

**MARINE RESOURCES RESEARCH INSTITUTE
RADIOCARBON DATES II***

THOMAS D MATHEWS

Marine Resources Research Institute,
PO Box 12559,
Charleston, South Carolina 29412

Samples reported in this date list are primarily geologic specimens collected from coastal locations in South Carolina and Florida. Sample material was predominantly shells, with emphasis on single shell dates rather than multiple shell dates. Archaeologic samples from sites either directly above or adjacent to the geologic sampling location were collected whenever possible to provide an upper time limit on the shell deposits.

The main goal of the work was to illustrate the wide range of ages encountered in barrier island shell deposits due to the mixing and reworking of beach deposits in general. Apparently shells older than the barrier island are frequently incorporated into shell deposits at the time of island formation. As a result, many Holocene beach deposits contain shells ranging in age from 1000 yr to infinite with respect to ^{14}C .

It is also possible that a portion of the observed range in ages, perhaps a few hundred years, may be attributable to species differences, *eg* isotopic fractionation. However, due to a relative lack of some species, *eg* *Doschina discus*, as compared to *Mercenaria* sp, it is not possible to determine the influence of isotopic fractionation at this point. If species-controlled fractionation is, in fact, significant in age variations, it may be possible to detect as more data are gathered.

Analytic procedures were as previously reported (R, 1976, v 18, p 202-204). Whenever feasible, large samples were divided into two aliquots for duplicate dating.

Age calculations were based on a ^{14}C half-life of 5570 years, using 0.95 NBS oxalic acid as the modern standard. Each sample was counted at least 2000 min, with calculations based on sample, standard, and background statistics to $\pm 1\sigma$. All $\delta^{13}\text{C}$ values were estimated, *ie*, ‰ for carbonate and -25‰ for wood samples. Ages were calculated with the equation of Williams, Oeschger, and Kinney (1969).

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A. South Carolina Coastal Samples

Crow's Island

Samples coll from large shell midden on Crow's I. (32° 50' N, 79° 45' W). Subm by R L Stephenson, Inst Archaeol & Anthropol, Columbia, South Carolina.

* Contribution No. 151 from the South Carolina Marine Resources Center.

MRRI-25.	Shell (<i>Mercenaria</i> sp)	3030 ± 380
MRRI-26.	Shell (<i>Mercenaria</i> sp)	1780 ± 160

Fripp Island

Samples coll from a canal on Fripp I. (32° 19' N, 80° 29' W).

MRRI-33.	3 shells (<i>Anadara brasiliiana</i>)	1860 ± 190
MRRI-35.	Shell (<i>Mercenaria</i> sp)	1000 ± 90
MRRI-36.	4 shells (<i>A brasiliiana</i>)	1040 ± 100
MRRI-37.	7 shells (<i>Anadara</i> sp)	2360 ± 100
MRRI-38.	12 shells (<i>Anadara</i> sp)	3050 ± 110

Edisto Beach

Samples coll at a series of sites on Edisto Beach, from shell bearing quartz sand, 1 to 2m below MSL.

Series A. Edisto Beach

(32° 29' 25" N, 80° 19' 30" W)

MRRI-56.	Shell (<i>Mercenaria</i> sp)	1610 ± 120
MRRI-57.	Shell (<i>Busycon carica</i>)	1620 ± 90
MRRI-59.	Shell (<i>Anadara</i> sp)	26,700 ± 1110
MRRI-60.	Shell (<i>Mercenaria</i> sp)	2450 ± 160

Series B. Edisto Beach

(32° 29' 20" N, 80° 19' 50" W)

MRRI-47.	Shell (<i>Mercenaria</i> sp)	3620 ± 100
MRRI-48.	Replicate of MRRI-47	4460 ± 280
MRRI-49.	Shell (<i>Mercenaria</i> sp)	3000 ± 210
MRRI-50.	Replicate of MRRI-49	2310 ± 90
MRRI-52.	Replicate of MRRI-47	3090 ± 80
MRRI-54.	Replicate of MRRI-47	3810 ± 100

Series C. Edisto Beach

(32° 29' 15" N, 80° 20' 05" W)

MRRI-53.	Shell (<i>Mercenaria</i> sp)	2220 ± 80
MRRI-55.	Shell (<i>Mercenaria</i> sp)	2300 ± 80
MRRI-58.	Shell (<i>Mercenaria</i> sp)	2320 ± 90
MRRI-61.	Shell (<i>Mercenaria</i> sp)	4600 ± 190
MRRI-62.	Replicate of MRRI-61	4130 ± 160

Series D. Edisto Beach

(32° 29' 23" N, 80° 20' 30" W)

MRRI-41.	Shell (<i>A brasiliiana</i>)	24,140 ± 1670
MRRI-42.	Shell (<i>A brasiliiana</i>)	1490 ± 150
MRRI-43.	Shell (<i>A brasiliiana</i>)	22,780 ± 1410
MRRI-44.	Shell (<i>A brasiliiana</i>)	1170 ± 140
MRRI-45.	Shell (<i>A brasiliiana</i>)	1590 ± 140
MRRI-46.	Shell (<i>A brasiliiana</i>)	>45,000

Eddingsville Beach

Samples coll at Eddingsville Beach (32° 31' N, 80° 16' W). Samples washed ashore from submarine exposure ca 400m offshore, 4 to 5m below MSL.

MRRI-63.	Reef (<i>Dodecaceria</i> sp)	2080 ± 100
MRRI-64.	Replicate of MRRI-63	2060 ± 100
MRRI-77.	Reef (<i>Dodecaceria</i> sp) 2cm above substrate	2640 ± 110
MRRI-76.	Reef (<i>Dodecaceria</i> sp) 3cm above substrate	2550 ± 170
MRRI-78.	Reef (<i>Dodecaceria</i> sp) 7cm above substrate	2130 ± 170
MRRI-79.	Replicate of MRRI-78	1900 ± 80
MRRI-75.	Reef (<i>Dodecaceria</i> sp) 9cm above substrate	2360 ± 100
MRRI-65.	Reef (<i>Dodecaceria</i> sp) 10cm above substrate	2740 ± 140
MRRI-66.	Replicate of MRRI-65	2450 ± 90
MRRI-69.	Reef (<i>Dodecaceria</i> sp) 20cm above substrate	2260 ± 100
MRRI-70.	Replicate of MRRI-69	1860 ± 80
MRRI-67.	Reef (<i>Dodecaceria</i> sp) 40cm above substrate	1370 ± 80
MRRI-68.	Replicate of MRRI-67	1310 ± 90

Kiawah Island

Samples coll at 2 construction sites on Kiawah I. from shell bearing quartz sand, 1 to 2m below MSL.

Series I. Kiawah I.

(32° 35' 28" N, 80° 07' 38" W)

MRRI-82.	Shell (<i>Polinices duplicatus</i>)	1080 ± 90
MRRI-84.	Shell (<i>A brasiliana</i>)	3150 ± 320
MRRI-85.	Shell (<i>B carica</i>)	940 ± 80
MRRI-87.	Shell (<i>B carica</i>)	1070 ± 80
MRRI-90.	Shell (<i>A brasiliana</i>)	1510 ± 230
MRRI-91.	Shell (<i>B carica</i>)	1810 ± 160
MRRI-92.	Shell (<i>B carica</i>)	1200 ± 120
MRRI-93.	Shell (<i>B carica</i>)	990 ± 70
MRRI-94.	Shell (<i>B carica</i>)	970 ± 90
MRRI-95.	Shell (<i>B carica</i>)	1230 ± 120

Series J. Kiawah I.

(32° 36' 33" N, 80° 03' 20" W)

MRRI-80.	Shell (<i>A brasiliana</i>)	1830 ± 140
MRRI-81.	Shell (<i>A brasiliana</i>)	1700 ± 100
MRRI-83.	Shell (<i>P duplicatus</i>)	1780 ± 180
MRRI-86.	Shell (<i>B carica</i>)	830 ± 90
MRRI-96.	Shell (<i>Doscina discus</i>)	1210 ± 120
MRRI-97.	Shell (<i>Dinocardium robustum</i>)	820 ± 70
MRRI-98.	Shell (<i>Oliva sayana</i>)	1420 ± 100

Ft Johnson

Samples coll from archaeol site (32° 45' N, 79° 54' W) at Fort Johnson. Subm by R L Stephenson.

MRRI-88.	Shell (<i>Crassostrea virginica</i>)	2130 ± 100
MRRI-89.	Shell (<i>C virginica</i>)	2100 ± 60

B. Florida Coastal Samples

Samples coll at Northwest Cape Sable (25° 14' N, 81° 10' W), from shell bearing carbonate sand, 0 to 1m below MSL.

MRRI-27.	Wood (<i>Avicennia germinans</i>).	350 ± 180
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Comment: id 1975 by P B Tomlinson, Harvard Univ.

MRRI-28.	Replicate of MRRI-27	260 ± 150
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MRRI-128.	Replicate of MRRI-27	280 ± 120
MRRI-129.	Replicate of MRRI-27	240 ± 70
MRRI-34.	Shell (<i>Mercenaria</i> sp)	1800 ± 80

Comment: 2 aliquots of this shell were dated by Univ Miami, UM-457 and -458 at 1915 ± 85 and 1790 ± 70, respectively (J J Stipp, written commun).

MRRI-39.	Replicate of MRRI-34	1790 ± 100
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Samples coll at East Cape Sable (25° 07' N, 81° 05' W).

1. *Archaeologic samples coll from shell midden, 0 to 1m below MSL.*

MRRI-71.	Shell (<i>Mercenaria</i> sp)	1880 ± 100
MRRI-72.	Shell (<i>Mercenaria</i> sp)	2480 ± 90
MRRI-107.	Shell (<i>Mercenaria</i> sp)	1810 ± 100
MRRI-109.	Shell (<i>Mercenaria</i> sp)	1200 ± 70
MRRI-110.	Shell (<i>Mercenaria</i> sp)	1890 ± 70
MRRI-111.	Shell (<i>Noetia ponderosa</i>)	2280 ± 80
MRRI-112.	Shell (<i>N ponderosa</i>)	2300 ± 100
MRRI-113.	Shell (<i>Mercenaria</i> sp)	1880 ± 70
MRRI-114.	Shell (<i>N ponderosa</i>)	2000 ± 80
MRRI-116.	Shell (<i>N ponderosa</i>)	2740 ± 120
MRRI-117.	Shell (<i>Mercenaria</i> sp)	2380 ± 70
MRRI-118.	Shell (<i>N ponderosa</i>)	2910 ± 170

2. *Geologic samples coll from shell bearing carbonate sand, approx MSL.*

MRRI-73.	Shell (<i>Anadara</i> sp)	2250 ± 110
MRRI-74.	Shell (<i>Anadara</i> sp)	2180 ± 70
MRRI-99.	Shell (<i>N ponderosa</i>)	1820 ± 110
MRRI-105.	Shell (<i>N ponderosa</i>)	2620 ± 110
MRRI-108.	Shell (<i>N ponderosa</i>)	3030 ± 130
MRRI-115.	Shell (<i>N ponderosa</i>)	3450 ± 200

REFERENCES

- Mathews, T D, 1976, Marine Resources Research Institute radiocarbon dates I: Radiocarbon, v 18, p 202-204.
 Williams, P M, Oeschger, H, and Kinney, P, 1969, Natural radiocarbon activity of the dissolved organic carbon in the North-east Pacific Ocean: Nature, v 224, p 256-258.