cultures. On the coast, burial traditions may have also differed. At least one ceremonial mound site has been identified in which twelve conical mounds made of alternating layers of shell and sand contain human remains. This center may have served as a sacred ceremonial burial site (Piatek 1994).

Shell tools are known from both interior and coastal sites, but comparative quantifications have not been undertaken. Lithic points can be found, but are relatively rare, as are baked clay objects. Bone pins are widespread (Rouse 1951). Fiber-tempered pottery consists of Orange and Tick Island series. Orange, in particular, is abundant in the region.

5. Reed

The Reed culture of Southeast coastal Florida contrasts sharply with the Orange culture to the north. The latter is characterized by the dense distribution of large and small shell-midden sites, but no shell rings, whereas in the Reed region, the Reed shell ring is the only known site. It is among the largest, if not *the* largest, Late Archaic shell ring in the Southeast. This suggests it entertained a relatively large permanent population or large periodic aggregations of people. But where these people may have gathered from is a mystery.

No fiber-tempered pottery has been recovered from the site, despite its proximity to the densely populated Orange region to the north, where fiber-tempered pottery is abundant. Only spiculate and sand-tempered St. Johns and Glades wares have been recovered (Russo and Heide 2000, 2002). Prior to the discovery of this site, people who made these kinds of pottery were not to be found in the region until a thousand years after the shell ring had been built. For these and other reasons, it may be presumptuous to call this lone

site a shell-ring region. But the site is distinguishable from other rings by its use of unique pottery types. On the other hand, its large U-shaped shell ring connects it to traditions of ring builders found throughout Florida. In the absence of other known sites, speculation is that people gathered at the ring from nearby coastal sites, subsequently drowned. However, the nearby interior Everglades has recently revealed a large Archaic population previously unknown (Russo 2005; Schwadron 2005) and this may be the source of the draw for ceremony and trade. The site exhibits evidence of ceremonial feasting and habitation.

6. Everglades

The Everglades region contains no shell rings on its east and south sides. As stated above, a large, widely dispersed, previously unknown Late Archaic population has only recently been identified in the interior freshwater Everglades. Coastal occupations are virtually unknown.

7. Bonita

The Bonita culture area is described by two well-dated shell rings, Bonita and Horr's Island, and possibly five to eight undated rings lying south of Horr's Island in the mangrove swamps of the Ten Thousand Islands (Beriault et al. 2003). In addition, the Hill Cottage shell ring some 80 miles north of the Bonita ring may be more appropriately included in the Bonita area, at least in its early stages of construction, rather than assigned to a separate region. Both the Bonita and Horr's Island rings, as well as the Hill Cottage ring, are characterized by U-shapes. Heights/depths of ring deposits extend to 4 meters, although the Bonita ring has been affected by road construction. The Bonita region rings, unlike those from other regions, lack pottery, as does the lower levels of Hill Cottage. The rings both pre-date the adoption of pottery in the Southeast (Horr's Island) and are contemporaneous with its early introduction in their later stages of use. The coeval traditions of shell ring and pottery production, however, did not exist in this region. The region is also characterized by well-developed shell tool technology and mound ceremonialism. It is unknown what ceremonies these mounds were associated with. But burials were placed in some of them (Mound A and Mound B at Horr's Island) after their construction. The presence of the mounds and rings together suggest that the sites functioned both as places of ceremony and habitation.

The temporal range of the two shell rings, and the lower range of Hill Cottage is 4660–3870 B.P. Like the Reed region, the shell rings in Bonita seem to lack ancillary sites from which populations may have been drawn for aggregation at ring ceremonies. This may be a result deficiencies in the archeology of the region as opposed to a real settlement pattern. The fact is that without pottery being present, shell midden sites without recognizable or temporally diagnostic artifacts are often glossed over in summary reviews of site distributions. The coastal groups undoubtedly had some relation with interior groups for shell tool artifacts have been identified at interior sites and cemeteries. But the nature of those relations are largely unexplored. Trade seems even more limited at these rings than at others nearer lithic resources. Only one lithic projectile point has been recovered at the rings, and the pointed bone tools are of types that generally lack the decorations of more northern ring-building cultures.

8. Cottage

The Cottage region is based solely on one ring, and the presence of other non-ring sites in the region that have yielded fiber-tempered pottery, variously referred to as Orange or Norwood depending on the relative amount of sand also found in its paste. In terms of shell rings, the only trait that distinguishes the Hill Cottage region from the Bonita is the presence of pottery and the more recent dates associated with the pottery (3975–3625 B.P.). There are more sites known in the region that date to this period, and so the pool of homesteads from which ceremonial aggregations may have drawn is not as puzzling as that found in Bonita.

9. Big Bend

The Big Bend of Florida, stretching from north of Tampa Bay to the Apalachicola delta, is marked by low lying shorelines subject to extensive sea transgression with minimal rises in water levels. Because of this, few Late Archaic coastal sites have survived rising sea levels over the last 5,000 years. Sites are widely spread and consist of small shell middens and burials exposed as erosional features. Whether this regional culture made and used shell rings is unknown.

10. Panhandle

The Panhandle of Florida has yielded at least two possible Late Archaic shell rings, Meig's Pasture and Buck Bayou, each dramatically different in shape and size from each other and from other Florida rings. Neither site contains pottery of the period, but do contain, baked clay objects and, apparently, more than the usual numbers of lithic artifacts (Thomas and Campbell 1991). These traits have prompted archeologists to associate the rings with Poverty Point rather than other shell-ring-building traditions. But without enumeration of the artifacts it is difficult to determine if they differ in any substantial way from other shell-ring-building traditions. In the absence of pottery and the promise of baked clay objects, the sites distinguish themselves from all other ring builders. Too, the promise of a lithic tool kit unknown at other rings makes these proposed rings very different. However, there are not many commonalities in shape and size that might characterize the rings of this region. Meig's Pasture is not a contiguous ring of shell, but a series of pits. And the "plaza" it surrounds, has been suggested to have been a spring head. Buck Bayou, on the other hand, is mounded shell in an arcuate shape 1.5 meters (0.45') high. But it does not seem to have much of a plaza at all. Shell is abundant in the "plaza" area. These factors should not dismiss the sites or other potential sites in the region from consideration as shell rings. After all, Hill Cottage was once thought to have surrounded a spring head, and a number of shell rings extensively damaged or mined also seem to have limited shell free plaza areas. These factors just suggest more work is needed to characterize the regional shell rings. Unlike other shell rings, these sites have been identified as trading centers rather than habitation or ceremonial sites (Thomas and Campbell 1991). If true, that trait would make them unique among shell-ring-building traditions.

11. Gulf Isle

The Gulf Isle includes the western-most Florida Panhandle extending to near the Mississippi/Louisiana border. No ring sites have been located here, and few Late Archaic sites are known, likely because of submergence and destruction by relative rises in sea levels.

12. Pearl River

The Pearl River region at one time contained two shell-ring sites, Cedarland (a preceramic site) and Claiborne (a fiber-tempered ceramic bearing site which lies immediately adjacent to it). Both are about 170 meters in diameter and five meters in height. Unlike most shell rings, however, the major portion of the rings seems to be composed of earth, with sporadic distributions of shell and soil overlying them. Although Cedarland is viewed as preceding the construction of Claiborne, the lone radiocarbon date of 3200 B.P. from Cedarland makes it contemporary with dates obtained from Claiborne (3100–3990 B.P.). Like the Panhandle Archaic sites of Florida, the Pearl River sites are viewed as intimately connected to the pan-regional trade network of Poverty Point centered in northeast Louisiana. The Pearl River sites are seen as trading outposts strategically placed in an otherwise vacant land—no other contemporary sites are known in the region. While the interpretation as trading outposts helps account for the absence of other sites in the region, submergence of sites beneath risen sea levels may serve the same purpose.

As for intrasite development, their distributions of shell and artifacts indicate that the raised circles served as areas of habitation with living floors, hearths, and special activity areas. At Claiborne, mounded and

hypertrophic deposits of shell reflecting quick deposits associated with large-scale feasts seem to be few compared to layered deposits of shell containing abundant crushed shell, artifacts, and soil. The latter suggests that daily maintenance activities characterize the site, rather than ceremonial large-scale feasting. Burials may be present in the ring or in the nearby sand mound (Bruseth 1991), but none were ever found to confirm this speculation. An abundance of steatite, chipped stone tools, and lapidary items sets both sites apart from all other known shell rings. The presence of over 12,000 baked clay objects distinguishes Claiborne. But the presence of a only a few baked clay objects at Cedarland (Gagliano and Webb 1970:51) is right in line with other shell rings. Together, however, the unique features at these two rings serve to separate them as a distinct building tradition from those of the Atlantic coast, and, even from those in the Florida Panhandle.

This brief summary of varying ring-building traditions presents ways in which shell rings and associated traits are critical factors in exploring the rise of traditions, the development of group territories, and the establishment of ethnic identities in the earliest coastal occupations of the southeastern seaboard.

Context 9: Settlement and Environment
NPS Thematic Framework: I. Peopling Places; VII. Transforming the Environment

The transformation of nomadic hunter-gatherers to coastal fisherfolk is a pivotal step in the evolution of precontact United States cultures. The move reflects changing perceptions of the habitable landscape by Late Archaic coastal settlers. Archeologists have suggested that prior to the Late Archaic, sea level was too low or the rise too rapid to provide a stable environment for the growth of the estuarine shellfish and fisheries resources that would thereafter come to support coastal settlements (Brooks et al. 1989; Miller 1998:72; Widmer 1988). Others have suggested that coastal settlements may have preceded the Late Archaic, but were later drowned and lost to archeological observation by risen seas (DePratter and Howard 1980:33; Russo 1996). Being among the earliest and largest of early coastal sites, shell rings represent a keystone to our understanding of Archaic hunter-gatherer adaptations to coastal environments. Some rings sit high and dry on bluffs and dunes above present-day coastal marshes. Others are being lost to tidal erosion. Still others lie buried beneath the marsh. Rings were built on landscapes at a point when significant environmental changes were occurring. The historic context, Settlement and Environment, is critical to understanding the natural landscape upon which shell-ring builders founded early large-scale coastal settlement, could prosper as sea levels stabilized, and foundered upon sea level rise. The context falls under the National Park Service's Framework Theme, Peopling Places and Transforming the Environment.

Before the recognition that sea level has risen substantially over the last 5,000 years, shell-ring locations in coastal marshes were seen as intentional. Rings were often interpreted as fish traps, designed to capture fish swept into the rings at high tide (Edwards 1965). Today, the occasional occurrence of shell rings in marshes is recognized as the result of risen seas. All shell rings were originally placed on dry land adjacent to marshes, but not in the marshes themselves. The central, shell-free areas functioned not as fish traps, but as community nexuses, places of public intercourse. Rings and associated architecture were often placed on the highest points of land to proclaim territory, facilitate seeing and being seen, and, perhaps, to mitigate against environmental stresses of weather and biology (e.g., storms and mosquitoes). In low-lying environments, rings were often the tallest features on the immediate landscape. As such, the construction of rings altered precontact environments and created new landscapes, raising dunes and bluffs even higher, and providing high points on islands next to marshes. Today, these topographic gradients, combined with the abundance of shell, present a well drained, calcareous environment ideal for

plants and animals not otherwise native to the coastal zone. They function as environmental refugia of plants and animals rare or absent elsewhere in the region (Dorroh 1971).
Rising seas are also seen as causing the abandonment of the coastal traditions centered around shell-ring construction. The last shell rings were constructed around 3000 B.P., and at this time large changes in the coastal environment and cultures that occupied them can be seen. As sea level rose, rings, mounds and habitation sites were flooded causing great changes in established settlement patterns, and concomitant changes in social organization. Shell midden sites became smaller across the southeast United States, pottery styles changed, and large-scale public architecture ceased being built for centuries to follow. The occupation of the Southeast by societies that organized around permanent, nucleated settlements, constructed public works, and feasted en masse at ceremonial sites, changed to occupations by isolated groups, small in scale and dispersed across the coastlines.

The rising seas at the end of the Archaic were not sufficiently rapid to destroy environmental productivity of the larger coastal zone. But they were sufficient to adversely affect specific localities. Oyster beds became too saline to support growth. Productive fishing grounds shifted laterally or landward to areas where freshwater input and nutrients held in the advance of rising seas. And homesteads became more frequently flooded with daily rains and tides. The movements of resource zones and the need to move habitations change the social landscape. Rings were now marking territories that were not productive enough to support the resident population. Movement to other territories was restricted due to increased populations and ethnic boundaries brought about by the exploitative success of ring-building cultures. Strife may have arisen as populations sought to feed themselves by intrusion into others' natural and social environments.

Five thousand years ago, shell rings were among the largest architectural features in the United States. Shell rings and their associated sites represented pioneer forms of social organization capable of permanent occupation, large-scale public works, and endurable residence among increasing populations. While archeologists may argue over the function of shell rings, most agree they were constructed by peoples whose immediate ancestors were the hunter-gatherers of interior forest lands. How these interior peoples were able to change their subsistence and settlement patterns and master the coastal environments in a relatively short period, and how they were able to leave a legacy architectural features that have defied millennia of coastal storms and erosion, sets shell rings apart as national landmarks in the precontact history of the United States. The exploration of how the environment changed through time, how it compelled social reaction, and how it affected end of the ring-building traditions of culture are also part of the significance held in shell rings.

Context 10: Sociopolitical Development and Shell Rings
NPS Thematic Framework: I. Peopling Places; III. Expressing Cultural Values; VI. Transforming the Environment

Arguably, the most important context related to the national historic significance of shell rings is the promise to yield information critical to the understanding of the causes for and changes attendant with the move from egalitarian to more complex forms of social organization. Few archeological sites have been deposited or are as well preserved at those rare temporal points when such transitions have occurred as are shell rings. The simple facts are these. Before the Late Archaic, there were no permanently settled villages in the United States containing populations larger than those typically associated with migratory hunter-gatherers (Russo 2004). Base camps, aggregations sites, and trading nexuses often resulted in large Middle and Early Archaic settlements. But these temporary settlements dissipated after seasonal resources beckoned the groups elsewhere. With the Late Archaic, and as particularly found at shell-ring sites, per-

manent, year-round settlement of sites was a norm, ethnic boundaries defining and defending those sites arose, populations grew, and complexity in site structure at some of the largest shell-ring sites achieved levels theretofore unseen in the archeological record.

The equation of large-scale public works such as shell rings with social complexity has been a persistent issue in the archeology of the Archaic southeast United States. Archeologists have pointed out that there is no necessary connection between the construction of mounds, for example, and permanent settlement or hierarchically organized societies (J. Saunders 2004). Others, however, have argued that a subsistence infrastructure, relative sedentism, labor, and leadership with the capacity to build large public works beyond that found among migratory hunter-gatherers, is reflected in Late Archaic mound and shell-ring-building societies (Russo 2004; Sassaman and Heckenberger 2004). Moreover, the structure of circular, mounded settlements with specific mounds and ring walls placed in opposition to others represent asymmetrical architectural constructs reflecting asymmetrical divisions in social relations (Russo 2004; cf. Trinkley 1985).

Combined with shell rings, the construction of other large-scale architectural features has suggested to some that shell-ring sites may represent the first evidence of changing social organization from simple egalitarian hunter-gatherer bands to kin-based tribal organizations in which social status distinctions were achieved and maintained through the sponsoring of public works such as the building of shell rings. Others have suggested that shell rings are little more than the incidental refuse of simply organized hunter-gatherers who chose to live in circular communities. As such, shell-ring sites offer a unique opportunity to explore competing theories as to how societies changed from simple forms of social organization to more complex forms, versus how Middle Archaic nomadic bands maintained a simply organized social structure while adapting to changing and unique environments.

F. Associated Property Types

SIGNIFICANCE OF SHELL RINGS

Shell rings are large-scale architectural features of the Late Archaic located on the Atlantic and Gulf coasts from South Carolina to Mississippi. Of the fifty-one (counting attached rings as one) known or suspected rings, most are found in South Carolina and Georgia, with nine known in Florida, the two in Mississippi have been destroyed. In all regions where they are found, shell rings are the earliest evidence of permanent settlements on the coast. The primacy of their occupation represents a pivotal time in the evolution of society in the precontact period United States. Shell-ring builders appear to be the first groups to change from a migratory terrestrial-based hunting-gathering strategy of subsistence to settled subsistence strategies. This switch to less mobile resource exploitation, combined with the abundant resources, allowed for significant population growth for the establishment of multiple ethnic identities reified in ceramic, shell, and bone tool technologies and, most distinctively, for the large-scale public works represented by the rings and associated architecture. Despite regional differences, shell rings hold in common evidence of habitation, feasting, ceremony, and monumentalization as seen in the large-scale mounding of shell surrounding centralized plazas.

NHL THEMATIC FRAMEWORK

Section E introduced ten major contexts and their applicability to the NPS Thematic Framework for understanding the significance of shell rings on a national level. These contexts, which are summarized in Table 8, provide the basis for evaluating the significance of individual shell rings for NHL determination.

CRITERIA FOR THE EVALUATION OF SHELL RINGS AND ASSOCIATED LARGE-SCALE ARCHITECTURE

Information contained in the historic context may be used to evaluate significance of Late Archaic shell rings for designation of National Historic Landmarks (NHL) and as properties for listing on the National Register of Historic Places (NRHP). To be considered for listing in the NRHP, shell-ring sites and districts must possess integrity of location, design, setting, materials, workmanship, feeling and association at national, state, or local levels of significance relating to Criterion D, the potential to yield important information.

NHL criteria reflect a more rigorous framework appropriate for evaluating properties possessing the potential to contain information of the highest level of national significance. Guidelines for meeting the criteria relevant for shell rings are found in 36 CFR 65.4. Of the six criteria, the most relevant criterion is Criterion 6:

> *Have yielded or may be likely to yield information of major scientific importance by revealing new cultures, or by shedding light upon periods of occupation over large areas of the United States. Such sites are those that have yielded, or which may be reasonably expected to yield data affecting theories, concepts, and ideas to a major degree.*

Table 8. NHL Shell-Ring Historic Contexts and NPS Thematic Framework Themes

Shell-ring Historic Contexts	NPS Thematic Framework Themes
1. Archaic Shell Rings as Early Large-Scale Architecture	I. Peopling Places III. Expressing Cultural Values
2. Mounds and Other Architecture Associated with Shell Rings	I. Peopling Places III. Expressing Cultural Values
3. America's First Potteries, 5000–3000 B.P.	I. Peopling Places III. Expressing Cultural Values VI. Expanding Science and Technology
4. Development of New Technologies :Shell and Bone Tool Kits	I. Peopling Places III. Expressing Cultural Values VI. Expanding Science and Technology
5. Expansion of Exchange Networks	I. Peopling Places III. Expressing Cultural Values VI. Expanding Science and Technology
6. Establishment of Sedentary Cultures	I. Peopling Places III. Expressing Cultural Values
7. Changing Mortuary Practices	I. Peopling Places III. Expressing Cultural Values
8. Establishment of Tribal Identities	I. Peopling Places III. Expressing Cultural Values VI. Expanding Science and Technology
9. Settlement and Environment	I. Peopling Places VII. Transforming the Environment
10. Sociopolitical Development and Shell Rings	I. Peopling Places III. Expressing Cultural Values VII. Transforming the Environment

Some of the contexts of national significance outlined in Section E that shell rings have the potential to address include the invention of pottery, the development of coastal technologies, the origin of settled communities, the rise of socio-political complexity, and the adaptations of cultures to and by the changing environment in the face of global warming and the attendant rise in sea level.

As with NRHP Criterion D, NHL Criterion 6 is the typical criterion used to evaluate archeological properties for significance as NHLs. But shell rings differ from most precontact sites in that they can represent extant and well preserved architecture representing large-scale monumental construction. As such, and when of sound physical integrity, it is the architectural design of shell rings, not simply the scientific potential, that provides the important information obtainable under Criterion D (NRHP) and Criterion 6 (NHL).

Important architectural traits are typically listed as criteria for consideration for the NRHP under Criterion C, and Criterion 4 for National Historic Landmark designation. Criterion 4 states:

> *Properties that embody the distinguishing characteristics of an architectural type specimen exceptionally valuable for the study of a period, style, or method of construction, or that represent a significant, distinctive and exceptional entity whose components may lack individual distinction.*

As such, the architectural traits of shell rings will be considered for their significance under Criterion C and Criterion 4 as well as Criterion 6. Shell ring sites include not only scientific information but architectural significance related to physical characteristics of design, construction and form that sets shell rings apart from other precontact shell middens. The architectural significance is clearly the intent of Lawrence's (1990b) NRHP Multiple Property documentation when he states that resources eligible for the NRHP must include integrity of original geometry.

REGISTRATION REQUIREMENTS

To be considered for nomination as a National Historic Landmark under this historic context, a shell ring must demonstrate they possess *all* of the following criteria:

1. Location Within the Defined Geographic Boundaries
2. Research Potential of National Significance
3. Late Archaic Age
4. Architecture of National Significance

1. Location Within the Defined Geographic Boundaries
Shell rings have been found on barrier and other coastal islands, along ocean shorelines, on and beneath marshes and mangroves, or along freshwater rivers entering into estuaries from South Carolina to Mississippi. To be considered eligible for NHL status in this multiple property listing, a shell ring should be located along the coastal environments of South Carolina, Georgia, Florida, and Mississippi. Shell rings continue to be identified and might reasonably be expected to be discovered in neighboring states of Alabama and Louisiana. If found there, those rings should also be considered.

2. Research Potential of National Significance
Archeological investigations including mapping should demonstrate that shell rings have the potential to contribute to the better understanding of precontact history of the local cultural region, the greater southeast United States, and on the national scale. Research potential can be identified from the contexts discussed in Section E. Rings of national significance need to contain information with the potential to relate to patterns of cultural behavior unique or unusual to broad patterns of precontact history and archeological theory. For Late Archaic shell rings, under this historic context, behaviors of national significance include the invention of pottery, the development of coastal technologies, the origin of settled communities, the rise of socio-political complexity, the expansions of exchange networks, changing mortuary practices, the establishment of tribal identities, and the adaptations of cultures to changing environments.

3. Late Archaic Age
Archeological investigations, including radiocarbon dating, should demonstrate that shell rings date to the Late Archaic (ca. 5000–3000 B.P.). In lieu of radiocarbon dates, pottery appropriate for the period and region should be recovered in sufficient quantity from secure contexts to demonstrate construction during the Late Archaic period. Some shell rings were constructed at a time when pottery had not yet been adopted. These shell rings will require radiocarbon dates or other archeological evidence of their Late Archaic age. Some Late Archaic shell rings may have been constructed initially during the Middle Archaic (i.e., before 5000 B.P.), though more research is needed to confirm those dates. Shell-ring construction wholly after the Late Archaic period should not be considered for evaluation.

4. Architecture of National Significance

Shell rings maintaining high integrity of shape, size, material, and structural context should be considered for listing as NHLs under Criterion 4. Rings that have had the majority of shell quarried and removed, rings that have suffered severely from erosion, and rings whose shapes and shell deposits have been largely reconstructed are not eligible for listing as a National Historic Landmark, but may still contain the potential to yield important information under Criterion C and/or Criterion D for listing in the NRHP. It is the high integrity of architectural form that distinguishes those shell rings as eligible for NHL status from those eligible for NRHP listing. These forms are of national significance because they are among the earliest monumental architecture in the United States, the largest early architecture, and the only extant architecture from the Late Archaic period. They are also of a design unique and exceptional not only for the Late Archaic, but for all precontact history in the United States.

Lawrence (1990b) attempted to establish criteria for site integrity in NRHP Multiple Property documentation for South Carolina shell rings. He suggested that for a shell ring to be considered eligible for the NRHP it must

> *have its base intact and near horizontal if tested or excavated and mapped, and will have a significant thickness of preserved and undisturbed shellfish remains (normally 18 inches or greater), thus supporting the interpretation of the site as an original ridge or topographic high.*

It is not clear what he meant by “near horizontal,” but his suggestion that at least 18" (45 cm) of shell rising above the ground must remain for eligibility to the NRHP is probably too restrictive. Thompson (2006) has clearly demonstrated that the shape of a shell ring can be determined as intact, and scientifically important information can be found below ground surface, even when all above ground, topographically raised ring walls have been removed. For the purposes of this historic context relative to NHL status, scientific integrity means any remaining portion of the shell-ring site must have materials and features still in undisturbed context, regardless if they are topographically elevated or below level ground. These contexts must hold the potential to provide data for answering questions and addressing issues of historic and anthropological importance on a national level.

Architectural integrity for NHL eligibility consideration requires a higher level of preservation than scientific integrity. It requires that the shell ring remains intact to a degree sufficient to allow the determination of ring shape, original height, and internal construction. All shell rings that have NHL level architectural integrity will automatically hold scientific integrity for NHL or NRHP consideration. Note that rings which may contain scientific integrity will not necessarily hold architectural integrity sufficient for NHL status. Both architectural and scientific integrity must be obtained at a ring site for it to be considered for NHL status. These issues of integrity apply not only to shell rings, but to any associated architecture such as mounds, ringlets, ramps or causeways.

LEVELS OF SIGNIFICANCE

Shell-ring significance may be designated at three progressive levels.

Local Significance
At the local level, shell rings contain features, artifacts, or ecofacts that can address significant questions of local interest, but lack such evidence relating to regional or national issues of importance. At such rings, scientific and architectural integrity may be severely compromised, but sufficient undisturbed data remain to answer thematic questions of subsistence, cultural affiliation, and age of the site. Such shell rings may be considered eligible for the NRHP on a local level, but can only be considered of regional or national significance as a contributing element in a multiple property listing of other shell rings holding these higher levels of significance.

Regional Significance
At the regional level, shell rings contain features, artifacts, or ecofacts that may be used to address issues and research questions of regional importance, but lack such data relating to important national issues. These shell rings may contain sufficient data to address many of the contexts cited in this study, but they lack sufficient integrity to address all. Sites that lack architecturally integrity sufficient to identify the original ring form, for example, may still be considered significant on a regional level if the potential to address other contexts is present. Such shell rings may be considered eligible for the NRHP on a regional level, but can only be considered of national significance as a contributing element in a multiple property listing of other shell rings holding this highest level of significance.

National Significance
Shell rings that have the potential to address all or most of the contexts in this study can be considered for nomination as a National Historic Landmark. The national significance of these contexts is described in Section E. To address all these, the shell ring must maintain sufficient architectural integrity to ascertain its original architectural form. If this integrity is present, then the potential for recovering the scientific data needed to address other contexts will be obtainable. The absence of architectural integrity will preclude nomination as an NHL, although the rings may be considered eligible for the NRHP. They may also be considered of national significance as a contributing element in a multiple property listing of other shell rings holding this highest level of significance.

SITE DESCRIPTIONS OF POTENTIAL NHLS

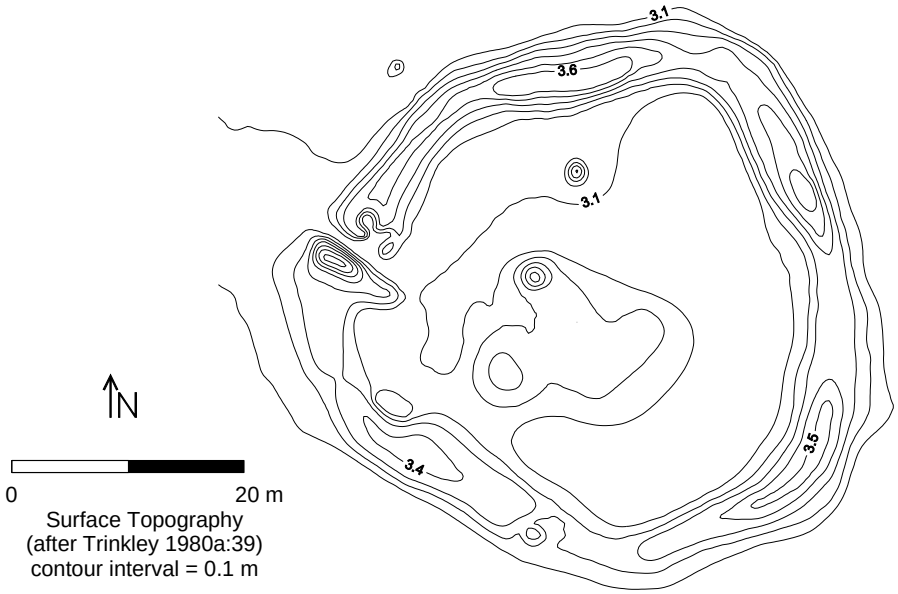
The data in Section F presents summary statistics and descriptions on all sites that have been identified as Archaic shell rings potentially eligible for nomination as NHLs. Upon review, it turns out that some of the sites previously thought by researchers to be Late Archaic shell rings are not, in fact, shell rings. These sites and the shell rings that don't meet the register criteria established in this section are discussed in Section H as "Sites Considered but Rejected as Potentially Eligible for NHL Designation."

For each shell ring, a site drawing and summary statistics are presented in a prefatory table. Following each table is a brief overview of investigations conducted on that particular site over the last two hundred years, including the methods used by the different investigators for obtaining and reporting collections data. When available, complementary information about the excavations, site size, artifacts, and cultural affiliations is provided. Precise artifacts counts have not been possible in some cases, because of the investigators' contradictory or incomplete data. The symbol # indicates that no numbers were given for the amount of artifacts. The symbol > indicates that while some researcher listed the number of artifacts, oth-

ers did not, indicating only that some artifacts were recovered. Pottery type names are reported as the original researchers identified them. Only known Late Archaic pottery types are listed in the ceramic totals. As used here, the term *bone pins* refers to a variety of pointed bone objects and fragments, including awls, decorated and undecorated pins, fids, and punches. In their reports, many investigators used the term *bone pins* in a generic sense, and we defer to this generic use of the term herein.

In the summary tables, the site maps are the most detailed of those available. (With few exceptions, no excavation units or features are shown.) *Diameter* refers to the largest outside diameter or length of a ring. *Height* refers to either the highest topographic point above the plaza, or the thickest shell deposits in the ring. *Area Excavated* refers to the total of all excavations and tests, including unscreened backhoe trenches and excavations. *References* list the primary references only, particularly those that relate to information provided in the summary tables. *Radiocarbon Dates* are corrected (conventional) ages in years before present (B.P).

Sea Pines, 38BU7 — NRHP listed; Potential NHL

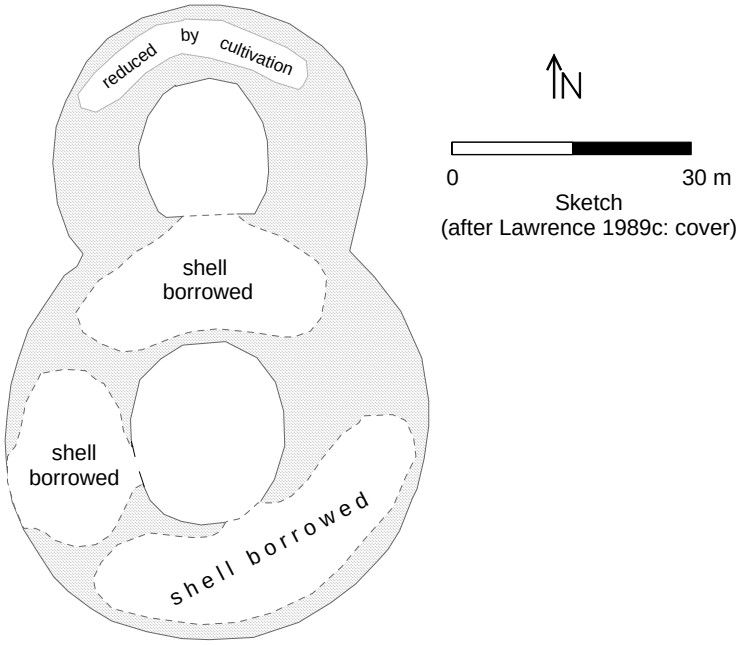


Shape	closed circle
Diam. x Ht. (m)	60 x 1
Area Excavated (m^2)	166
Radiocarbon Dates	3810+/-110; 3520+/-110
Stone	0
Bone	0
Archaic Ceramics	83 Thoms Creek, 44 fiber-tempered
Other	# whelk
References	Calmes 1967; Trinkley 1980a

Calmes's (1967) is the only report containing primary excavation data. He dug a single 5-by-5-foot (1.5 x 1.5 m) unit next to a trench that bisected the ring. Trinkley (1980a:38) believed that Waring may have originally dug that trench, which is 3 by 30 feet (0.9 x 9 m) on Trinkley's map (Trinkley 1980a:39). A contour map of the ring produced by the University of South Carolina. It showed two "old excavations." The smaller was 5 by 10 feet (1.5 x 30 m), and the larger, 15 by 20 feet (4.6 x 6 m) (Trinkley 1980a:39).

Calmes saw the ring as made from whole shell placed in contiguous piles. Each pile was separated from the other by thinner, darkened midden on the piles' slopes. Calmes hypothesized that these darkened slopes were created when ring builders leveled off the top of the piles as the ring rose in height, pushing the dark, crushed shell matrix of "living floors" over the sides of individual piles (cf. Cable 1995, 1997). Some have criticized Calmes's theory (Cable 1997; Marrinan 1975:124; Trinkley 1980a:38), but others think his interpretation of piling plausible (Russo and Heide 2003:46–47). This fairly well-preserved and protected site is definitely an Archaic shell ring and a potential NHL. It is one of only two shell rings open to the public, albeit on a limited basis.

Skull Creek 1 & 2, 38BU8 — NRHP listed; Potential NHL



Shape	2 joined circles
Diam. x Ht. (m)	88 (55 & 43) x 2.1
Area Excavated (m^2)	16
Radiocarbon Dates	3530+/-110; 3585+/-115; 3890+/-110
Stone	2 PP, # grooved abraders
Bone	2 pin
Archaic Ceramics	854 Thoms Creek, 129 fiber-tempered
Other	3 antler
References	Calmes 1967

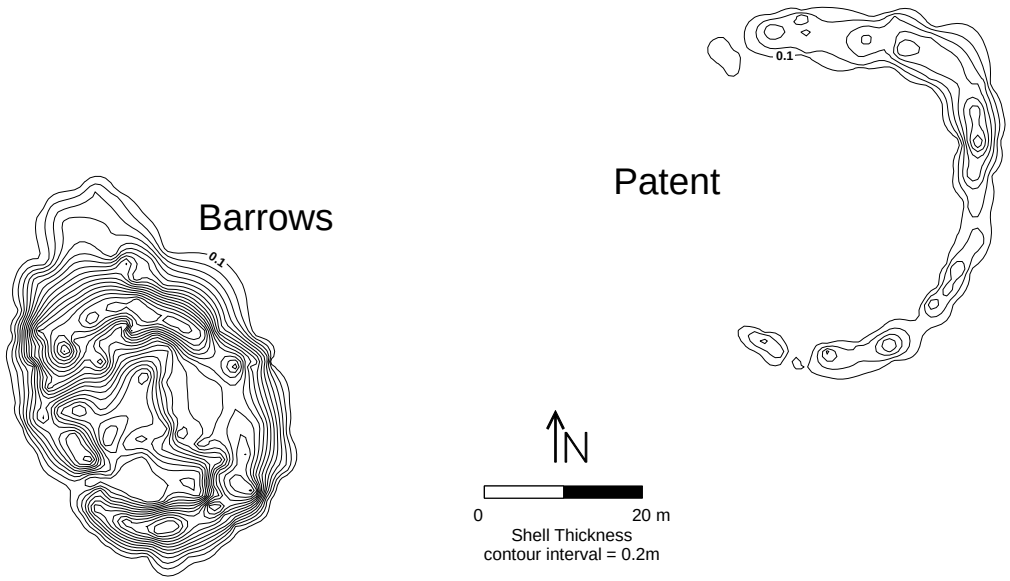
The site consists of two conjoined rings, variously referred to collectively as Ford's Skull Creek Shell Ring (Calmes 1967:7, 26; Judge and Smith 1991:38); Skull Creek Shell Ring (Calmes 1967:25); Skull Creek Shell Rings (Trinkley 1980a:38); Skull Creek 1 & 2 (Trinkley 1980a:35); Skull Creek (Dorroh 1971:44; Trinkley 1980a:35); or Ford's Skull Creek 1 & 2 (Trinkley 1980a:40). Individually the ring components have been referred to as Skull Creek 1 & Skull Creek 2 (Trinkley 1980a:35); Large Ford Ring and Small Ford Ring (Marrinan 1975:124); and Large Ford Shell Ring and Small Ford Shell Ring (Calmes 1968:45). This listing may not be inclusive, and, for the record, Ring 2 is synonymous with the smaller ring's varied appellations. For brevity, we use Skull Creek to refer collectively and individually to the rings.

Skull Creek was the first site where conjoined rings were identified. It demonstrated that not all shell rings are the same in shape. Subsequently conjoined rings have been found at Rollins, Coosaw 1 and 2,

and Fig Island 1. The only other 8-shaped ring, however, was found at Coosaw. Calmes (1967) placed one 10-by-10-foot (3 x 3 m) excavation unit in the plaza of the large ring. Additionally, he placed three 5-by-5-foot (1.5 x 1.5 m) units, one in each of the rings and one in the plaza of the small ring.

Calmes (1967:7) described the site as "almost entirely destroyed." A recent visit to the site shows that it has been heavily impacted by mining, and perhaps looting. It is nonetheless in very good condition with much of both rings remaining undisturbed. It received the highest rating for shell-ring preservation in South Carolina's *Heritage Trust 100 Sites* list (Judge and Smith 1991:25). It is potentially eligible for listing in the NRHP and contains sufficient integrity for consideration as an NHL.

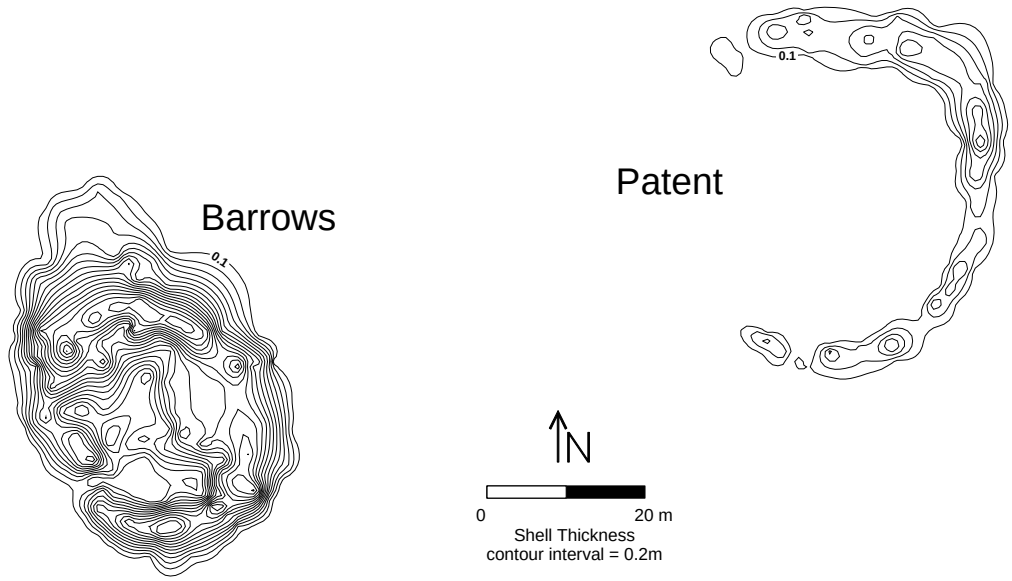
Barrows, 38BU300 — Potential NHL



Shape	C
Diam. x Ht. (m)	60 x 2
Area Excavated (m^2)	2
Radiocarbon Dates	3550+/-60
Stone	0
Bone	Uncounted pin
Archaic Ceramics	Uncounted Thoms Creek
Other	0
References	This document

James Michie, in a personal communication noted that "several uninvestigated shell rings are located in the interior" of Daws Island (Sassaman and Anderson 1994). An investigation sponsored by the Heritage Trust Program of the South Carolina Department of Natural Resources is ongoing by the National Park Service (Russo) and the Louisiana State University's Museum of Natural Science (Saunders). A single 1-by-2-meter unit was placed in the south arm of the ring. Abundant Thoms Creek sherds were recovered. A radiocarbon date on oyster shell was from the bottommost deposits in the unit. This site is related to Patent Shell Ring (38BU301) in proximity, shape, and cultural affiliation. Possible contemporaneity requires further investigation. Judge and Smith (1991:35) suggested that the ring was oval shape. And indeed the footprint is generally oval, but there is an opening on the southwest side and an interior area that is lower than the ring indicating that the site is C-shaped with an interior plaza. However, much of this plaza does have shell deposits. The origin of this shell (e.g., in situ midden, colluvium, or storm-introduced shell) remains open to investigation. The interior of the ring is far less open and level than that of the nearby Patent Ring. Due to its inaccessibility, the ring has not suffered from historic or modern disturbances and is still very well preserved. It is a potential NHL.

Patent, 38BU301 — Potential NHL



Shape	C
Diam. x Ht. (m)	60 x 1
Area Excavated (m^2)	2
Radiocarbon Dates	3850+/-70; 3660+/-70
Stone	2
Bone	0
Archaic Ceramics	Uncounted Thoms Creek
Other	0
References	This document

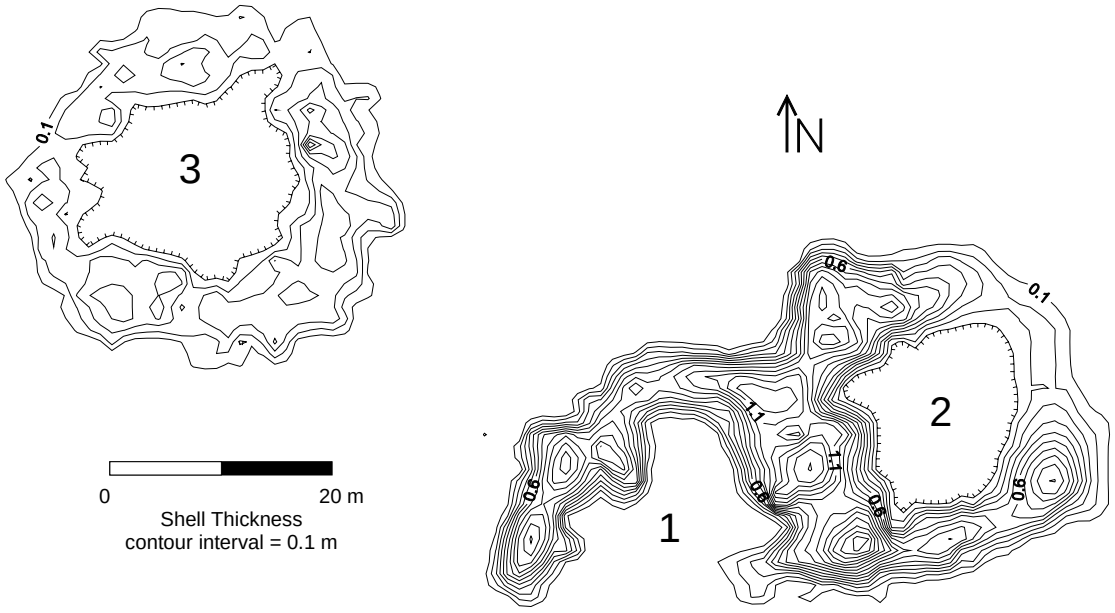
This ring was investigated along with the Barrows Shell Ring (see previous section). Abundant Thoms Creek sherds were recovered from a single 1-by-2-meter unit placed in the central wall of this C-shaped ring. Two radiocarbon dates on oyster shells were taken from the bottommost deposits of shell in the unit, 70–80 centimeters below surface (3660 B.P.), and the upper deposits, 10–15 centimeters below surface (3850 B.P.). Although the dates appear reversed, they overlap at two standard deviations, suggesting possible near-contemporaneity or a short interval between upper and lower deposits. Although measuring about the same size horizontally as Barrows, the Patent ring contains much less shell by volume. It may have been in the process of construction when abandoned, or simply used for a shorter period of time.

The dates from Patent are somewhat older than the one from Barrows, suggesting that this ring may have been built before Barrows. Radiocarbon precision is such, however, that the two rings might also be nearly contemporaneous. With this limited data, there are two possibilities. One, the rings represent a shell-ring complex, much like such sites as Coosaw and Fig Island. Or, two, the rings may represent a sequential move to a nearby location. Such moves may be necessary for many reasons and, according to

the ethnographic literature, are common for tribal societies that organize themselves in circles (e.g., Heckenberger et al.1999).

The ring is in excellent condition. It represents a potential NHL separately or in association with the Barrows ring.

Coosaw 1, 38BU1866 — Potential NHL



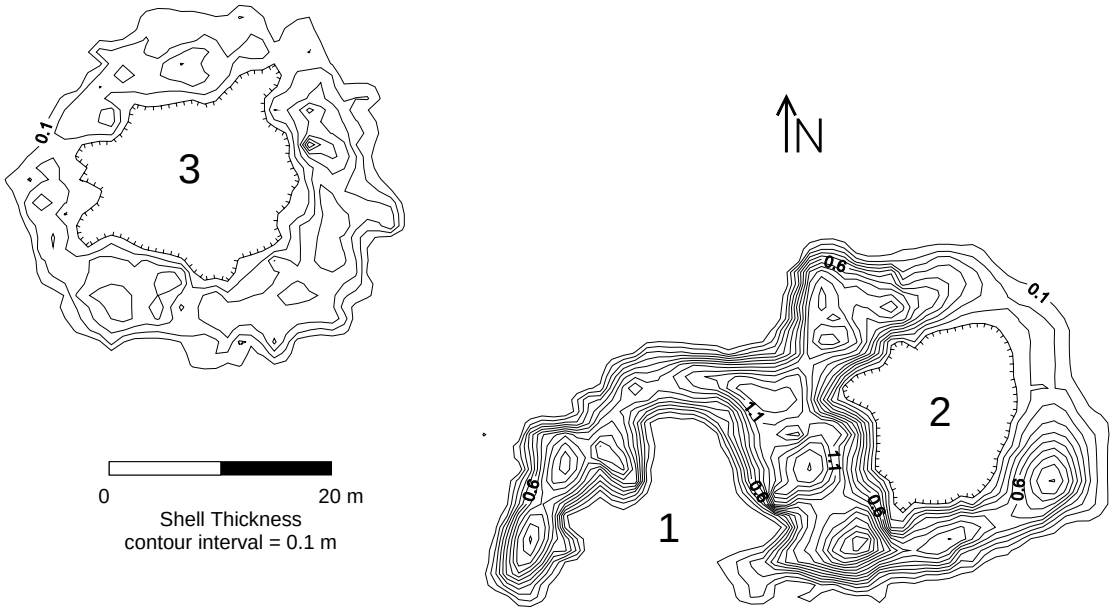
Shape	"8" (C attached to closed circle)
Diam. x Ht. (m)	60 x 1.73
Area Excavated (m^2)	2
Radiocarbon Dates	3790+/-70
Stone	1 biface fragment
Bone	0
Archaic Ceramics	169 Stallings, 3 Thoms Creek
Other	1 whelk
References	Heide and Russo 2003

Attached rings are difficult to describe in terms of metric attributes. The shared wall is often the highest point in attached rings. Thus maximum ring height is the same for each ring. In terms of shape, Heide and Russo (2003) suspected that Coosaw Rings 1 and 2 were originally conjoined in the shape of a figure 8. Ring 1 has since eroded, leaving a C-shaped ring conjoined to Ring 2, a closed ring. A single 1-by-2-meter unit was placed in Ring 1 to obtain radiocarbon dates and material culture.

Heide and Russo (2003:24) followed Saunders's (2002) method in distinguishing Stallings from Thoms Creek wares. However, they did not do fresh-break analysis on all sherds, but looked at surface evidence of fiber-tempering to classify the sherds as Stallings (cf. Trinkley 1980b:18 for a discussion of the problem distinguishing Stallings from Thoms Creek, which, to date, has not been satisfactorily resolved).

Despite the erosion on one side of the ring and a looter's hole, the site is in good condition. In combination with attached Ring 2 and as part of the multiple ring complex, Ring 1 is a potential NHL.

Coosaw 2, 38BU1866 — Potential NHL

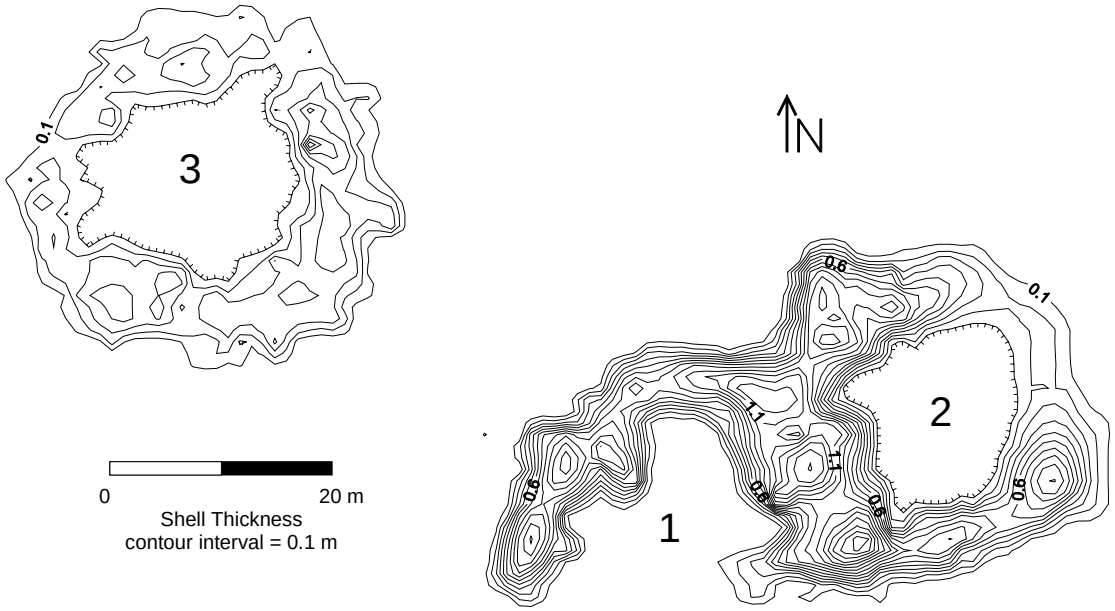


Shape	"8" (closed circle attached to C)
Diam. x Ht. (m)	60 x 1.73
Area Excavated (m^2)	2
Radiocarbon Dates	3560+/-70; 3610+/-70; 3800+/-30
Stone	0
Bone	1 pin fragment
Archaic Ceramics	472 Stallings, 18 Thoms Creek
Other	0
References	Heide and Russo 2003

Coosaw Ring 2 is attached to Ring 1. It achieves its maximum height at the point of attachment. Its discovery highlights the need for a systematic survey of ring areas to identify all associated structures that may be hidden beneath marsh, forest, leveled lands, or houses and other structures. As with Ring 1, a single 1-by-2-meter unit was excavated. (See Ring 1 for a fuller discussion.)

The ring is in good condition. In combination with attached Ring 1 and as part of the multiple ring complex, Ring 2 is a potential NHL.

Coosaw 3, 38BU1866 — Potential NHL



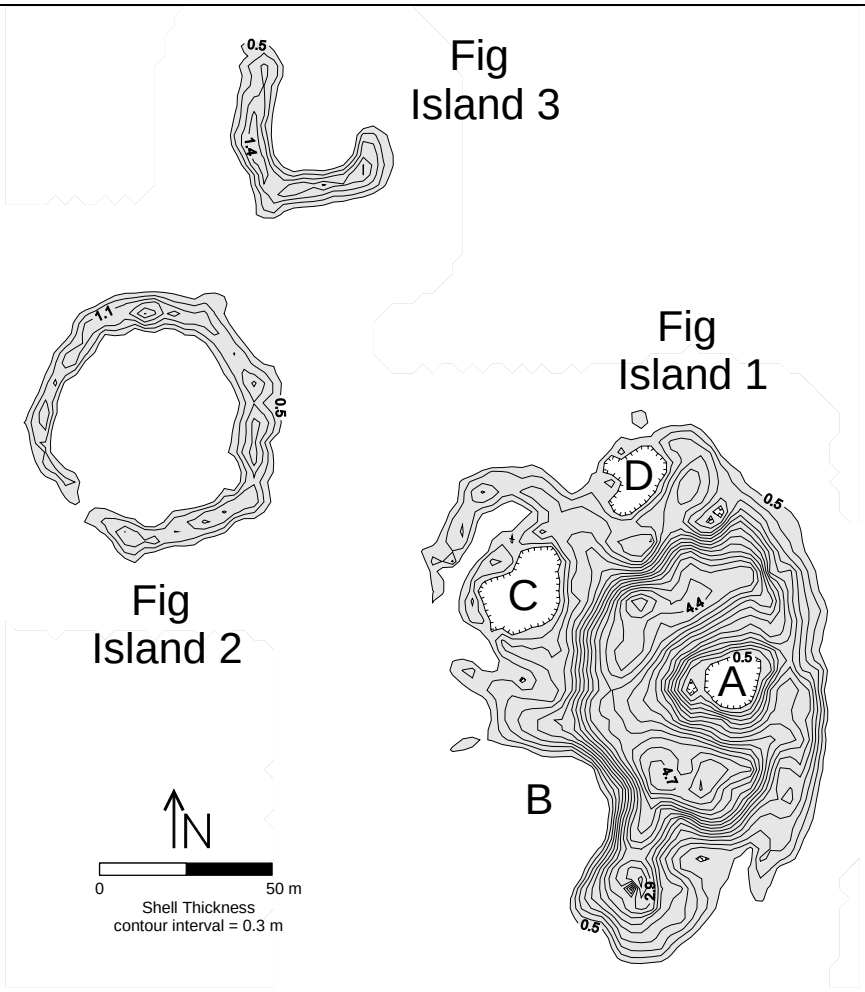
Shape	closed circle
Diam. x Ht. (m)	60 x 0.6
Area Excavated (m^2)	2
Radiocarbon Dates	3810+/-70
Stone	1 debitage
Bone	0
Archaic Ceramics	54 Stallings
Other	0
References	Heide and Russo 2003

This ring seems to have been severely impacted from borrowing, plowing and scraping. What remains are small portions of the aboveground sections of the shell ring, as well as the pits and features that existed below the ring. At 0.6 meters, the deepest sections of the ring are mostly below ground level. A probe revealed that a pit feature may extend down to nearly a meter. It's possible that the ring had not been leveled, but was a ring "in the making." More work is needed to resolve the issue of its abbreviated stature. Fifty-four Stallings sherds were recovered from the sole 1-by-2-meter unit placed in this ring. Like Sapelo 3 and Lighthouse Point, Coosaw Ring 3 has the potential to reveal much information about the initial stages of ring construction. As part of the Coosaw Shell-ring Complex, Ring 3 is a potential NHL, although alone it does not hold sufficient architectural integrity to qualify for inclusion as an NHL.

Coosaw 4, 38BU1866	**Potential NHL**
No Map Available	
Shape	closed circle
Diam. x Ht. (m)	60? x 0.5?
Area Excavated (m^2)	0
Radiocarbon Dates	3810+/-70
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Heide and Russo 2003:1

Coosaw Ring 1 was identified in 2000 by that inveterate ring-hunter Chester DePratter. The following year, Christopher Judge found the nearly level Ring 3 in a nearby field. A year later, while mapping Ring 1, Russo and Heide found Ring 2 under dense vegetation on adjacent property to which archeologists did not previously have access. During the mapping of Ring 2, another ring (Ring 4) was spied farther east under a house. It was not mapped. This chronology is given simply as background to Ring 4. No attempts to map it were made because the property owner had not been consulted. Russo walked over it and estimated it to be the size of the other Coosaw rings, 60 meters and approximately a half meter high. More work is needed to determine its size, shape, cultural affiliation, and condition. It has not been evaluated for listing in the NRHP. Depending on the results of further investigations, it may be eligible as a contributing element in the Coosaw Shell-ring Complex for listing as an NHL.

Fig Island 1, 38CH42 — Potential NHL



Shape	closed circle, mound, C-shape rings
Diam. x Ht. (m)	157 x 5.5
Area Excavated (m^2)	6
Radiocarbon Dates	3950+/-50; 3860+/-50; 3820+/-50
Stone	1 PP
Bone	20 pin
Archaic Ceramics	1,182 Thoms Creek, 112 Stallings
Other	106 shell
References	Saunders and Russo 2002

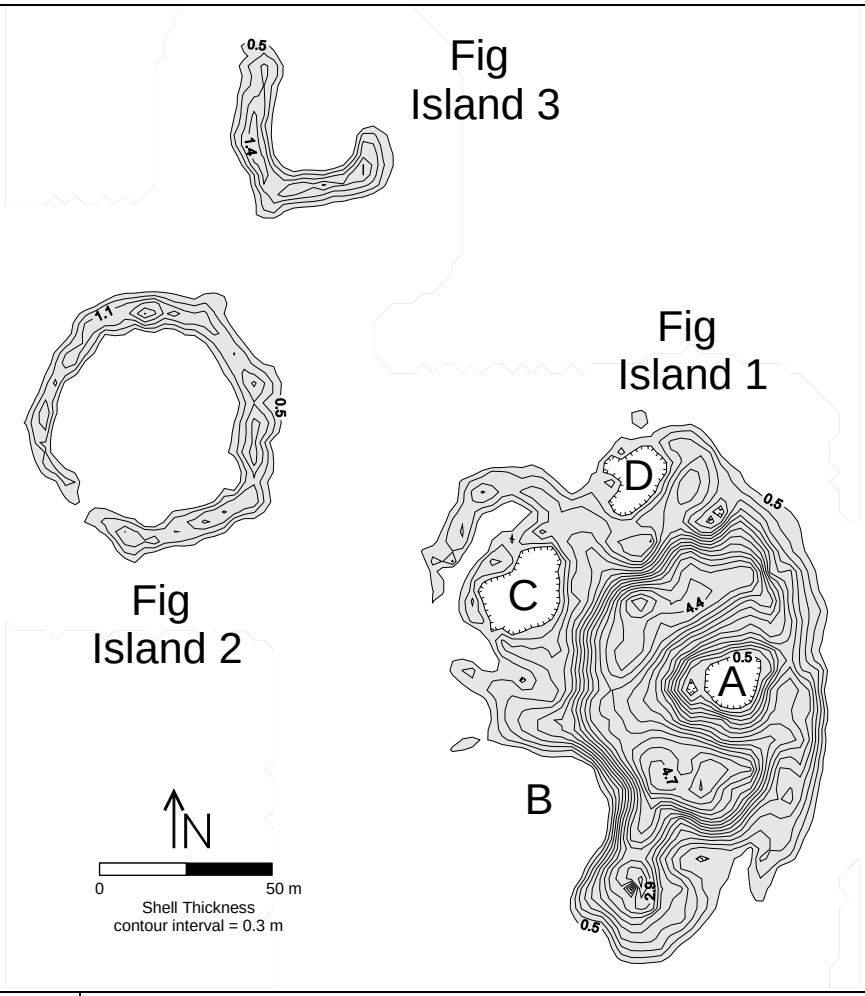
Fig Island Ring 1 is arguably the largest, most complex shell-ring structure known. It consists of a voluminous ring over 6 meters in height above the surrounding marsh, four or more lower-lying attached rings, including a concentric configuration containing a ring within a ring, and a mound with a shell causeway linking it to the primary ring. Ring 1 was recently mapped, but only two excavation units were placed (Saunders and Russo 2002). A single 2-by-2-meter unit on top of the primary Ring A wall was taken to a depth of 95 centimeters. This unit only scratched the surface of the shell deposits, which are nearly 6 meters deep from the top of the ring. A 1-by-2-meter unit was placed in the interior ring of the attached, concentric Ring C configuration. In order to set a permanent datum, a shovel test (0.2 x 0.3 m) was placed on the wall of the exterior concentric ring, and artifacts were recovered.

Of the 3,876 sherds reported from all three rings, only 1,788 were enumerated by type (Saunders 2002:131). At least 1,181 Thoms Creek and 110 Stallings sherds were identified from Fig Island 1. These included sherds from both units and the shovel test (Saunders 2002:101, 131).

Shell tools were numerous and included mostly whelk cutting and pounding tools. Shell beads, clam tools, and informal shell tools were also identified. Twenty fragments of bone pins were recovered.

This ring was not included in the 1970 NRHP for Fig Island (Hemmings 1970e). While Hemmings recognized the possibility of more rings under the dense vegetation on Fig Island 1, he did not classify the site as a ring. Due to ambiguous wording, it is unclear if Fig Island 1 was even included as part of the nomination of Fig Island 2 and 3. Detailed mapping of the site in 2002 identified at least five attached rings, a mound and a shell causeway, plus a number of ramps that doubles as ring walls and ingress/egress paths to the rings. The mound and causeway are unique features among Atlantic coast shell rings. The multiple architectural features at the shell complex make it unique among shell rings. As such, alone or in combination with Fig Islands 2 and 3, the site is a potential NHL.

Fig Island 2, 38CH42 — NRHP listed; Potential NHL



Shape	closed circle
Diam. x Ht. (m)	82 x 2.1
Area Excavated (m^2)	76
Radiocarbon Dates	4010+/-55; 4110+/-50
Stone	1 biface fragment
Bone	>1 pins & awls
Archaic Ceramics	1,765 Thoms Creek, 7 Stallings
Other	# antler, >2 shell
References	Hemmings 1970e, f; Saunders and Russo 2002

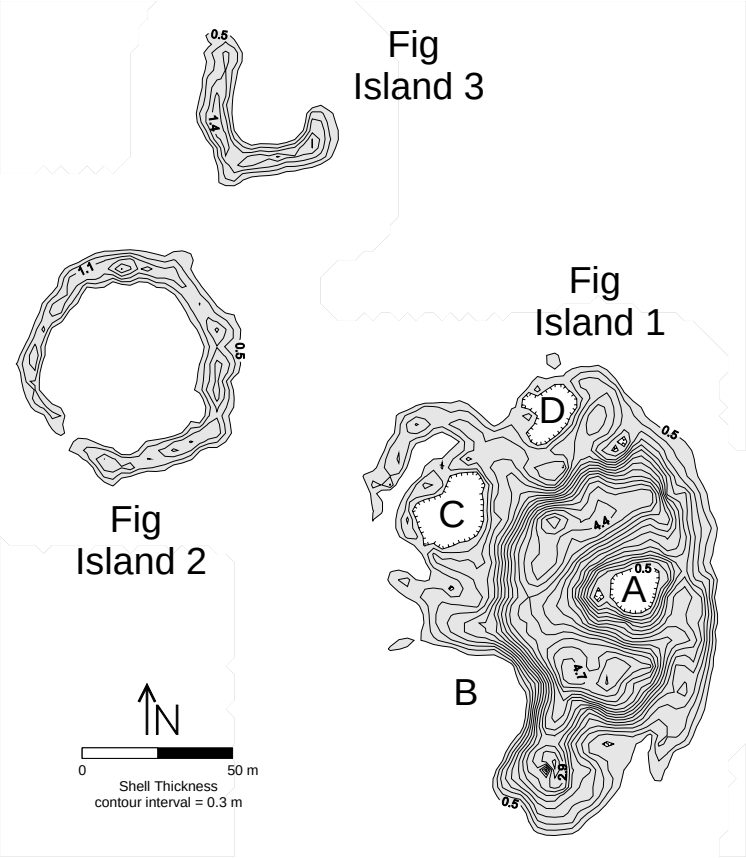
Fig Island Ring 2's major excavations were a 5-by-40-foot (1.5 x 12.2) trench dug by Hemmings through the southern portion of the ring, and a 5-by-125-foot (1.5 x 38 m) trench across its east wall (Hemmings 1970f:10). He never reported any artifact enumeration. Marrinan (1975:121), however, reported that in his unpublished field specimen catalog, Hemmings recorded 1,765 sand-tempered sherds (presumably Thoms Creek) and seven fiber-tempered sherds (presumably Stallings). Marrinan (1975:122) cited the catalog as listing "numerous" bone pin fragments, as well as bone awls, socketed antler projectile points, and a single "bifacially retouched chert fragment."

In the 2002 explorations, only two 50-by-50-centimeter column samples were placed in Fig Island 2 (Saunders 2002:106–107). One bone pin and two whelk tool fragments were recovered (Saunders 2002:123, 127); no ceramics were reported.

In the parlance of rings, the shape of Ring 2 is a closed circle. But Russo (2002a) suggested that it really appears to be more of a hexagonal shape. This shape may also be reflected at the Sea Pines ring, suggesting a culturally significant pattern. Fig Island Ring 2 is among the most symmetrical of the shell rings that have been mapped, but it is not a symmetrical circle of shell. A path of shell was identified below the marsh leading from a ramp on its northern wall to another ramp on Ring 3. These architectural features, combined with radiocarbon dates and ceramics, link the two rings to contemporary usage.

The site was listed on the NRHP in 1970 (Hemmings 1970e). It remains in an excellent state of preservation. Singly or in association with the other rings and architectural features of the Fig Island complex, it is a potential NHL.

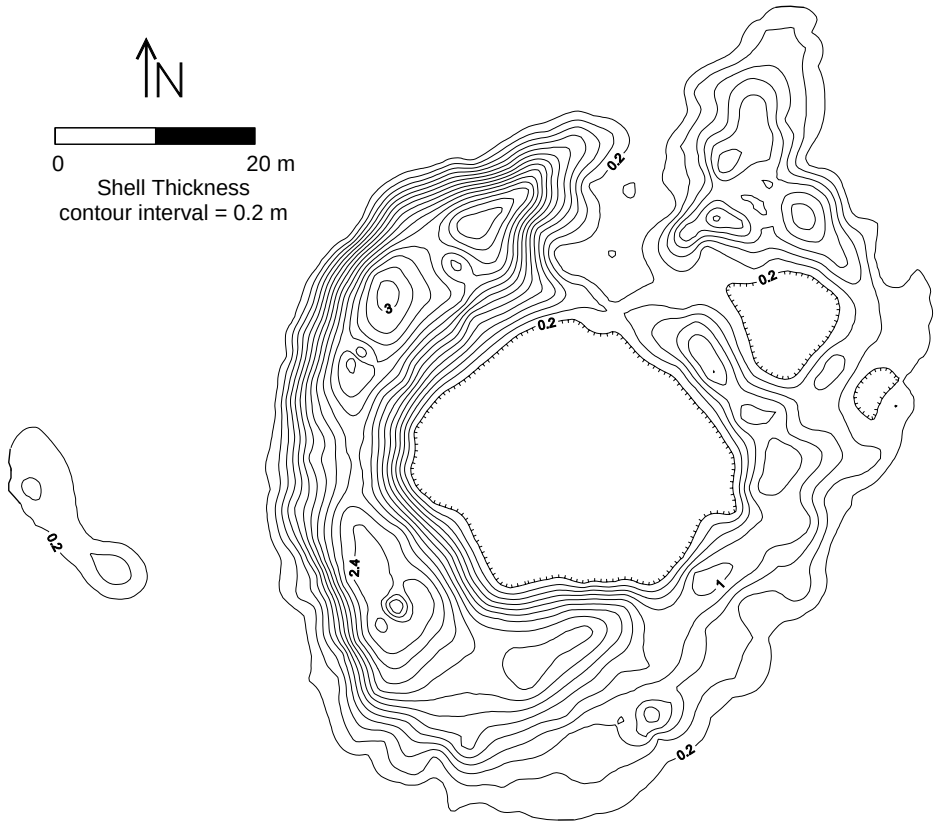
Fig Island 3, 38CH42 — NRHP listed; Potential NHL



Shape	C
Diam. x Ht. (m)	49 x 1.9
Area Excavated (m^2)	10
Radiocarbon Dates	3990+/-50; 4030+/-50; 4070+/-50
Stone	2 bead fragments, 1 debitage
Bone	7 pins
Archaic Ceramics	325 Thoms Creek, 7 Stallings
Other	17 shell
References	Hemmings 1970e; Saunders and Russo 2002

Saunders and Russo (2002) placed a 1-by-8-meter trench and a 1-by-2-meter excavation unit. Probing revealed a path of thinly scattered shell buried in the marsh between Rings 2 and 3. This suggested an intentionally constructed pathway. Extensive probing revealed no buried shell on the north side of the open C-shaped ring, indicating that its shape was intentionally constructed and not the result of erosion. Artifacts were of the same types as found at Fig Island 1 and Fig Island 2. Two stone bead fragments were recovered. The site was listed on the NRHP (Hemmings 1970e). It is well preserved. Singly or in association with the other rings and architectural features of the Fig Island complex, it is a potential NHL.

Sewee, 38CH45 — NRHP listed; Potential NHL



Shape	closed circle
Diam. x Ht. (m)	75 x 3.2
Area Excavated (m^2)	176
Radiocarbon Dates	3675+/-110; 4010+/-70; 4120+/-70
Stone	2 PP, 1 bead, 1 flake
Bone	# pins, bird bone chisel, 1 drilled canine tooth, 2 “cylinders” of manatee bone
Archaic Ceramics	>10,000 plus 156 Thoms Creek
Other	10 ceramic abraders, 11 baked clay fragments, 60 shell, 1 bead, 2 antler PP, 1 antler hook
References	Hemmings 1970g; Russo and Heide 2003

Edwards (1965) placed seven 5-by-5-meter excavation units at the site. Of these, one was placed in the plaza, two others just outside the main ring. In his report, Edwards described at length the placement of the units, the features and profiles, and his interpretations of ring function, which, he concluded, was a fish trap. He stated that “almost 10,000 sherds” were recovered, suggesting that nearly all were Thoms Creek series. Edwards typed the sherds as mostly Awendaw, a classification that has been largely subsumed by Thoms Creek (Trinkley 1976, 1980b). He acknowledges that “some 40” might be fiber-

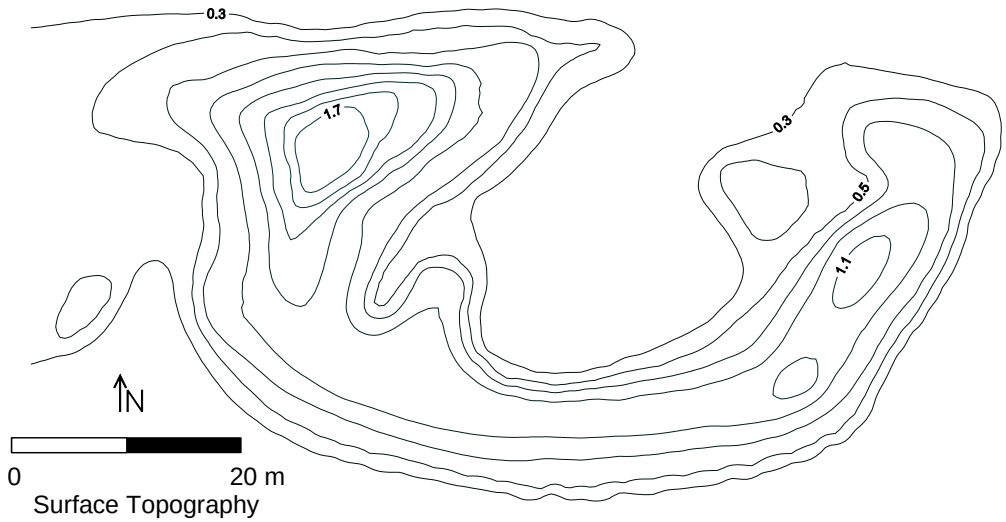
tempered, but suggested that the presence of fiber was likely accidental and that all sherds likely belonged to the sand-tempered Thoms Creek series (Edwards 1965:19). Trinkley (1976:19–20, 65) analyzed 335 sherds from this collection and identified them all as Thoms Creek. Russo and Heide (2003) placed a single 1-by-1-meter unit in the ring and recovered 156 sherds of the Thoms Creek series.
Russo and Heide (2003) recovered no artifacts other than ceramics. Edwards (1965) identified ten ceramic abraders, eleven baked clay objects with central holes, and "some three score of shell artifacts, the vast majority fashioned of conch." Based on photos of the shell artifacts provided in his report, the vast majority may have actually been whelk (*Busycon* spp.) rather than conch (e.g., *Melongena corona*.). But clam and oyster and ark shells are also shown in the photos, some of which are identified as "artifacts," others as "mollusks." Their use or fashioning as tools is not stated. As at most shell rings, the paucity of stone artifacts at Sewee was noted (Edwards 1965:25).

Edwards (1965) mapped the shape of the ring as a C. In fact, the shape had to have been a C for the ring to have worked as a fish trap. He hypothesized that daily tides brought fish in through the opening in the C, which was then sealed by a wooden weir to keep the fish in as the tide receded. Archeologists have agreed with Edwards that the ring was intentionally built with an opening (Gardner 1992:49; Stephenson 1973); have noted, without comment, that the ring is "incomplete" (Marrinan 1975:119); or have suggested that the opening was due to erosion (Cable 1995:108; Trinkley 1976). Russo and Heide (2003) probed beneath the marsh in the opening and found it to contain up to a meter of shell. They interpreted this to mean that the shape of the ring was actually originally a closed circle, albeit one with less shell present in the apparent opening than elsewhere in the ring walls (cf. Stephenson 1973). Here we list the current shape as a closed circle. But determination of the cause of the closure (e.g., intentional construction, colluvium) is certainly susceptible to further investigation.

The first radiocarbon date obtained from the site was reported as having come from charcoal (Anderson and Logan 1981:54; see also Gardner 1992:49; Trinkley 1980b:14). The actual lab sheet, however, identified the assayed carbon as having come from oyster shell. As such, the date of 3295 has been "corrected" in the summary table to 3675 +/-110 B.P., bringing it more in line with new dates obtained from the site (Russo and Heide 2003).

Big chunks of the ring have been removed by mining, and erosion has had an impact on its east side. Despite this, the ring remains in good condition. Its architectural integrity is sufficient to ascertain its original form. It was listed on the NRHP in 1970 (Hemmings 1970g).

Cannon's Point, 9GN57 — Potential NHL



Surface Topography
(after Marrinan 1975:26)
contour interval = 0.2 m

Shape	C
Diam. x Ht. (m)	79 x 1.8
Area Excavated (m^2)	63
Radiocarbon Dates	4085 +/-90; 4600 +/-90
Stone	2 PP; 1 GS; *flakes
Bone	25 pin; 15 other
Archaic Ceramics	639 fiber-tempered
Other	3 antler; 21 whelk; 2 other shell
References	DePratter 1976:131–132; Marrinan 1975

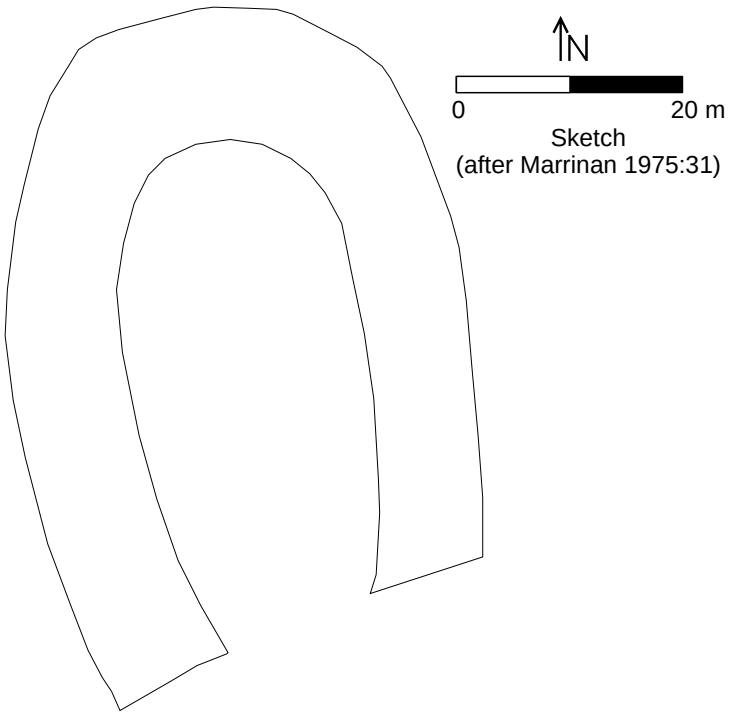
Typically, in U- and C-shaped shell rings the highest deposits of shell are found at the closed portion of the ring opposite the opening, while the lowest deposits are at the ends of the arms. Cannon's Point, sometimes referred to as Marsh Point, is unusual for a C-shaped ring in that its highest point is on the end of one of the arms. This may be due, in part, to the fact that the end is connected to the mainland, while the rest of the ring lies in the marsh.

Marrinan (1975:56) excavated nine 3-by-3-meter units around the ring, five in the ring and two in the plaza. This represents the first shell ring where fine-mesh screen (1/8- and 1/16-inch) were used to recover artifacts and faunal remains. Combined with the large numbers of units placed in the ring, the result was, for its time, an unusually large collection of artifacts for a shell ring. Marrinan recovered 639 fiber-tempered sherds and only nine grit-tempered sherds indicating predominant Archaic occupation. Additionally, thousands of pottery fragments too small for typological identification were also recovered. Bone pins (i.e., pins, awls, fragments) were abundant (Marrinan 1975:220–222). Only two projectile points and one ground stone implement were recovered— typical of the low numbers found at shell rings. But hun-

dreds of lithic flakes were recovered, indicating that when fine-mesh recovery is used, evidence of lithics may be found at shell rings, even if lithic points remain relatively sparse. Also recovered were twenty-one whelk pounding tools and one altered clam and one oyster (Marrinan 1975:239–247). The ring has produced very early radiocarbon ages. It is unusual in that a relatively large number of human remains have been recovered from it.

This potential NHL is a confirmed Archaic shell ring. Its condition in 1975 revealed a high integrity of form and context. Its condition is unknown today.

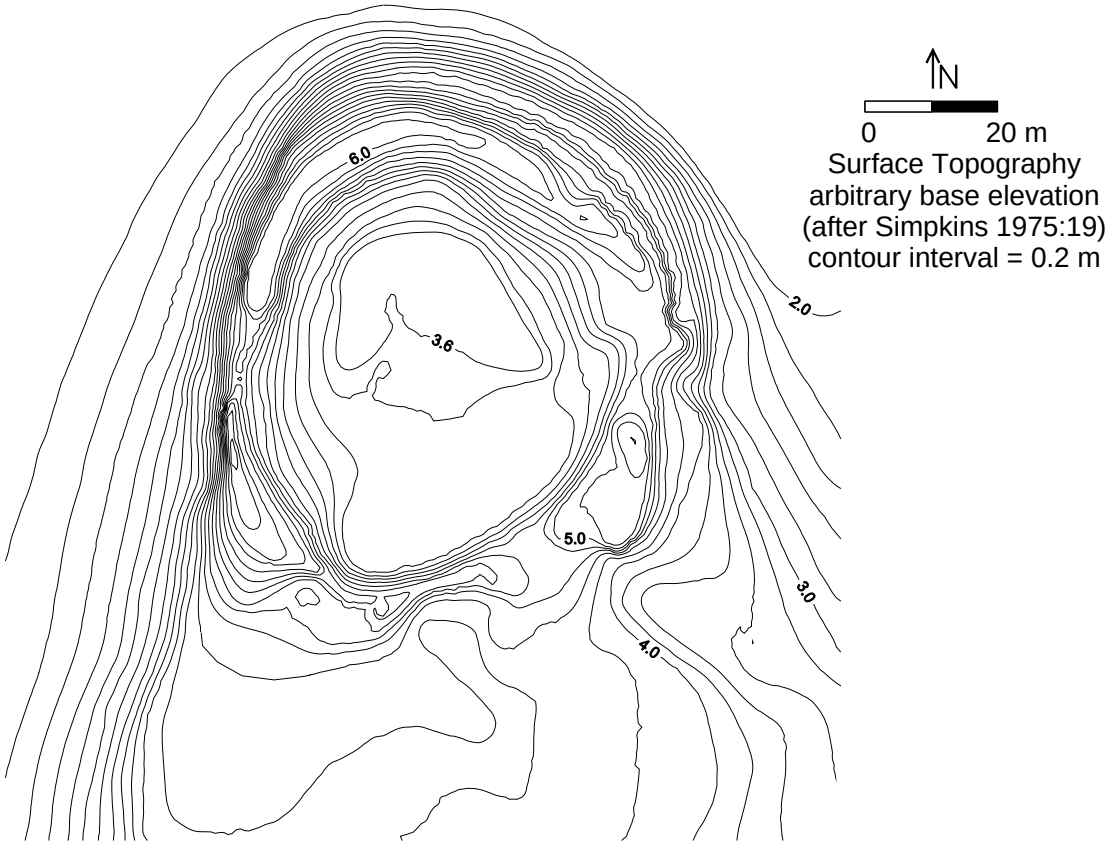
West, 9GN76 — Potential NHL



Shape	U
Diam. x Ht. (m)	58 x 0.65
Area Excavated (m^2)	8
Radiocarbon Dates	4015 +/-110; 4270 +/-90
Stone	56 flakes
Bone	14 pin; 5 other
Archaic Ceramics	92 fiber-tempered
Other	1 antler
References	DePratter 1976:133; Marrinan 1975

Marrinan (1975) only put two 2-by-2-meter units in this ring, which were sufficient to determine its Archaic origins. (Only 20 percent of all the sherds, and all of those in the upper 15 centimeters of the units, were from more recent precontact periods.) The shape of the ring has only been sketched, and it is unclear how its outline was determined, but DePratter (1976: 133) mentioned that it rises over 2 feet (0.6 m) above a sterile central plaza. Marrinan's test units went through at least 65 centimeters of shell. The ring is a potential NHL, but more investigation is needed to identify its boundaries, cultural affiliation, function, and current state of preservation.

Sapelo 1, 9MC23 — Potential NHL



Shape	closed circle
Diam. x Ht. (m)	80 x 2.7
Area Excavated (m^2)	225 to 273
Radiocarbon Dates	4010 +/-350; 4210 +/-350; 4120 +/-200; 3840+/-65; 3840+/-70
Stone	1 ball, 1 bead, 1 flint, 1 bannerstone
Bone	15 pin, 1 antler, 8 other
Archaic Ceramics	1,453 St. Simons/fiber-tempered (1,137 fiber-tempered in Waring and Larson 1968, plus 290 and 26, as reported in Thompson 2006).
Other	102 baked clay fragments, 1 shell bead
References	McKinley 1873; Moore 1897; Simpkins 1975; Thompson 2006; Waring and Larson 1968

The Sapelo I ring is arguably the most studied shell ring. First identified by McKinley (1873) in 1872, it was mapped shortly thereafter and dug by Moore (1897), who may have lost interest in it because it produced only "earthenware in fragments." Prior to their excavation, Waring and Larson (1968:268) stated that a 25-by-50-foot (7.6 x 15.2 m) hole was dug into the southern edge of the ring by the landowner's foreman. In addition, a 10-by-10-foot (3 x 3 m) pit was placed in the plaza, probably by Waring (Waring and Larson 1968:270). In 1968, Waring and Larson reported on their 1950 excavation of a 100-foot-long

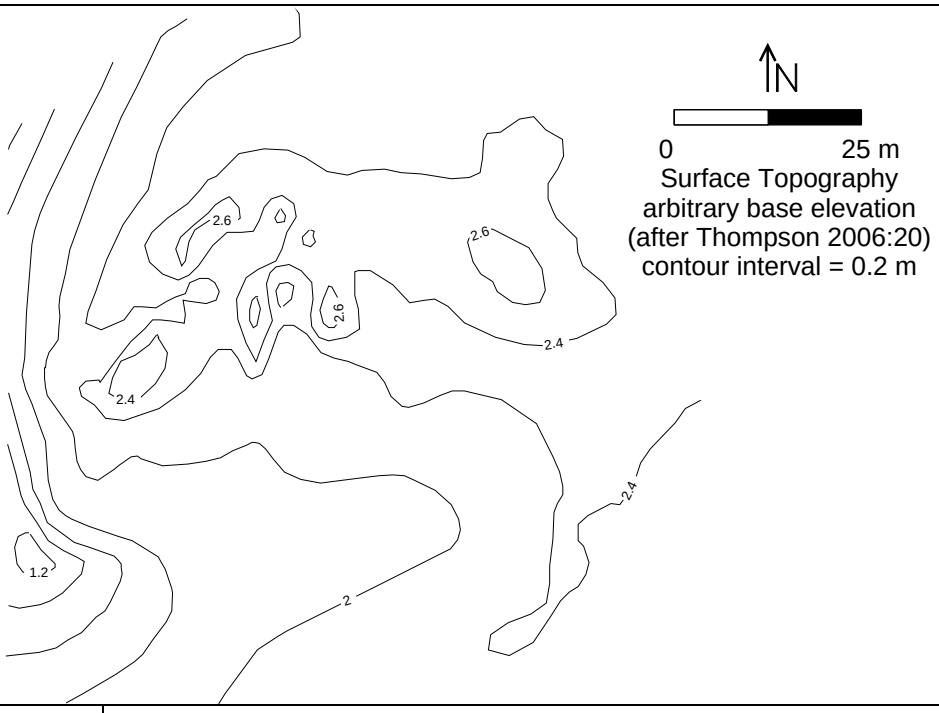
(30 m) trench that ranged between 10 and 15 feet wide (3 to 4.6 m). It consisted of four excavation units placed across the west wall of the ring extending into the plaza. In 1975, Simpkins reported on two 2-by-2-meter excavations he placed just outside the southern end of the ring (Simpkins 1975:63). In 2003, the University of Kentucky excavated a 1-by-2-meter unit "in a borrow area on the south side of Ring I" (Thompson 2006:107).

Although Thompson stated that they encountered "a low frequency of Archaic sherds," he also noted that only Archaic pottery was recovered from the excavation in which 20 centimeters of midden remained undisturbed by historic borrowing. Although Waring and Larson (1968) only listed the artifacts they recovered from Unit 4 in the ring, Thompson (2006:98–103) tracked down pottery from Waring and Larson's Units 1–3, presenting quantified totals by level for each unit for the first time, and reanalyzing some of the pottery that Waring and Larson reported on from Unit 4. Ceramic counts are incomplete because some artifacts had been lost in storage over the years. Of the ceramics identified, 80 percent in Unit 1 (n=131) were Archaic, 100 percent in Unit 2 (n=6), and 98 percent in Unit 3 (n=172).

In 1897, Moore provided a sketch map of Sapelo 1, showing it as a closed, fairly symmetrical circle. He suggested that the two other rings at the site mentioned by McKinley (1873) were no longer visible. He did not mention any evidence of shell borrowing at Ring 1 or around it. This is the first of many attempts to find the other two rings (see following sections). In 1975, Simpkins produced a detailed contour map of Ring 1 and the areas around it that were the supposed locations of Rings 2 and 3. Thompson (2006:82–84) reported that he had completed a new surface contour map, along with several geophysical maps of the ring complex. Both of their maps and excavations revealed that the south side of Ring 1 has been disturbed by borrowing since Moore's site visit at the turn of the nineteenth century.

Sapelo 1 is one of the best preserved and most studied shell rings. Its position as part of a three-ring complex adds to its importance. It is a potential NHL.

Sapelo 2, 9MC23 — Potential NRHP



Shape	closed circle
Diam. x Ht. (m)	75? x 0.9
Area Excavated (m^2)	16
Radiocarbon Dates	3955+/-65
Stone	0
Bone	0
Archaic Ceramics	366 St. Simons, 2 Thoms Creek
Other	0
References	McKinley 1873; Simpkins 1975:23–25; Thompson 2006:107–117

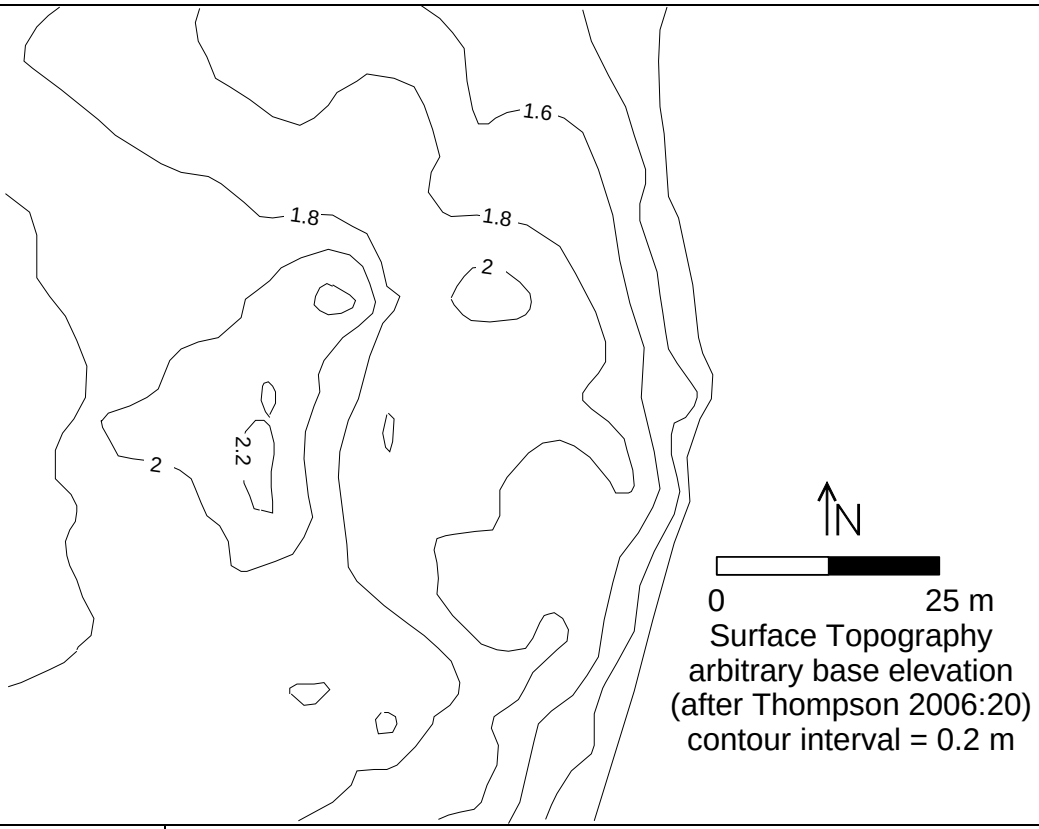
McKinley (1873) was the first to mention a second ring north of Sapelo 1. But Moore (1897) failed to see it a few years later. This began the debate as to whether Ring 2 can still be found at Sapelo, or ever existed. Larson (1998:30) suggested that McKinley may have been mistaken in his identification. Simpkins's map revealed no obvious surface topography to indicate the presence of a ring in the supposed location of Ring 2. However, Simpkins identified intact subsurface remains in the area (Simpkins and McMichael 1976:97). In 2003, Thompson conducted a geophysical survey of the area and found the subsurface, unmounded remains of the ring. His map suggested a ring measuring between 75 and100 meters in diameter (Thompson 2006:82). (The nature of such maps is difficult for any but experts to interpret, and Thompson does not state a specific size for the ring.) The ring's 90-centimeter height is taken from McKinley (1873:422), who stated it was "now rising 3 feet." A surface topography map made by Thompson (2006) showed a slight elevated arc in the area of the ring he identified as Ring 2.

Simpkins (1975) placed three 2-by-2-meter units in Ring 2, while the University of Kentucky placed one in 2003 (Thompson 2006:107). Thompson (2006:107–117) provided the counts and weights from both excavation projects, although not all ceramics from Simpkins earlier dig could be located for analysis. The upper levels of all these units contained mostly late precontact and historic artifacts along with fiber-tempered pottery, suggesting occupation and disturbance after the shell ring had been abandoned and mined. While Simpkins's units contained abundant shell, Thompson's unit apparently did not. Simpkins more likely placed his units in the ring wall, while Thompson placed his in the plaza, suggesting a reason for the differences in shell abundances (Simpkins 1976:19; Thompson 2006:113). A few lithic artifacts are listed by Thompson, but they apparently came from mixed contexts.

The radiocarbon date listed in the summary table is problematic. Relative to three dates they obtained from Sapelo Island, Noakes and Brandau (1974:132–133) stated that "Several shell ring middens exist on Sapelo. UGa-73, -74 are from a relatively undisturbed ring of ca 50m diam and 2 to 3m high. UGa-75 is from a remnant of one of the neighboring rings that were partially quarried." Assuming that Sapelo 1 is the "relatively undisturbed ring," then Sapelo 2 seems the likely candidate for the "neighboring ring" that was "partially quarried." Sapelo 3 seems a less likely candidate because it expressed even less surface topography and shell. In the table, we list the date as coming from Ring 2. Thompson (2006:183), however, interprets all three of Noakes and Brandau's dates as coming only from a "Sapelo UID ring."

Ring 2 has been severely damaged. Nonetheless, it contains much valuable information, especially as it relates to the early stages of shell-ring construction. As such, it is potentially eligible for listing on the NRHP. As a contributing element, it can also be considered for NHL status with Sapelo 1 and 3.

Sapelo 3, 9MC23 — Potential NRHP



Shape	oval?
Diam. x Ht. (m)	55 x 0.9
Area Excavated (m^2)	22
Radiocarbon Dates	3730+/-50; 3730+/-60; 3560+/-50
Stone	1 PP, 81 debitage
Bone	0
Archaic Ceramics	663 St. Simons
Other	0
References	McKinley 1873; Thompson 2006

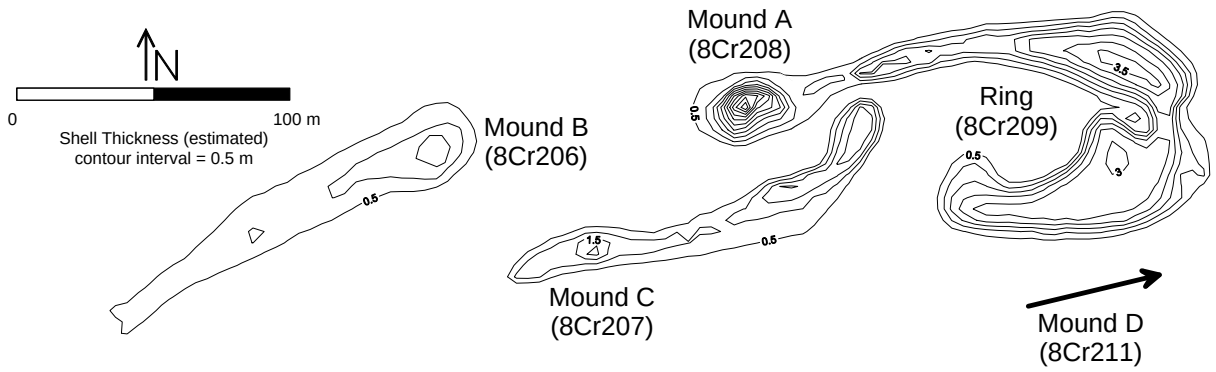
After McKinley's (1873) early identification of the Sapelo 3 ring, no archeologist recorded finding it again until 2003 when Thompson, using a geophysical survey, identified shell and midden deposits laid out in a circular formation at the location long-assumed to be that of Sapelo Ring 3. The shell he found was not mounded, existed mostly in pits, and lay in widely scattered deposits—a formation hardly resembling the contiguous mounded rings of shell that characterize shell rings. Thus, whether Ring 3, as with Ring 2, should be considered a shell ring is open to interpretation (see Coosaw III and Meig's Pasture). Fortunately, Thompson ground-truthed his geophysical assays sufficiently to conclude that the footprint of Ring 3 consisted of a series of discontiguous shell-filled pits separated by shell-free midden deposits. He hypothesized that the shell-free areas were domicile locations (Thompson 2006:223).

Based on McKinley's (1873) ambiguous statements that "circle No. 2…is 210 feet wide…on a mound now rising 3 feet (0.9 m)" and that "circle No. 3 is 150 feet (46 m) wide, just like No. 2," we concluded that McKinley must have meant that Ring 3 once stood 3 feet (0.9 m) high, "just like No. 2," since the two rings obviously had different widths. In contrast, Thompson (2006:83) wrote that "'just like No. 2' could mean a variety of things," and stressed that he does not take the statement "to mean that the height of Ring II was 3 feet." It is unclear what Thompson does think it means, if anything at all. But the issue is important in ring studies. If Sapelo Ring 3 was not ever mounded, as Thompson suggests, it represents the only known ring that was not. (The currently unmounded Coosaw Ring 3 had been leveled by plowing.) We describe the pattern of the deposits as oval, but whether the ring was ever a closed structure or contiguous deposit of shell is apparently a matter of debate. Despite McKinley's statement that Ring 3 was a mounded shell ring, Thompson concluded that it was never mounded, but rather a ring in the making that would have become mounded had building continued.

Eleven test units were excavated in Ring 3 by the University of Kentucky. In 2003, eight 1-by-2 meter units (Test Units 4, 5, 6, 8, 9, 11, 12, and 14), one 2-by-2-meter unit (Test Unit 7), and two 1-by-1 meter units (Test Units 10 and 13) were placed in the ring and plaza (Thompson 2006:97, 113). We conclude that the remains Thompson found represent the initial construction stages of a shell ring. Whether that ring was planned or actually did later rise above ground level is open to further study. But Thompson has shown that significant deposits capable of yielding important information (Criterion D) remain at the site. As such, it is potentially eligible for listing on the NRHP. As a contributing element, it can also be considered for NHL status with Sapelo 1 and 2.

Horr's Island, 8CR209; Mounds A–D :8CR206–208, 211

Potential NRHP-Mounds A & D



Shape	U with attached and detached mounds, ridges, and ramp
Diam. x Ht. (m)	160 x 4.5
Area Excavated (m^2)	741
Radiocarbon Dates	4015+/-75; 4190+/-85; 4285+/-100; 4290+/-80; 4295+/-75; 4375+/-85; 4425+/-85; 4470+/-80; 4480+/-80; 4500+/-100; 4520+/-85; 4660+/-90
Stone	102 lime-sandstone, 1PP, 4 GS balls, 19 flakes
Bone	0
Archaic Ceramics	0
Other	1,654 shell
References	McMichael 1982; Russo 1991, 1994

Horr's Island is a shell-ring complex that includes a large shell ring; four shell/sand ceremonial mounds, one of which is 5 meters tall and connected directly to the ring; a shell ridge not directly connected to the ring; and a shell ramp leading into the ring (Russo 1991, 1994). All these prominent shell features have been identified as Late Archaic through a series of radiocarbon dates, most of which fall between 4200 and 4800 B.P. (Only the ring, and not the associated feature dates are listed in the summary table.) The height mentioned above refers to the depth of the thickest midden deposits at Mound A. Other ring deposits away from the mound measure up to 3.5 meters deep. The ring complex itself rises 7 to 14 meters above the adjacent bay at sea level.

Because Horr's Island was investigated under cultural resource contracts prior to its planned destruction, much more area was exposed than is typical with other shell-ring investigations. Both McMichael (1982) and Russo (1991) used heavy equipment to open large areas in the rings and mounds. Russo, in fact, used the machinery to reopen trenches dug some ten years earlier by McMichael. One reason McMichael may not have recovered artifacts (see further) is that he did not examine spoil produced by the backhoe. Russo placed excavation units next to trenches and screened all the materials recovered through nested meshes

(1/16-, 1/8-, and 1/4-inch), with the 1/4-inch mesh producing the greatest numbers of artifacts, and the smaller meshes greater numbers of vertebrate faunal remains.

McMichael placed a large number of shovel tests in advance of his backhoe operations. No artifact descriptions or enumerations were reported. But it is likely that only shell, not artifacts were identified at the sites (McMichael 1982:41), and he either did not recognize shell artifacts or did not attempt to recover them. Subsequently, he placed four backhoe trenches across the ring and mounds, each between 1.5 and 2 meters in width and 4 and 8 meters in length (McMichael 1982:44, 50). Russo (1991) backhoed fourteen 1-meter-wide trenches varying in length from 10 to 96 meters across the rings and mounds. In addition, Russo placed forty-one units along the trenches; these ranged between 0.5 by 1 meter and 3 by 8 meters. Together, Russo and McMichael's excavations totaled 741 square meters.

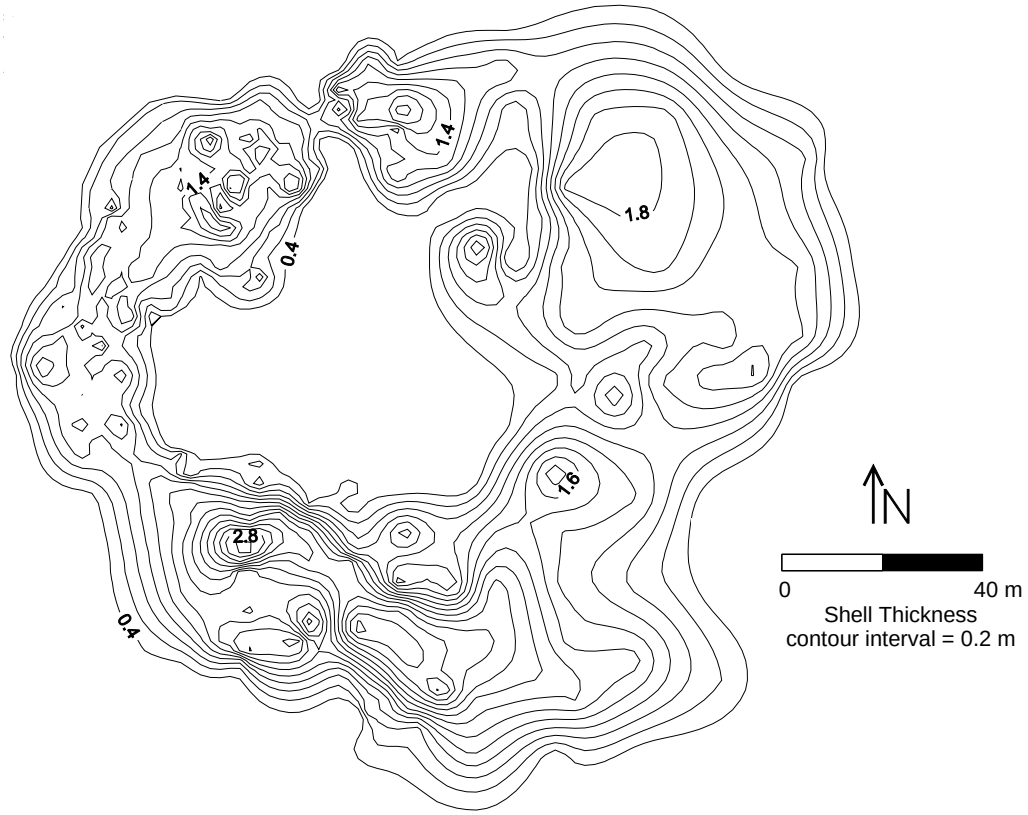
The Horr's Island complex and the South Carolina and Georgia rings have in common the limited presence of stemmed Archaic projectile points and chert debitage (1991:369, 612). Groundstone tools were far more abundant at the Horr's Island site (Russo 1991:594–617). These included eighteen metate fragments, four abraders/sharpeners, and forty miscellaneous stones of unknown purpose. At least four stones were ground into balls, which may have served as net weights. All the artifacts were made from the local limestone and sandstone, unusable for chipped stone tools, but apparently very useful in other ways. Uncollected and numerous many large limestone slabs used to line open camp fires.

The Horr's Island site produced a far wider diversity of shell tools (Russo 1991:594–617). These included whelk preforms, cups, dippers, scoops, hammers of numerous types, grinders, chisels, celts, adzes, other cutting-edge tools, columella awls, pins, and pounders, as well as hard clam anvils and notched tools used for chopping and digging. Similar tools were made from conch (e.g., *Strombus* sp. and *Pleuroplaca* sp.). Perforated arc and scallop shells were abundant and likely used as net weights and decoration; a few shell beads and perforated oliva shells were recovered.

Further distinguishing the Horr's Island assemblage was the absence of bone pins and ceramics. The latter is understandable in that the site predates all of the Georgia and South Carolina shell rings by a few hundred years and, as such, predates the adoption of pottery in the southeastern United States. The absence of bone pins, however, is presumed to reflect differences in culture traditions.

The shell ring has been largely destroyed by development, and it is unclear how much of the ring remains intact under the homes. On a recent visit to the site, there were indications that homebuilders are mining the few undeveloped lots for shell and using it as landfill. Mounds A and D were preserved through community covenants with the state of Florida. They remain intact, and presumably are protected. Mounds associated with shell rings are significant architectural features, in part, because they are so rare and because the hold high integrity. These aspects make the site a potential NHL. Any unaffected remnants of the shell ring could be contributing elements to the mound nomination.

Oxeye, 8DU7478 — Potential NHL



Shape	closed circle
Diam. x Ht. (m)	160 x 3
Area Excavated (m^2)	7
Radiocarbon Dates	4370+/-80; 4400+/-60; 4570+/-70; 4580+/-80
Stone	1 ochre, 2 flake
Bone	1 pin,, 1 alligator tooth, 1 deer
Archaic Ceramics	>15? Orange
Other	1 antler, 2 whelk, 122 baked clay object
References	Russo 2004; Russo and Saunders 1999; Russo et al. 1992

Oxeye seems to represent Florida's only closed-circle shell ring. Caution is warranted because less than half the circle is apparent. The site lies in a marsh setting and is recognizable on the surface only by the presence of a few small islands of shell in an arc protruding above the marsh. Sea level has risen and buried most of the ring beneath the marsh muck. Systematic soil probes, however, revealed a complete circle

of shell, with the eastern half and portions of the southern rim lying buried 0.1 to 2 meters beneath the marsh (Russo 2004).

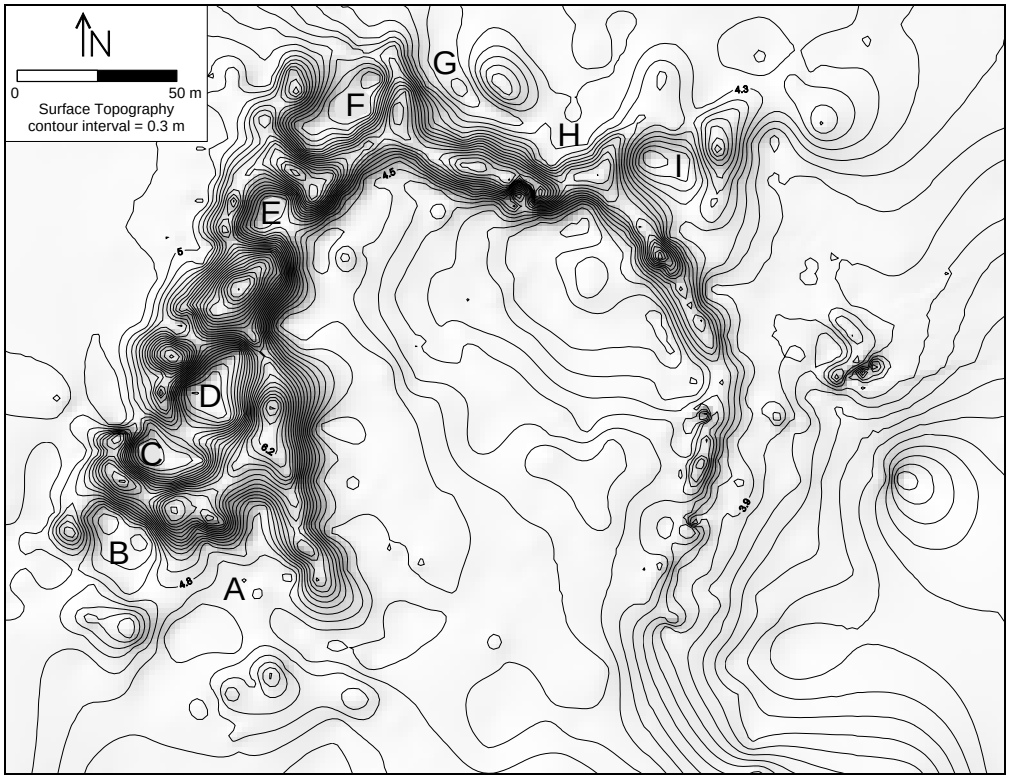
In total, eight 50-by-50-centimeter shovel tests were dug into the buried portions of the ring. Four of these revealed shell, vertebrate remains, and well-preserved botanical remains, including green palm leaves, hickory shell, and cut cedar and cypress branches dating to the Late Archaic. On the upland western side of the ring, a 1-by-9-meter trench (Trench 1) was placed with units dug every other meter (Units 1, 3, 5, 7, and 9).

Oxeye is a pre-pottery Archaic shell ring. Its radiocarbon ages indicate it was constructed a few hundred years before the introduction of fiber-tempered pottery in the region, thus it lacks Archaic-period ceramics except in surface and disturbed contexts. No detailed report was written on the site's 1998 excavations and mapping (Russo and Saunders 1999). However, the field specimen catalogue noted that fiber-tempered pottery of unstated amounts may exist in FS 25, which, at 80 centimeters below surface, is a fairly deep provenience within the shell ring at Trench 1, Unit 7. While, at first glance, this deep recovery seems to suggest that part of the ring midden dates to the Late Archaic ceramic Orange period, the field form for that level suggests that the artifacts were in an area of disturbed context. At another part of the site, nine very small, residual sherds were recovered from Shovel Test 2 at 1.5–1.7 meters below surface, an even deeper context. These were tentatively identified as fiber-tempered Orange sherds. However, the sherds were from a test in which the shell midden was buried beneath 1.5 meters of marsh. In essence, these sherds were taken from the surface of the ring, a surface that has been subsequently buried under thick marsh deposits. Aside from these, only four fiber-tempered sherds and one Deptford sherd have been definitively identified, and these on the surface of the site. An earlier, preliminary survey placed four shovel tests. Of the two Orange sherds recovered, one was from the surface; the other's context was not noted (Russo et al. 1992:69). In short, the ceramic evidence alone suggests that the site is a preceramic Archaic shell ring, at which minor occupations of Orange-period peoples occurred on the surface.

Other artifacts were similar to those found in later South Carolina and Georgia shell rings. These included 106 baked clay objects and fragments collected in 1998 and 16 collected in 1993. While Russo struggled to identify the clay fragments in 1993, with the larger sample in 1998, he recognized them as baked clay objects (Russo and Saunders 1999). A number of the 1998 specimens had large, spherical shapes. Other artifacts included a drilled deer bone, a piece of ochre, a cut antler tine, a worked alligator tooth, a bone pin, a whelk adze, a whelk hammer, and a whelk "tool." Only two small lithic flakes were recovered.

The Oxeye site is a potential NHL. It not only lies within the boundaries of the National Park Service's Timucuan Ecological and Historic Preserve, but the portions submerged beneath tidal waters are owned by the state of Florida, which protects it from development. Because of its off-shore placement deep in the marsh, over time large portions of the site have been buried and preserved under protective sediments. Unique on the Atlantic coast because of its pre-pottery age and artifact assemblage, Oxeye could potentially yield valuable information on the effects of sea-level rise on the environment through soil, faunal, botanical, artifact, and architectural analyses. It could also provide answers to important questions about changes from pre-pottery to pottery-making technologies. Finally, despite being partially submerged, enough of the property is visible to convey its significance under Criterion 4.

Rollins, 8DU7510 — Potential NHL



Shape	C with attached ringlets
Diam. x Ht. (m)	235 x 3.5
Area Excavated (m^2)	95.25
Radiocarbon Dates	2460+/-70; 2690+/-60; 3600+/-60; 3630+/-70; 3710+/-70; 3730+/-80; 4370+/-80; 3760+/-60; 3820+/-70; 3840+/-70; 3930+/-80; 4150+/-60
Stone	10 flake/shatter, 13 sandstone, 1 hammer, 1 cobble, 2 celt fragments, 18 other
Bone	23 pin fragments, 1 bead, 2 turtle
Archaic Ceramics	9,522 Orange
Other	36 whelk
References	Russo and Saunders 1999; Russo et al. 1992; Saunders 2003

The Rollins shell-ring complex consists of one primary C-shaped ring measuring 235 meters across, with a 130-meter plaza. It is unusual for both its large size and the attachment of up to nine rings (otherwise referred to as ringlets [Russo and Saunders 1999]) to the outside of the primary ring. Despite the diminutive nomenclature, the ringlets are substantial constructions, some exceeding 80 meters in diameter.

During the initial survey, 219 test pits, measuring 0.5 by 0.5 meters, and two 1.5-by-1.5-meter excavation units were dug to delineate the site (Russo et al. 1992:94). Later, Saunders dug ten 1-by-2-meter units

(mostly in ring and ringlet plazas) and a 1-by-16-meter trench across a western ring wall. The earlier survey recovered 1,191 Orange sherds and four non-descript lithics. Saunders recovered 8,331 Orange sherds. Both projects revealed that ceramics from the ring were nearly exclusively Orange wares (Russo 1991:Figures 19–22; Saunders 2003:28). Subsequent Woodland cultures used the site, but their ceramics were found mostly outside the main ring on the eastern side and in small numbers in the ringlet plazas. Even here, however, Orange ceramics dominated the assemblages. The two Early Woodland radiocarbon ages likely reflect Woodland intrusions into otherwise Archaic contexts. As with most rings, chipped stone artifacts are few, save for debitage, while bone pin fragments are relatively common. Whelk tools of a wide variety of types (punches, gouges, cutting-edge tools, and hammers) were relatively abundant in the ring, though not in the plazas (Saunders 2003:23).

Rollins is managed as a part of the Talbot Islands State Park. It also lies within the boundaries of the National Park Service's Timucuan Ecological and Historic Preserve. It may have once been connected by a lengthy causeway or ridge of shell to a large mound at a considerable distance from the ring, both of which have subsequently been destroyed (Russo et al. 1993). Today, a central ring with attached ringlets is a settlement plan found elsewhere at ring sites only at Fig Island 1. At Fig Island 1, however, the main ring's plaza is the smallest known (30 m), while the ring itself is the tallest (6 m). At Rollins, the plaza is, horizontally, among the largest (135 m), and the ring walls not nearly as tall (3 m). The origins of these differences could provide insight into the complex social structures that guided the construction of the rings. As such, Rollins is a potential NHL.

Reed, 8MT13 — Potential NHL

Shape	U or C
Diam. x Ht. (m)	250 x 1.7
Area Excavated (m^2)	4
Radiocarbon Dates	2850+/-130; 3280+/-60; 3280+/-80; 3340+/-60; 3425+/-75; 3455+/-80
Stone	4 flake, 313 limestone, 3 sandstone
Bone	2 pin fragments
Archaic Ceramics	44 spiculate, 19 sand-tempered
Other	0
References	Fryman et al. 1980; Russo 2004; Russo and Heide 2000, 2002, 2004

The current configuration of the Reed Shell Ring is best described as a modified C. The northern arm, in particular, is too short relative to the width of the ring to be classified as a U-shape. As the ring abuts the Atlantic, there is good reason to believe that this arm and the longer southern arm have been shortened by storm and beach erosion (Fryman et al. 1980; Russo and Heide 2000). Its current length has been measured as if it is a C-shape, the distance from the end of the northern arm to the end of the southern arm, i.e. a half circle. But if it was a U-shape originally, its distance may be slightly shorter, based on a measure from the closed end to the end of the southern arm. Kennedy (1966) produced a surface contour map of the site. But its contour intervals are not consistent, or even readable in some cases. The midden's height listed in the summary table was based on excavation profiles (Russo and Heide 2000), not the height indicated in Kennedy's map. Although not particularly high, the ring is, horizontally, among the largest (cf. Bonita Bay and Rollins). Its wall has been breached in a number of places by storms and possibly modern drainage projects.

In the initial survey of the site, a single shovel test placed in the ring was aborted when a compacted layer of shell was encountered (Fryman et al. 1980:40). A single St. Johns sherd was recovered from that test. Two other shovel tests and probes in the plaza revealed it to be absent of midden or artifacts. Following a literature search of the site, Carr et al. (1995:54–55) noted that St. Johns sherds had been recovered from the ring. Catalog records at Florida Atlantic University identified these as five St. Johns sherds that were surface collected and a human skull of unknown provenience. In a 1999 letter to Russo, William J. Kennedy wrote that he collected the sherds while mapping the site in 1966.

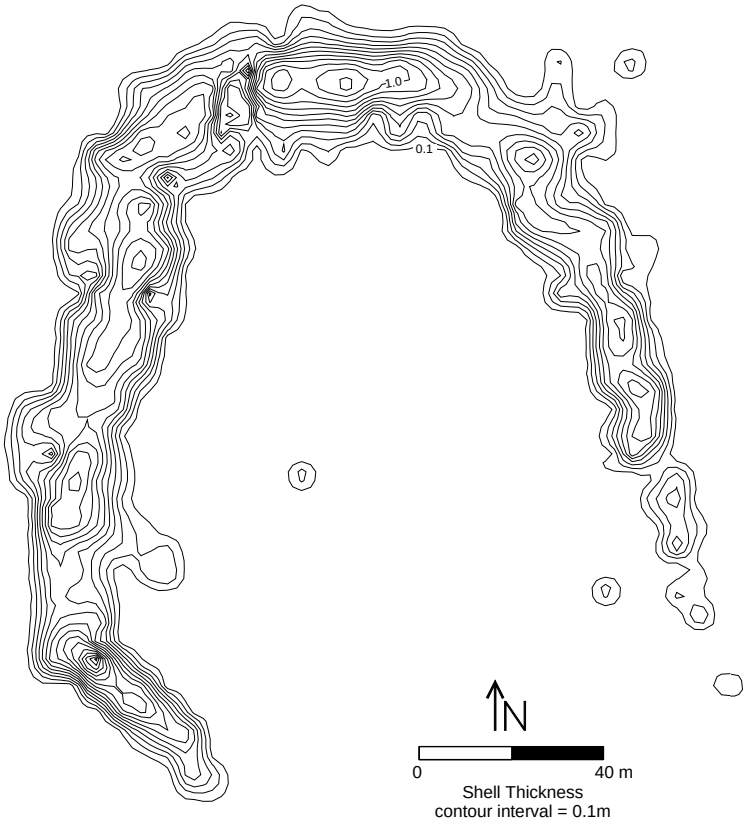
In 1999, three 1-by-1-meter units were successfully placed in the ring, reaching the bottom-most ring deposits. A fourth unit in the plaza area revealed only storm tossed beach sand and debris (Russo and Heide 2000). The numerous limestone fragments may represent in situ deposits rather than manuports. Other than ceramics, only four chipped flakes and 2 bone pin fragments were definitively identified. Shell tools are usually abundant at rings along the Florida Gulf coast (e.g., Horr's Island); the relative paucity of shell tools at the Reed ring is more typical of Atlantic coast shell rings.

The Reed Shell Ring is unusual in yet other ways. Its radiocarbon ages makes it the last Late Archaic shell ring ever built. Only Lighthouse Point has comparably late radiocarbon assays (Russo and Heide 2000:9). The southernmost Atlantic-coast ring, Reed stands in geographical and cultural isolation, lying approximately 170 miles from its nearest ring, Bonita Bay on the Gulf of Mexico, and 250 miles from the Guana Shell Ring on the Atlantic. In contrast, all other shell rings are found within a few miles of one another, and never more than 25 miles distant (e.g., Meig's Pasture and Buck Island).

Reed's cultural isolation, however, is more than geographical, as reflected in its pottery. Its ceramics are unique in that they represent two series, Glades sand-tempered and St. Johns spicule-tempered wares, neither of which shows up elsewhere in Florida for another 1,000 years. The Reed Shell Ring seems to be among, if not the first site in south Florida where the adoption of pottery occurs. In this sense, the site is like many other shell rings where regional pottery types, such as Thom's Creek, Stallings, and Orange wares, mark their initial or early appearances. The difference at Reed is that, to date, no other Late Archaic sites in the region have yielded these pottery wares. In fact, no other shell-ring site of *any* type is known to reflect Reed's age and ceramic traditions.

Because Reed Shell Ring has the earliest pottery in the region, is a founding site on the coast for the period, is one of the largest rings, is the last Archaic shell ring ever built, and remains largely intact despite probable erosion on its eastern side, it represents an invaluable resource for understanding the rise, function, and social use of shell rings. It qualifies as a potential NHL.

Guana, 8SJ2554 — Potential NHL



Shape	U
Diam. x Ht. (m)	170 x 1.3
Area Excavated (m^2)	63.5
Radiocarbon Dates	2740+/-70; 2880+/-70; 3490+/-60; 3590+/-70; 3600+/-50; 3620+/-70; 3720+/-60; 3740+/-70; 3820+/-70; 3860+/-60
Stone	9 steatite, 2 PP fragments
Bone	8 pin fragments, 2 bead
Archaic Ceramics	>1,205 Orange
Other	21 whelk
References	Russo et al. 2002; Saunders and Rolland 2006

This shell midden was first recognized by Tesar and Baker (1985) as a possible Late Archaic ring-shaped shell midden based on an Orange sherd found at a tree fall and, apparently, a semi-circular shape of shell on the surface. Newman and Weisman (1992) suggested the site was similar to South Carolina and Georgia shell rings. Investigation of the subsurface aspects of the site occurred a decade later (Russo et al. 2002). The investigators conducted an intensive, close-interval testing and mapping program across the entire site producing precision maps of the surface topography and shell distributions. In the field, the

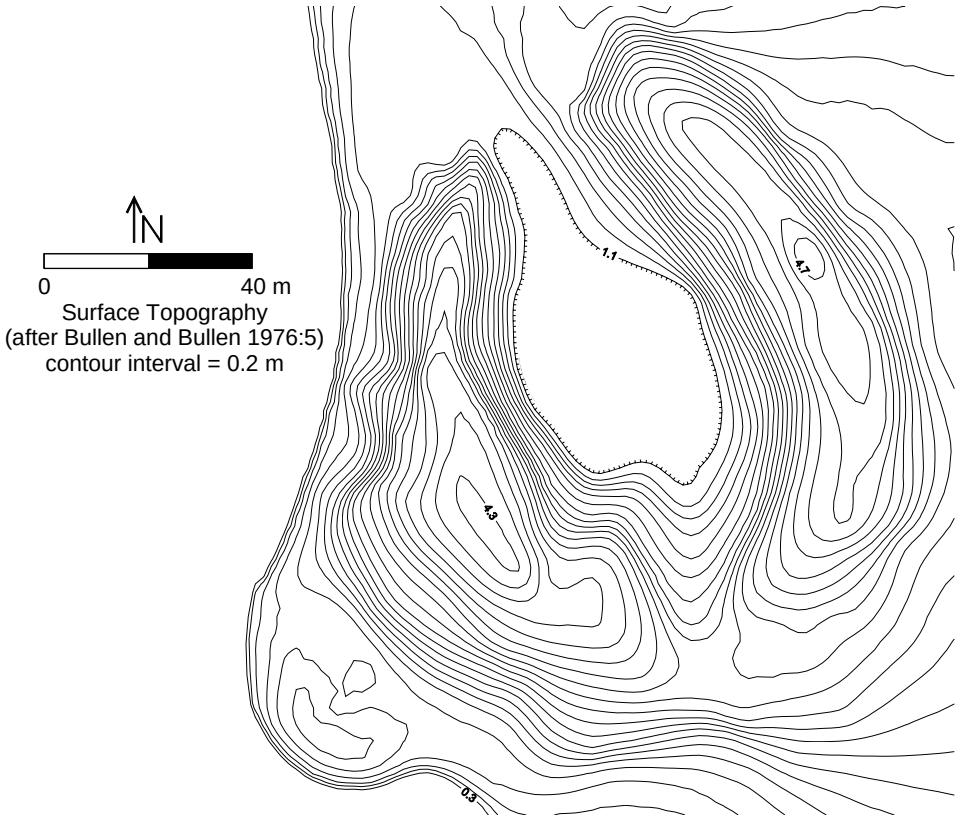
shape of the ring could not be easily discerned in a single view due to its large size and heavy vegetation. But the shell distribution map clearly showed a U-shaped ring with a central plaza.

Russo et al. (2002) systematically placed 50-by-50-centimeter shovel tests across the plaza and exterior of the ring (n = 130), and ring edges (n = 39) at 10-meter intervals. Results from these tests have not yet been written up. In addition, thirteen shovel tests were placed at 30-meter intervals around the apex of the ring itself, and a 1-by-2-meter unit at the closed end of the ring (Russo et al. 2002:14). Saunders and Rolland (2006) placed four 2-by-2-meter units in the plaza area adjacent to the southwest ring wall. They based this placement on shovel test data (Russo et al. 2002), which revealed an unusual amount of shell for plaza otherwise free of dense shell deposits.

Russo et al. (2002:15, 29) recovered 1,003 fiber-tempered sherds, of which only 156 were sufficiently large or well-preserved to be identified as decorated or plain Orange types. Saunders and Rolland (2006:49–51) recovered 2,705 sherds, of which only 249 could be typed. Of these, 202 were of Orange types. This should not be interpreted as meaning that only 7 percent of the total sherds were Orange. Rather, their analysis was geared to distinguishing plain from decorated Orange sherds to get comparative ratios; they chose not to attempt to identify sherds smaller than 3 centimeters in size. Thus, most of the sherds were not reported as to type, but most were fiber-tempered. They also recovered four whelk tools, three pieces of steatite, two bone pin fragments, and a bone bead from Orange contexts (Saunders and Rolland 2006:54). (Sixteen expedient bone tools are not included in the summary table.) Non-ceramic artifacts have not been reported from the Russo et al. (2002) survey. But preliminary data sheets indicate five steatite, two projectile point fragments, fifteen lithic flakes, six bone pin fragments, a bone bead, and seventeen whelk tools.

Guana Shell Ring lies within the boundaries of the Guana River State Wildlife Management Area and, as such, is preserved and protected by the state of Florida. A dirt road, used by maintenance personnel and rangers, runs through the site. Day hikers use the road as a trail. The low-lying site is well preserved, but is not observable from the road except at the point where it crosses the closed end of the ring. With its opening to the southeast, it is similar in shape (sans the ringlets) and orientation to the Rollins Ring, its closest ring neighbor. With their proximity and similar artifacts and radiocarbon ages, the two sites seem to reflect a common tradition of shell-ring construction and culture. Together or separately, they are potential NHLs.

Hill Cottage, 8SO2 — Potential NHL



Shape	U
Diam. x Ht. (m)	140 x 4.2
Area Excavated (m^2)	>36
Radiocarbon Dates	n/a
Stone	7 balls, 1 limestone metate, 4 fossilized manatee rib mano
Bone	23 pin/awl, 2 shark bead
Archaic Ceramics	37 Orange/fiber-tempered
Other	847 whelk/conch, 3 shell bead, 18 perforated shell, 11 clam tools
References	Bullen and Bullen 1976; Sarney 1994

Bullen and Bullen excavated one trench and five units, and twelve shovel tests. No artifacts were recovered from the plaza. Prior to the construction of a sewage lift station in the ring, a 2-by-2-meter unit and a 1.5-by-0.5-meter unit were excavated (Sarney 1994:48). These units yielded 12 Orange/fiber-tempered sherds, 4 bone pin fragments, a worked antler, 17 columella hammers, 3 gastropod pounders and 5 hammers, 2 whelk dippers, a whelk adze, 4 perforated ark shells, 534 pieces of debitage from the manufacture of whelk and conch tools, 1 limestone metate, 1 fossilized manatee rib mano, as well as other artifacts. The summary table includes these artifacts, as well as those enumerated by the Bullens (1976:7–18).

Although Bullen and Stoltman (1972:50 [see Sarney 1994:19]) apparently suggested that the shape of the Hill Cottage midden implied a relation to the Georgia and South Carolina Archaic shell rings, it was Sarney (1994) that first described in detail the commonalities this site had with other known shell rings. Its U-shape is typical of most other shell rings in Florida (Guana, Bonita, Horr's Island, Reed, and Rollins). It appears to have been constructed during both the preceramic period and the initial period when fiber-tempered ceramics were introduced in the region. As such, it holds the promise of providing valuable information on the development of pottery, changes in social formations, and connections to other regional cultural traditions. Hill Cottage is currently being held for the public's benefit by a private concern dedicated to preserving this and other historic resources on the managed property. It is part of a larger site (8So2) listed on the NRHP. Its shape is preserved and its integrity is high, despite paths, buildings, and excavation units still present. It is a potential NHL.

G. Geographical Data

The broadest geographical extent of known shell rings stretches along the coast from mid-South Carolina to Mississippi. Because the cultural affiliations of the northernmost rings in South Carolina and the westernmost rings in Mississippi are of groups known to extend farther north and west respectively, it should be expected that other shell ring might be found beyond the known boundaries, from the northern border of South Carolina to Louisiana. Shell rings have been found on barrier and other coastal islands, along ocean shorelines, on and beneath marshes and mangroves, and along freshwater rivers entering into estuaries. Dependent on coastal shellfish for their construction, shell rings are perforce limited to the coastal zone. Archeological sites in interior riverine areas have been identified as constructed from freshwater shellfish remains in circular to semi-circular patterns (e.g., Phillips 1970:266, 270; Rouse 1951:128). These sites fall outside and are not elements of the geographic boundaries of the Late Archaic shell-ring building traditions.

H. Summary of Identification and Evaluation Methods

Currently there are no Late Archaic shell rings that have been granted National Historic Landmark status. One, the Long Field Crescent, was listed as a contributing element of the St. Catherine's Island National Historic Landmark in 1969, although it was not recognized at that time as a Late Archaic shell ring. In addition to this site, twelve more Late Archaic shell rings are listed on the National Register of Historic Places (Table 9). Eleven are in South Carolina. Nine of these were listed in 1970 under the theme "The Original Inhabitants." Spanish Mount was listed in 1974, but as a shell midden, not a ring. Later it was suggested to be the remnant of a shell ring (Cable 1993). The NRHP nomination forms for the listed rings served as primary sources of information presented here (specifically the Hanckel, Horse Island, Buzzard Island, and Auld shell rings).

The Hill Cottage shell ring is identified by the state site number 8So2, which is an historic site consisting of a number of standing structures, precontact shell middens and a burial mound. The larger site, 8So2 is listed on the National Register (Matthews et al. 1975) with the Hill Cottage shell ring included within the boundaries, but not specifically identified as a Late Archaic shell ring.

Lighthouse Point was nominated in 1990 (Lawrence 1990a) as part of the National Register of Historic Places Multiple Property Documentation Form entitled "Late Archaic-Early Woodland Period Shell Rings of South Carolina, ca. 1000–2200 B.C." (Lawrence 1990b). The Keeper of the National Register signed the document that same year, and at this time Lighthouse Point was listed. This multiple listing document also included Guerard Point, Barrows, Patent, and Bull Island as rings that required more mapping and study to confirm their eligibility for listing on the NRHP. It was suggested that Guerard Point probably lacked integrity of form to be listed. Broad River and Medicine were also listed as potentially eligible. These last two sites have been mapped and tested by this historic context and determined not to be Late Archaic shell rings.

Table 9. NRHP Listed Shell Rings and Possible Shell Rings.

Site Name	*Site No.*	*Year*
Hill Cottage	8SO2	1975
Long Field Crescent	9LI231	1969
Sea Pines	38BU7	1970
Skull Creek	38BU8	1970
Chester Field	38BU29	1970
Hanckel Mound	38CH7	1970
Lighthouse Point	38CH12	1990
Horse Island	38CH14	1970
Buzzards Island	38CH23	1970
Auld	38CH41	1970
Fig Island	38CH42	1970
Sewee Mound	38CH45	1970
Spanish Mount	38CH62	1974

DETERMINING THE HISTORIC CONTEXT FOR ARCHAIC SHELL RINGS

Shell rings are circular to semi-circular deposits of marine shell found along the coasts of South Carolina, Georgia and Florida. (Two rings were once located near the mouth of the Pearl River near the Mississippi Gulf coast. However, these have been destroyed.) The shape of shell rings has fascinated archeologists and other chroniclers since the 1800s, but relatively few rings have been studied in any detail. Over the last two centuries four stages of investigative methodologies have characterized ring studies. Examination of the literature produced from these periods of investigation has provided the documentation employed to identify and evaluate shell rings' potential for listing as NHLs under this historic context.

Stage 1, 1802–1925

Chroniclers and antiquarians did little more scientific inquiry than to estimate the rings' shapes and sizes. Their possible functions were speculated. The conjectures included the use of the rings as disposal areas, villages, gaming arenas, political centers, storm refuges, and forts (e.g., Bragg 1925; Drayton 1802; McKinley 1873; Moore 1897). Few excavations were ever conducted (cf. Moore 1897). Six ring sites in Georgia and South Carolina were recognized at this time: Sapelo, Guerard, Stratton Place, Lighthouse Point, Fig Island, and Buzzards Island. McKinley's 1873 observations provided some of the only information on the sizes of Sapelo rings 2 and 3 for years to come.

Stage 2, 1932–1975

The first scientific investigations and preservation efforts on shell rings began during this period. The studies of this stage are typified by trenches cut across ring walls. While a large number of shell rings were identified during this era, the period is also equally notable for its under-reporting and limited analyses of the rings.

Large-scale excavations were conducted at the Chester Field shell ring in 1932 and 1933 although the results of these excavations were belatedly and never fully reported (Flannery 1943; Ritter 1933). In 1950, a trench was excavated through a wall of the large ring on Sapelo Island. Again, those results were not reported for many years after the fact (Waring and Larson 1968). By the 1960s small excavations had been conducted at Skull Creek, Sea Pines, and Sewee (Calmes 1967; Edwards 1965). These reports or summaries of the findings were never published, and notes, maps, and photographs have since been lost.

In 1970, the South Carolina Institute of Archaeology and Anthropology (SCIAA) conducted a survey of shell rings in South Carolina. In all, they identified 18 shell rings, nine of which were nominated and listed on the NRHP (Table 9)(Hemmings 1970f:9). Unfortunately, no full report on these findings was ever published, and it remains unclear as to exactly which shell rings were surveyed (cf. Hemmings 1970f), or why only 9 were nominated. A trench was placed across the east wall of the Fig Island 2 represent the largest excavation conducted during the survey.

These small excavations and trenches across ring walls were conducted to recover artifacts and datable materials in order to determine the cultural affiliation of shell rings. The development of cultural chronologies and identification of cultural regions was a typical subject of study at the time, and ceramics from shell rings in Georgia and South Carolina were often used to establish temporal and cultural linkages (e.g., Caldwell 1952; Waring 1968b; Griffin 1943). Most rings in South Carolina were determined to have been made by Thoms Creek pottery-producing peoples (Trinkley 1980b), while those in Georgia were identified as being made by Stallings/St. Simons wares producing peoples (DePratter 1975).

Notes on the internal structures of the rings were made, and the insight that rings were constructed from piles of shell intermixed with "kitchen midden" was established (e.g., Calmes 1967; Edwards 1965; War-

ing and Larson 1968). Speculation not only as to the function of rings continued (ceremonial versus habitation were the dominant discussion themes), but also as to how rings were constructed (accretion versus intentional piling). The first (and only to that point) contour maps of shell rings were made of the Sewee ring (Edwards 1965), Fig Island 1 and 2 (Hemmings 1970f) and the Reed shell ring in Florida, although the latter was not recognized as a shell ring at the time (Kennedy 1980[1966]). However, Hemmings did provide numerous sketch maps of the rings he had surveyed, which today remain the best ideas we have on of some of these rings' shapes and sizes.

While scientific investigations on shell rings were somewhat limited in scope and reporting, a large number of shell rings were identified during this era. Seven ring sites in South Carolina were first reported during this period: Sea Pines, Skull Creek, Chester Field, Hanckel, Horse Island, Auld, and Sewee. Twelve ring and possible ring sites in Georgia were reported: five on Skidaway Island (Large 9, Small 9, 21, Odingsell, and Skidaway), two on Wilmington Island (Oemler, Walthour); three on St. Simons Island (Bony Hammock, Cannon's Point, and West), and Busch Krick and Barbour Island. By the mid 1970s, all shell rings in Georgia and South Carolina known today were recognized except for the Coosaw rings and Fig Island 1.

Stage 3, 1975–1999

In 1975, Trinkley reported on excavations he had conducted at the Lighthouse Point shell ring. This report represented the most extensive excavation of a shell ring up to that time, and, more importantly, the results were presented to academia and the greater public in an accessible journal (Trinkley 1975). Additional work at this site and the Stratton Place shell ring was performed 1979, the detailed results of which were presented in a Ph.D. dissertation (Trinkley 1980a). Combined with Marrinan's (1975) dissertation on her extensive testing of the Cannon's Point and the less extensively tested West shell ring in Georgia, these two seminal works brought shell ring investigations into a new era where detailed analyses of botanical and faunal remains, soils, sea level and other aspects of the environment characterize the best of the studies (DePratter 1975; Marrinan 1975; Trinkley 1980a; Trinkley and Ward 1978).

At the time, only one of the nine Archaic shell ring sites in Florida were thought to represent a shell ring related to the tradition of the Georgia and South Carolina shell rings. At Hill Cottage, Sarney (1994) identified similarities in the "U" shape of the ring, the presence of fiber-tempered pottery, of shell and bone tools, and radiocarbon dates. At the Reed shell ring, discussion of similarities to Georgia/South Carolina shell rings were offered as one of a number of possibilities to account for the ring's semi-circular shape (Fryman et al. 1980). At Horr's Island, the shape of the ring was clearly defined but not yet linked to the Georgia/South Carolina traditions. Work at the site yielded extensive data on subsistence reported in a Ph.D. dissertation (Russo 1991), on soils reported in a master's thesis (Scudder 1993), on botanical remains (Newsom 1991), and on environment and sea level changes (Russo 1991, 1994).

Subsistence and seasonality studies endeavored to determine the attraction the coastal environment held for ring builders. Seasonality studies determined that rings were likely occupied for multiple seasons or throughout the year (Marrinan 1975; Russo 1991; Trinkley 1980a). With few exceptions, only sketch maps were produced of shell rings. Of the few surface contour maps that were made, none clearly outlined the parameters of the shell rings or specified the manner in which the maps were made so as to provide the reader an objective criteria for determining the maps' relative accuracy (Marrinan 1975:26; Russo 1994; Thomas and Campbell 1991:105; Trinkley 1980a). Determining where shell-ring sites began and ended and where non-ring surface topographies blended into the sites on these maps was always problematic.

Questions of the effect of sea level rise on shell rings are prominent during this period. Investigators note that many shell rings are located in coastal marsh, are partially submerged beneath high tide waters, or are eroded by wave action. Borrowing evidence from geological disciplines they suggest that these and all shell rings were originally located on dry lands, but have been submerged since their abandonment by risen seas. Some archeologists suggest that the rising of sea levels during the mid-Holocene, in fact, flooded the coastal shores allowing the first formations of estuarine environments necessary for Archaic settlements (DePratter 1976:115; Michie 1979:96; Widmer 1976:46, 1988). Others argue that not only environmental, but social impetuses must be considered for explaining the wide-spread settlement and increased social complexity evident at Late Archaic ring sites (Russo 1991; Trinkley 1980a).

Only touched upon during this period is the question of social organization and settlement patterns of the shell-ring builders. A variety of theories emerge from several studies. Some archeologists proposed that larger shell rings served as base camps in a regional pattern of settlement that included smaller shell-bearing sites that functioned as temporary camps (Widmer 1976:46). Others contended that shell rings served as special purpose meeting places (evidenced by a limited artifact inventory), and other large, non-ring, shell-bearing sites functioned as the base camps (Michie 1979). And some interpreted shell rings as permanent villages, either of simply organized egalitarian hunter-gatherers (Trinkley 1985), or more complexly organized groups capable of building large-scale public works and monuments (Russo 1991). These issues would extend into and be expanded upon in the next stage of shell-ring studies.

Even though extensive investigations occurred at a number of shell-ring sites, only three new rings (all in Florida) were identified during this period: Guana (Tesar and Baker 1985), Buck Bayou (Thomas et al. 1991), and Meig's Pasture (Curren et al. 1987). Only a brief note on the Guana ring suggested a possible connection the Late Archaic shell-ring-building traditions. Buck Bayou was connected to the Poverty Point trade network bringing the Mississippi Valley cultural tradition of arcuate settlement into the discussion of coastal shell formations through the similarities of shape in the Claiborne and Cedarland rings. But no connections to the Atlantic coast shell-ring traditions were made with these circular deposits of shell. Except for Guana, all investigations of these sites during this period yielded surface contour maps.

Stage 4, 1999–Present

What differentiates this period of shell-ring investigation from earlier ones is the attempts to determine the boundaries and structure of shell rings through systematic shovel test surveys, systematic probing, surface contour mapping, and geophysical remote sensing. During this time there is an increased description of the internal structures of shell rings as part of an effort to gain an understanding of the ring builders' methods of construction and reasons for building rings. Through comparative analyses with other rings, ethnographic analogies, and the efficacy of different theoretical understandings, rings become identified as quite diverse in terms of shape, size, function, cultural affinity, and the social organization of their makers. Rings are seen not as changeless settlement components, but as vital settlement features whose particular uses differed among rings and changed through time.

During this brief seven year period, four of Florida's shell-ring sites (Rollins, Oxeye, Guana, and Bonita Bay) and ten additional rings in South Carolina (Coosaw 1–4; Fig Island 1–3; Sewee; Barrows; Patent) were mapped, re-mapped, or formally recognized as shell-ring sites for the first time. While Barrows, Patent, and Fig Island were previously identified, their confirmation as Archaic shell rings only recently occurred (Saunders et al. 2006; Saunders and Russo 2002). Similarly, all Florida shell rings, except Oxeye, had been identified as archeological sites earlier, but their identification as shell rings did not occur until they were mapped; radiocarbon dated, and compared to Georgia and South Carolina ring formations (Russo 2004). In addition to these, the "lost" rings of Sapelo, rings 2 and 3 (Larson 1998:30) were rediscovered using geophysical survey techniques (Thompson 2006).

Today, up to 45 ring sites with up to 51 individual rings (not counting conjoined rings or mounds) are recognized in South Carolina, Georgia, Florida and Mississippi. And more are being found in areas previously unknown to contain them (DePratter 2005; Thomas 2006).

CONDUCTING THE RESEARCH ON THE HISTORIC CONTEXT

All historic reports and accounts of shell rings were examined for this historic context. Lawrence's (1989a-c, 1991a, b) compendia fairly well covers the documentation for Georgia and South Carolina shell rings prior to 1991. In addition nomination forms for the NRHP-listed shell rings were consulted. Site reports, chapters, and articles for the Florida shell rings were consulted. Some rings had little or no published documentation (e.g., Oxeye, Long Field Crescent) and field notes, catalogue records, and personal communications provided most of the information on these sites. For this historic context, ongoing work for two shell rings (Barrows and Patent) and two sites (Broad River and Medicine) considered previously to be shell rings (Lawrence 1990b) were discussed for the first time. State Historic Preservation and other government offices provided site forms and other unpublished information. The major references used in conducting research on this historic context are listed in Section I.

DETERMINATION OF THE HISTORIC CONTEXT AND IDENTIFICATION OF PROPERTIES

Sites were chosen for consideration and discussion if in the reviewed literature they had been referred to as shell rings dating between 5000 and 3000 B.P. This is the Late Archaic period in the southeast U.S. In South Carolina, some archeologists refer to the latter part of this period as the Early Woodland based on non-temporal criteria (e.g., the presence of pottery) which have been suggested to be a Woodland ***cultural*** manifestation (e.g., Trinkley 1980a; Lawrence 1990b). For this historic context, we eschewed the distinction, not because it is without merit, but because other states with shell rings do not generally follow that usage. In addition, other states have Early and other Woodland ring middens that may or may not contain shell (Russo et al. 2006), but that are not of the same tradition or character as the Archaic shell rings. With this in mind, we concluded that the use of the term Woodland to describe the historic contexts of the shell rings in this context would only provide confusion with Refuge, Deptford, and Swift Creek ring middens (Bense 1998; Milanich 1971; Russo et al. 2006).

Sites of the appropriate age, shape (arcuate to circular), internal structure (i.e., made of shell) and high integrity were considered potentially eligible for listing as an NHL. Their descriptions are found in Section F, as are details of the evaluative criteria.

In some cases, authors referred to sites as shell rings incorrectly. The sites were not shell ***rings***, but rather were shell ***middens*** without a ring shape. Other references identified sites as shell rings mistakenly listing the wrong site numbers. Some sites provisionally called rings by authors were, upon inspection, shown not to be Late Archaic shell rings. These and other sites were included in the descriptions of rings for consideration as potential NHL shell rings under this historic context. Those that did not meet the criteria for listing as NHLs are described in this section as "rejected," with the reasons presented for exclusion from further NHL consideration. Some of these sites, upon further study, may be eligible for nomination as NHLs. A summary of the NRHP/NHL potential for all sites considered for NHL status is found in Table 10. A summary of ring sites identified in this historic context as potential NHLs is found in Table 11.

Table10. Shell Rings Considered Potentially Eligible for NHL Status.

Site Name	*Site No.*
SOUTH CAROLINA	
Sea Pines	38BU7
Skull Creek, Large	38BU8
Skull Creek, Small	38BU8
Barrows	38BU300
Patent Point	38BU301
Coosaw 1	38BU1866
Coosaw 2	38BU1866
Coosaw 3 (MP)	38BU1866
Coosaw 4	38BU1866
Fig Island 1	38CH42
Fig Island 2	38CH42
Fig Island 3	38CH42
Sewee	38CH45

Site Name	*Site No.*
GEORGIA	
Cannon's Point	9GN57
West Ring	9GN76
Sapelo I	9MC65
Sapelo 2 (MP)	9 MC65
Sapelo 3 (MP)	9 MC65
FLORIDA	
Horr’s Island Md. A	8CR208
Horr’s Island Md. D	8CR211
Oxeye	8DU7478
Rollins	8DU7510
Reed	8MT13
Guana	8SJ2554
Hill Cottage	8SO2

In Lawrence’s (1990b) NRHP Multiple Property listing for South Carolina shell rings he states that to be eligible for the NRHP a shell ring must past tests of original geometry, age, and integrity. In terms of integrity he suggests that a ring must have at least 45 cm (18") of mounded shell at its base. This would present problems for some ring sites such as Coosaw 3 and Sapelo 3, which have been leveled but maintain their original geometry below ground in non-mounded shell midden deposits. Both these sites have been shown to have invaluable information below ground, although they are not recognizable as rings above ground (Heide and Russo 2003; Thompson 2006). Therefore, in this historic context to be eligible for the NRHP, a shell ring must minimally contain important information under Criterion D, regardless if any above ground ring remains intact or not. To be considered eligible as a NHL, however, a shell-ring site must maintain integrity of its original geometry above ground. Shell rings are architectural forms, and their integrity is linked not only to in situ shell deposits above and below ground useful for providing information for scientific studies, but to the integrity in form in terms of shape, height, and horizontal distributions of shell sufficient to ascertain their original architectural design.

Table 11. NRHP and NHL Status of Sites Identified as Shell Rings by Investigators

Site Name	*Site No.*	*NRHP Status*	*Potential NHL*	*Comments*
SOUTH CAROLINA				
Sea Pines	38BU7	listed 1970	yes	well preserved and protected
Skull Creek, Large	38BU8	listed 1970	yes	mined; more study needed
Skull Creek, Small	38BU8	listed 1970	yes	mined; more study needed
Daws Island	38BU9	not eligible	no	eroded; not a Late Archaic ring
Guerard Point	38BU21	not evaluated	no	mined, subsurface intact
Chester Field	38BU29	listed 1970	no	erosion and development
Barrows	38BU300	not evaluated	yes	well preserved and protected
Patent Point	38BU301	not evaluated	yes	well preserved and protected
Broad River	38BU302	not evaluated	no	not a Late Archaic ring
Medicine	38BU303	not evaluated	no	not a Late Archaic ring
Bull Island	38BU475	not evaluated	?	more study needed
Coosaw 1	38BU1866	eligible	yes	eroded, but largely intact
Coosaw 2	38BU1866	eligible	yes	well preserved and protected
Coosaw 3	38BU1866	eligible	yes as MP	mined, subsurface intact
Coosaw 4	38BU1866	not evaluated	yes	more study needed
Hanckel Mound	38CH7	listed 1970	?	more study needed
Lighthouse Point	38CH12	listed 1990	no	architectural integrity lacking
Horse Island	38CH14	listed 1970	?	more study needed
Buzzards Island	38CH23	listed 1970	?	more study needed
Stratton Place	38CH24	eligible	?	mined, current condition unknown
Auld	38CH41	listed 1970	?	more study needed
Fig Island 1	38CH42	listed 1970	yes	well preserved and protected
Fig Island 2	38CH42	listed 1970	yes	well preserved and protected
Fig Island 3	38CH42	listed 1970	yes	well preserved and protected
Sewee	38CH45	listed 1970	yes	mined, but largely intact
Crow Island	38CH60	not evaluated	?	more study needed
Spanish Mount	38CH62	listed 1974	no	if a ring, too disturbed for NHL
Hobcaw	38CH?	Not evaluated	?	more study needed
GEORGIA				
Oemler	9CH14A	not evaluated	?	more study needed
Walthour	9CH16	not eligible	no	not a Late Archaic ring
Cane Patch	9CH35	not evaluated	?	more study needed
Skidaway 9, Large	9CH63	not evaluated	?	more study needed
Skidaway 9, Small	9CH63	not evaluated	?	more study needed
Skidaway 21	9CH75	not evaluated	?	more study needed
Skidaway	9CH77	not evaluated	?	more study needed
Odingsell	9CH111	not evaluated	no	more study needed
Ossabaw 77	9CH203	not evaluated	?	more study needed
Bony Hammock	9GN53	not evaluated	?	more study needed
Goodyear Mound	9GN54	not evaluated	no	not a Late Archaic ring
Cannon’s Point	9GN57	eligible?	Yes	well preserved in 1975
West Ring	9GN76	eligible?	Yes	well preserved in 1975

Table 11. NRHP and NHL Status of Sites Identified as Shell Rings by Investigators (cont.)

Site Name	*Site No.*	*NRHP Status*	*Potential NHL*	*Comments*
GEORGIA (CONT.)				
Long Field Crescent	9LI231	listed 1969	?	impacted, more study needed
Sapelo I	9MC65	eligible	yes	well preserved and protected
Sapelo 2	9 MC65	not evaluated	yes as MP	mined, subsurface intact
Sapelo 3	9 MC65	not evaluated	yes as MP	mined, subsurface intact
Busch Krick	9 MC87	not evaluated	no	too eroded for NHL
Barbour Island	9 MC320	not evaluated	?	more study needed
FLORIDA				
Horrs Island Md. B	8CR206	not eligible	no	destroyed
Horrs Island Md. C	8CR207	not eligible	no	destroyed
Horrs Island Md. A	8CR208	eligible	yes	well preserved
Horrs Island	8CR209	not eligible	no	mostly destroyed
Horrs Island Md. D	8CR211	eligible	yes	well preserved
Oxeye	8DU7478	eligible	yes	well preserved, but drowned
Rollins	8DU7510	eligible	yes	well preserved and protected
Bonita Bay Md.	8LL716	eligible	?	well preserved, more study needed
Bonita Bay Ring	8LL717	eligible	?	developed, but largely intact?
Reed	8MT13	eligible	yes	eroded, but largely intact
Meig's Pasture	8OK102	unknown	no	destroyed?
Guana	8SJ2554	eligible	yes	well preserved and protected
Hill Cottage	8SO2	listed 1975	yes	developed, but largely intact
Buck Bayou	8WL90	unknown	?	more study needed
MISSISSIPPI				
Cedarland	22HC30	not eligible	no	destroyed
Claiborne	22HC35	not eligible	no	destroyed

SITES CONSIDERED BUT REJECTED AS POTENTIALLY ELIGIBLE FOR NHL DESIGNATION

Daws Island, 38BU9	**Not a Late Archaic Shell Ring**
No Map Available	
Shape	?
Diam. x Ht. (m)	?
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	South 1969; Sarney 1994

In describing the baked clay objects he found at Charles Towne, South (1969) mentioned that baked clay objects were also present at Daws Island (38Bu9). He identified the Daws site as "a small shell mound or ring fragment" (South 1969:24). Sarney (1994:147–170) interpreted this to mean the site was a shell ring. She discussed it at length relative to artifactual commonalities with other shell rings, including the presence of "fragmentary human remains." She believed that the remains were indicative of shell rings because they occurred at half the ten ring sites she reviewed (Sarney 1994:169).

Although the site has Late Archaic artifacts and shell midden, it has not been otherwise described as a shell ring (Michie n.d.). It is included in this listing for the sake of completeness. The site is not a shell ring, and may no longer exist in any form.

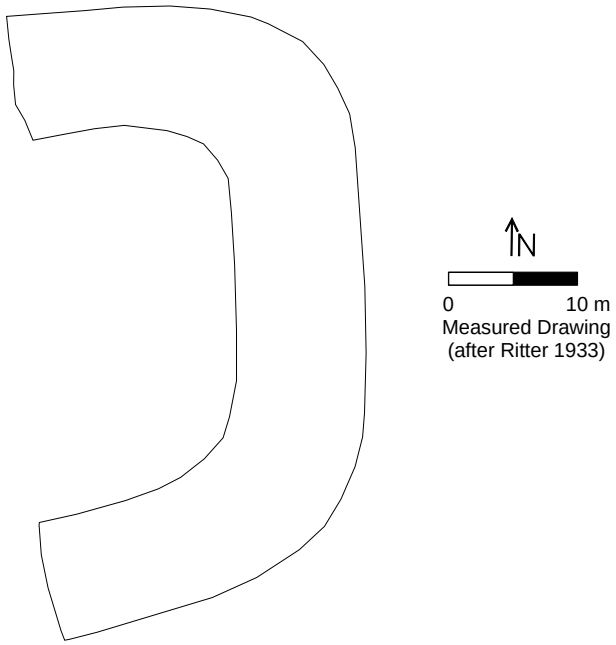
Guerard Point, 38BU21	**Not evaluated for NRHP**
No Map Available	
Shape	closed circles
Diam. x Ht. (m)	80 x 0.7
Area Excavated (m^2)	3 (from a 1 x 3 m test unit only)
Radiocarbon Dates	n/a
Stone	2 flake, 1 graver
Bone	0
Archaic Ceramics	>99 Stallings?
Other	1 shell bead
References	Moore 1898:151; Gantt et al. 2005; Gantt and Styer 2006

Knowledge of Guerard Point initially came from a single paragraph written by Moore (1897:151), who stated that the site was "of the same class as that on Bull Island, S.C., and the great one on Sapelo Island." He identified the ring as "roughly circular" and noted that it represented the only shell midden in the area. At the time it had been greatly lowered by plowing. In 2002, William Green of the South Carolina Archives and History Department, Rebecca Saunders of Louisiana State University, and Mike Russo of the National Park Service found that the site had been completely leveled and lay under sod as part of a sod farming operation. Green had visited the site earlier and identified Archaic ceramics and oyster shell after the land had been leveled. In 2005, Gantt et al. (2005) reported on investigations at the site and the surrounding area. In a survey employing 30-meter-grid shovel tests, they placed six tests in the site area, four of which were positive for shell and artifacts. In their sketch, Gantt et al. (2005:63) demarcated 38Bu21 as an 80-by-45-meter elliptical area, although their text suggests it measures 80 by 60 meters. It is unclear if this is meant to indicate the size and the shape of the shell ring's remnants. Unfortunately, Gantt et al. (2005) combined their description of artifacts from the site with that of a historic site surrounding it. Although three Stallings sherds were recorded among other precontact and historic artifacts, it is unclear if they came from the shell ring (Gantt et al. 2005:63). The depth of the deepest deposits was given as 65 centimeters. But the ring once stood much taller than the extant shell deposits indicate.

A 1-by-3-meter unit was placed in the ring location (Gantt and Styer 2006:52). From it came ninety-nine Stallings sherds. In addition, fifty-six eroded, residual sand-tempered sherds were recovered. It seems odd that all the residuals were sand-tempered when all the other sherds were fiber-tempered. Whether the sand-tempered sherds are residual Thoms Creek sherds or other wares is unclear (Gantt and Styer 2006:57). The unit showed that beneath the shell ring, the strata were characterized by sand and shell, with observable shell filled pits and posts.

Further testing is needed to confirm the shape and size of the ring. The remaining undisturbed portions of the site likely represent features originally found below the ring rather than remnants of the above ground ring itself. From these initial stages of shell-ring construction, archeologists have been quite successful in gleaning valuable information on the shape and character of plaza and sub-ring activities (Thompson 2006; Trinkley 1985), as well as size and shape of the former overlying ring. As such, Guerard Point ring is potentially eligible for listing in the NRHP under Criterion D. It lacks architectural integrity to qualify as an NHL.

Chester Field, 38BU29 NRHP Listed



Shape	C
Diam. x Ht. (m)	54 x 1.8
Area Excavated (m^2)	77
Radiocarbon Dates	n/a
Stone	2 to 5 PP?
Bone	7 pins/awls
Archaic Ceramics	177 Thoms Creek, 63 fiber-tempered (Trinkley 1980a:283), 158 fiber-tempered (Griffin 1943)
Other	# antler
References	Flannery 1943; Ritter 1933

The C-shape may be wholly or partly the result of erosion. The site is situated on the bank of the Broad River, which in 1991 was observed to be eroding the western side of the site (Judge and Smith 1991:37). It must be stated, however, that there is no record of the site having ever been a closed circle.

The site is important in the history of shell-ring studies because it was the first to be intensively investigated and reported, albeit posthumously (Anderson 1977:377). Warren K. Moorehead excavated the site in 1932 (Flannery 1943), while Ritter (1933) mapped it. It is difficult to determine the exact sizes and how many units were placed based solely on Ritter's maps and Flannery's descriptions. But a surprisingly large amount of the site was excavated both within the ring and within the plaza. Flannery (1943:150) noted that seven "test holes" were placed in the plaza. However, two more "test holes" were found on the Ritter map. One was 10 by10 feet (3 x 3 m), but the others seemed to be less than 3 feet square (0.9 m^2)

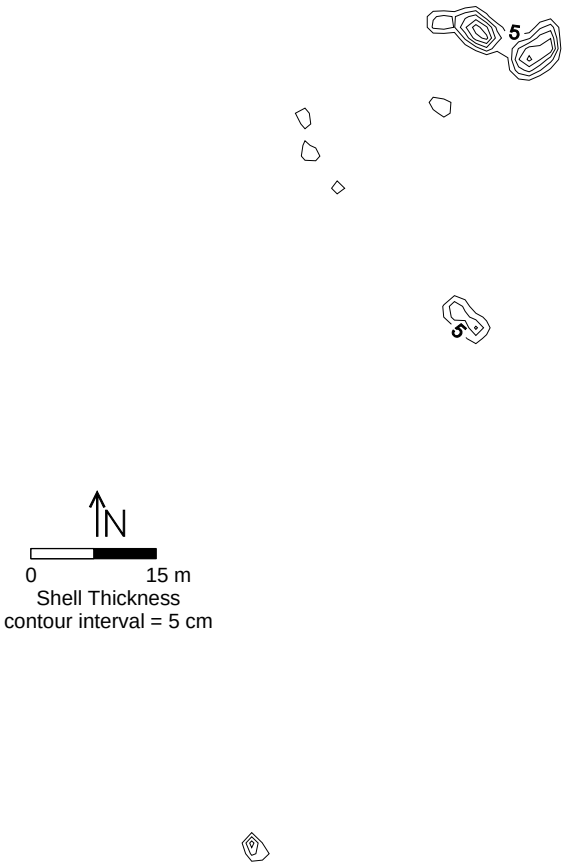
each. Within the ring a 25-by-10-foot (7.62 x 3 m) area was excavated along with two units that were maybe 3 by 2 feet (0.9 x 0.6 m) square and 2 by 2 feet (0.6 x 0.6 m) square. Four other excavations features were also shown on the map to have been placed in the ring. These include two trenches (Trench A and B), which intercept to form an irregular L-shape. Trench A is about 3 by 33 feet (1 x 9.1 m), and Trench B about 6 by 30 feet (1.8 x 9.1 m) at its longest points. In addition, two units (Pit 2 and Pit 4) measure approximately 10 by 5 feet (3 x 1.5 m) and 15 by 10 feet (4.6 x 3 m).

The site was among the first in which pottery was analyzed with type names still in use. Comparing his more recent analysis of Chester Field ceramics to that of the earliest study (Griffin 1943), Trinkley (1980a:283) points out that Thoms Creek and Stallings tempers and designs can overlap, and conflation of types may result from biases and experience attendant with the identifier. His analysis of Chester Field ceramics yielded 74 percent Thoms Creek and 26 percent Stallings pottery, while Griffin's (1943) yielded 100 percent Stallings wares. Chester Field, long thought to be a classic Stallings shell ring, may actually be a Thom's Creek ring according to Trinkley's analysis.

Unpublished notes in the Charleston Museum from the Moorehead and Ritter investigations identified two to five lithic points (i.e., "spear heads"), an unspecified number of chipped flakes, a hammerstone, at least seven fragments or whole decorated and undecorated bone pins and awls, over one thousand untyped potsherds, and an unspecified number of worked antler prongs.

Chesterfield is currently listed on the NRHP. The degree of erosion and impact from development (Judge and Smith 1991:38) likely excludes it from consideration for listing as an NHL.

Broad River, 38BU302 — Not an Archaic Shell Ring

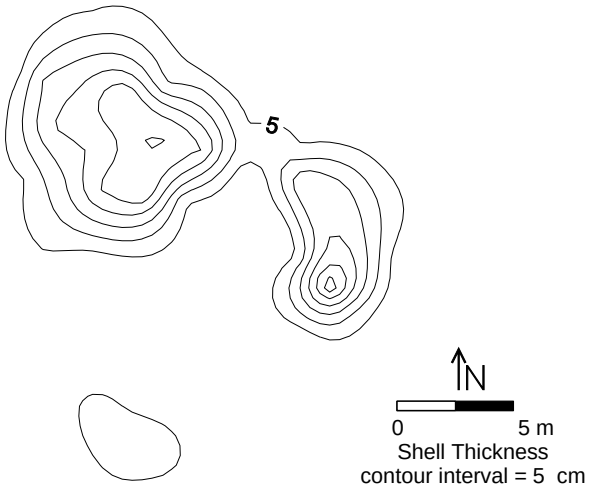


Shape	semi-circle?
Diam. x Ht. (m)	100 x 0.3
Area Excavated (m^2)	1
Radiocarbon Dates	1240+/-50
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Lawrence 1991a:64–66

Two sites (38Bu302 and 38Bu303) near Patent and Barrows shell rings have recently been shown to be neither Archaic nor shell rings based on: radiocarbon dates, the absence of Archaic artifacts, and the lack of a contiguous circular to semi-circular shape to their shell deposits. These are mentioned here for clarification of Lawrence's (1991:65) suggestion that 38Bu302 might be a shell ring. Detailed surface and shell distribution, as identified through probing, indicated that the site represents a scatter of small deposits of shell (mostly oyster and clam) over an area roughly 100 by 30 meters. Excluding the southernmost

deposit, the shell distribution does present a series of deposits in a roughly circular, non-contiguous pattern 30 by 40 meters across. A 1-by-1-meter unit was dug through dense shell midden in the northernmost section of the site to sterile soil at 30 centimeters below surface. No artifacts were recovered, but one radiocarbon age on oyster shell from the bottom strata was obtained, indicating occupation some 2,000 years after the nearby Patent shell ring was abandoned. The site is not an Archaic shell ring. It may be eligible for listing in the NRHP, but not as a shell ring. It has not been evaluated for the NRHP.

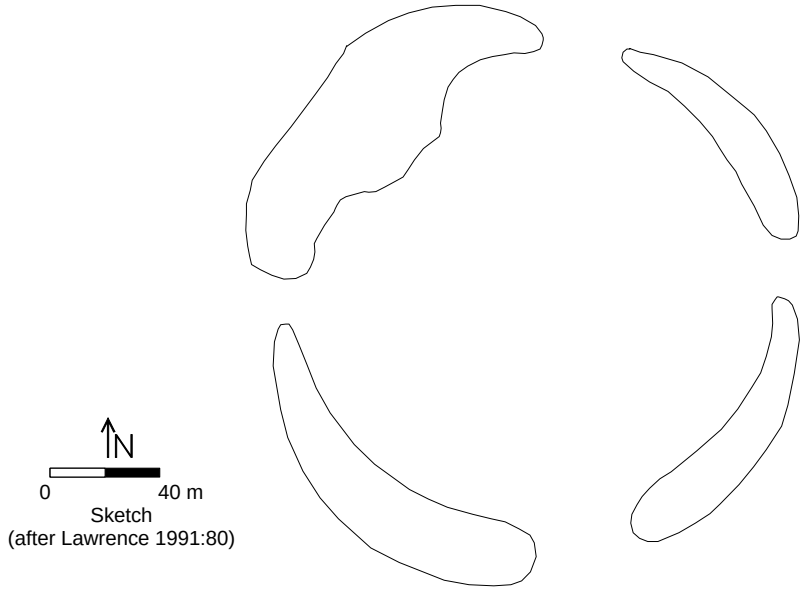
Medicine, 38BU303 — Not an Archaic Shell Ring



Shape	arc?
Diam. x Ht. (m)	17 x 0.3
Area Excavated (m^2)	0.25
Radiocarbon Dates	1280+/-50
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Lawrence 1991a:67–69

Two sites (38Bu302 and 38Bu303) near Patent and Barrows shell rings have recently been shown to be neither Archaic nor shell rings based on: radiocarbon dates, the absence of Archaic artifacts, and the lack of a contiguous circular to semi-circular shape to their shell deposits. These are mentioned here for clarification of Lawrence's (1991:65) suggestion that 38Bu303 might be a shell ring. Detailed surface and shell distribution, as identified through probing, indicated that the site represents a small arc of shell (mostly oyster and clam) with an opposing shell pile lying to its south. Like many Archaic shell rings, it appears as an arc with a sterile plaza, but is much smaller at 17 meters across. A 1-by-1-meter unit was dug through dense shell midden in the northernmost section of the site to sterile soil at 30 centimeters below surface. No artifacts were recovered, but one radiocarbon age on oyster shell from the bottom strata was obtained, indicating occupation some 2,000 years after the nearby Patent shell ring was abandoned. The site is not an Archaic shell ring. It may be eligible for listing in the NRHP, but not as a shell ring. It has not been evaluated for the NRHP.

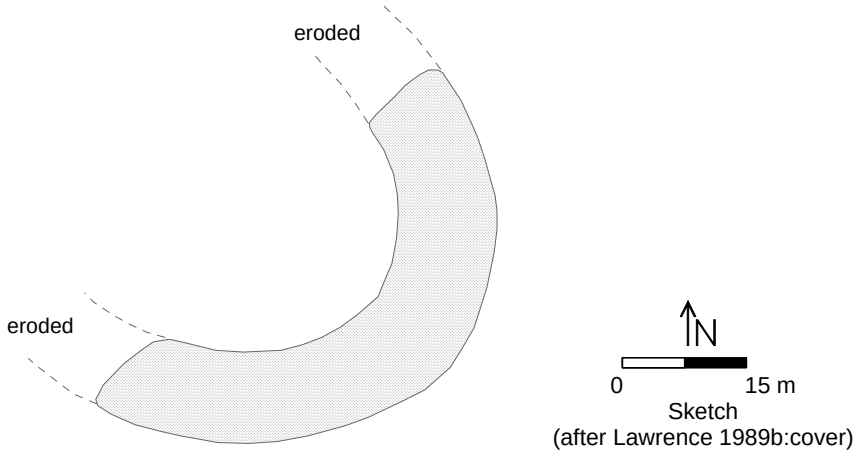
Bull Island, 38BU475 — Not Evaluated for NRHP



Shape	closed circle?
Diam. x Ht. (m)	91 x ?
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Moore 1898:147, 151; Lawrence 1991a

Two mentions by Moore (1898:147, 151) that Bull Island contains a shell enclosure just like that found on Sapelo suggest that an Archaic shell ring may be located here. However, since other time periods also produced shell enclosures, we cannot be sure this one dates to the Late Archaic. Lawrence (1991a:77–80) identified the site as a shell ring, however, did not identify any cultural affiliation. A sketch map shows the site as a series of four arcs of shell (described in text as oyster) forming a circle 91 meters in diameter with 10- to 15-meter gaps between each arc. The text describes the geometry of the ring as elliptical. Since an ellipse can be circular, both the map and text seem to be in agreement. The map is referenced by Lawrence to Aichele 1981, although access to the reference could not be obtained. No excavations have taken place at this site, which needs more study before it can definitively be classified as an Archaic shell ring. As such, it remains potentially eligible for listing in the NRHP and as an NHL, but has not been evaluated.

Hanckel, 38CH7 NRHP listed



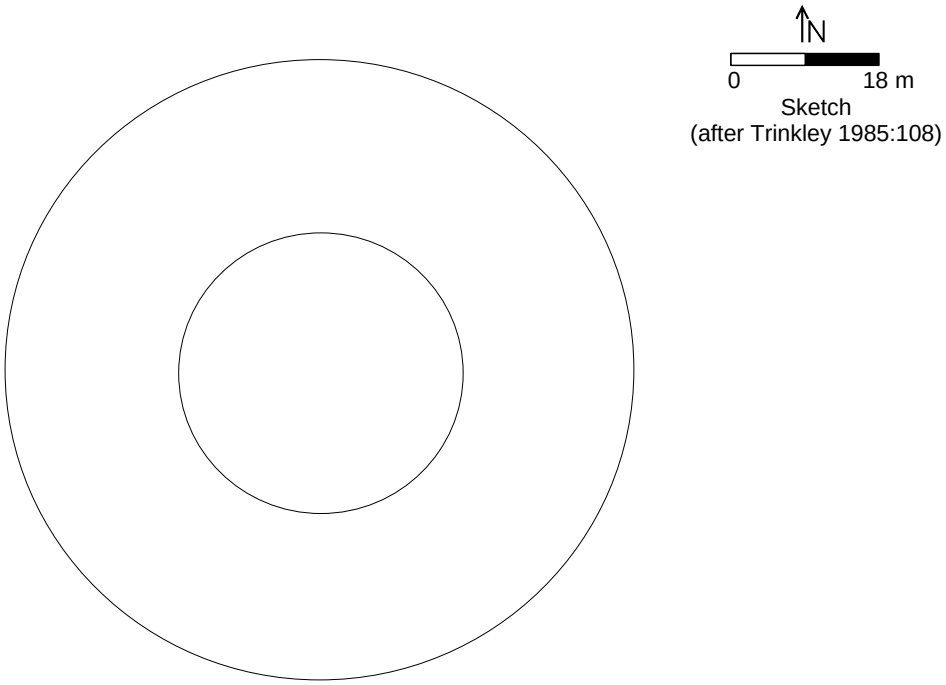
Sketch
(after Lawrence 1989b:cover)

Shape	C
Diam. x Ht. (m)	62 x 2.4
Area Excavated (m^2)	0
Radiocarbon Dates	3550+/-60
Stone	0
Bone	0
Archaic Ceramics	48 Thoms Creek
Other	0
References	Hemmings 1970b

The 1970 NRHP nomination form on the Hanckel site states that "the Leadenwah Creek has removed slightly more than one half of the ring; the southeast quarters remain." This statement assumes the ring was formerly a closed circle. A sketch of the ring shows it as a C-shape and suggests that the arms of the C have been shortened by erosion (Lawrence 1989b: cover), implying it was formerly a longer-armed C-shape, not a closed circle. The nomination also states that the ring measures 158 feet (48 m) from crest to crest. However, the 1989 sketch map shows it to be about 62 meters in outside diameter. Although no excavations are reported for the site, Trinkley (1976:17, 65) analyzed forty-eight Thoms Creek sherds that were apparently surface collected at the ring and are housed in the South Carolina Institute of Archaeology and Anthropology (SCIAA) collections.

The Hanckel ring was listed on the NRHP in 1970 (Hemmings 1970b). Its current condition is unknown. More study is needed before it can be considered for NHL determination.

Lighthouse Point, 38CH12 NRHP listed

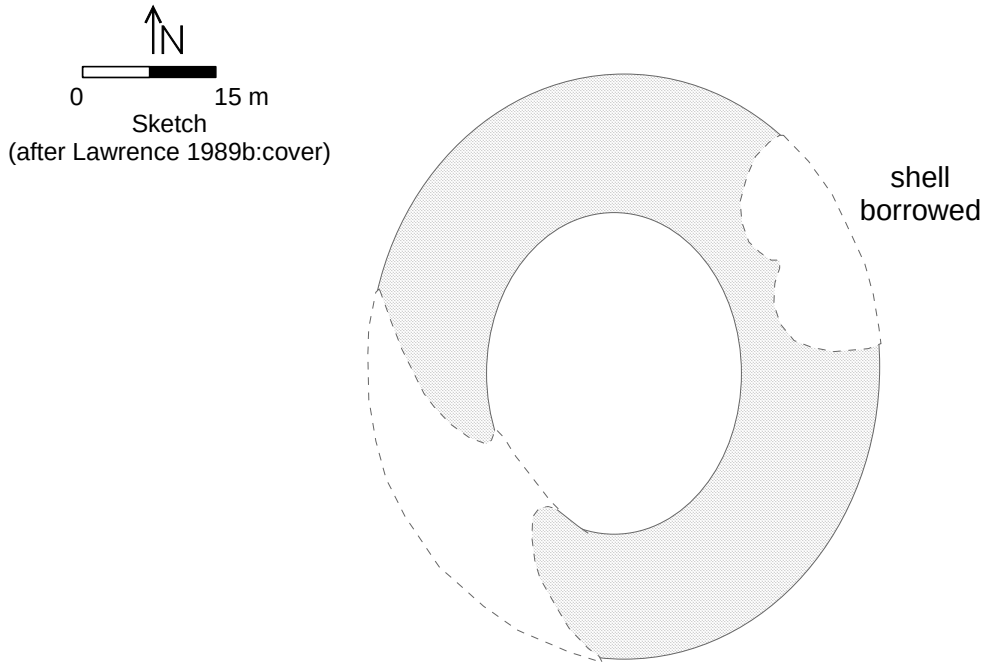


Shape	closed circle?
Diam. x Ht. (m)	76 x 3
Area Excavated (m^2)	272
Radiocarbon Dates	3345+/-70; 3275+/-55; 3275+/-55; 3190+/-70; 3180+/-65; 2885+/-175
Stone	10PP, 28 other, 3 steatite
Bone	125 pins, 9 other
Archaic Ceramics	11,192 Thoms Creek
Other	45 antler, 15 whelk
References	Trinkley 1980a

This ring holds a unique place in ring studies. It was the first identified in print (Drayton 1802) and the first in which the plaza area and sub-ring deposits were explored extensively (Trinkley 1980a). As of 2006, it remains extant but in modified form, having been pushed around and infilled by developers. The diameter and circumference were taken from the early notes by Drayton (1802), for by the time Trinkley reported on the site, much of the ring had been destroyed. In the 1960s, Donald MackIntosh placed a 5-by-5-foot (1.5 x 1.5 m) test pit on the northwestern portion of the ring (Trinkley 1980a:161). Trinkley (1980a) excavated a 102-square-meter area, as well as a 112-square-meter area beneath the ring where most of the shell ring had been removed. Two smaller units totaling more than 20 square meters were placed in the plaza area. Additionally, four 10-by-10-foot (3 x 3 m) units totaling 36 square meters were placed on the outside edge of the ring. This is one of two shell rings dug by Trinkley (1980a, 1997) on which he based his theory that shell-ring formation resulted from the gradual accumulation of midden debris—a theory less formally presented in earlier ring studies (e.g., Flannery 1943; Waring and Larson

1968:273). The ring, listed on the NRHP in 1970, is currently preserved in its considerably disturbed state by the city of Charleston per an agreement with the neighboring home-owners association. While Trinkley excavated a considerable amount of sub-ring deposits, undisturbed portions of the ring and sub-ring structure may still remain to provide significant information as described under Criterion D. Damage to the architectural integrity, however, seems to have been sufficiently extensive to preclude the site from consideration for NHL status.

Horse Island, 38CH14 — NRHP listed

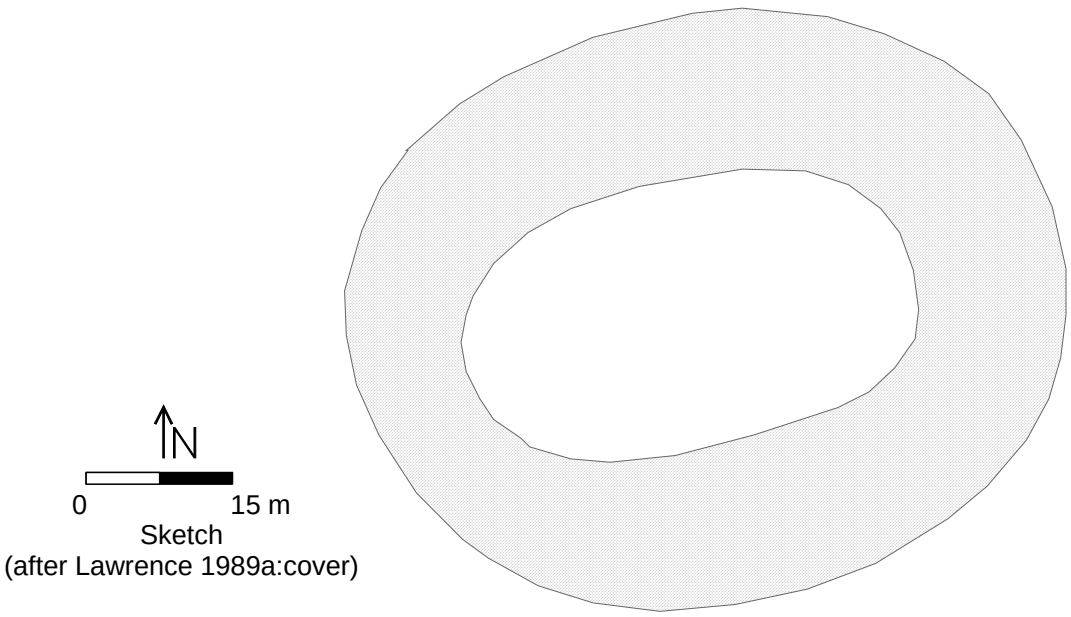


Shape	C
Diam. x Ht. (m)	61 x 3
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	85 Thoms Creek
Other	0
References	Anonymous 1969; Hemmings 1970c; Trinkley 1976:17, 65

The NRHP nomination states that the ring is 156 feet (48 m) from crest to crest and rises 4 feet (1.2 m) above the plaza. An anonymous article (probably written by Caldwell [Trinkley 1980a:33]) states it is 10 feet (3 m) high and 200 feet (61 m) in diameter (Anonymous 1969:1). The nomination assumes that the ring was originally a closed circle, but the "marine erosion has removed 15 percent of the ring," an interpretation iterated in a map on the cover of Lawrence's (1989b) report. Trinkley (1976:17) states that Caldwell and Waring excavated at the ring, however no information about their work survives. The Anonymous (1969:1) article suggests that an unstated number of sherds were likely Thoms Creek as opposed to Stallings. Trinkley (1980a:33) speculates that the sherds may have been excavated by Caldwell.

The ring was listed on the NRHP in 1970 (Hemmings 1970c). Its current condition is unknown. More study is needed before it can be evaluated for NHL consideration.

Buzzards Island, 38CH23 NRHP listed

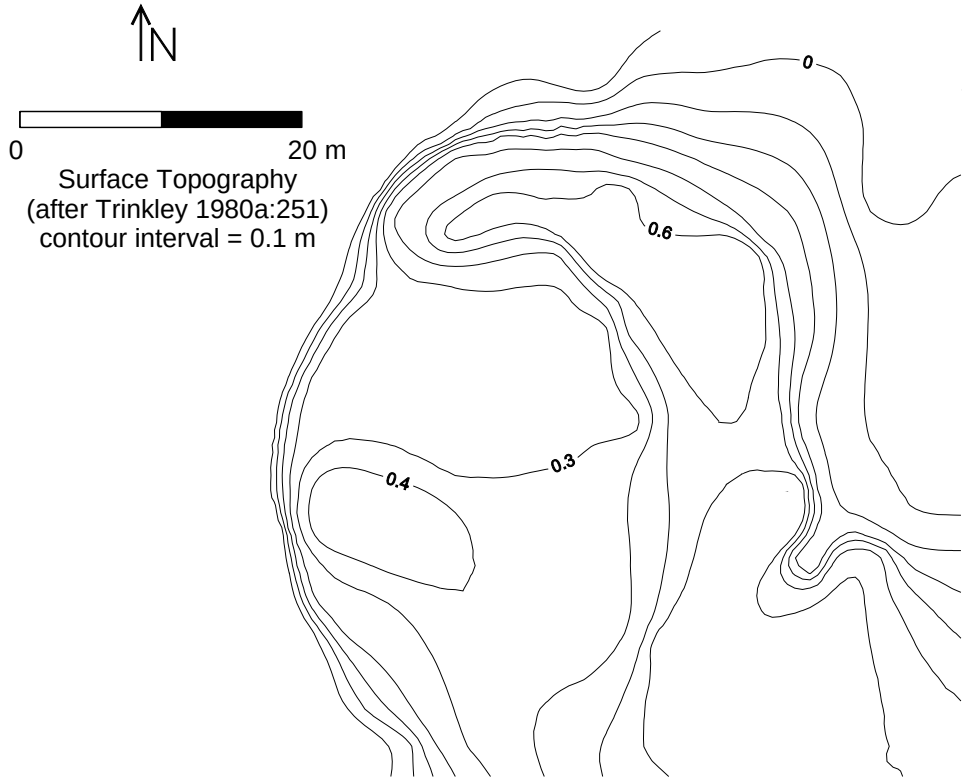


Sketch
(after Lawrence 1989a:cover)

Shape	closed oval
Diam. x Ht. (m)	62 x 0.9
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	# Stallings, 153 Thoms Creek
Other	# shell artifacts
References	Bragg 1925; Hemmings 1970a

The NRHP nomination form indicates the site is a "ring shape" and "appears to be largely intact." The nomination states that the ring is 178 feet (54 m) from crest to crest (Hemmings 1970a). Judge and Smith (1991:36) suggested that the average diameter is 54 meters and the maximum diameter 62 meters. A sketch, however, shows the ring to be about 76 meters in outside diameter (Lawrence1989a: cover). Bragg (1925:4) reported the site as an "unbroken circle of shell." However, the mapped and described dimensions indicate it is oval. No excavations have been reported for the site, and no ceramics or other artifacts have been enumerated, although Trinkley (1980a:63) stated that Awendaw Finger Pinched dominated the decorated types. Judge and Smith (1991:37) suggested that the ceramics included Stallings, Awendaw, and Thoms Creek. However, Trinkley provided sherd counts only for Thoms Creek and related series (1976:65). The nomination mentions the presence of "a number of worked shell artifacts" in the Charleston Museum, and Bragg (1925) reported whelk tools along with pottery on the surface of the site. The current condition of the ring is unknown. It was listed on the NRHP in 1970 (Hemmings 1970a). More study is needed for consideration as an NHL.

Stratton Place, 38CH24 — Eligible for NRHP



Shape	C
Diam. x Ht. (m)	57 x 0.6
Area Excavated (m^2)	135
Radiocarbon Dates	n/a
Stone	1 PP, 7 hammerstone, 1 flake, 1 pendant, 8 heating stone
Bone	1 pin, 6 antler
Archaic Ceramics	1,506 Thoms Creek, 15 Awendaw
Other	10 whelk, 4 sherd abrader, 2 clay lump
References	Trinkley 1980a; Lawrence 1991b

There is some discussion regarding the shape and size of the shell ring. The NRHP nomination (Lawrence 1991b) and Trinkley (1980a:246) both stated that the south to southeast portion of the ring had been disturbed. (The NRHP nomination was prepared in 1991, but the ring was never listed due to the owner's objection.) The nomination seems to be repeating information provided by Trinkley (1980a). Trinkley's (1980a:251) contour map labeled the midden in this area as indistinct. He stated that "the southern third of the shell ring" was utilized as "causeway fill" and was disturbed by driveway construction and use. Another map showed the ring missing in that area and labeled it "shell borrowed" (Lawrence 1989a). However, that map depicts the ring as a closed circle, save for the borrowed southeast area, while Trinkley's

1980 map shows it as C-shaped with the opening to the northeast. The nomination provides a modification of Trinkley's map to demonstrate the shape and boundaries of the site. We have chosen to classify the ring as C-shaped since both Trinkley and the nomination depict it as such. There is no textual description in either source to further resolve the issue.

Trinkley (1980a) is the only one to have excavated and reported on the site, although collections from the site have been made, some of which were contributed to the Charleston Museum. Thirteen 10-by-10-foot (3 x 3 m) units were placed in the plaza and two outside the ring to the north (Trinkley 1985:107–109). While excavations did not provide much information on shell-ring construction, they did show that the shell ring was placed on a humic layer that extended into the plaza. Although the plaza was nearly sterile of features (one pit), it did yield abundant artifacts. This suggested that the plaza was used differently than the ring, not for habitation or refuse disposal (Trinkley 1980a; Lawrence 1991b:2). Trinkley's observations are important in that most ring investigations have assumed the plaza is sterile, without having dug it. Obviously this and other excavations of the plaza (e.g., Russo 1991; Thompson 2006; Waring and Larson1968) demonstrate that they are not sterile, but that the density of refuse in ring plazas (and presumably the intensity of activities associated with midden accumulation) is greatly reduced.

Auld, 38CH41	**NRHP listed**
No Map Available	
Shape	closed circle
Diam. x Ht. (m)	73 x 1.8
Area Excavated (m^2)	74
Radiocarbon Dates	4180+/-130
Stone	0
Bone	0
Archaic Ceramics	# Thoms Creek
Other	0
References	Hemmings 1970d

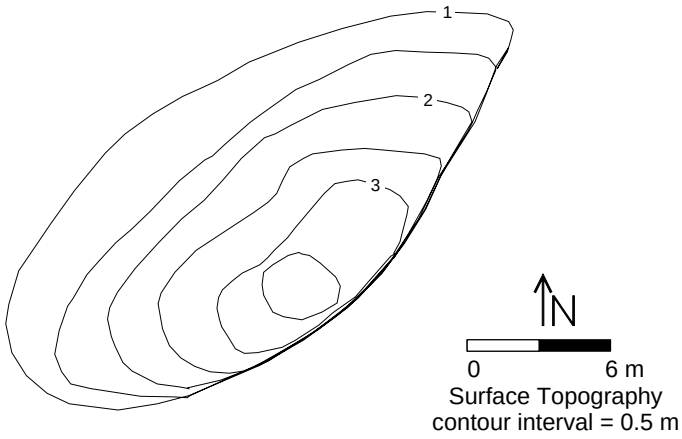
In 1970, Hemmings wrote the nomination for NRHP listing of this ring, but not much more has been written. A sketch map found on the cover of Lawrence's report (1989a) shows the site to be a closed ring about 73 meters in diameter. Apparently, Dorroh (1971:36) borrowed this sketch for her redrawing, coming up with about the same diameter. Dorroh (1971:36) indicated an "old excavation" on the southwest portion of the ring measuring about 20 by 40 feet (6.1 x 12.2 m). This may be a Waring excavation unit (see below). Gregorie (1925:16) suggested that the circumference at 600 feet (183 m), if circular, would make the diameter about 58 meters. This agrees with Judge and Smith's (1991:36) estimate of maximum diameter at 184 feet (56 m). Somewhere before 1965, Waring must have visited (and dug at) the site, for that year Waddell published a radiocarbon date on oyster shell collected by Waring (Sassaman and Anderson 1994:93). Waring's comment on the age also reveals that he identified Awendaw pottery from the site. No enumeration of recovered pottery has been reported.

The ring was listed on the NRHP in 1970 (Hemmings 1970d). Its current condition is unknown. Further study is needed to evaluate its potential for NHL consideration.

Crow Island, 38CH60	**Not Evaluated for NRHP**
No Map Available	
Shape	?
Diam. x Ht. (m)	60? x ?
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Trinkley 1980a:246

Trinkley (1980a:246) stated that "two other shell rings, Buzzards Island (SoC^v57) and Crow Island (SoC^v268), are found within 2,000 feet of Stratton Place." In the NRHP nomination sheet for Stratton Place, Lawrence (1991b:1) stated that "other Early and Late Woodland period shell middens lie close by, and one undoubted shell ring (Buzzards Island, 38CH23) and one likely shell ring (Crow Island, 38CH60) both occur within a half mile of Stratton Place." An aerial photograph shows Crow Island to be C-shaped, with about the same diameter as that of the nearby Buzzards Island shell ring. But no ground truthing has been conducted to verify its shape, content, or cultural affiliation. Crow Island remains a possible Archaic shell ring. More study is required to determine its potential for NHL consideration.

Spanish Mount, 38CH62 NRHP listed



Shape	?
Diam. x Ht. (m)	28? x 2.9
Area Excavated (m^2)	24
Radiocarbon Dates	3820+/-185; 4170+/-350
Stone	1 PP
Bone	# pins
Archaic Ceramics	>5,008 Thoms Creek, 424 fiber-tempered
Other	0
References	Cable 1993

Virtually all archeologists have referred to this site as a shell midden or mound except Cable (1997). It dates to the time of Archaic rings, contains the same type of artifacts found in Archaic rings, and contains the same species of shell that make up the matrices of Archaic rings. Yet it is not ring shaped, semicircular, or otherwise arcuate. Cable (1993) explained that this was due to the fact that most of the ring has eroded away and that the ring plaza was infilled with shell before it was abandoned. In other words, at one time it was a shell ring, but ultimately, during its last usage, the ring had been filled in. Thus, the site would more accurately be described as a shell midden or mound before it was abandoned because any ring function in which the plaza was used for public intercourse would have been precluded by the infilling. Cable's (1993, 1997) reasoning for this conclusion regards ceramic distributions too complicated to discuss here (cf. Russo and Heide 2003). His idea that rings were constructed with quarried shell/midden and ultimately infilled to make a mound provides a testable alternative hypothesis to the theories that rings were built from the direct deposit of shell resulting from habitation (Trinkley 1980a) or ceremonial feasting (Russo 2004) activities.

Sutherland (1974) placed a number of trenches of varying sizes into the midden in addition to a 1-by-1-meter unit (TU11). Trench 1, consisting of four separate 2-by-2-meter sections, was 8 meters long. The other trenches, although irregular in shape, measured approximately 2 by 1 meters (Trench 2), 1.5 by 1.5 meters (Trench 3), and 2 by 1.5 meters (Trench 4), according to a map (Cable 1993:159; Sutherland 1974:26).

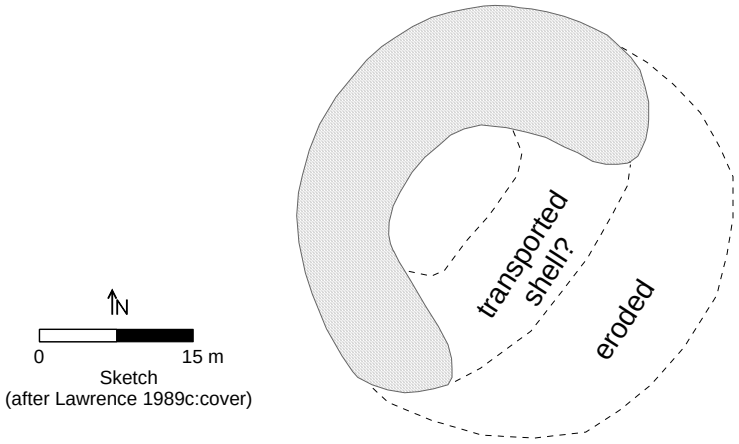
Trinkley (1976:15) studied 3,693 Thoms Creek sherds from the Sutherland excavations and surface collections. Cable (1993:173) studied 5,432, apparently from the same collection. He identified 424 fiber-tempered sherds, assigning the rest to two sand-tempered series, Thoms Creek and Horse Island (Cable 1993:180–181). It is unclear if the sherds from these two studies are from the same collection. To play it safe, we have listed only the larger sample numbers in the summary table above. Sutherland (1974:31) noted that a Savannah River projectile and a few incised bone pins were recovered.

Listed on the NRHP in 1974, this Late Archaic site is significant regardless of any connection to its possible shell-ring status. Any consideration for nomination to the NHL under this historic context would require critical review of the registration requirements. It appears that Spanish Mount would not meet the requirements for inclusion in that it lacks integrity related to its original shell-ring shape.

Hobcaw, 38CH?	**Not Evaluated for NRHP**
No Map Available	
Shape	?
Diam. x Ht. (m)	?
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Gregorie 1925:18

Gregorie's (1925:18) mention of Hobcaw near Charleston Harbor is the only indication that this site is possibly a shell ring. After describing the Auld shell ring, she stated that "on Mr. J. M. Muirhead's plantation, Hobcaw, there is a similar circle." A map associated with the article shows a shell heap at "Hobcaw Point." Using this as a reference, others have similarly mapped the location of the supposed shell ring (Heide and Russo 2003:2; Russo and Heide 2003:5). It is unclear if this particular site has ever been recorded in the state files. More investigation is needed to determine if this site is a shell ring.

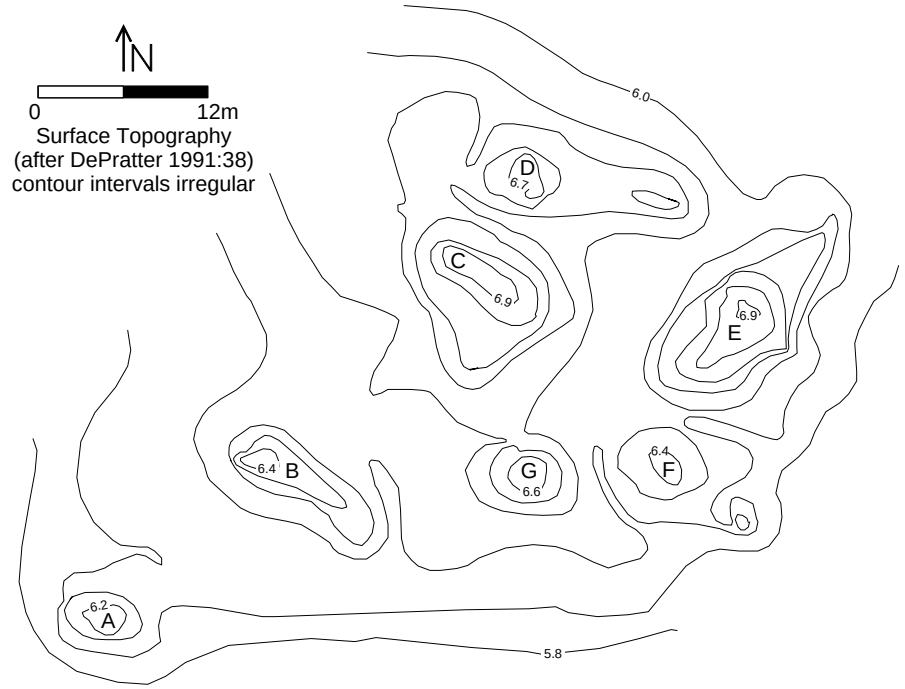
Oemler, 9CH14 — Possible Archaic Shell Ring



Shape	closed circle
Diam. x Ht. (m)	30 x 1.5
Area Excavated (m^2)	9
Radiocarbon Dates	n/a
Stone	0
Bone	1 pin
Archaic Ceramics	38 fiber-tempered, 6 Awendaw
Other	2 baked clay fragments
References	DePratter 1976:104–106; Marrinan 1975:125–126; Waring 1968a:182

Waring (1968a:182) identified the ring as one of two "oyster shell piles" (also see Walthour, next section) in the marsh with "curious atoll-like, ring formation(s), the centers of which contain nothing but low marsh and no shell." DePratter (1976:104) described it as a ring-shaped midden 30 meters in diameter with a narrow opening on its western side. But there is some confusion with another nearby site (9CH14A) that lies to the south. This midden (9CH14A), he described as "tear-drop" shaped, not as a shell ring (DePratter 1976:106–107). However, the Georgia Archaeological Survey form for 9CH14A describes the midden as a shell ring, and 9CH14 only as a deposit, with the words "shell ring" crossed out (DePratter 1978). This may just be a mix-up between the two sites. But the shell-ring form describes the ring from 9CH14 as 45 meters in diameter, not 30 meters as suggested by DePratter (1976:105). Originally, Waring (1968a:182) stated that the ring is no more than 23 meters in diameter. For the purposes of this study, we have assumed that the ring variably referred to as either 9CH14 or 9CH14A is the same as that described by Waring. The three different size estimates cause problems. In terms of height, Waring suggested the ring is "not more than four feet high" (1.2 m), while DePratter (1976:105) stated that the ring stood up to five feet (1.5 m). The survey form stated 1.2 meters. We have chosen to use DePratter's measures for our summary statistics because they are associated with the most detailed description of the site. Waring placed one 10-by-10-foot (3 x 3 m) unit in the ring; DePratter surface collected (Marrinan 1975:126–126). The total area of excavation was 9 square meters. The site is Archaic and is likely a shell ring. More work is needed to confirm this assessment.

Walthour, 9CH16 — Not an Archaic Shell Ring



Shape	U?
Diam. x Ht. (m)	30 x 1.2
Area Excavated (m^2)	567
Radiocarbon Dates	n/a
Stone	2 PP, 3 GS
Bone	14 pin, 2 other
Archaic Ceramics	147 St. Simons
Other	5 whelk
References	DePratter 1991:21–42; Waring 1968a:182

The Walthour Ring is the second “curious atoll-like, ring formation” mentioned by Waring (1968a:182). They estimated the “atoll” to be no more than 23 meters across. But a contour map produced between 1937 and 1942 showed the atoll-like ring of shell mounds to be about 30 meters across (DePratter 1991:38). And if two additional shell heaps outside the ring are included, the site is 60 meters in length. The same map shows the mounds of shell to rise as high as 3.5 feet (1.1 m) above the surrounding plain, not far from the 4 feet (1.2 m) suggested by Waring.

There is some doubt as to whether this site should be classified as an Archaic shell ring, however. The site is made up of a series of seven isolated shell heaps, not a continuous ring of shell. While isolated shell deposits can be found below rings (e.g., Thompson 2006), aboveground heaps are typically connected to form a ring wall. The shape of this site, if a ring, is hard to define; Caldwell and McCann described the arrangement of the shell heaps as “haphazard” (in DePratter 1991:37).

Of the 1,915 sherds classified by DePratter (1991:41), only 8 percent were Archaic. The contexts from which the bone pins and other artifacts were obtained, and their possible associations with Archaic materials is unclear. The site has been suggested to represent "a Wilmington component overlying a…sparse Deptford occupation" (DePratter 1991:32). At least thirteen excavation areas were placed; impacting all seven shell heaps that make up the site. Seven 10-by-10-foot (3 x 3 m) units were placed around the site, with five larger units within the site. The larger units ranged in size from 10 by 20 feet (3 x 6 m) to 20 by 70 feet (6 x 21 m). Our measures suggest that the total excavated area of the site is approximately 567 square meters, comparable to DePratter's (1991:39) 6,400 square feet (595 square meters).

The site has an Archaic component and contains shell, but is not likely an Archaic shell ring. It was extensively disturbed by archeological investigations in 1939 and 1940.

Cane Patch, 9CH35	**Not Evaluated for NRHP**
No Map Available	
Shape	?
Diam. x Ht. (m)	? x 3
Area Excavated (m^2)	4
Radiocarbon Dates	n/a
Stone	1 flake
Bone	10 pin, 2 awl
Archaic Ceramics	>1,000 fiber-tempered (St. Simons)
Other	# (several) antler, 2 whelk
References	DePratter 1976:72, 107–109; 1974

DePratter (1976:72) suggested that "a portion of a circular rim appears to be present, so the site may have originally been a ring." The midden has been mined, with the remaining portions some 150 feet (46 m) in diameter, with a "ridge running 50 to 60 feet (15–18 m) along the western edge of the midden area" (DePratter 1976:107). He noted the site was 10 feet (3 m) thick. DePratter (1976:72) stated that the site contained fiber-tempered sherds and that of the over 1,000 sherds recovered, many were decorated (DePratter 1976:109). A single 3-by-15-foot (0.9 x 4.5 m) trench was placed in the midden.

The site is Archaic and contains shell in a semi-circular distribution. It is thus considered a possible shell ring. More study is need for consideration as an NHL.

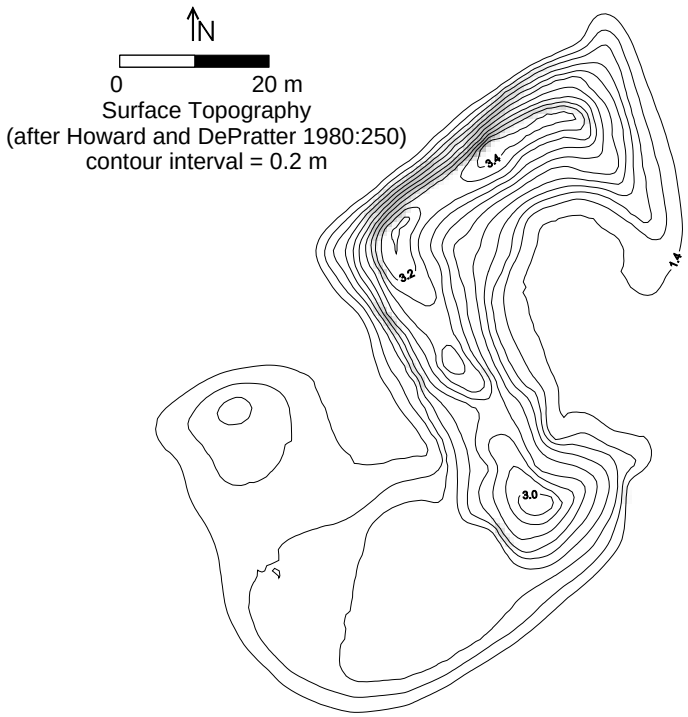
Large and Small Skidaway 9, 9CH63	**Not Evaluated for NRHP**
No Map Available	
Shape	?
Diam. x Ht. (m)	61 and 30 x 1.5
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Beasley 1970:118–119

Very little work has been done on these rings save a walk-over reconnaissance. Although Beasley (1970) suggested that the absence of pottery might indicate that the rings were preceramic Archaic in origin, no excavations have been placed at the site. More work should be undertaken to confirm cultural affiliations and site type.

Skidaway 21, 9CH75	**Not Evaluated for NRHP**
No Map Available	
Shape	?
Diam. x Ht. (m)	?
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	0
Other	0
References	Beasley 1970:118–119

The location of this possible ring was reported to Beasley (1970:13), but virtually nothing is known about it. Apparently, no archeologist has ever visited it, and, as with 9CH63, no excavations have been conducted here. More study is need for consideration as an NHL.

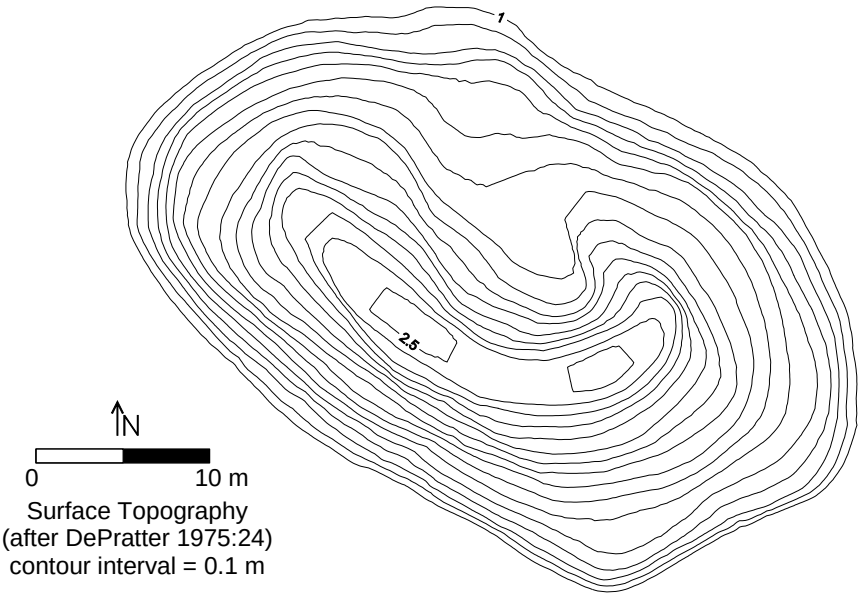
Skidaway, 9CH77 — Not Evaluated for NRHP



Shape	C
Diam. x Ht. (m)	77 x 2.3
Area Excavated (m^2)	1.35
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	173 St. Simons
Other	0
References	DePratter 1976:115–117; Howard and DePratter 1980:250–252

Portions of the site shape have resulted from wave-deposited shell, perhaps shell eroded from the northern section of the site. If only the tallest ridges are taken into consideration, the "ring" seems less ring-like than square. The two ridges form an almost perfect 90 degree angle. Howard and DePratter (1980:252) suggested the site was originally a closed circle that eroded into its current shape DePratter (1976:115–116) described this "main part" of the ring as "an angular C-shaped ridge." He suggested it bounds a plaza with no buried shell. If the entire site is considered, however, it forms what might best be described as an S-shape. Only a few post-Archaic sherds have been recovered. A single 3-by-5-foot (0.9 x 1.5 m) test pit was placed by DePratter. Although its shape, shell contents, and Archaic artifacts identify it as a shell ring, determining its original shape and size will require more study before it can be considered for NHL determination.

Odingsell, 9CH111 — Not Evaluated for NRHP



Surface Topography
(after DePratter 1975:24)
contour interval = 0.1 m

Shape	C
Diam. x Ht. (m)	77 x 1.5
Area Excavated (m^2)	1.6
Radiocarbon Dates	n/a
Stone	2 PP
Bone	1 pin
Archaic Ceramics	210 St. Simons
Other	4 baked clay fragments
References	DePratter 1975:23–26; 1976:117

There is some doubt, due to its shape, as to whether Odingsell qualifies as an Archaic shell ring. On DePratter's (1975:24) contour map, it looks more mound-like than ring-shaped. DePratter (1975:24) called it a crescent-shaped shell midden, but did not refer to it as a ring. On the Georgia Archaeological Survey form, the site is described as a "small C-shaped shell midden. Only on an attendant "record of materials form" is it called a "fiber-tempered shell ring."

Most artifacts from the site were obtained through surface collections. The single excavation unit, measuring 3 by 6 feet (0.9 x 1.83 m), was placed by DePratter near the western end of the shell midden. Only a few non-Archaic artifacts were found on or near the surface of this unit. However, numerous plain and punctated St. Simons ceramics, four baked clay fragments, and a single bone pin were recovered (DePratter 1975:25–26). More investigation is needed to determine if Odingsell is in fact a remnant of a shell ring.

Ossabaw 77, 9CH203	**Not Evaluated for NRHP**
No Map Available	
Shape	C
Diam. x Ht. (m)	45? x 0.9
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	5 St. Simons
Other	1 whelk
References	DePratter 1976:72, 107–109; 1974:33

DePratter (1976:72) mentioned this site as "a second ring-shaped midden," south of the first, Cane Patch, 9CH35. DePratter (1974:33) stated that this crescent of nearly pure oyster shell with little soil abuts the shoreline on each end, and that the center of the crescent is 100 feet (30 m) from the marsh edge, while the ring ranges from 3 to 15 meters in wall width. With this in mind, 30 meters plus a 15-meter wall width would result in an estimated 45-meter ring diameter.

DePratter (1976 and 1974) did not indicate that any excavations were carried out here. Artifacts were apparently surface collected. Based solely on DePratter's assessment, this is considered a possible Archaic shell ring. More study is need for consideration as an NHL.

Bony Hammock, 9GN53	**Not Evaluated for NRHP**
No Map Available	
Shape	C
Diam. x Ht. (m)	30 x 2.1
Area Excavated (m^2)	1.6
Radiocarbon Dates	n/a
Stone	?
Bone	?
Archaic Ceramics	>4FT
Other	2 baked clay fragments
References	DePratter 1976:130

It is unclear what the shape of Bony Hammock was at the time of its discovery and how much, if any, of the site remains. DePratter noted that the oyster-shell ring was C-shaped at one time, but had been greatly reduced by mining (DePratter 1976:130). The baked clay artifacts recovered from the lowest levels of DePratter's 3-by-6-foot (0.9 x 1.8 m) excavation unit indicated an Archaic component, but he noted that the midden was not abundant with ceramics. More study is need for consideration as an NHL.

Goodyear Mound, 9GN54	**Not an Archaic Shell Ring**
No Map Available	
Shape	?
Diam. x Ht. (m)	?
Area Excavated (m^2)	0
Radiocarbon Dates	?
Stone	?
Bone	?
Archaic Ceramics	?
Other	?
References	Barnes 2000:15; DePratter 1976:131

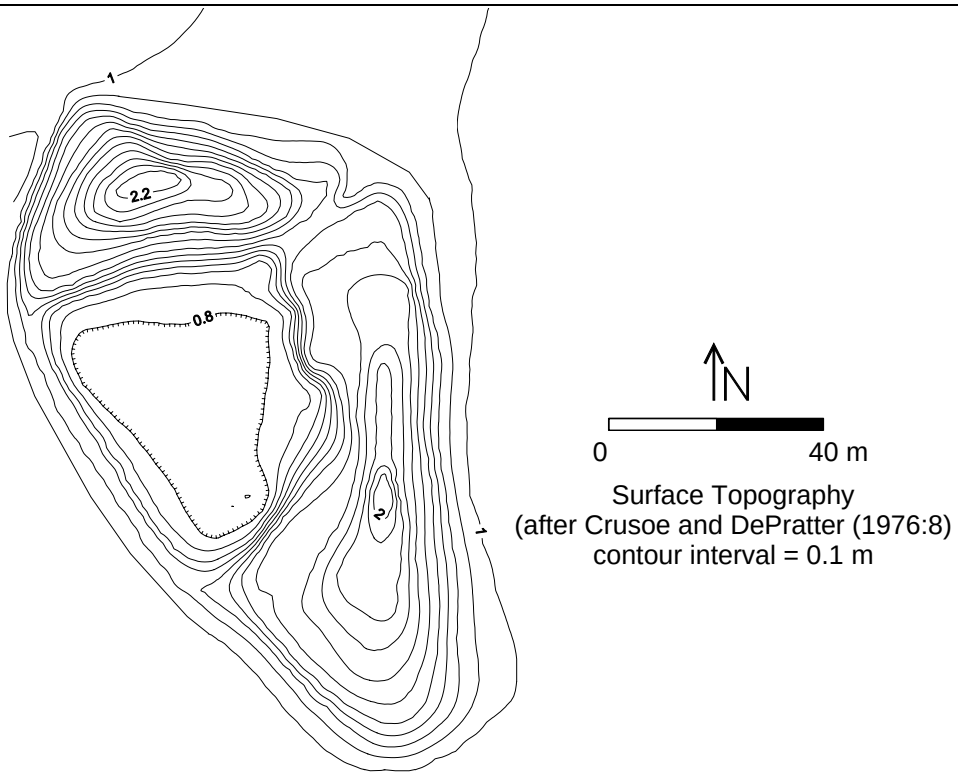
The Georgia Archaeological Survey form calls this site a Savannah-period shell heap, while Barnes (2000:15) refers to it as an Archaic shell ring. DePratter (1976:131) identified the Cannon's Point shell ring (9GN57) as 9GN54, which may be the source of confusion. The Goodyear Mound (9GN54) is not a shell ring.

Long Field Crescent, 9LI231	**NRHP listed**
No Map Available	
Shape	crescent
Diam. x Ht. (m)	? x 0.7 m
Area Excavated (m^2)	3
Radiocarbon Dates	4370 ± 90 B.P.; 3860 ± 80 B.P.
Stone	0
Bone	0
Archaic Ceramics	266, mostly St. Simons
Other	0
References	Reitz and Quitmyer 2006; Thomas 2006

Thomas (2006) states that the site is a medium-sized, crescent-shaped shell midden—a shape, he notes, is characteristic of the Late Archaic. The ring is at least 70 centimeters thick, or high, based on the shell sample obtained from between 60 and 70 centimeters, which was used for a radiocarbon age from Test Pit 1. Three test pits were excavated, and 2.6 cubic meters of material recovered. This suggests that the test pits may have been 1-by-1-meter units. The St. Simons ceramics were obtained from these test pits (David Hurst Thomas, personal communication 2006). As at most other rings, multiple seasons of occupation are evidenced in the faunal remains at Long Field Crescent, with year-round occupation not precluded in the absence of larger analyses.

A draft paper discussing comparative zooarcheological assemblages from two shell-ring sites states that "two of the sites are classic sea island Archaic shell rings. The northernmost assemblages are from the Archaic St. Catherines Island Shell Ring (Long Field Crescent, 9LI231; Reitz 1990) and St. Simons Island Marsh Ring (9GN57; Marrinan 1975)" (Reitz and Quitmyer 2006). The authors conclude that the use of vertebrates cannot conclusively be linked to either ritual feasting or quotidian consumption. Based on the investigators' studies, the site appears eligible for nomination to the NRHP as shell ring based on Criterion D. It is currently listed as a contributing element for the St. Catherine's Island NHL, although it is not identified as an Archaic shell ring. Upon further study, if high site integrity is present, it may be identified as a potential NHL under this historic context.

Busch Krick, 9MC87 — Not Evaluated for NRHP



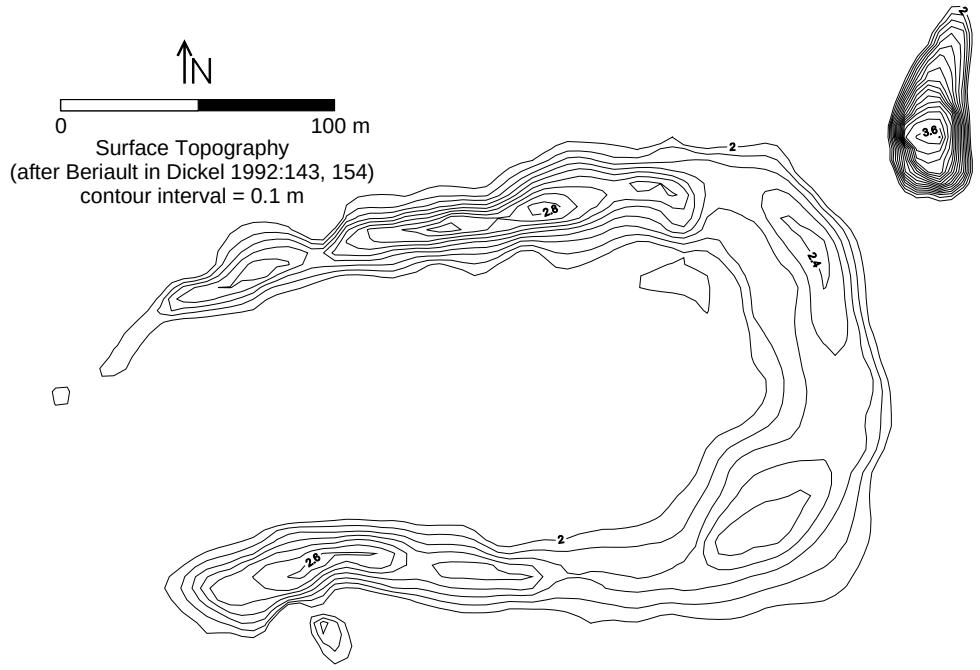
Shape	horseshoe
Diam. x Ht. (m)	40 x 2.4
Area Excavated (m^2)	40
Radiocarbon Dates	3625 +/-80; 3470 +/-85
Stone	1 flake
Bone	0
Archaic Ceramics	566? fiber-tempered
Other	# antler, # whelk
References	Crusoe and DePratter 1976:7–9; Marrinan 1975:126

Crusoe and DePratter (1976:7) called the ring "horseshoe-shaped," with its shape likely the result of severe erosion. It appears, however, angular like 9Ch77. They excavated a 6-by-6-foot (1.8 x 1.8 m) unit and a 3-by-15-foot (0.9 x 4.6 m) unit. All ceramics were fiber-tempered except for a few sand-tempered sherds recovered in the top 6 inches (Marrinan 1975:126). Marrinan suggests that a crushed zone represented a living floor. As is typical of such zones in shell rings, this one is found as the first (lowest) layer of shell, while all layers above it consisted mostly of whole, piled oyster shell (Crusoe and DePratter 1976:7). Marrinan (1975:126) also reported an unspecified number of antler and whelk tools. The extent of the site's damage still needs to be determined. But it remains a potential source of important information on shell rings on the regional and national levels. As such, under Criterion D, it is potentially eligible for listing in the NRHP.

Barbour Island, 9MC320	**Not Evaluated for NRHP**
No Map Available	
Shape	arc
Diam. x Ht. (m)	65 x 4
Area Excavated (m^2)	0
Radiocarbon Dates	n/a
Stone	0
Bone	0
Archaic Ceramics	37 fiber-tempered
Other	0
References	DePratter 1984

On a state site form, DePratter (1984) noted that this site was "once a complete ring" with the appearance of an "arch-shaped shell ridge." He stated that the "would-be center of the ring has very little shell." Ceramics apparently came from a surface collection, as did a few post-Archaic sherds. No excavations have been placed. This may have been the site Moore (1897:71) mentioned when he described Sapelo Ring 1, as "one of those symmetrical works of the aborigines made by piling shell through a period of time to form some definite shape such as [the] great ridge on Barbour's Island not far from Sapelo…." Excavation and mapping are required to confirm the site's identification as an Archaic shell ring and possible consideration for NHL status.

Bonita Bay, 8LL717, and Mound, 8LL716 — Eligible NRHP



Shape	U with detached mound
Diam. x Ht. (m)	230 x 1.1
Area Excavated (m^2)	>77.5
Radiocarbon Dates	3870+/-70; 4120+/-70; 4180+/-70; 4260+/-70
Stone	1 limestone slab
Bone	3 pins/awls, 1 silicified?
Archaic Ceramics	0
Other	7 whelk
References	Dickel 1992; Houck 1996; Hughes 1996, 1998

This site is also known in the gray literature as Estero Bay Park, the Boone's Farm Site, and Bonita Bay Shell Works Site (Dickel 1992; Hughes 1998:1). The shape of the ring and nearby mound was obtained from precisely mapped surface topographies by John Beriault (Dickel 1992:143). At 235 meters in length, the ring is among the largest horizontally, but is not very high. Its relatively short stature may, in part, be due to historic mining and leveling.

Dickel (1992:158–159) stated that he placed "a single test on the higher ridge elevation on the SW arm." He did not state how much of the site he dug during his survey, except to note that in the general site area "subsurface shovel tests were placed randomly, about every 20 meters on the higher sand ridges" (Dickel 1992:53). The ring, of course, is not a sand ridge, but is made of shell. We can assume he dug more tests

than these from his statement that "tests all along the interior and exterior margins of the shell ridges revealed an interesting fact…" (Dickel 1992:158). Hughes (1998:2) suggested that most of Dickel's tests were placed not in the shell ring but in the surrounding area to determine where the site ended, and were largely negative, accounting, perhaps, for the paucity of artifacts recovered. In a personal communication (2006), Dickel confirmed that most of his "shovel tests" were actually posthole tests placed just outside the edges of the ring walls. He also said that the "single test on the higher ridge" was actually a looter's hole in which he cleaned off the profiles, and from which no artifacts were recovered (Dickel personal communication 2006).

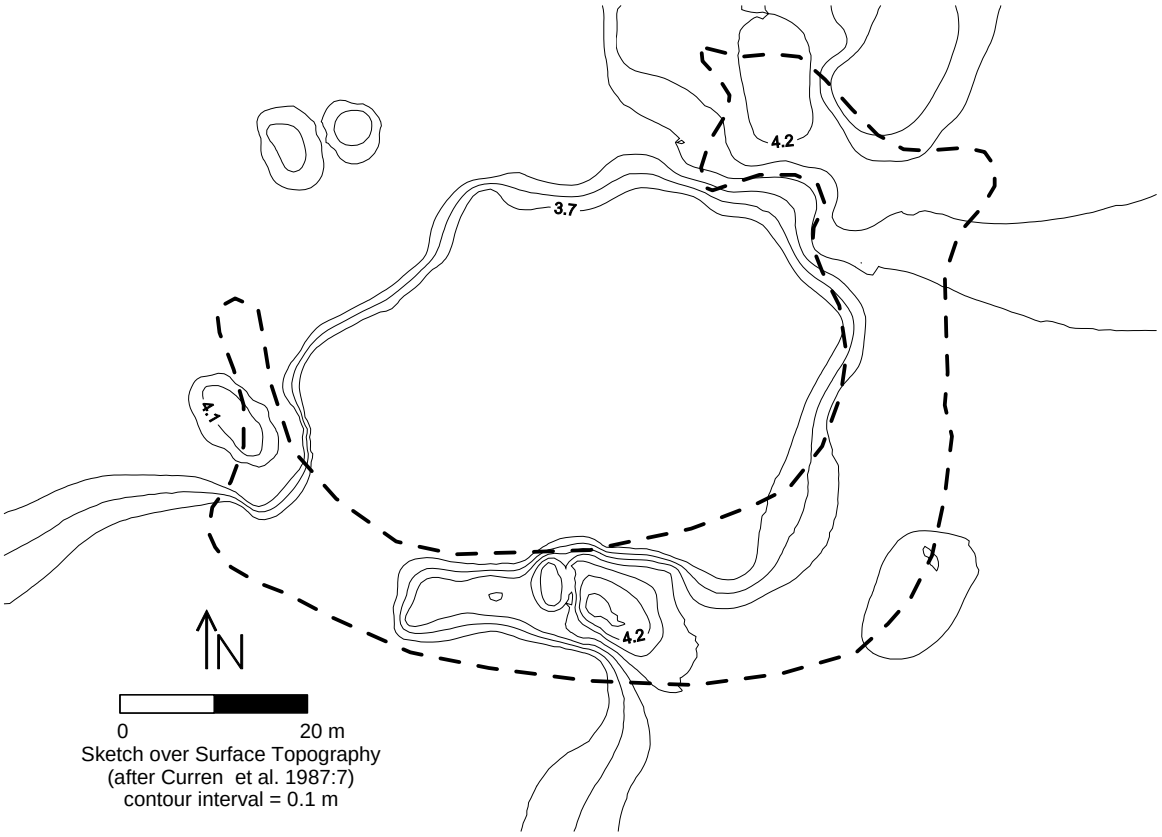
Dickel (1992:142) placed one test of unknown size in the adjacent sand/shell mound (8LL716), but terminated it at 30 centimeters below surface due to an encounter with a fragment of human cranium. The cultural association of the human remains is unclear since only one abbreviated test was placed. That test also yielded one post-Archaic ceramic. The mound's proximity to the ring suggests some contemporaneous association, but the ceramic does not. In other words, if the ceramic is associated with the burial, neither may be associated with the construction of the mound. However, the mound may be Archaic, and both the human remains and ceramic may be intrusive. Similar intrusion is found at the nearby Horr's Island, Mound A where burials post-dated mound construction.

In 1993, Houck (1996) excavated six 1-by-2-meter units in the ring prior to road construction across the southwestern arm of the shell ring. After the units were completed, a backhoe was used to open adjacent areas. Four 1-meter-wide trenches, measuring 9 meters, 2 meters, 1 meter, and 38 meters long, were placed next to the units. In addition, Houck excavated a 2-by-3-meter unit. Heavy machinery was used to scrape the entire right-of-way across the ring in order to reveal features, but none were found. The precise area uncovered is unclear, but it might have been as much as 5,000 square meters (Houck 1996:11).

In 1996, fifty-eight 0.5-by-0.5-meter shovel tests and one 1-by-2-meter excavation unit were placed in the plaza prior to construction for a parking lot (Hughes 1998:5). No artifacts were recovered in the 1/4-inch mesh screens used. Of all the testing and excavations at the site, only Houck described recovering any artifacts. The few whelk and limestone artifacts he found reflect types also found at the nearby Horr's Island ring, while the bone pin artifacts are of types typically found at other shell rings.

A large parking lot, roadways, and a private museum, dedicated, in part, to bringing the site's cultural importance to the public's attention, occupy much of the surface of the site. Nevertheless, most of the ring and the nearby mound remain intact. Under Criterion D, the site is eligible for listing in the NRHP. More study is needed to determine the cultural affiliation of the mound and the integrity of the ring before they can be considered for NHL status under this historic context.

Meig's Pasture, 8OK102 — Unknown



Shape	C
Diam. x Ht. (m)	77 x 0.9
Area Excavated (m^2)	150+
Radiocarbon Dates	3036+/-60; 3630+/-50; 3690+/-50; 4030+/-90; 4070+/-80; 4100+/-80
Stone	2 sandstone hone
Bone	1 awl
Archaic Ceramics	0
Other	2 whelk, # baked clay object fragments
References	Curren et al. 1987; Thomas and Campbell 1991

The radiocarbon ages and apparent C-shape are the primary traits that suggest this site may be a Late Archaic shell ring. Militating against its identification as a shell ring is the absence of shell in much of the ring and the general lack of shell mounding anywhere. Shell, when found, seems to have been placed in pit features.

In 1976, Benton reported that the site was a 70-by-20-meter linear shell midden with two 5-by-5-foot (1.5 x 1.5) excavation units dug by amateur archeologists. The two extant units were cleaned and profiled by

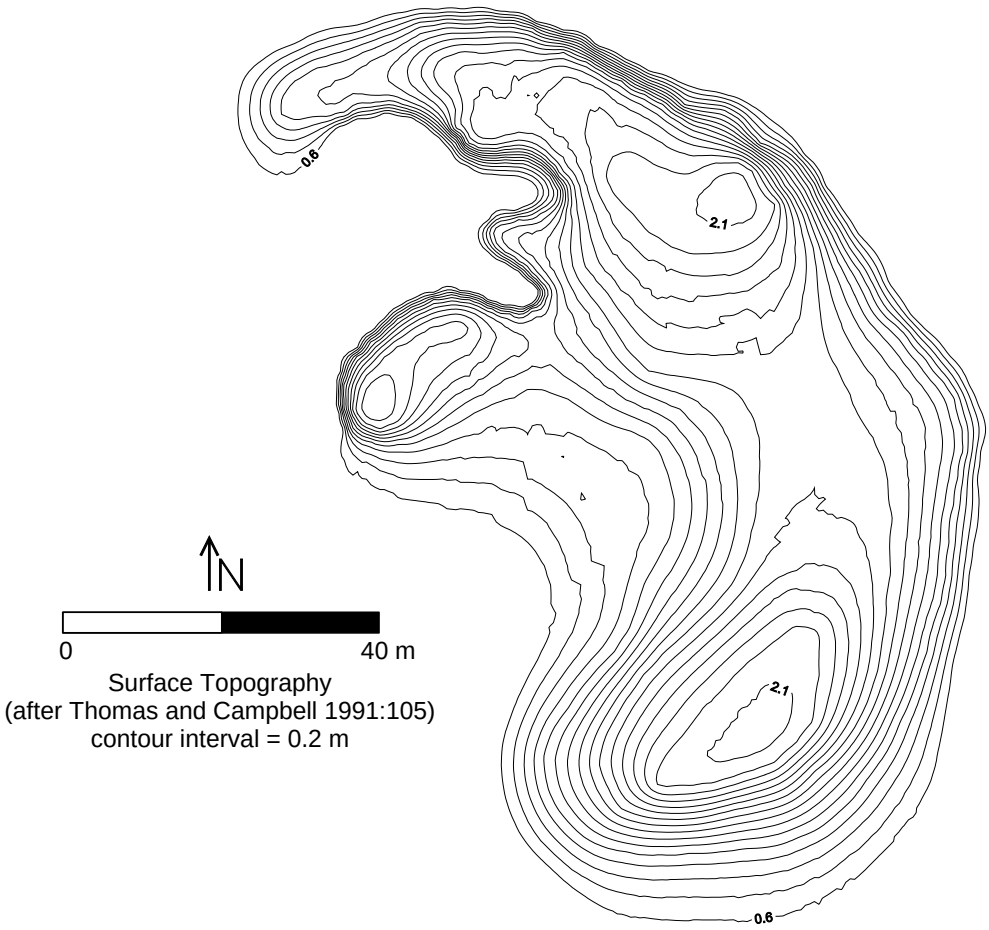
Benton (1976:36), who also placed a small test pit in the site. Only two whelk artifacts were recovered (Benton 1976:38, 40). The amateur's report stated that fired clay fragments were found in the tests, and that the second test produced a bone awl and two small sandstone hone fragments (Benton 1976:47; Sharon 1967:47).

In a letter dated October 16, 1984, Thomas challenged Benton's description of the site as a linear midden. Basing his analysis on 125 shovel tests of unstated sizes, Thomas suggested that the site was horseshoe shaped, measuring some 120 by 90 meters with an opening to the northwest (Thomas and Campbell 1991:105). He noted, however, that the northwest end of the arm of the C did not contain shell, thus rendering the ring more arc- than C-shaped (see Thomas and Campbell 1991:106). Thomas's shovel tests yielded "several flakes of quartzite and several fragments of baked clay" (Thomas 1984:2).

Apparently using the Thomas map as a guide, Curren placed six trenches across the ring and into the plaza (Curren et al. 1987:18). The trenches were each 1 meter wide, but varied in length as follows: Trench 1 = 34 m; Trench 2 = 32.5 m; Trench 3 = 30.5 m; Trench 4 = 20.5 m; Trench 5 = 12 m; and Trench 6 = 18 m. These showed the shell deposits to be sporadically distributed in pits and sheet middens, with little to no mounding. (The height in the summary table refers to the depth of the deepest shell pit rather than the height of shell above a level plaza). No contiguous ring of shell exists, which may indicate the site was a ring in the making (see Sapelo 3) or a ring that had been mined for its upper level shell, leaving behind mostly sub-ring features (see Coosaw 3 and Lighthouse Point). If a true shell ring, it is unusual. Curren suggested that the plaza area may have represented a spring head; if so, this would suggest that the site is not an Archaic shell ring—a site type defined by mounded shell surrounding a central plaza, not a spring. The shape of the ring presented by Curren differs somewhat from that presented by Thomas and Campbell (1991:106). Curren noted thinner ring wall widths overall and shell in the northwest arm where Thomas and Campbell showed none existed (Curren et al.1987:6). Curren also showed a differently configured shell distribution in the northeast arm, where, curiously, the archeologists seem not to have tested (Curren et al. 1987).

Thomas (1984) stated that the site was scheduled for destruction in advance of development. It has presumably been destroyed. Identifying the site as a shell ring remains problematic due to its lack of mounded shell, the vagaries in investigation and reporting regarding its shape, and the possibility that no plaza is present. Clarification of these aspects needs to be determined in order to ascertain eligibility under the NHL historic context for Archaic Shell Rings of the Southeast United States. The point may be moot, however, if the site has been destroyed. More study is needed to determine its present condition.

Buck Bayou, 8WL90 — Unknown



Surface Topography
(after Thomas and Campbell 1991:105)
contour interval = 0.2 m

Shape	C
Diam. x Ht. (m)	120 x 1.2
Area Excavated (m^2)	4
Radiocarbon Dates	n/a
Stone	# steatite
Bone	# pins
Archaic Ceramics	0?
Other	# baked clay object, # shell beads
References	Thomas and Campbell 1991

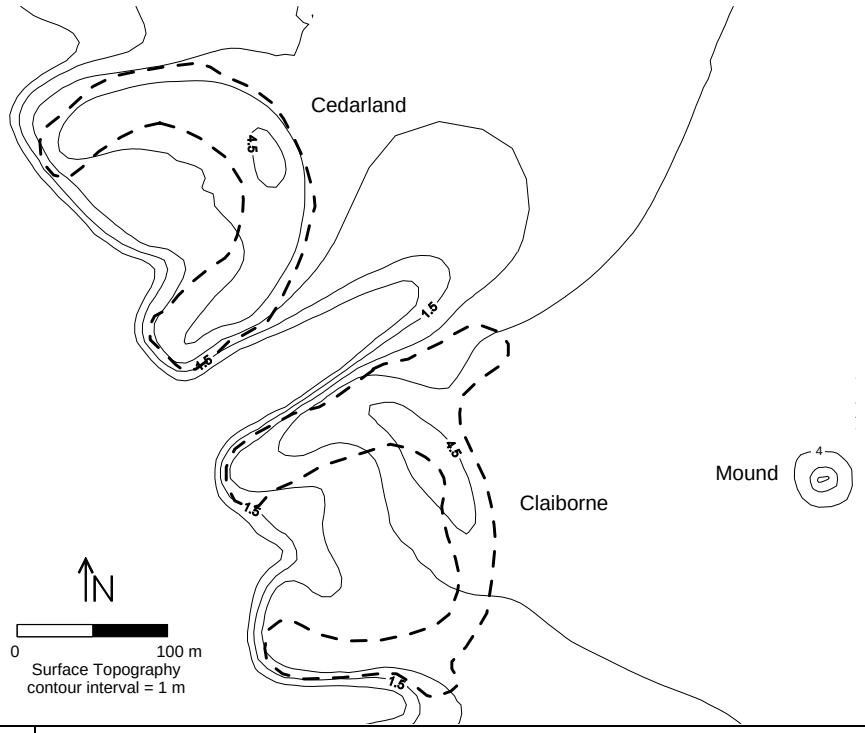
The site is a shallow C-shape, with its ring walls wider than the plaza—an unusual set of parameters for a shell ring. The ring seems to have suffered from mining, perhaps altering its dimensions in unknown ways.

Classifying Buck Bayou as an Archaic shell ring is somewhat problematic. Only one significant primary publication describing the site exists (Thomas and Campbell 1991), and its goal was not to describe the structure of the site or detail the artifacts recovered, as much as to present an overview of the artifacts and an interpretation of their significance to a regional trade network. The report noted the artifacts recovered from a 2-by-2-meter unit, linking them culturally not to the Atlantic coast Archaic shell-ring cultures, or even contemporary Late Archaic shell-ring cultures on the Gulf coast, but to the lower Mississippi Valley Poverty Point culture. Primary to this linkage is the presence of Poverty Point objects (i.e., baked/fired clay), which the authors described as being "scattered throughout the shell midden at Buck Bayou" (Thomas and Campbell 1991:108). No enumeration of the artifacts recovered from the site is given. Other markers of Poverty Point associations, such as Jaketown perforators and Motley and other points, do not seem to have been recovered at Buck Bayou, although they have been found at other nearby sites in limited numbers (Thomas and Campbell 1991:108–109). Steatite, a common artifact at Poverty Point sites, is present at Buck Bayou in unstated numbers, as are bone pins and beads (Thomas and Campbell 1991:108, 111). The authors wrote that "there seems to be a moderately active bone and shell tool industry associated with Elliott's Point"—the Late Archaic culture to which they assigned Buck Bayou. Thomas and Campbell (1991:111) illustrated two shell beads recovered from Buck Bayou. It is not clear if any fiber-tempered ceramics were recovered from the site, although they are present in the area (Thomas and Campbell 1991:113).

While all the features described (arcuate settlements, baked clay objects, steatite) are common to interior Poverty Point sites, they are also markers of the coastal Archaic shell rings described herein, and thus not exclusively associated with Poverty Point cultures or trade networks. Other objects at Buck Bayou, such as the relatively limited numbers of chipped stone, microflint, or lapidary artifacts, are common to coastal Late Archaic shell rings and distinct from Poverty Point sites. Also moderately active bone and shell tool industries are common to coastal Archaic shell rings and uncommon at Poverty Point sites. Therefore, Buck Bayou may, indeed, have held trade and cultural links to Poverty Point, but its connections to the characteristics of other regional shell-ring cultures seem equally strong.

More work needs to be undertaken at Buck Bayou to determine the causes for the intrusion of the thick ring walls into the apparent plaza. Artifacts must be enumerated and their stratigraphic positions mapped in order to determine if the site is an Archaic shell ring or the palimpsest of multiple occupations. Investigation of its current condition needs to be undertaken before consideration as an NHL is granted.

Cedarland, 22HC30 — Destroyed



Shape	C
Diam. x Ht. (m)	165 x 4
Area Excavated (m^2)	22.5+
Radiocarbon Dates	3200+/-130
Stone	# flakes, # PP
Bone	# awls
Archaic Ceramics	0
Other	# shell
References	Bruseth 1991; Gagliano and Webb 1970; Webb 1982

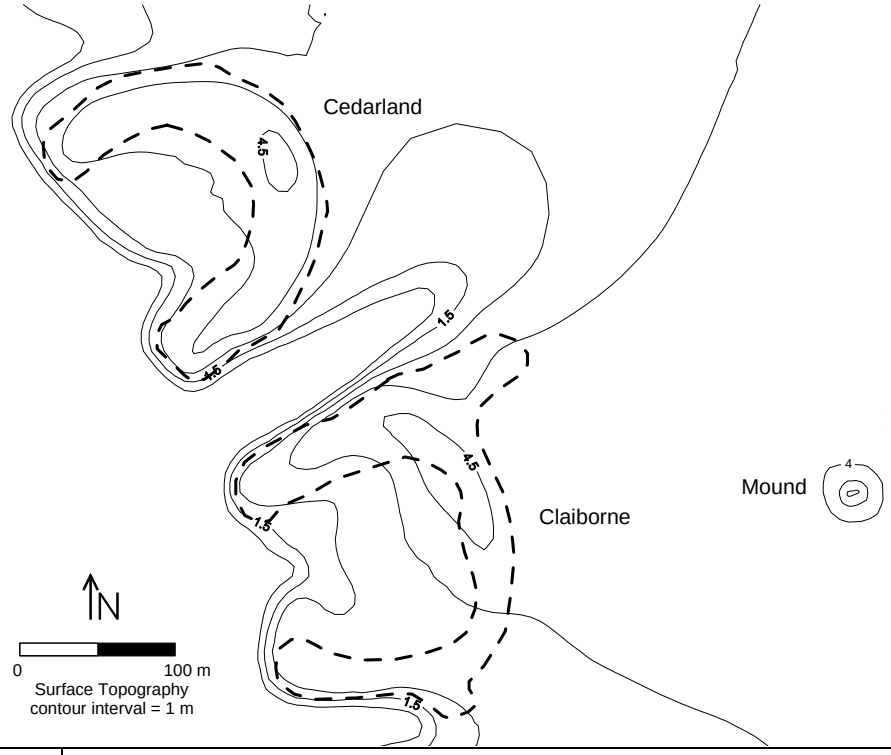
Before its destruction, the site was definitively identified as a C-shaped ring of shell surrounding a plaza. As such, it fits the basic registry requirements for shell-ring classification. It differs from Atlantic coastal shell rings in a number of ways. For example, the plaza may not have been entirely "clean" or "sterile" but rather filled with occupation debris and living floor features (Bruseth 1991:9; cf. Gagliano and Webb 1070:49). The relative abundance of chipped stone artifacts from the site seems to differ from typical Archaic shell-ring assemblages. Unfortunately, artifacts were largely recovered by local amateurs and were not enumerated in professional reports, other than to state relative abundances. Bruseth (1991:12), for one, notes that "abundant" artifacts included sandstone slabs, while "common" artifacts included a variety of stemmed projectile points, bannerstones, drills and microliths—typically considered uncommon at other ring sites. However, other "common" artifacts identified in the assemblage include typical Archaic

shell-ring objects, such as whelk gouges and scrapers, hard clam anvils, and “occasional” antler and bone tools (Gagliano and Webb 1970:68).

Gagliano and Webb (1970) dug an 85-meter-long trench across the ring (no width data was available), along with a 10-by-20-foot (3 x 6 m) excavation unit. Additionally, two 5-by-5-foot (1.5 x 1.5 m) units were placed by Bruseth in 1972 (1991:7, 11). It is unclear from where the artifacts came: the controlled or uncontrolled collections from the site, or the “restricted area” around the site.

Because the site has been destroyed, it does not meet registry requirements for shell rings under this NHL historic context. However, knowledge of its structure, artifactual contents and contexts, and environmental setting are important to our understanding of the social and environmental forces behind the rise and use of shell rings during the Archaic period.

Claiborne, 22HC35 — Destroyed



Shape	C
Diam. x Ht. (m)	200 x 2
Area Excavated (m^2)	unknown
Radiocarbon Dates	3100+/-110; 3385+/-140; 3470+/-160; 3990+/-80
Stone	# flakes, # PP, #steatite
Bone	# awls
Archaic Ceramics	# fiber-tempered
Other	# shell, >12,000 baked clay objects
References	Bruseth 1991; Gagliano and Webb 1970

Similar to the Cedarland site, Claiborne was definitively seen as C-shaped semi-circular ring of shell surrounding a plaza prior to its destruction. As such, it too fits the basic criteria for classification as a shell ring. However, it differed from Atlantic coastal shell rings in a number of ways. One, the predominant shell was not oyster, but wedge clam (*Rangia* sp.). Two, the ring seems to have been built on the slopes of bluff ridges, rather than through the piling of shell on level ground (Bruseth 1991:16). Three, the site is made up of a substantial amount of midden with little or no shell. The amount and kinds of artifacts also differed: over twelve thousand Poverty Point objects were recovered, steatite vessels were common, lapidary artifacts abundant, and lithic projectile points common. Exactly how many of each class of these artifacts were recovered has not been reported (Bruseth 1991:14–18; Gagliano and Webb 1070:66–69). The Claiborne site has been subjected to pot hunters, amateur archeologists, and bulldozers. Little professional

archeological work was carried out there. As a result, little to no data is available regarding the number of excavations.

We believe the Cedarland and Claiborne sites, which sit adjacent to each other, are sequential constructs of the same people, with Cedarland being an earlier Late Archaic village and Claiborne, a more recent Poverty Point Archaic village. While the limited Archaic radiocarbon ages recovered from Claiborne do not support this interpretation, the artifact assemblages seem to. Technically, these sites can be interpreted as shell rings and, as such, are evidence that the Poverty Point coastal cultures participated in a tradition of ring building that was widespread throughout the coastal southeastern United States.

Because the site has been destroyed, it does not meet registry requirements for shell rings under this NHL historic context. However, knowledge of its structure, artifactual contents and contexts, and environmental setting are important to our understanding of the social and environmental forces behind the rise and use of shell rings during the Archaic.

References

Anderson, David G.
1977 A History of Prehistoric Archaeological Investigations in the Coastal Plain of South Carolina. *South Carolina Antiquities* 9(2):367–398.

Anderson, David G., and Patricia Logan
1981 *Francis Marion National Forest Cultural Resources Overview*. USDA, National Forest Service, Columbia, South Carolina.

Anonymous
1969 Horse Island. *University of Georgia Notes*, November. Reprinted [1989a] in *Studies of Southeastern United States Aboriginal Shell Rings, Part 1*, edited by David R. Lawrence, pp. 103–110. Department of Geological Sciences, University of South Carolina, Columbia.

Aten, Lawrence E.
1999 Middle Archaic Ceremonialism at Tick Island, Florida: Ripley P. Bullen's 1961 Excavations at the Harris Creek Site. *The Florida Anthropologist* 52(3):131–201.

2002 *Late Archaic–Early Woodland Period Shell Rings of the South Atlantic Coast.* National Register of Historic Places, Multiple Property Documentation Forms. United States Department of the Interior, National Park Service, Atlanta.

Barnes, Mark R.
2000 *Late Archaic–Early Woodland Period Shell Rings of the South Atlantic Coast.* National Register of Historic Places Multiple Property Documentation Form. National Park Service, Atlanta.

Beasley, Dana
1970 *Archaeological Investigations on Skidaway Island, Chatham County, Georgia.* Proposal to the Branigar Organization. Ms. on file, South Carolina Institute of Archaeology and Anthropology, Columbia.

Bense, Judith A.
1994 *Archaeology of the Southeastern United States: Paleoindian to World War I.* Academic Press, New York.

1998 Santa Rosa-Swift Creek in Northwestern Florida. In *A World Engraved: Archaeology of the Swift Creek Culture*, edited by Mark Williams and Daniel T. Elliott, pp. 247–273. University of Alabama Press, Tuscaloosa.

Benton, Dale
1976 *Archaeological Survey of Bluewater Development, Okaloosa County, Florida.* Miscellaneous Project Report Series, No. 40, submitted to Henningson, Durham, and Richardson. On file, Florida Department of State, Division of Archives, History, and Records Management, Bureau of Historic Sites and Properties. Tallahassee.

Beriault, John G., Robert S. Carr, Mark Lance, and Steven Bertone
2003 *A Phase I Archaeological Assessment of the Ten Thousand Islands Collier County, Florida.* AHC Technical Report No. 434. Archaeological and Historical Conservancy, Miami. DHR Grant No. F0221. Submitted to the Rookery Bay National Estuarine Research Reserve.

Beta Analytic
2006a Report of Radiocarbon Dating Analysis for Samples Beta-213395 and Beta-213398. Beta Analytic, Miami. On file, Southeast Archeological Center, National Park Service, Tallahassee.

2006b Report of Radiocarbon Dating Analysis for Samples Beta-213396, Beta-213397, Beta-213399, and Beta-213400. Beta Analytic, Miami. On file, Southeast Archeological Center, National Park Service, Tallahassee.

Bragg, Laura M.
1925 An Indian Shell Culture in South Carolina. *The Charleston Museum Quarterly* 1(2):3–7.

Brandau, Betty Lee, and John E. Noakes
1972 University of Georgia Radiocarbon Dates II. *Radiocarbon* 14(2):486–497.

Brooks, Mark J., Peter A. Stone, Donald J. Colquhoun, and Janice G. Brown
1989 Sea Level Change, Estuarine Development and Temporal Variability in Woodland Period Subsistence-Settlement Patterning on the Lower Coastal Plain of South Carolina. In *Studies in South Carolina Archaeology: Essays in Honor of Robert L. Stephenson*, edited by Albert C. Goodyear III and Glen T. Hanson, pp. 91–100. Anthropological Studies 9. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Bruseth, James E.
1991 *Poverty Point Development as Seen at the Cedarland and Claiborne Sites, Southern Mississippi*. In *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 7–25.Geoscience and Man 29. Louisiana State University, Baton Rouge.

Buckley, James D., and Eric H. Willis
1969 Isotopes' Radiocarbon Measurements VII. *Radiocarbon* 11(1):53–105.

Bullen, Ripley P., and Adelaide K. Bullen
1976 *The Palmer Site.* Florida Anthropological Society Publications, No. 8., Gainesville. Issued as *The Florida Anthropologist* 29(2), Part 2.

Bullen, Ripley P., and James B. Stoltman (editors)
1972 *Fiber-Tempered Pottery in Southeastern United States and Northern Columbia: Its Origins, Context, and Significance.* Florida Anthropological Society Publications, No. 6., Gainesville. Issued as *The Florida Anthropologist* 25(2), Part 2.

Cable, John S.
1993 *Cultural Resources Survey and Archeological Site Evaluation of the Edisto Beach State Park, Colleton County, South Carolina*. New South Associates Technical Report 165, Stone Mountain, Georgia. Submitted to South Carolina Parks, Recreation, and Tourism, Columbia.

1995 *Intensive Archaeology Survey of Salt Pond, South Tibwin, Palmetto Plantation, and Brick Church Tracts, Wambaw Ranger District, Francis Marion National Forest, Charleston County, South Carolina*. Cultural Resource Management Report 94-07. New South Associates Technical Report 243, Stone Mountain, Georgia. Submitted to Francis Marion and Sumter National Forests, U.S. Department of Agriculture, Forest Service, McClellanville, South Carolina.

1997 The Ceremonial Mound Theory: New Evidence for the Possible Ceremonial Function of Shell Rings. From South Carolina Archaeology Week poster, *Shell Rings of the Late Archaic*. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Caldwell, Joseph R.
1952 The Archaeology of Eastern Georgia and South Carolina. In *Archaeology of the Eastern United States*, edited by James. B. Griffin, pp. 312–321. University of Chicago Press, Chicago.

Calmes, Alan
1967 Test Excavations at Two Late Archaic Sites on Hilton Head Island, Beaufort County, South Carolina. Paper presented at the Southeastern Archaeological Conference, Macon, Georgia, Nov. 9, 1967.

1968 Test Excavations at Three Late Archaic Shell-Ring Mounds on Hilton Head Island, South Carolina. *Southeastern Archaeological Conference Bulletin* 8:45–48.

Campbell, L. Janice, Prentice M. Thomas Jr., and James H. Mathews
2004 Fiber-Tempered Pottery and Cultural Interactions on the Northwest Florida Gulf Coast. In *Early Pottery: Technology, Function, Style, and Interaction in the Lower Southeast*, edited by Rebecca Saunders and Christopher T. Hays, pp. 129–149. University of Alabama Press, Tuscaloosa.

Carr, Robert S., Linda Jester, Jim Pepe, and W. S. Steele
1995 *An Archaeological Survey of Martin County, Florida.* AHC Technical Report No. 124. Archaeological and Historical Conservancy, Miami.

Cherkinsky, Alexander
2002a E-mail correspondence to Gregory Heide concerning Sample GX-29516. On file, Southeast Archeological Center, National Park Service, Tallahassee.

2002b E-mail correspondence to Michael Russo concerning Samples GX-26118, GX-26119, GX-25976, and GX-25977. On file, Southeast Archeological Center, National Park Service, Tallahassee.

2006a E-mail correspondence to Rebecca Saunders concerning Sample GX-25750. On file, Southeast Archeological Center, National Park Service, Tallahassee.

2006b E-mail correspondence to Rebecca Saunders concerning Samples GX-30737, GX-30378, GX-30379, and GX-30340. On file, Southeast Archeological Center, National Park Service, Tallahassee.

Chicora Foundation, Inc.
2003 "Reflections of Our Past: The Archaeology of South Carolina" (last modified June 16, 2003, accessed April 2006). http://www.chicora.org/s_c__archaeology.htm

Crane, Horace R.
1956 University of Michigan Radiocarbon Dates I. *Science* 124:664–672

Crusoe, Donald L., and Chester B. DePratter
1976 A New Look at the Georgia Shell Mound Archaic. *The Florida Anthropologist* 29(1):1–23.

Curren, Caleb, Amy J. Belanger, Cheryl Claassen, Lee A. Newsom, and Michael Russo
1987 *Archaeology at Bluewater Bay (8Ok102): A Late Archaic Period Site in Northwest Florida.* University of West Florida, Office of Cultural and Archaeological Research, Report of Investigations 9. Pensacola.

DePratter, Chester B.
1974 *An Archaeological Survey of Ossabaw Island, Chatham County, Georgia: Preliminary Report.* Ms. on file (Research Manuscript 344), University of Georgia, Laboratory of Archaeology, Athens.

1975 An Archaeological Survey of the P. H. Lewis Property on Skidaway Island, Chatham County, Georgia. Manuscript on file, University of Georgia, Laboratory of Archaeology (Research Manuscript 343).

1976 *The Shellmound Archaic on the Georgia Coast.* Master's thesis. University of Georgia, Athens.

1978 Georgia Archaeological Survey form on Oemler (9Ch14). University of Georgia, Department of Anthropology, Georgia Archaeological Site File, Athens.

1979 Shellmound Archaic on the Georgia Coast. *South Carolina Antiquities* 11(2):1–69.

1984 Georgia Archaeological Survey form on 9MC320. University of Georgia, Department of Anthropology, Georgia Archaeological Site File, Athens.

1991 *W.P.A. Archaeological Excavations in Chatham County, Georgia, 1937–1942.* University of Georgia Laboratory of Archaeology Series Report Number 29, Athens.

2005 Survey of Marsh Middens, Georgetown County, South Carolina. *Legacy* 9(1–2):18.

DePratter, Chester B., and James D. Howard
1980 Indian Occupation and Geologic History of the Georgia Coast: a 5,000 year Summary. In *Excursions in Southeastern Geology: The Archaeology-Geology of the Georgia Coast (Guidebook 20)*, edited by James D. Howard, Chester B. DePratter, and Robert W. Frey, pp. 1–65. Geological Society of America, Georgia Geological Survey, Atlanta.

Dickel, David
1992 *An Archaeological and Historical Survey of Bonita Springs, Parcel Three, Lee County, Florida*. AHC Technical Report 43. Archaeological and Historical Conservancy, Davie, Florida.

Dillehay, Tom D.
1990 Mapuche Ceremonial Landscape, Social Recruitment and Resource Rights. *World Archaeology* 22(2):223–241.

Dorroh, Rita J.
1971 *The Vegetation of Indian Shell Mounds and Rings of the South Carolina Coast*. Master's thesis, Department of Biology, University of South Carolina, Columbia.

Drayton, John
1802 *A View of South Carolina, as Respects Her Natural and Civil Concerns.* W. P. Young, Charleston.

Edwards, William E.
1965 A Preliminary Report on the Sewee Mound Shell Midden, Charleston County, South Carolina. Report submitted to the U.S. Forest Service. Ms. on file, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Elliott, Daniel T., and Kenneth E. Sassaman
1995 *Archaic Period Archaeology of the Georgia Coastal Plain and Coastal Zone.* University of Georgia Laboratory of Archaeology Series Report No. 35, Georgia Archaeological Research Design Paper No. 11, Athens.

Flannery, Regina
1943 *Some Notes on a Few Sites in Beaufort County, South Carolina.* Anthropological Papers No. 21. From *Bureau of American Ethnology Bulletin 133*, pp. 143–153. Smithsonian Institution, Washington.

Ford, James A.
1966 Early Formative Cultures in Georgia and Florida. *American Antiquity* 31(6):781–799.

Fraser, Douglas
1968 *Village Planning in the Primitive World.* George Braziller, New York.

Fryman, Mildred L., David Swindell, and James J. Miller
1980 *Cultural Resource Reconnaissance of Hobe Sound National Wildlife Refuge, Martin County, Florida*. Submitted to Interagency Archeological Services Division (National Park Service), Atlanta, and U.S. Fish and Wildlife Service, Atlanta. Contract A-55034(79). Ms. on file, Office of the State Historic Preservation Officer, Tallahassee.

Gagliano, Sherwood M., and Clarence H. Webb
1970 Archaic–Poverty-Point Transition at the Pearl River Mouth. In *The Poverty Point Culture*, edited by Bettye J. Broyles and Clarence H. Webb, pp. 47–72. Southeastern Archaeological Conference Bulletin No. 12, Morgantown, West Virginia.

Gantt, Mary Elizabeth, and Kenneth F. Styer
2006 Addendum. Archaeological Testing of Sites 38BU21/76 and 38BU2148, Pinckney Point Tract, Beaufort County, South Carolina. Draft report. R. S. Webb and Associates Project No. 05-089-013, Holly Springs, Georgia. Submitted to Ward-Edwards, Bluffton, South Carolina.

Gantt, Mary Elizabeth, Kenneth F. Styer, and Neil J. Brown
2005 Phase I Cultural Resources Survey, Pinckney Point Tract, Beaufort County, Georgia [*sic*]. Revised draft report. R. S. Webb and Associates Project No. 05-089-013, Holly Springs, Georgia. Submitted to Pinckney Point LLC, Jacksonville, and Ward-Edwards, Bluffton, South Carolina.

Gardner, Jeffrey W.
1992 *Sewee Fire Survey: Archaeological Survey of 135 Acres in the Sewee Historic Area, Wambaw Ranger District, Francis Marion National Forest, Charleston County, South Carolina.* Draft report produced by Brockington and Associates, Atlanta, for the USDA National Forest Service, Wambaw Ranger District, McClellanville, South Carolina.

Geochron Laboratories
1999 Report of Analytical Work on Sample GX-25750. Geochron Laboratories, Cambridge, Massachusetts. Submitted to Rebecca Saunders, Louisiana State University, Baton Rouge.

Goodyear, Albert C.
1988 On the Study of Technological Change. *Current Anthropology* 29:320–323

Gregorie, Anne King
1925 Notes on Sewee Indians and Indians and Indian Remains of Christ Church Parish, Charleston County, South Carolina. Contributions from the Charleston Museum, Charleston, South Carolina.

Griffin, James B.
1943 *An Analysis and Interpretation of the Ceramic Remains from Two Sites Near Beaufort, South Carolina.* Anthropological Papers, No. 22. From *Bureau of American Ethnology Bulletin 133*, pp. 155–168. Smithsonian Institution, Washington.

Heckenberger, Michael J., James B. Peterson, and Eduardo Goés Neves
1999 Village Size and Permanence in Amazonia: Two Archaeological Examples from Brazil. *Latin American Antiquity* 10(4):353–376.

Heide, Gregory
2002 Mapping of the Fig Island Shell Rings. In *The Fig Island Ring Complex (38CH42): Coastal Adaptation and the Question of Ring Function in the Late Archaic*, by Rebecca Saunders and Michael Russo, pp. 67–84. Grant No. 45-01-16441, South Carolina Department of Archives and History, Columbia.

2003 38BU1866: Preliminary Investigations at the Coosaw Shell Rings, Beaufort County, South Carolina. Paper presented at the 29th Annual Conference of South Carolina Archaeology, Columbia, South Carolina. February 22, 2003.

Heide, Gregory, and Michael Russo
2003 *Investigation of the Coosaw Island Shell Ring Complex (38BU1866).* Submitted to the South Carolina Department of Natural Resources, Heritage Trust Program, Columbia. Copy on file, Southeast Archeological Center, National Park Service, Tallahassee.

Hemmings, E. Thomas
1970a *Buzzard's Island (38CH23).* National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

1970b *Hanckel Mound (38CH7*). National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

1970c *Horse Island (38Ch14*). National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

1970d *Auld Mound or Yough Hall Plantation Shell Ring (38CH41*). National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

1970e *Fig Island (38CH42).* National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

1970f Preliminary Report of Excavations at Fig Island, South Carolina. *Notebook* 2(9):9–15. Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1970g *Sewee Shell Ring (38CH45).* National Register of Historic Places Inventory–Nomination Form. National Park Service, Washington.

Houck, Brett A.
1996 *Archaeological Excavations at 8LL717, Bonita Springs, Lee County, Florida.* Archaeological Historical Conservancy, Technical Report 78 (revision of 1993 report). Submitted to Bonita Bay Properties. Copy on file, Bureau of Archaeological Research, Florida Division of Historical Resources, Tallahassee.

Howard, James D., and Chester B. DePratter
1980 Field Trip Guide to the Archaeology-Geology of the Georgia Coast. In *Excursions in Southeastern Geology: The Archaeology-Geology of the Georgia Coast (Guidebook 20)*, edited by James D. Howard, Chester B. DePratter, and Robert W. Frey, pp. 234–253. Geological Society of America, Georgia Geological Survey, Atlanta.

Hughes, Daniel
1996 *Archaeological Excavations of the Proposed Estero Bay Park Parking Area, Lee County, Florida.* Archaeological Historical Conservancy, Technical Report 154. Submitted to Bonita Bay Properties. Copy on file, Bureau of Archaeological Research, Florida Division of Historical Resources, Tallahassee.

1998 *Excavations at 8LL717, Bonita Springs, Florida*. Paper presented at the Annual Florida Anthropology Society Meetings, Gainesville.

Jacobi, Keith, and M. C. Hill
2003 Bone Handling and Reuse of Human Remains among Prehistoric Southeastern Native Americans. Paper presented at the 9th Annual Meeting of the Midwest Bioarchaeology and Forensic Anthropology Association, University of Indianapolis, Indianapolis, Indiana, October 19–20, 2002.

Jahn, Otto L., and Ripley P. Bullen
1978 *The Tick Island Site, St. Johns River, Florida.* Florida Anthropological Society Publication 10, Gainesville.

Judge, Christopher, and Steven D. Smith
1991 *Acquiring the Past for the Future: The South Carolina Heritage Trust Statewide Assessment of Cultural Sites.* Research Manuscript Series 213, South Carolina Institute of Archaeology and Anthropology, Columbia.

Judge, Christopher, and Carl Steen
2004 "Archaeology at the Johannes Kolb Site—38DA75." The Diachronic Research Foundation. (Updated May 22, 2004, accessed April 2006.) http://www.drfarchaeology.com/Content/johanneskolbsi/default.htm

Kane, Sharyn, and Richard Keeton
1993 *Beneath These Waters: Archeological and Historical Studies of 11,500 Years Along the Savannah River*. Interagency Archeological Services Division, National Park Service, Atlanta.

Kelly, Robert L.
1995 *The Foraging Spectrum: Diversity in Hunter-Gatherer Lifeways.* Smithsonian Institution Press, Washington.

Kennedy, W. J.
1980 Manuscript Map: Reed Mound (originally drawn, 1966). In *Cultural Resource Reconnaissance of Hobe Sound National Wildlife Refuge, Martin County, Florida*, by Mildred L. Fryman, David Swindell III, and James J. Miller, pp. 43. Cultural Resource Management, Inc., Tallahassee. Submitted to Interagency Archeological Services Division, National Park Service, Atlanta. Contract A-55034(79). On file, Division of Archives, History, and Records Management, Tallahassee.

Larson, Lewis
1998 Introduction. In *The Georgia and South Carolina Coastal Expeditions of Clarence Bloomfield Moore*, edited by Lewis Larson, pp. 1–85. University of Alabama Press, Tuscaloosa.

Lawrence, David R.
1990a Lighthouse Point Shell Ring (38CH12), National Register of Historic Places Registration Form. United States Department of the Interior, National Park Service, Washington.

1990b Late Archaic-Early Woodland Period Shell Rings of South Carolina, ca. 1000–2200 B.C. National Register of Historic Places Multiple Property Documentation Form. United States Department of the Interior, National Park Service, Washington.

1991a Inventory of Aboriginal Shell Rings of South Carolina. Ms. on file, South Carolina Institute of Archaeology and Anthropology, Columbia.

1991b *Stratton Place Shell Ring (38CH24).* National Register of Historic Places Registration Form. University of South Carolina, Columbia.

Lawrence, David R. (editor)
1989a *Studies of Southeastern United States Aboriginal Shell Rings, Part 1*. Department of Geological Sciences, University of South Carolina, Columbia.

1989b *Studies of Southeastern United States Aboriginal Shell Rings, Part 2*. Department of Geological Sciences, University of South Carolina, Columbia.

1989c *Studies of Southeastern United States Aboriginal Shell Rings, Part 3.* Department of Geological Sciences, University of South Carolina, Columbia.

1991a *Studies of Southeastern United States Aboriginal Shell Rings, Part 4.* Department of Geological Sciences, University of South Carolina, Columbia

1991b *Studies of Southeastern United States Aboriginal Shell Rings, Part 5*. Department of Geological Sciences, University of South Carolina, Columbia

Malinowski, Bronislaw
1929 *The Sexual Life of Savages in North-Western Melanesia.* Horace Liveright, New York.

Marquardt, William H.
1992 Shell Artifacts from the Caloosahatchee Area. In *Culture and Environment in the Domain of the Calusa*, edited by William H. Marquardt, pp. 191–227. University of Florida Institute of Archaeology and Paleoenvironmental Studies, Monograph 1, Gainesville.

Marrinan, Rochelle
1975 *Ceramics, Molluscs, and Sedentism: The Late Archaic Period on the Georgia Coast.* Ph.D. dissertation, Department of Anthropology, University of Florida, Gainesville.

Mathews, Janet, James J. Miller, and Philip A. Werndli
1975 Osprey Archeological and Historical Site, or "The Oaks" Tract. National Register of Historic Places Inventory Nomination Form. United States Department of the Interior, National Park Service, Washington.

McKinley, William
1873 Mounds in Georgia. *Smithsonian Annual Report for 1872,* 27:422–428.

McMichael, Alan E.
1982 *A Cultural Resource Assessment of Horr's Island, Collier County, Florida*. Florida State Museum Miscellaneous Project Report Series, No. 15. Gainesville.

Michie, James L.
1979 *The Bass Pond Site: Intensive Archaeological Testing at a Formative Period Base Camp on Kiawah Island, South Carolina*. Research Manuscript Series 154. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

n.d. The Daw's Island Shell Midden: Cultural Diversity on the Lower South Carolina Coast During the Late Archaic Period. Unpublished ms. on file, South Carolina Department of Natural Resources, Columbia.

Milanich, Jerald T.
1971 Deptford Phase: An Archaeological Reconstruction. Ph.D. dissertation, University of Florida, Gainesville.

1994 *Archaeology of Precolumbian Florida.* University Press of Florida, Gainesville.

Milanich, Jerald T., and Charles H. Fairbanks
1980 *Florida Archaeology.* Academic Press, New York.

Miller, James J.
1998 *An Environmental History of Northeast Florida.* University Press of Florida, Gainesville.

Moore, Clarence B.
1893 Certain Shell Heaps of the St. John's River, Florida, Hitherto Unexplored. *American Naturalist* 27 (319):605–624.

1897 Certain Aboriginal Mounds of the Georgia Coast. *Journal of the Academy of Natural Sciences of Philadelphia* 2:71–73.

1898 Certain Aboriginal Mounds of the Coast of South Carolina. *Journal of the Academy of Natural Sciences of Philadelphia* 11:147–166.

National Park Service
2004 "Grand Teton Historic Resource Study." (Updated July 24, 2004, accessed April 2006.) http://www.cr.nps.gov/history/online_books/grte2/hrs2a.htm

Newman, Christine L.
2002 *Report of Human Remains at Guana River Wildlife Management Area, St. Johns County, Florida.* Florida Bureau of Archaeological Research, C.A.R.L. Archaeological Survey, Tallahassee

Newman, Christine L., and Brent R. Weisman
1992 Prehistoric and Historic Settlement in the Guana Tract, St. Johns County, Florida. *The Florida Anthropologist* 45(2):162–171.

Newsom, Lee
1991 Horr's Island Archaeobotanical Research. In *Final Report on Horr's Island: The Archaeology of Archaic and Glades Settlement and Subsistence Patterns*, by Michael Russo, pp. 591–645. Florida Museum of Natural History, Department of Anthropology, Gainesville. Submitted to Key Marco Developments, Marco Island, Florida.

Noakes, John E., and Betty Lee Brandau
1974 University of Georgia Radiocarbon Dates III. *Radiocarbon* 16(1):131–141.

Phelps, David S., and Rebekah Burgess
1964 A Possible Case of Cannibalism in the Early Woodland Period in Eastern Georgia. *American Antiquity* 30:189–202.

Piatek, Bruce John
1994 The Tomoka Mound Complex in Northeast Florida. *Southeastern Archaeology* 13:109–118.

Reitz, Elizabeth J.
1990 Vertebrate Faunal Remains from the St. Catherines Island Transect Survey. Ms on file, Zooarchaeology Laboratory, Georgia Museum of Natural History, University of Georgia, Athens.

Reitz, Elizabeth J., and Irvy R. Quitmyer
2006 Evidence for the Use of Marine Resources between 1450 B.C. and A.D. 1565 in the Georgia Bight, USA. Paper presented at the 71st annual meeting of the Society for American Archaeology, San Juan, Puerto Rico, April 26–30.

Ritter, Woldemar H.
1933 *Shell Mound on Land Owned by Chester Fields, Burton, Port Royal Island, Beaufort County, South Carolina. Plan of Mound and Location of Test Pits.* Map and associated field notes on file at the Charleston Museum, South Carolina.

Rouse, Irving
1951 *Survey of Indian River Archaeology.* Yale University Publications in Anthropology, Yale University Press, New Haven.

Russo, Michael
1991 *Archaic Sedentism on the Florida Coast: A Case Study from Horr's Island*. Ph.D. dissertation, Department of Anthropology, University of Florida, Gainesville.

1992 Chronologies and Cultures of the St. Marys Region of Northeast Florida and Southern Georgia. *The Florida Anthropologist* 45:107–126.

1993 Subsistence and Seasonality: Zooarchaeological Measures. In *Timucuan Ecological and Historic Preserve Phase III Final Report*, by Michael Russo, Ann S. Cordell, and Donna L. Ruhl, pp. 136–172. SEAC Accession Number 889. Florida Museum of Natural History, Gainesville.

1994 Why We Don't Believe in Archaic Ceremonial Mounds and Why We Should: The Case from Florida. *Southeastern Archaeology* 13:93–108.

1996 Southeastern Mid-Holocene Coastal Settlements. In *Archaeology of the MidHolocene Southeast*, edited by Kenneth E. Sassaman and David G. Anderson, pp. 177–199. University Presses of Florida, Gainesville.

2002a Architectural Features at Fig Island. In *The Fig Island Ring Complex (38CH42): Coastal Adaptation and the Question of Ring Function in the Late Archaic*, by Rebecca Saunders and Michael Russo, pp. 69–72. Grant 45-01-16441, South Carolina Department of Archives and History, Columbia.

2002b Faunal Analysis at Fig Island. In *The Fig Island Ring Complex (38CH42): Coastal Adaptation and the Question of Ring Function in the Late Archaic*, by Rebecca Saunders and Michael Russo, pp. 141–153. Grant 45-01-16441, South Carolina Department of Archives and History, Columbia.

2004 Measuring Shell Rings for Social Inequality. In *Signs of Power: The Rise of Cultural Complexity in the Southeast*, edited by Jon L. Gibson and Philip J. Carr, pp. 26–70. University of Alabama Press, Tuscaloosa.

2005 Zooarchaeology of Tree Islands. In *Archeological Assessment of the Eastern Everglades Expansion Lands, Everglades National Park, Florida* (draft), by Margo Schwadron, pp. 207–260. SEAC Accession Number 1928, EVER Accession Number 771. Ms. on file, Southeast Archeological Center, National Park Service, Tallahassee.

Russo, Michael, and Gregory Heide
2000 *The Joseph Reed Shell Ring*. Report submitted to the Hobe Sound National Wildlife Refuge, Florida. Copy on file, Southeast Archeological Center, National Park Service, Tallahassee.

2002 The Joseph Reed Shell Ring (8Mt13). *The Florida Anthropologist* 55(2):67–87.

2003 *Mapping the Sewee Shell Ring.* Report submitted to the Francis Marion and Sumter National Forests, South Carolina. Copy on file, Southeast Archeological Center, National Park Service, Tallahassee.

2004 The Emergence of Pottery in South Florida. In *Early Pottery: Technology, Function, Style, and Interaction in the Lower Southeast*, edited by Rebecca Saunders and Christopher T. Hays, pp. 105–128. The University of Alabama Press, Tuscaloosa.

Russo, Michael, and Rebecca Saunders
1999 *Identifying the Early Use of Coastal Fisheries and the Rise of Social Complexity in Shell Rings and Arcuate Middens on Florida's Northeast Coast*. Submitted to National Geographic Society. Copies available from Michael Russo, Southeast Archeological Center, National Park Service, Tallahassee.

Russo, Michael, Ann S. Cordell, and Donna L. Ruhl
1992 *Timucuan Ecological and Historical Preserve, Phase III Final Report*. SEAC Accession Number 899. On file, Southeast Archeological Center, National Park Service, Tallahassee.

Russo, Michael, Gregory Heide, and Vicki Rolland
2002 *The Guana Shell Ring*. Historic Preservation Grant F0126, Florida Division of Historical Resources. On file, Bureau of Archaeological Resources, Tallahassee.

Russo, Michael, Margo Schwadron, and Emily M. Yates
2006 *Archeological Investigation of the Bayview Site (8By137): A Weeden Island Ring Midden.* Southeast Archeological Center, National Park Service, Tallahassee. Submitted to Tyndall Air Force Base, Panama City, Florida.

Sanborn, Erica E., and Lawrence E. Abbott Jr.
1999 Early Ceramic Traditions on the Southern Coastal Plain of North Carolina: Radiocarbon Data from 31CB114. *North Carolina Archaeology* 48:3–17.

Sarney, Elizabeth Davis
1994 *Hill Cottage Midden Revisited: A Reassessment of the Late Archaic Period Marine Shell Midden at the Palmer Site (8SO2), Sarasota County, Florida*. Master's thesis, University of South Florida, Tampa.

Sassaman, Kenneth E.
1993 *Early Pottery in the Southeast: Tradition and Innovation in Cooking Technology.* University of Alabama Press, Tuscaloosa.

Sassaman, Kenneth E., and David G. Anderson
1994 *Middle and Late Archaic Archaeological Records of South Carolina: A Synthesis of Research and Resource Management.* Savannah River Archaeological Research Papers 6. Occasional Papers of the Savannah River Research Program, South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Sassaman, Kenneth E., and Michael J. Heckenberger
2004 Crossing the Symbolic Rubicon in the Southeast. In *Signs of Power: The Rise of Cultural Complexity in the Southeast*, edited by Jon L. Gibson and Philip J. Carr, pp. 214–233. University of Alabama Press, Tuscaloosa.

Saunders, Joe
2004 Are We Fixing to Make the Same Mistake Again? In *Signs of Power: The Rise of Cultural Complexity in the Southeast*, edited by Jon L. Gibson and Philip J Carr, pp. 146–161. University of Alabama Press, Tuscaloosa.

Saunders, Joe W., Allen Thurman, and Roger T. Saucier
1994 Four Archaic? Mound Complexes in Northeastern Louisiana. *Southeastern Archaeology* 13(2):134–152.

Saunders, Rebecca
2002 Field Excavations: Methods and Results. In *The Fig Island Ring Complex (38CH42): Coastal Adaptation and the Question of Ring Function in the Late Archaic*, by Rebecca Saunders and Michael Russo, pp. 98–140. Grant No. 45-01-16441, South Carolina Department of Archives and History, Columbia.

2003 *Feast or Quotidian Fare? Rollins Shell Ring and the Question of Ring Function*. Submitted to the Florida Department of Archives and History for 1A-32 9697.04. Tallahassee.

2004 The Stratigraphic Sequence at Rollins Shell Ring: Implications for Ring Function. *Florida Anthropologist* 57(4):249–268.

Saunders, Rebecca, and Vicki Rolland
2006 *Exploring the Interior of the Guana River Shell Ring (8SJ2554).* Submitted to the Florida Department of State, Division of Historical Resources (Permit # 0405.11), Tallahassee.

Saunders, Rebecca, and Michael Russo
2002 *The Fig Island Ring Complex (38CH42): Coastal Adaptation and the Question of Ring Function in the Late Archaic*. Grant No. 45-01-16441, South Carolina Department of Archives and History, Columbia.

Saunders, Rebecca, Michael Russo, and Virginia Horak
2006 Daws Island Project-2006. Poster presented at the annual meeting of the Archaeological Society of South Carolina, Columbia.

Schwadron, Margo
2005 *Archeological Assessment of the Eastern Everglades Expansion Lands, Everglades National Park, Florida* (draft). SEAC Accession Number 1928, EVER Accession Number 771. Ms on file, Southeast Archeological Center, National Park Service, Tallahassee.

Scudder, Silvia J.
1993 *Human Influence on Pedogenesis: Midden Soils on a Southwest Florida Pleistocene Dune Island.* Master's thesis, University of Florida, Gainesville.

Simpkins, Daniel L.
1975 A Preliminary on Test Excavations at the Sapelo Island Shell Ring, 1975. *Early Georgia* 3(2):15–37.

Simpkins, Daniel L., and Alan E. McMichael
1976 Sapelo Island: A Preliminary Report. *Southeastern Archaeological Conference Bulletin* 19:95–99.

South, Stanley
1969 Baked Clay Objects from the Site of the 1670 Settlement at Charles Towne, South Carolina. In *Proceedings of the Twenty-Sixth Southeastern Archaeological Conference*, Bulletin No. 11, edited by Bettye J. Broyles, pp. 13–26.

Stephenson, Robert R.
1973 Continuation form for 38Ch45, April 16. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Stoltman, James B.
1974 *Groton Plantation: An Archaeological Study of South Carolina Locality.* Monographs of the Peabody Museum No. 1. Harvard University, Cambridge, Massachusetts.

Sutherland, Donald R.
1974 Excavations at the Spanish Mount Shell Midden, Edisto Island, South Carolina. *South Carolina Antiquities* 6(1):25–36

Tesar, Louis, and Henry Baker
1985 *Guana River State Land Conceptual Plan*. Florida Department of Natural Resources, Division of Recreation and Parks, Tallahassee. Ms. on file, Florida Bureau of Archaeological Research, Florida Site Files, Tallahassee.

Thomas, David Hurst
2006 Native American Landscapes of St. Catherines Island, Georgia. (Draft.) Anthropological Papers of the American Museum of Natural History, in press.

Thomas, David Hurst, and Clark Spencer Larsen
1979 *The Anthropology of St. Catherines Island 2: The Refuge-Deptford Mortuary Complex.* Anthropological Papers of the American Museum of Natural History 56, Part 1, pp. 1–180.

Thomas, Prentice M., Jr.
1984 Letter dated 10/16/84 to Mr. George Percy, Florida Dept. of State, Division of Archives, History, and Record Management, from Prentice, New World Research, regarding archaeological investigations of Meig's Pasture (8Ok102).

Thomas, Prentice M., Jr., and L. Janice Campbell
1991 The Elliott's Point Complex: New Data Regarding the Localized Poverty Point Expressions on the Northwest Florida Gulf Coast, 2000 B.C.–500 B.C. In *The Poverty Point Culture: Local Manifestations, Subsistence Practices, and Trade Networks*, edited by Kathleen M. Byrd, pp. 103–119.Geoscience and Man 29. Louisiana State University, Baton Rouge.

1993 *Eglin Air Force Base: Historic Preservation Plan, Technical Synthesis of Cultural Investigations at Eglin, Santa Rosa, Okaloosa, and Walton Counties, Florida.* Report of Investigations No. 192, submitted to National Park Service (CX5000-2-0497), Southeast Region, Atlanta.

Thompson, Victor D.
2006 *Questioning Complexity: The Prehistoric Hunter-Gatherers of Sapelo Island, Georgia*. Ph.D. Dissertation, University of Kentucky, Lexington.

Torrence, Corbett McPherson
1996 *From Objects to the Cultural System: A Middle Archaic Columella Extraction Site on Useppa Island, Florida.* Master's thesis, Department of Anthropology, University of Florida, Gainesville.

Trinkley, Michael B.
1975 Preliminary Report of Archaeological Excavations at Lighthouse Point Shell Ring, South Carolina. *Southern Indian Studies* 27:3–36

1976 *A Typology of Thom's Creek Pottery for the South Carolina Coast*. Master's thesis, Department of Anthropology, University of North Carolina, Chapel Hill.

1980a *Investigation of the Woodland Period Along the South Carolina Coast*. Ph.D. dissertation, Department of Anthropology, University of North Carolina, Chapel Hill.

1980b A Typology of Thom's Creek Pottery for the South Carolina Coast. *South Carolina Antiquities* 12(1):1–35.

1985 The Form and Function of South Carolina's Early Woodland Shell Rings. In *Structure and Process in Southeastern Archaeology*, edited by Roy S. Dickens Jr. and H. Trawick Ward, pp. 102–118. University of Alabama Press, Tuscaloosa.

1997 The Gradual Accumulation Theory: The Lighthouse Point and Stratton Place Shell Rings. From the South Carolina Archaeology Week poster, *Shell Rings of the Late Archaic.* South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

Trinkley, Michael B., and H. Trawick Ward
1978 The Use of Soil Science at a South Carolina Thom's Creek Culture Shell Ring. *The Florida Anthropologist* 32(2):64–73.

Tuzin, Donald
2001 *Social Complexity in the Making: A Case Study Among the Arapesh of New Guinea*. Routledge, New York.

Walker, Karen Jo
1992 The Zooarchaeology of Charlotte Harbor's Prehistoric Maritime Adaptations: Spatial and Temporal Perspectives. In *Culture and Environment in the Domain in the Calusa*, edited by William H. Marquardt, pp. 265–366. Institute of Archaeology and Paleoenvironmental Studies Monograph No. 1. University of Florida, Gainesville.

Ward, H. Trawick, and R. P. Stephen Davis Jr.
1999 *Time Before History: The Archaeology of North Carolina*. University of North Carolina Press, Chapel Hill.

Waring, Antonio J., Jr.
1968a The Bilbo Site, Chatham County, Georgia. In The *Waring Papers: The Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 152–197. Papers of the Peabody Museum of Archaeology and Ethnology 58. Harvard University, Cambridge.

1968b The Earliest Ceramic Remains—B: Fiber-Tempered Pottery and Its Cultural Affiliations on the Georgia-Carolina Coast. In *The Waring Papers: The Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 253–255. Papers of the Peabody Museum of Archaeology and Ethnology 58, Harvard University, Cambridge.

1968c The Archaic Hunting and Gathering Cultures. The Archaic and Some Shell Rings. In *The Waring Papers: The Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 243–246. Papers of the Peabody Museum of Archaeology and Ethnology 58. Harvard University, Cambridge.

Waring, Antonio J., Jr., and Lewis H. Larson
1968 The Shell Ring on Sapelo Island. In *The Waring Papers: The Collected Works of Antonio J. Waring, Jr.*, edited by Stephen Williams, pp. 263–278. Papers of the Peabody Museum of Archaeology and Ethnology 58, Harvard University, Cambridge.

Webb, Clarence H.
1982 *The Poverty Point Culture*. 2nd ed., rev. Geoscience and Man 17. Louisiana State University, Baton Rouge.

Widmer, Randolph J.
1976 *Archaeological Investigations at the Palm Tree Site, Berkeley County, South Carolina*. Research Manuscript No. 103. South Carolina Institute of Archaeology and Anthropology, University of South Carolina, Columbia.

1988 *The Evolution of the Calusa: A Nonagricultural Chiefdom on the Southwest Florida Coast*. University of Alabama Press, Tuscaloosa.

Williams, Stephen
1968 Appendix: Radiocarbon Dates from the Georgia Coast. In *The Waring Papers: The Collected Works of Antonio J. Waring, Jr*., edited by Stephen Williams, pp. 329–332. Papers of the Peabody Museum of Archaeology and Ethnology 58. Harvard University, Cambridge.

Wyman, Jeffries
1875 *Fresh-Water Shell Mounds of the St. Johns River, Florida.* Peabody Academy of Science Memoir 4, pp. 3–94. Salem, Massachusetts.