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Cover Page Footnote
Space limitations do not allow us to acknowledge all of the individuals who made the Fishers Island project possible. Our greatest debt is to Charles B. Ferguson, whose lifelong fascination with archaeology was the primary inspiration for the project. Basic support for the research was provided by the New York State Museum, the H. L. Ferguson Museum, and the Archaeological Society of Southeastern Connecticut. We also relied heavily on volunteers from these organizations and from the Fishers Island community. Beth Wellnian of the State Museum Anthropology staff accompanied the senior author in all seasons of work, assisting in the excavations, supervising volunteers, and cataloguing the excavated collections. Her contribution to the project was immeasurable. Finally, we want to acknowledge the help and expertise of Dr. Nicholas Bellantoni, State Archaeologist of Connecticut; Frank Dirrigl, Department of Anthropology, University of Connecticut; Dr. David Drucker Geochron Laboratories; Dr. Richard Gould, Brown University; Ed Horning, curator of the H. L. Ferguson Museum; Don Malcarne, Pfeiffer Archaeological Consultants; Dr. Roger Moeller, Archaeological Services, Bethlehem, Connecticut; Dr. Charles Sheviak, New York State Museum; Dr. Leslie A. Sirkin, Department of Earth Science Adelphi University; Dr. David w: Steadman, New York State Museum; and Dr. Gordon Tucker, also of the New York State Museum. We apologize to the many other contributors not mentioned by name.

PREHISTORIC ADAPTATIONS ON FISHERS ISLAND, NEW YORK: A PROGRESS REPORT

Robert E. Funk and John E. Pfeiffer

Archaeological and paleoenvironmental research since 1985 on Fishers Island, New York has delineated a partially radiocarbon-dated Native American cultural sequence beginning in the Late Archaic period c. 4200 B.P. and ending at the Contact period c. A.D. 1600. Investigated settlement types included shell middens, lithic workshops, and inland hunting-gathering camps. Subsistence remains, including nuts, mollusks, and the bones of mammals, fishes, and birds indicate sporadic occupation of the island from spring through fall. Pollen recovered from both fresh water bogs and salt marshes evidence a typical postglacial forest succession beginning with the spruce-fir zone at about 13,000 B.P. and ending with the modern mixed deciduous forest.

Les recherches archéologiques et paléoenvironnementales effectuées depuis 1985 dans Fishers Island (New York) ont défini une séquence culturelle amérindienne partiellement datée au moyen du radiocarbone, qui commence à l'Archaïque récent v. 4200 A.A. et se termine à la période de contact, v. 1600 de notre ère. Les types d'établissement étudiés comprennent des dépôts de coquillages, des ateliers lithiques et des camps de chasse et cueillette intérieurs. D'après les vestiges de subsistance, y compris noix, mollusques et os de mammifères, de poissons et d'oiseaux, l'île était sporadiquement occupée du printemps à l'automne. Le pollen recouvré des marécages d'eau douce et des marais salants indique une succession forestière postglaciaire typique qui débute avec la zone d'épinette-sapin à environ 13,000 A.A. et se termine avec la forêt feuillue mixte moderne.

Introduction

The archaeology and paleoecology of islands seem to have an unusual fascination for prehistorians. In the decade of the 1980s a number of northeastern archaeologists began, and in some cases completed, research projects on islands located off the southern New England coast. These included Shelter Island (Lightfoot 1985; Lightfoot, Kalin, and Moore 1987; Witek 1989, 1990), Nantucket (Little 1985; Pretola and Little 1988; Medaglia, Little, and Shoeninger 1990), Martha's Vineyard (Richardson 1985), Block Island (Kevin McBride, personal communication, 1989–1990), and Fishers Island (Funk and Pfeiffer 1988). Although research was conducted during the 1970s and 1980s on Long Island (Gramly 1977; Kalin 1983; Levine 1977, 1978; Truex 1982; Wisniewski and Gwynne 1982; Wyatt 1977), for the purposes of this essay that large land mass is considered part of the mainland.

These recent investigations and others on the continental shore were preceded by the work of various archaeologists who had accumulated an impressive body of knowledge since the

turn of the century. Research by writers such as Alanson Skinner (1909, 1917) and Irving B. Rouse (1945, 1947) was followed by the major syntheses of Carlyle S. Smith and William A. Ritchie that remain fundamental to work in coastal New York and southern New England (Smith 1950; Ritchie 1944, 1959, 1965). Archaeology on offshore islands received a major boost from the excavations of Ritchie (1969) on Martha's Vineyard. The work of Rouse, Smith, Ritchie, and others inspired younger archaeologists to pursue research problems in tidewater areas. One of these was Bert Salwen, whose doctoral dissertation was the first extended treatment of the implications of the rising postglacial sea level for Native American occupations of northeastern coastal regions (Salwen 1965). His main focus was on the Archaic cultural stage, and on sea level change as a factor in the inundation of early sites located off the modern coastline on the continental shelf, and changing patterns of exploitation of shellfish and other resources as a result of changing coastal topography.

Bert completed a number of important publications in prehistoric archaeology (Salwen 1968, 1969, 1970, 1975, 1978; Salwen and Ottesen 1972; Lavin and Salwen 1983), but did not publish final reports on his excavations at the Contact period Shantok and Ninigret village sites, because most of his career from about 1975 until his death was dedicated to the cause of historic preservation, both at the National Park Service offices in Washington, D.C., and as a member of the New York archaeological community during his tenure on the anthropology faculty at New York University. Nevertheless, Lorraine Williams, one of Bert's graduate students, analyzed the Fort Shantok site in her doctoral dissertation at New York University (Williams 1972).

Bert's unflagging enthusiasm for research on coastal prehistory was contagious and a major stimulus for the present writers. It was one reason we responded quickly and positively when the opportunity arose to work on Fishers Island. Parenthetically, the junior author had already conducted extensive surveys and excavations in coastal Connecticut (Pfeiffer 1980, 1983, 1984, 1986) and the senior author had worked at many sites in the Hudson Valley estuary, including its lower reaches (Funk 1976).

Background of the Project

A chance meeting in 1983 between the senior author and Charles B. Ferguson, then director of the New Britain Museum of American Art, led directly to the Fishers Island Prehistory Project. Mr. Ferguson was an avocational archaeologist, had a summer home on the island, and was also president of the H. L. Ferguson Museum Association, founded in 1960 in memory of his father, an amateur naturalist and archaeologist. The senior author was invited to lecture to the Association on New York prehistory in July 1984. Accompanied by Pfeiffer, he was treated by Mr. Ferguson to a tour of archaeological sites on the island.

We returned to the island for two days in June 1985 to further evaluate its archaeological potential. One of Henry L. Ferguson's collecting sites, a shell midden, was tested, and a previously unknown encampment was discovered on the north shore. Encouraged by these results, we planned a multi-season project incorporating both archaeological and paleoenvironmental investigations.

Archaeological remains on the island were first reported by Henry L. Ferguson (1935). William A. Ritchie visited the island as a guest of the Fergusons in 1935 and was shown some of the sites. Subsequently he published a photograph of artifacts from the Arrowhead Beach site (Ritchie 1959: plate 52). Later, Charles B. Ferguson's daughter, Marion F. Briggs, produced an excellent synthesis of Fishers Island archaeology, based on her grandfather's extensive artifact collection, for her master's thesis at American University (Briggs 1976). Her work provided the springboard for our venture in Fishers Island archaeology.

Research Objectives

Our principal research objective was to delineate prehistoric cultural ecology and culture change in relation to the changing postglacial environment on and around Fishers Island. We hoped to obtain sufficient data to treat the island as a microcosm of adaptive patterns in the prehistory of coastal New York and New England. Therefore subsidiary objectives were:

1) To generate a radiocarbon-dated sequence of cultural complexes on the island.
2) To map the distributions of sites of all periods in relation to the corresponding local habitats on the island.
3) To reconstruct the postglacial ecological history of the island, including the effects of rising sea levels on land area, floral and faunal resources, and human settlement.

Fishers Island Geography

The island is situated 2.5 mi (4 km) from the Connecticut coast and 10 mi (16 km) north of the eastern tip of Long Island at Montauk Point. It lies at the east end of Long Island Sound; the body of water between Fishers Island and Connecticut is called Fishers Island Sound and that between Fishers Island, Montauk Point, and Block Island is referred to as Block Island Sound (FIG. 1).

Fishers Island is 6.7 mi long (10.7 km) and ranges from 0.2 to 1.4 mi (0.3–2.2 km) in width (FIG. 1). Its area is about 1080 ha. It is roughly oval in outline, with the long axis oriented east-west. There are a number of bays, coves, and peninsulas along the shore, chiefly on the north shore. The island is part of a Wisconsinan glacial end moraine, locally called the Fishers Island moraine, that rises as much as 105 ft (33 m) above sea level. The moraine also appears to the east on the Rhode Island coast as the Charlestown moraine, and to the west on Long Island's north fork as the Orient moraine. These moraines represent the recessional position of the Connecticut and Connecticut-Rhode Island lobes of the ice sheet about 21,000 years ago (Sirkin 1986).

The island's irregular, pitted topography is characteristic of moraines. There are kettle holes, gravelly knolls, bouldery ridges, outwash plains, wetlands, ponds, and, of course, fringing sandy or rocky beaches. Some of the larger and deeper kettle holes contain fresh water ponds; others are brackish because they are partly open to the sea and occasionally flooded by salt water during storms. Sizeable rivers and creeks are absent from the island. Some wetlands are drained by small brooks that discharge at the beaches. Presently there are 40 ponds of over one hectare in size. Wetlands cover an area of 45 ha.

The position of the island within Long Island and Block Island sounds as well as the glacial origin have produced a marked difference between the north and south shores. The north

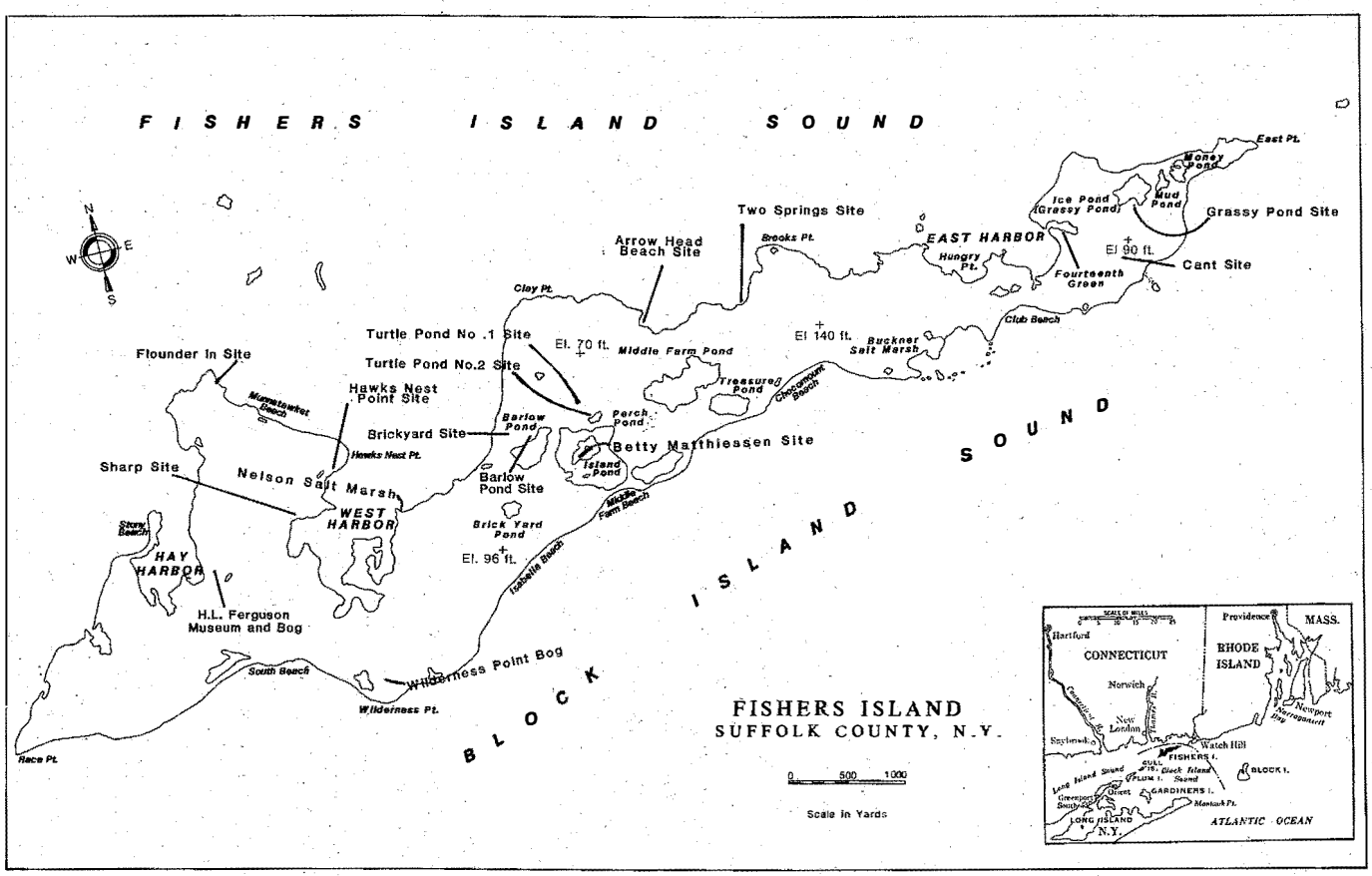

Figure 1. Map of Fishers Island, New York, showing locations of archaeological sites. Also shown are wetlands sampled for pollen spectra; H. L. Ferguson Bog; Wilderness Bog; and Nelson Salt Marsh.

shore is characterized by expansive strand flats, protected inlets, and relatively shallow water. The south shore has few strand flats, is continually exposed to large sea swells and storm waves, and is comparatively straight. These geographic factors have undoubtedly affected both prehistoric and historical settlement.

Undeveloped portions of the island are covered by wooded areas similar to those of Connecticut and Long Island. Fishers Island was almost completely denuded of trees during the great New England hurricane of 1938, so that today most trees are relatively young. There are large areas of scrub, including dense, nearly impenetrable summer growth of bittersweet and briars.

From the botanical standpoint, the island presents a considerable diversity of habitats. A total of nearly 700 plant species have been identified by several researchers, including most recently Gordon Tucker of the New York State Museum and Ed Horning, curator of the H. L. Ferguson Museum. According to Tucker, forest vegetation covers 10% of the island and is predominantly deciduous, with black oak the most common tree. He also observed a few sites individually dominated by beech, black birch, and hickory during his survey.

Woodland shrub thickets occur over about one half of the island, dominated mainly by black cherry. Swamp forests prevail in depressions, important species include red maple and yellow birch. There are no coniferous forest stands, but there are a small number of pitch pines. Wetlands are quite diverse, including tidal marshes, brackish marshes, wet meadows, shrub fens, shrub swamps, kettle hole bogs, sedge fens, and so on. Approximately 30 floral species are non-native, and there are also at present 30 rare plants in the inventory.

Large terrestrial animals are absent from the island. Occasionally, deer threatened by dogs or by human activity are forced to enter Fishers Island Sound as their only retreat. Some of these animals make landfall on the island's shores. The small mammal population is much reduced, currently including muskrats, raccoons, and mice, but rabbits, reintroduced in the 1940s, are very numerous. Marine mammals including seal and porpoise inhabit the waters around the island. Ospreys, herring gulls, ducks, geese, and other birds are common.

Locally available raw materials for stone tools were limited to the pebbles and cobbles transported by the glacial ice from the mainland and points north. The most abundant material for the Indian knapper was milky quartz cobbles that could be found locally on the beaches and till exposures.

History

The earliest recorded European sighting of Fishers Island appears to have been by Adrian Block and his crew, who in 1614 explored Long Island Sound and the Hudson River's mouth (O'Callaghan 1856–1857: I, 11; DeLaet 1909). Historical events summarized below are largely based on a report prepared by Don Malcarne, whose primary source was the Winthrop papers (Winthrop 1863–1889).

Fishers Island was granted to John Winthrop, Jr. in 1640 by the Massachusetts Colony. It is evident from available documents that by 1647 the island was being used by the Winthrops for agricultural purposes. Animal husbandry was of particular importance with large flocks of sheep being maintained on the island. Ezra Stiles (1762) notes that the entire eastern two-thirds

of the island was treeless, without dwellings, and overrun by sheep or, as he defines them, "critters." Cattle, horses, and hogs were also kept, and crops including barley and hay were grown. Some dwellings had been constructed, but their exact locations are not recorded and no archaeological traces of them have been found. An unstated number of Indians were employed on the island, but their tribal affiliations remain a matter of speculation. By the late 17th century both the Winthrops and tenants were farming the island. There were frequent conflicts between the English and French during this period, including raids by French privateers on Fishers Island from 1690 through at least 1716. During the Revolutionary War there were English raids on the island, during which buildings were destroyed and livestock stolen.

Ownership of the island remained with the Winthrops for over 200 years. By the close of the 19th century, a considerable amount of development had taken place at the west end of the island. There were several hotels; Fishers Island entered the 20th century as a seaside resort. This coincided with the development of southern New England that was stimulated by industrialization and the coming of the railroad.

The island also served as one of many U.S. seacoast fortifications constructed in response to the Spanish-American War and distributed along the eastern seaboard at places like Napatree Point, Rhode Island; Montauk Point, Long Island; and New York Harbor. During World War II, Fort H. G. Wright, at the island's west end, was home to 4,400 service personnel.

By the end of the war, the large hotels were gone. The fort was decommissioned around 1948. Since then, the development of private summer homes has been rapid and extensive, especially on the eastern two-thirds of the island. The effects on native fauna, flora, and cultural resources have been considerable.

Data Gathering Methods

Information on Native American sites was obtained from three primary sources. The first comprised the sites first reported by Henry L. Ferguson (1935), a roster later updated by Marion F. Briggs (1976). The second source was reports by local residents, who often had artifacts to show us. These artifacts were sometimes brought to light by construction projects. Third were the sites discovered by personnel from this project, either from walkovers of likely places in the interior and on the shore, or from systematic survey transects.

Long stretches of the shore, on both north and south sides of the island, were walked and examined for surface evidence such as shell deposits and quartz flakes. Numerous locales were shovel-tested, particularly small peninsulas, rises, and terraces that presented level, well-drained surfaces above high tides and within convenient distance of marine food resources. The Two Springs site was discovered in this way. The banks of several ponds, including Middle Farms Pond, Treasure Pond, Barlow Pond, and Perch Pond were also inspected and tested, usually more than once.

Testing was conducted along three transects in 1987, 1988, and 1989. The standard interval for shovel test pits was 10 m. The first transect, located near the east end of the island, crossed from the north to the south shore. It was of variable width because of the demands of the terrain, but averaged about 100 m in breadth, and had a length of 1100 m. Two sites, Grassy

Pond and Cant, were discovered on this survey. The second transect, from Clay Point to Middle Farms Beach near the island's center, was 30 m wide and 1400 m long. Over 300 shovel test pits were excavated. Three sites, Turtle Pond No. 1, Turtle Pond No. 2, and Betty Matthiessen, were found on this transect. The third transect was just east of the island's midline and averaged about 60 m wide, because the crew had to circumnavigate Middle Farms Pond. It was 900 m in length. Over 70 test pits were dug. No new sites were discovered on this transect. Roughly 15 ha or 1.5% of the island's land surface were covered by all of the transects combined. But a considerably larger total area was inspected during the less rigorously plotted walkovers.

Those sites selected for excavation appeared from testing to have the potential to yield reliable information on major periods of occupation, including subsistence patterns and radiometric dating. Sampling design was tailored to particular site contexts and non-archaeological contingencies such as landowner preferences. Standard excavation methods were followed, including passing all loosened earth through one-fourth inch screens and floating selected samples from cultural deposits.

Paleoenvironmental data were acquired by the coring of two fresh water wetlands, H. L. Ferguson Bog and Wilderness Point Bog, and three tidal wetlands, Buckner Salt Marsh, East Harbor, and Nelson Salt Marsh. A Davis borer and a Hiller sampler were used at Ferguson Bog, but only the Davis was used to extract peat from the other locales.

Summary of Sites

Basic data on sites studied for the project are presented in Table 1. Site locations are shown in Figure 1. The principal sites excavated by project crew members are described in capsule form below. Resulting radiocarbon dates are presented in Table 2.

Hawks Nest Point

The site is on the north shore of West Harbor; it is the largest shell midden on the island. Much disturbed by collectors, it also has been plowed. Our limited excavations in what appeared to be less disturbed areas revealed a plow zone 30 cm thick overlying an intact stratum 20 cm thick of soil, cobbles, cracked rocks, and a little shell. A probable pit feature and several small hearths were recorded. Recovered artifacts included Levanna points[1] and Windsor tradition pottery, in keeping with the Late Woodland assignment of Briggs (1976). Refuse remains contained porpoise, Canada goose, sea duck, other birds, unidentified fish and mammal bones, shellfish, and a charred maize kernel. A radiocarbon date of 1675 ± 90 B.P. on charcoal from the pit feature is too old for the associated Late Woodland artifacts, and may reflect the intrusion of charcoal from a Middle Woodland component.

Two Springs

This is a small, non-shell campsite on a little peninsula on Chocomount Cove, north shore (FIG. 2). All cultural materials occurred in a shallow, undisturbed occupation zone overlying bouldery till. There were eight features,

[1]Projectile point nomenclature used in this report derives primarily from Ritchie (1971).

Table 1. Basic data on archaeological sites of Fishers Island.

Site name	Site type	Relation to water	ASL (ft)	Protected sides	sq m	Culture*	Subsistence	Remarks
Hawks Nest Point	Shell midden	W. Harbor <100 m	5–40	N, W	1900	LW	Terrestrial mammals, birds, turtles, fish, mollusks, maize	Quartz debitage
Sharp (Bay View)	Shell midden	W. Harbor <100 m	5–10	N, W	1200+	T, MW, LW	Nuts, maize, mollusks, deer, seal, dog, skunk, beaver, raccoon, woodchuck, birds, fish	Quartz debitage
Brickyard East	Shell midden	Between W. Harbor & Barlow Pond c.100 m from Harbor	20	Open	240+	W	Mollusks, etc.	Quartz debitage
Hedges	Shell midden	W. Harbor <100 m	20	W, S, E	?	LW	Mollusks, etc.	
Peninsula	Shell midden	W. Harbor	10	W, N, E	160	W	Mollusks, etc.	
Turtle Pond #1	Non-shell camp	Hilltop <100 m from Perch Pond	80–90	Open	<100	LW	?	
Turtle Pond #2	Non-shell camp	10 m from Perch Pond	10–20	N, W	400	LA, FW	A: nuts FW: nuts, maize, mollusks	Small amounts: quartz & quartzite debitage
Grassy Pond	Non-shell camp	100 m S of ice pond	25–30	Open	60	LW	Terrestrial mammals, mollusks	Almost no debitage
Cant	Non-shell camp	Adjoins Kettle near S. shore	10–20	W, N, E	400	EW, MW	Nuts	Small amount of quartz and quartzite debitage
Two Springs	Non-shell camp	Chocomount Cove	5–10	S, E	150	LA, T, LW	T: nuts	Considerable quartz, quartzite, green slate, ledite debitage
Barlow Pond	Non-shell camp	Adjoins pond	15–20	N	2700	LA, EW, LW	LA: nuts, LW: nuts, maize	Mod. amounts of quartz and quartzite debitage
Flounder In North	Non-shell camp	Adjoins N. shore	5–10	Open	100	LW	Maize, nuts	Considerable amounts of quartz and quartzite debitage from beach cobbles

Table 1 continued. Basic data on archaeological sites of Fishers Island.

Site name	Site type	Relation to water	ASL (ft)	Protected sides	sq m	Culture*	Subsistence	Remarks
Flounder In South	Non-shell camp	60 m from N. shore	10–20	Open	100	LW	?	Some reduction of quartz and quartzite cobbles
Brickyard West	Shell midden	W. Harbor	5–10	E	?	?	Mollusks, etc.	
Olaf Nelson	Shell midden	W. Harbor	5–10	W	?	?	Mollusks, etc.	
North Hill	Shell midden	200 m from N. shore	20	W, N, E	?	?	Mollusks, etc.	
Barlow Shell Heap	Shell midden	W. Harbor	?	?	?	?	Mollusks, etc.	
Mansion House Field	Shell midden	W. Harbor	0–10	N, S, W	?	?	Mollusks, etc.	
Gaillard	Workshop	Hay Harbor	0–10	S	15	LW	?	Quartz cobble working
Arrowhead Beach	Non-shell camp	Chocomount Cove	0–10	SW	?	LA, T	?	Much quartz cobble reduction debris
Betty Matthiessen #1	Non-shell camp	Peninsula in Island Pond	10–20	N	200	LW	?	Small amounts of quartz and quartzite debitage
Ferguson	Non-shell camp	N. shore	10–20	Open	?	LA	?	Small amount of quartz debitage
Ryder	Non-shell camp (burial?)	N. shore	10–20	W	?	?	?	Small amount of quartz debitage
Stanley Beach	Surface finds	N. shore	5-10	Open	?	?	?	Small amount of quartz debitage
Middle Farms	Non-shell camp	c. 200 m from S. shore between Islands & Middle Farms Pond	10–15	Open	Many small loci	?	?	Much quartz cobble reduction debris
Hungry Point	Shell midden	N. shore	?	S	?	?	Mollusks, etc.	No other data
Matthiessen	Non-shell camp	Peninsula in W. Harbor	15–20	Open	?	?	?	Much quartz debitage

* LW=Late Woodland, T=Transitional, MW=Middle Woodland, W=Woodland, LA=Late Archaic, FW=Final Woodland.

Table 2. Radiocarbon dates from archaeological sites on Fishers Island (uncorrected).

Site	Context and material dated	Laboratory number	Date	Association
Two Springs	Feature D (charcoal)	GX-12,563	900 B.P. ± 215 (A.D. 1050)	Small triangular projectile point
Two Springs	Features B, C (charcoal)	GX-12,561	2605 B.P. ± 255 (655 B.P.)	Vinette 1 pottery, small stemmed point
Two Springs	Living floor section 43 (charcoal)	GX-12,562	2785 B.P. ± 260 (835 B.C.)	Susquehanna knives, ledite debitage
Two Springs	Feature A (charcoal)	GX-12,564	3630 B.P. ± 250 (1680 B.C.)	Small stemmed point?
Grassy Pond	Feature B (charcoal)	GX-12,604	3570 B.P. ± 185 (1620 B.C.)	Incised Late Woodland pottery
Grassy Pond	Feature A (shell)	GX-14,927	890 B.P. ± 70 (A.D. 1060)	Incised Late Woodland pottery
Cant	Strata 2/3 interface (charcoal)	GX-13,431	2080 B.P. ± 195 (130 B.C.)	Vinette 1 and plain potsherds
Cant	Feature 1, strata 2/3 interface (charcoal)	GX-12,603	3025 B.P. ± 265 (1075 B.C.)	Vinette 1 and plain potsherds
Cant	Feature B, strata 2/3 interface (charcoal)	GX-13,433	2675 B.P. ± 230 (725 B.C.)	Vinette 1 and plain potsherds
Cant	Feature A, strata 2/3 interface (charcoal)	GX-13,432	1625 B.P. ± 190 (A.D. 325)	Plain pottery
Cant	Scattered charcoal strata 2/3 interface	GX-13,434	1440 B.P. ± 185 (A.D. 510)	Plain pottery
Barlow Pond	Feature 1 (charcoal)	GX-13,992	4250 B.P. ± 145 (2300 B.C.)	Small stemmed point
Barlow Pond	Feature 9 (charcoal)	GX-14,109	355 B.P. ± 205 (A.D. 1595)	Small stemmed point, Vinette 1 and plain potsherds
Sharp	Basal level Sec. W1S19 (shell)	GX-13,435	1535 B.P. ± 75 (A.D. 415)	Plain and scallop-impressed pottery
Sharp	Basal level Sec. E6S21 (shell)	GX-13,436	3655 B.P. ± 85 (1705 B.C.)	Rocker-stamped pottery, soapstone fragments
Sharp	Feature 1, Sec. E11S21, 60 cm below surface (charcoal)	GX-16,125	1185 B.P. ± 190 (A.D. 765)	Middle Woodland pottery

Table 2 continued.

Site	Context and material dated	Laboratory number	Date	Association
Sharp	Feature 2, Sec. E0S19, 70 cm below surface (charcoal)	GX-16,126	<200 yr. B.P.	Levanna point, Late Woodland pottery
Flounder In North	Feature A (charcoal)	GX-16,610	855 B.P. ± 125 (A.D. 1095)	Corded and brushed potsherds
Turtle Pond No. 2	Test square, stratum 1 (charcoal)	GX-14,111	5295 B.P. ± 180 (3345 B.C.)	Dentate-stamped potsherd
Turtle Pond No. 2	Sec. W10N2, stratum 1 (charcoal)	GX-14,926	95 B.P. ± 90 (A.D. 1855)	Scallop-shell impressed and punctated sherds, sheet brass fragments
Turtle Pond No. 2	Feature 11, Sec. W4N4 stratum 1 (charcoal)	GX-18,064	2140 B.P. ±65 (190 B.C.)	Middle Woodland sherds
Hawks Nest Point	Feature 1, 1985 test	GX-18,348	1675 ±90 B.P. (A.D. 275)	Levanna point, body sherds

all apparently hearths, and several produced charcoal suitable for radiocarbon dating. Distributional analyses of artifact types and debitage suggested some horizontal separation of components. At least three occupations were indicated, the first attributed to the Late Archaic small stemmed point tradition and radiocarbon dated c. 3600 B.P., the second to the Susquehanna tradition c. 2600–2800 B.P., and finally a Late Woodland sojourn c. 900 B.P. The evidence of artifacts, calcined bone fragments, and charred nuts showed that hunting and gathering were major subsistence pursuits and that the site was at least occupied in the fall.

Cant

This site is another small encampment, located in a south-facing hollow overlooking a wetland and the south shore near the east end of the island. There appeared to be two vertically separated components, one of the Early Woodland stage radiocarbon dated between c. 3025 and 2080 B.P., and the other of Middle Woodland affiliation, dated c. 1625 and 1440 B.P. Potsherds, both plain and of Vinette 1 type, heavily dominated the artifact inventory. The only identifiable subsistence remains were charred hickory nut fragments.

Barlow Pond

The site known as Barlow's Pond is an encampment of about 2700 m^2 on a lobate bench above the north shore of the pond (FIG. 3). Most prehistoric cultural materials occurred below duff in Stratum 1, a brown humus zone. Eight hearth features originated at the base of Stratum 1. Artifacts consisted of small stemmed points of quartz and quartzite, some Vinette 1 pottery (south end of site), Late Woodland sherds (north half of site), and various stone tools. Charcoal from the vicinity of the Vinette 1 sherds was dated 355 ±

205 B.P. This date suggests a historical-period origin for the charcoal and is clearly too recent for the Vinette 1 type pottery. Stratum 2 was composed chiefly of sand, but large boulders and gravel concentrations occasionally reached the surface in the northern parts of the site. It appeared to be a glacial deposit. Surprisingly, however, artifacts, debitage, and one large basin-shaped hearth (FIG. 4) occurred in the zone. One unfinished, quartz, narrow stemmed point was recovered from the feature along with charcoal dated 4250 ± 145 B.P. Several other small stemmed points, but no pottery, were recovered from the zone. The stratigraphy therefore suggests that a Late Archaic occupation affiliated with the "Narrow Point" tradition was followed by at least two Woodland-period occupations.

A charred hickory nut and five charred corn kernels were found in Stratum 1 and are attributed to the Late Woodland component. Possible butternut fragments occurred in the dated Late Archaic feature within Stratum 2.

Grassy Pond

This was a small, isolated campsite on a bench overlooking the south shore of Ice Pond (Grassy Pond) near the east end of the island. Artifacts and features originated in a thin humus zone overlying glacial sand deposits. Artifacts consisted of 51 potsherds from two, perhaps three,

Figure 2. View of 1986 excavations at the Two Springs Site. Looking north to Fishers Island Sound.

Figure 3. View of the 1988 excavations at the Barlow Pond Site, looking south.

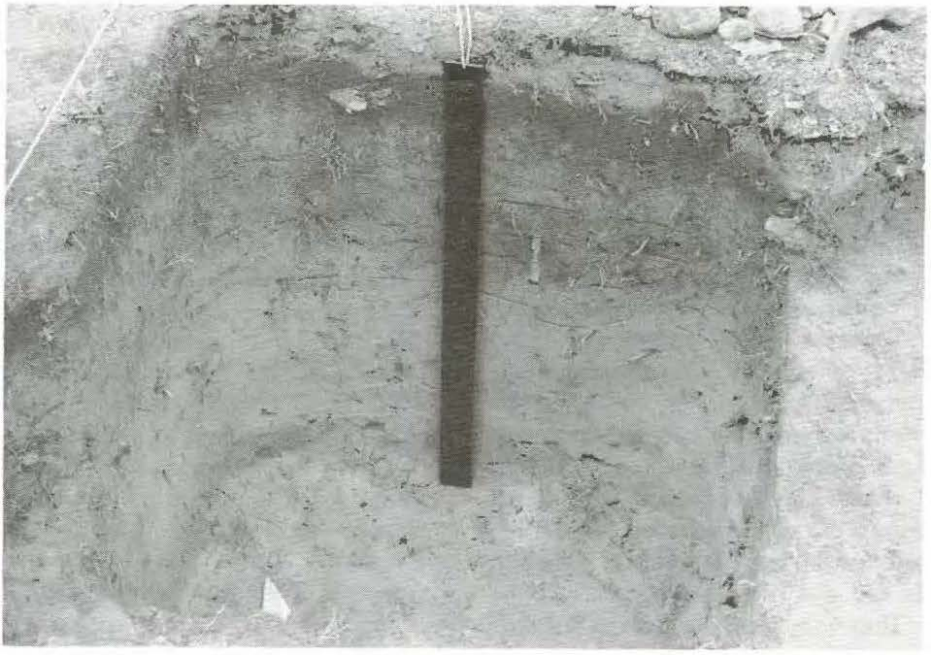

Figure 4. North profile, section W1S6, Barlow Pond Site. The dark humus zone just below the surface contained features, artifacts, and subsistence remains of Early and Late Woodland occupations. The dark stain in the underlying sand (right of the 50 cm scale) is a remnant of F1, a large, Late Archaic, basin-shaped hearth, 4250 B.P. ± 145.

incised and collared vessels, two quartz flakes, a cobble hammerstone, and a cobble hammer-anvilstone. The sherds are similar to the Niantic Incised type and suggest a very late prehistoric occupation. There were two amorphous features consisting of charcoal-stained earth and one saucer-shaped feature. The latter, Feature A, contained fire-cracked stones, charcoal, calcined and uncalcined refuse bone, potsherds, and clam shells. Charcoal from Feature B was dated 3570 ± 180 B.P., and shell from Feature A was dated 890 ± 70 B.P. The older date was a surprise because it suggests Late Archaic occupation, although no Archaic artifacts were found in the excavations. The more recent date is too old for the associated Late Woodland ceramics by about 300 years.

Turtle Pond No. 2

This site is situated on a low bench adjoining the north shore of Perch (Turtle) Pond. Under a culturally sterile sod was Stratum 1, a brown humus zone, at the base of which a darker occupation zone appeared in some areas (FIG. 5). Associated with this dark zone were ceramics, primarily of Final Woodland origin, two small stemmed points of quartz, miscellaneous stone tools, debitage, two shell disk beads, five fragments of corroded copper alloy sheet, and several features. Four hearths were clustered in an area of 9 m^2 that also contained many artifacts, cracked rocks, fragments of marine shell, charred nuts, calcined bone, and 18 postmolds. Six postmolds were considered "possibles," but the 12 definite molds did not form a discernible pattern. They may have held supports for racks used in cooking or drying food.

Two much larger, deeper and widely separated molds west of the cluster resembled interior support post molds characteristic of Iroquoian longhouses, but were not associated with any other structural features.

Three radiocarbon dates were obtained for the Woodland components: 5295 ± 180 B.P.; 2140 ± 65 B.P.; and 95 ± 90 B.P. The first two dated charcoal samples were associated with Middle Woodland potsherds, the third with Final Woodland sherds. Only the 2140 B.P. reading seems compatible with the known age of the associated artifacts. Subsistence remains in Stratum 1 included charred corn kernels, hickory nuts, grape seeds, calcined bone fragments, and clam shell fragments. In his analysis of floral remains in the flotation samples, Roger W. Moeller noted both carbonized prehistoric food residues (hickory nuts, maize, grapes) and uncarbonized or partly carbonized items (grapes, pokeweed, sumac, raspberry) probably introduced in very recent times.

Stratum 2 was a yellow-brown sand in which large boulders occurred, and appeared to be a glacial till. Some sand had apparently washed down from the adjoining hill during the Holocene and before the development of Stratum 1, however, because one hearth, debitage, five small stemmed points, and various stone tools were found in the upper levels of the zone. Subsistence remains comprised charred hickory nuts and bits of calcined bone. A Late Archaic "Narrow Point" occupation seems indicated. No radiocarbon dates have been obtained on this component.

Flounder In North and South

Two small encampments were discovered during systematic testing of areas adjoining the north shore near North Hill. In both cases, cultural remains occurred in the brown humic top

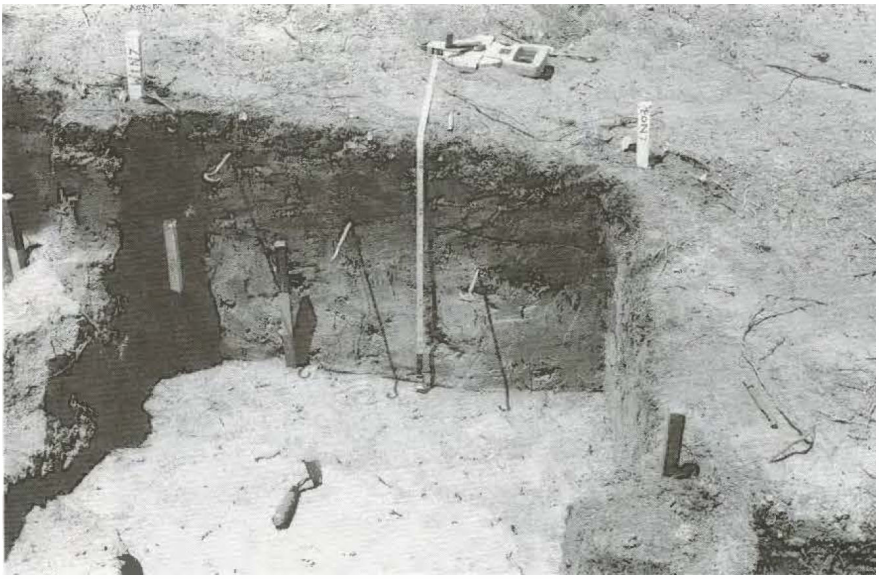

Figure 5. North profile of section W1N7, Turtle Pond No. excavation. Just below surface is Stratum 1, the dark humus zone in which occurred Final Woodland features, artifacts, and subsistence remains. Underlying Stratum 1 is Stratum 2, yellow-brown sand, which produced small stemmed points and other evidence of a probable Late Archaic component. Note two small stakes marking possible postmolds at lower left.

soil, and at Flounder In North, in features that intruded into the glacial subsoil. Ceramics were exclusively of Late Woodland types, and quartz debitage predominated in the inventories from both sites. The debitage was from the flaking of Levanna points and biface knives. Feature A at the north locus was radiocarbon dated 855 ± 125 B.P., or about A.D. 1095. Subsistence remains were confined to a single corn kernel, hickory nuts, and bits of calcined bone, all from Feature A. This suggests an economy based on hunting, nut collecting, and maize growing. A fall occupancy seems indicated, though other seasons are possible.

Sharp

Located on West Harbor, the site consisted of the most productive shell midden remaining on the island (FIG. 6). A compact deposit of fragmented shell and dark organically stained earth about 70 cm thick underlies a lawn and modern fill 0.4 to 1.0 m thick. The shell deposit rests upon glacial till (FIG. 7). Although the shell midden displays faint stratification in some areas, considerable amounts of brick, iron nails, glass, and coal suggested substantial historic-period activity. Nevertheless, the midden is rich in artifacts and subsistence remains. Recovered prehistoric items were dominated by Middle and Late Woodland ceramics, but projectile point types included Levanna, Fox Creek, Susquehanna Broad, and Orient Fishtail. Unfortunately no consistent pattern could be discerned in the vertical distribution of artifacts. Radiocarbon dates on shell from the base of the midden in two widely separated grid units were 3655 ± 85 B.P. and

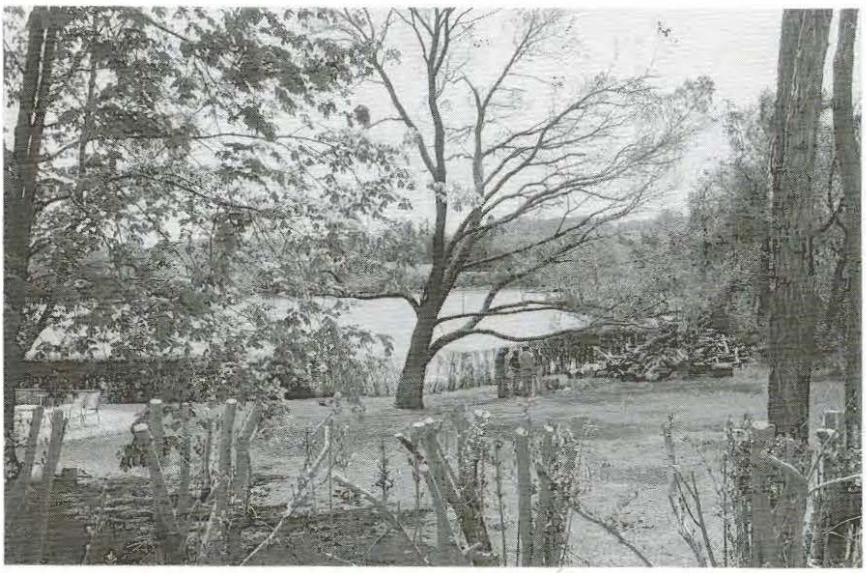

Figure 6. View of the Sharp site and West Harbor, looking south. The shell midden lies beneath the lawn.

Figure 7. North profile of section E11S21 at the Sharp site, after excavation (1990 field season). Just under the lawn surface is a brown fill of modern origin. This rests upon the main shell deposit, which overlies glacial till. Note cobbles in the till.

1535 ± 75 B.P. The former sample was collected from a level that produced two soapstone vessel fragments and may reflect the Terminal Archaic (Susquehanna) component; the latter is appropriate for associated Middle Woodland sherds. Another date on charcoal associated with sherds from several Middle Woodland vessels was quite satisfactory, 1185 ± 190 B.P. Unfortunately, Late Woodland sherds from the sand zone overlying the shell were associated with charcoal dated to less than 200 years B.P., or to the modern era. The sherds and charcoal had somehow been incorporated into the modern fill that overlies the shell deposit.

Apart from mollusk shells, principally soft clam and quahog, subsistence remains comprised a large variety of mammal, bird, reptile, and fish bones, charred nutshells, and maize kernels. Using NISP (number of identified species) as a quantitative criterion, faunal analysts Frank Dirrigl and Nick Bellantoni showed that white-tailed deer was the most heavily represented mammal, followed by woodchuck and much smaller numbers of raccoon, beaver, skunk, and muskrat. Total NISP was 1,679. Mammals represented 59% of NISP. Birds accounted for 23% of NISP, fish 15%, and reptiles only 3%. Dirrigl and Bellantoni reported high indices of richness, diversity, and evenness in the faunal sample, and suggested that the island's inhabitants adopted a generalist subsistence strategy. Based on the faunal analysis, Dirrigl and Bellantoni proposed that the Sharp site was occupied from late March to November. A column of shell samples from a minimally disturbed square was studied by Cheryl Claassen. Her analysis of quahog growth patterns suggested that the shellfish were collected from May through December. Possible differences in the seasons of quahog harvesting between arbitrary leves emerged from the limited sample.

Interpretations

Culture History and Chronology

Paleo-Indian, Early Archaic, and Middle Archaic sites are absent from the inventory of known sites on Fishers Island. No stray finds of fluted points are on record, but a possible Kirk stemmed projectile point, two bifurcated-base points, several Neville points and Stark-like points from surface sites (locations unknown) are in the H. L. Ferguson collection. These are the sole evidence of relatively early Archaic occupations.

Late Archaic projectile point types are abundant in the Ferguson collection. Five sites known to us have definitely or probably produced evidence of Late Archaic components. Only Arrowhead Beach yielded a few Laurentian projectile points, although Vosburg and Brewerton points occur in the Ferguson collection. The "Narrow Point" tradition was manifested in excavated contexts at the Two Springs, Turtle Pond No. 2, and Barlow Pond sites. Dates of 3630 ± 250 B.P. for Two Springs and 4250 ± 145 B.P. for Barlow Pond are the only radiocarbon assays attributable to Late Archaic small stemmed points, at this stage of research. Another age reading of 5295 ± 180 B.P. for Turtle Pond No. 2 was unfortunately associated with pottery in Stratum 1, the Woodland occupation zone. The origin of this ancient charcoal remains a mystery. The same is true of a date of 3570 ± 185 B.P. for the Grassy Pond site, which produced artifacts exclusively of Late Woodland affiliation.

Artifacts representative of later Archaic groups, such as Normanskill,

Genesee, and Snook Kill points, occur in surface collections, but were not present on sites we investigated. Moderate occupancy during the Terminal Archaic period is indicated by numerous diagnostic points and occasional soapstone sherds in surface collections. Only two components were encountered on excavated sites. At the Two Springs site, the major occupation was by people affiliated with the Frost Island phase of upstate New York (Ritchie 1965: 155–163) and the Great Island phase of the lower Connecticut Valley (Pfeiffer 1990). Diagnostic artifacts included Susquehanna Broad points of gray-green slate and gray chert, biface knives of reddish-brown ledite, and a soapstone vessel fragment. Small stemmed points and Vinette 1 pottery apparently were also associated with this component of the Susquehanna tradition. Two radiocarbon dates of 2605 ± 255 B.P. and 2785 ± 260 B.P. probably pertain to this occupation, although these are relatively recent when compared to dates obtained elsewhere for this tradition. Susquehanna Broad points, an Orient Fishtail point, and two soapstone sherds indicated a related occupation at the Sharp site that may have produced the shells dated 3655 B.P.

Subsequent Early Woodland sojourns were indicated by the presence of Adena and Meadowood points and Vinette 1 sherds in the Ferguson collection and confirmed by our excavations at the Cant and Barlow Pond sites. The assemblage in the lower level at Cant consisted chiefly of Vinette 1 sherds, but a few plain sherds and small amounts of debitage were recovered. Three dates on this zone are 3025 ± 265 B.P., 2675 ± 230 B.P., and 2080 ± 195 B.P. Vinette 1 pottery in the upper level at Barlow Pond was dated 355 ± 205 B.P., well within the historical period, suggesting the intrusion of charcoal from a post-Contact occupation or from a forest fire.

Middle Woodland components were represented at only three sites, although diagnostic ceramics and points are common in the Ferguson collection. The upper occupation zone at the Cant site produced a meager assemblage of plain potsherds, a few Vinette 1 sherds, a side-notched point, and some debitage. Two associated dates are 1625 ± 190 B.P. and 1440 ± 185 B.P., both correlate with expectations based on data from other Middle Woodland sites in coastal regions.

A major Middle Woodland component occurred at the Sharp site, unfortunately without stratigraphic separation from Late Woodland materials. Ceramics consisted of brushed, corded, plain, dentate-stamped, and rocker-stamped varieties. Probably associated point types included Fox Creek and Levanna. Two dates, 1535 ± 75 B.P. and 1185 ± 190 B.P., correlate with this component. A minor Middle Woodland occupation was present at Turtle Pond No. 2, represented by a few diagnostic potsherds. Part of a Point Peninsula plain vessel was found with charred hickory nuts dated 2140 ± 65 B.P.

Late Woodland manifestations are ubiquitous on the island, both in the Ferguson collection and on excavated sites. Components were present at the Two Springs, Grassy Pond, Hawks Nest Point, Sharp, Hedges, Turtle Pond No. 1, Barlow Pond, Betty Matthiessen, Flounder In North, Flounder In South, and Gaillard sites. In most cases the diagnostic artifacts were potsherds, displaying a variety of attributes of decoration, lip and rim form, surface treatment, and paste. Levanna points or other triangular forms were associated with components at Two

Springs, Hawks Nest, Sharp, Flounder In South, and Gaillard. Small stemmed points, but no Levannas, occurred in Stratum 1 with the late pottery at Barlow Pond. No projectile points were recovered at Grassy Pond, Turtle Pond No. 1, or Betty Matthiessen.

Radiocarbon dates from sites of this period are variable and confusing. The early date of 3570 B.P. for Grassy Pond has already been mentioned. Another date from this site, 890 ± 70 B.P., seems too old for the associated ceramics, which, from a comparative viewpoint, should date to around 400–500 B.P. There is a similar problem with the date of 1675 B.P. for Feature 1 at Hawks Nest Point. Charcoal associated with Levanna type points and late pottery in the brown sand overlying the Sharp site shell midden dates to the historical period, at less than 200 B.P. reflecting the disturbed nature of the upper levels at Sharp. A Madison-like triangular point in Feature D at Two Springs was associated with charcoal dated 900 ± 215 B.P. Finally, another reasonable date of 855 ± 125 B.P. was obtained for brushed and corded ceramics and maize in Feature A at Flounder In North.

Evidence of occupation during the Contact period, around A.D. 1550–1600, was confined to the Final Woodland component in Stratum 1 at Turtle Pond No. 2. There the most important clue was the copper alloy fragments from the activity area centered around Feature 1. Associated ceramics were scallop shell-impressed, cord-marked, brushed, and punctated. Two small stemmed points, but no Levanna points, occurred in the same zone. A radiocarbon date of 95 ± 90 B.P., on charcoal found in close proximity to very late ceramics, is discordant with the expected age of the sherds.

Subsistence and Seasonality

What follows is a preliminary assessment of our knowledge of prehistoric subsistence and seasonality on Fishers Island. Analyses of faunal and floral samples from several sites are still in progress. Despite the small size of most prehistoric sites on the island and the shallowness of cultural deposits, a surprising amount of organic refuse from subsistence pursuits was preserved. Charred nut fragments, for example, were recovered from components of nearly every major cultural stage from Late Archaic to Final Woodland. Animal food refuse, including mammal and bird bones, fish bones and scales, and mollusk shells occurred on several sites.

Nut fragments, possibly of butternut, were recovered from Feature 1, the Late Archaic hearth at Barlow Pond. Hickory nuts were scattered through Stratum 2, the presumed Late Archaic zone at the Turtle Pond No. 2 site. These and fragments of calcined bone are the only subsistence remains definitely attributed to the Sylvan Lake phase, or its regional equivalent in the Narrow Point tradition, on Fishers Island.

The basal component in the Sharp site shell midden may have been affiliated with the Susquehanna tradition. Because of the lack of well-defined stratigraphic separation and the extent of historical disturbance in the midden, it is not feasible to assign any of the refuse bone or plant remains to this occupation. It seems likely, however, that shellfish were collected and consumed during that period.[2] Charred nutshells and calcined bone occurred

[2]Evidence for shellfish utilization by Susquehanna peoples seems to be the exception rather than the rule. The best evidence for this practice was obtained at the Turner Farm, coastal Maine (Bourque 1976).

with Susquehanna artifact types at the Two Springs site.

Charred hickory nuts were found with Vinette 1 pottery in the Early Woodland level at the Cant site; no other subsistence remains have been recovered in Early Woodland contexts. Hickory and other nuts were associated with Middle Woodland ceramics at the Turtle Pond No. 2, Sharp, and Cant sites, and a variety of terrestrial and aquatic mammals, birds, reptiles, and fish occurred with Middle Woodland sherds in the Sharp shell deposit.

Much more information is available for Late Woodland occupations. Nuts, maize, and mollusks each occurred in four components, white-tailed deer and other mammals in three, birds (including migratory species) in two, and fish in two. The Final Woodland component at Turtle Pond No. 2 produced maize, nuts, grapes, and shellfish.

There is little doubt that prehistoric peoples frequented the island during the fall season in Late Archaic, Transitional, and Early Woodland times. They may have lived there in other seasons, but the evidence is currently inconclusive. The available Sharp site data point to spring, summer, and fall occupancy in the Middle Woodland period. Year-round residence is possible, but unconfirmed. This is also true for the Late Woodland period when maize horticulture appeared for the first time. It remains uncertain whether maize was grown on the island or carried by canoe from the mainland.

Settlement

Of the 27 sites listed in Table 1, 15 were previously reported by Henry L. Ferguson (1935) or Charles B. Ferguson, and 12 were recorded during reconnaissance under the Fishers Island Prehistory Project. As previously noted, five of the new sites were located on the three survey transects. The total of 27 excludes the stray finds and isolated burials reported by H. L. Ferguson and others. It is a small sample on which to base settlement pattern inferences.

Eleven sites were classified as shell middens. Two others were open camps with small amounts of shell in features, and 14 were non-shell encampments. The distribution of components assigned to cultural stages by the shell/non-shell categories is shown in Table 3.

The breakdown by protected side and aspect is presented in Table 4. Most prevalent are sites (nine in number) on level terrain open on all sides (i.e., with a 360-degree view). Otherwise there is no consistent pattern in the location of sides protected by rises, slopes, or hollows. If, however, aspect is considered to be the cardinal orientation of the direction of the dominant view determined by topography, then again open camps prevail. Second most common is a southern or southeastern view (eight examples), followed by east and north. Generally, the best protection from fall-winter wind and storms would be situated to the north and west of occupied areas.

To some extent this "protection factor" differs from that on Block Island, where Kevin McBride (personal communication, 1989) reported that most sites were found on the south side of hills or slopes. Nevertheless, on Fishers Island a southern or southeasterly aspect is comparable in frequency to that of the all-around view. Much variation is evident when components assigned to cultural stages are considered (TAB. 5). This variation is partly

Table 3. Shell vs. non-shell sites on Fishers Island.

Cultural stage	Shell midden	Non-shell midden, some shell in features	Non-shell	Totals
Late Archaic	–	–	5	5
Transitional	1	–	2	3
Early Woodland	–	–	2	2
Middle Woodland	1	–	1	2
Late Woodland	3	1	7	11
Final Woodland	–	1	–	1
Woodland	2	–	–	2
Unknown	6		4	10
Total	13	2	21	36

Table 4. Protected sides and aspect of archaeological sites on Fishers Island.

Protected sides	Number	Aspect	Number
None: open	9	360°	9
East	1	West	1
West	2	North	3
West, North, East	3	East	3
North, South, West	1	South	5
South	2	South, East	3
North	2	North, West	1
North, West	3	Northeast	1
South, East	1	Unknown	1
West, South, East	1		
Southwest	1		
Unknown	1		
Totals	27		27

a result of the multiple occupation of certain sites. Fourteen components were protected on northern or western sides, however, in contrast to 13 lacking such protection.

Data on size are available for only 14 sites (TAB. 1). Eight range from 15 to 200 m^2 in area, three range from 200 to 400 m^2, and three from 1200 to 2700 m^2. The smallest site is the Gaillard workshop, and the three largest are Barlow Pond, Hawks Nest Point, and Sharp, in descending order. The mean area of all sites is 551 m^2. It is probably significant that the three largest sites had major Late Woodland occupations.

Estimates of the average density and total number of aboriginal sites on the island are subject to considerable uncertainty. Many sites were destroyed by construction, but a fairly high number may still exist outside the areas we surveyed. There is good reason to doubt, however, that additional large stations (over 1,000 m^2), including shell middens, remain to be discovered. Extant sites are probably small workshops and camps, under the 550 m^2 average size.

The transects, covered by test pits at intervals that varied but were generally about 10 m, may have missed a

few small sites that fell between tests. Nevertheless, given this caveat, the transects provided the best data for estimates of site density.

Five new sites were found in a total area of just under 15 ha. The land area of the island after subtracting ponds and wetlands is about 970 ha. Therefore the transects covered about 1.5% of the whole surface area. If there were originally about 0.33 sites per hectare, and sites were distributed evenly over the island landscape, then the total number was around 320. This estimate is very preliminary and simplistic, however, and does not take into account possible variation in site density through the Holocene epoch, as well as variation among local habitats or environments on the island. The actual number of prehistoric sites may have been considerably lower. For example, most sites closely adjoined either fresh water or salt water, within 100 m. Turtle Pond No. 1 and the North Hill shell midden were over 100 m from water, an unusually large distance. On the other hand, no place on the island is over 500 m from water. Nevertheless, it may be significant that in places where the island is widest, and lacking in centrally located ponds, no sites have so far been reported over 100–150 m from water, either salt or fresh.

Internal settlement data from excavated sites pertain largely to activity areas inferred from features, artifact and debitage concentrations, and subsistence remains. No structures of any form have been observed. Two postmolds associated with Feature A at the Two Springs site suggested supports for a drying or cooking rack. The loose cluster of postmolds associated with features in Stratum 1 at Turtle Pond No. 2 did not form a recognizable pattern, but again may represent activities not associated with a dwelling.

This general absence of structural evidence and the predominantly small size of sites suggests short-term occupations by small bands or family groups. The largest sites, Sharp, Hawks Nest Point, and Barlow Pond, were not semipermanent settlements occupied for extended periods by large groups of people. Rather, they were the result of multiple, spatially overlapping occupations by relatively small groups, creating relatively large composite aprons of ceramic and lithic debris, features, and food refuse. Significantly, the main components on these sites were of Late Woodland age, and maize horticulture contributed to the subsistence base. Because these three sites are the largest on the island, and because Late Woodland components in the available sample are more numerous than those of prior stages, one may hypothesize that resident populations had attained their peak during this period.

The classification of sites and components within sites into functional types remains incomplete. Also, there are large gaps in our knowledge of some periods and phases. Therefore, we have not attempted to reconstruct the settlement system of any period in detail. A preliminary division into shell middens, quartz cobble reduction workshops, and hunting-gathering camps begs for refinement, because multiple activities are indicated for most sites. For example, even the encampment less than 100 m^2 in size at Flounder In North produced evidence of quartz-knapping, feature construction, ceramic use (and manufacture?), cooking, nut gathering, maize consumption (and local cultivation?), and probably hunting. Furthermore, the data evince considerable diversity of shell middens (Lightfoot 1985). Although these sites are often assumed to have been non-residential special-purpose stations, the

Table 5. Protected sides and aspect of components on Fishers Island.

Cultural stage	Protected sides	Number	Aspect	Number
Late Archaic	North, West	1	Southeast	1
	South, East	1	Northwest	1
	Southwest	1	Northeast	1
	Open	1	360°	1
	North	1	South	1
Transitional	North, West	1	Southeast	1
	South, East	1	Northwest	1
	Southwest	1	Northeast	1
Early Woodland	West, North, East	1	South	2
	North	1		
Middle Woodland	North, West	1	Southeast	1
	West, North, East	1	South	1
Late Woodland	North, West	2	Southeast	2
	West, South, East	1	North	2
	South, East	1	Northwest	1
	North	2	South	2
	South	1	Open	4
Final Woodland	North, West	1	Southeast	1
Woodland	West, North, East	1	South	1
	Open	1	360°	1
Total		26		26

Sharp site was used as a living area, a quartz cobble reduction workshop, and a nut-processing, hunting and fishing station as well as mollusk-collecting location.

The delineation of "catchments" on Fishers Island remains problematic. The island is so small that within a short time any one occupying group could have used numerous locations, each one characterized by access to particular food resources, lithic raw material, or sources of fresh water. Also, many potential camp locations on the island would have been conveniently close to a wide variety of resources, requiring only short trips to and from the sites on foot. Assuming the inhabitants had canoes, they could have exploited sea mammals, fish, and shellfish in locations beyond the island's borders, even travelling to the Connecticut mainland or to Long Island. Certainly the concept of seasonal rounds, involving group movement between shoreline and interior, does not apply to Fishers Island as a self-contained environmental setting. More likely, such movements would have occurred between island and mainland.

As previously stated, we cannot demonstrate that maize was actually grown on the island rather than imported, although it was recovered from four Late Woodland sites and one Final Woodland site. It also is not established that resident groups of any period stayed on the island year-round. Late Woodland people used it at least in spring, summer, and fall. Thus we cannot claim to have answered the questions raised by Ceci (1977, 1982) concerning environmental limitations on the practice of maize horticulture on

Long Island and in adjoining coastal regions.

Ethnohistory and Material Evidence

There is meager evidence bearing on the affiliations of Late and Final Woodland occupations of the island with historically known tribal groups. Ferguson (1935: xv–xvi) states that Fishers Island was purchased by John Winthrop from "the Indians" in 1644, seven years after the massacre of 1637 that broke the power of the Pequot. His phrasing implies that the Pequot had retained some form of ownership of the island. Ferguson's documentary sources for the Pequot role are not specific, however, and remain conjectural.

Whether or not the Pequot controlled the island in 1644, the situation at Contact may have been rather different. The island lies directly south of coastal areas attributed to the Pequot in the 17th century. The Western Nehantic (or Niantic) occupied the coastal territory west of the Thames River. Smith (1950: 109, 153–155) and other writers believed the Mohegan and Pequot had invaded the Connecticut coast from the north and west around Contact times, forming a wedge that divided the eastern and western Niantic. Therefore, Fishers Island could have been occupied by the Niantic prior to this migration. Salwen (1969), however, presented a strong argument for in situ development of the Pequot as well as the Mohegan.

Smith (1950: 108–109, 153–155) identified the material culture of the Mohegan-Pequot with the historic-period archaeological manifestation called the Shantok phase, represented on sites on eastern Long Island and in coastal Connecticut east of the Connecticut River. This connection is reinforced by strong similarities between the languages of the Mohegan-Pequot and the Montauk tribe on Long Island (Goddard 1978).

The Hempstead papers of the 18th century (Hempstead 1711–1758) indicate that the island was part of the territory claimed by Wequash who frequented the island and was a Niantic sachem. Wequash was a western Niantic who was friends with George Fenwich, founder of the Saybrook Colony. The friendship with Fenwich and the colonists undoubtedly influenced Wequash to become one of the first Connecticut Indians to convert to Christianity. Wequash sold Niantic property in what are now the towns of Madison and Guilford (15 km west of the Connecticut River) to Reverend Whitfield and was subsequently poisoned by some of his own people. On his deathbed Wequash asked to be buried in the traditional Niantic burial ground on the western shores of the Nehantic Bay 12 km east of the Connecticut River.

This suggests that the Western Niantic controlled a considerable territory that may have included a region from what is now the town of Guilford eastward across the Connecticut River to Waterford and then extending across the sound to Fishers Island. Most or all of this territory was clearly traditional as Wequash suggests. It is possible, however, that portions of this territory may have been added as the result of the demise of the Pequot following Mason's attack in 1637. In either case the remaining Indians that were on the island after 1644 and who were aiding the colonists were more likely to be aligned with Western Niantic or Mohegan than Pequot.

A resounding aspect of the documents is that a case can be made for a Western Niantic affiliation for Fishers

Island. This can be supported by the archaeological evidence.

If the Mohegan and Pequot did indeed have ancient roots in their 17th-century territories, then it seems logical that they also dominated Fishers Island for a long period of time. Unfortunately for this hypothesis, there is no evidence for the Shantok phase on the island. Briggs (1976) noted the complete absence of Shantok ceramics in the extensive collection of Henry L. Ferguson, and such traits are also absent from the assemblages we excavated. The late ceramics on the island are clearly affiliated with the Windsor tradition, equated by Smith (1950) with the Niantic. Part of the problem may lie in our incomplete knowledge of Niantic ceramics and the true range of Shantok wares (Salwen 1969).

Looking into the historical documents a little deeper, it is significant that the nephew of Wequash known as Wequashcook took over the name of his uncle upon his uncle's death. This individual had complex ties to both Pequot and Mohegan groups. (Becuase of the two sharing this name, the colonial references to Wequash can be confusing but nonetheless require careful consideration.)

There is also suggestive evidence that requires more than a historical eye. Surprising elements of social fluidity and flexibility are indicated in the written records relating to Eastern and Western Niantic, Mohegan, and Pequot groups. There were strong family and political connections that do not correspond to conventional models of a tribe. Some of this could certainly be the result of the Colonial experience and the drastic changes in traditional Indian culture. If, on the other hand, this was in fact the precontact pattern, this poses a serious challenge to our present view of Southern New England prehistoric social organization. The possibility exists that these "groups" were not tribal entities at all, but may have conformed more closely to the definition of spatially distributed lineages. If this were the case, attempts to distinguish Niantic, Mohegan, and Pequot units on the basis of tribal identity would be an empty pursuit.

Paleoecology and Geoarchaeology

Marion F. Briggs (1976) was the first researcher to raise the issue of past environments on Fishers Island. Her reconstruction of the island's postglacial vegetation history was extrapolated from the work of Sirkin (1967) on Long Island and that of Davis (1969) and others in southern New England.[3] Briggs also presented hypothetical maps of Fishers Island as it would have appeared during sea level rise at 6000 B.P. and 4000 B.P. Especially interesting was the probable existence of a long, narrow embayment, some distance from the present north shore, at 6000 B.P. when sea level was at least 8 m lower and when present-day West Harbor was dry land. With its shallow floor this bay would undoubtedly have been rich in shellfish and other marine resources. This suggests that it was then surrounded by Archaic sites, which were subsequently flooded by the sea and possibly destroyed by wave action.

Our attempts to learn something about the effects of rising sea level on the island's shores, its impact on inundated sites, and the formation of salt

[3]Models of postglacial vegetation change have not been substantially altered by subsequent research (Sirkin 1977; Davis 1983).

marshes were not very successful. Basal peat from a depth of 9 feet (2.7 m) in Buckner Salt Marsh on the south shore was dated 6075 ± 90 B.P. (radiocarbon dates from wetlands are listed in Table 6). This date was much older than expected, because according to published sea level curves for southern coastal New England, that particular salt marsh should not have started forming until about 3,500–4,000 years ago. We suspected therefore that lower portions of the peat were remnants of fresh water wetland deposits, invaded by rising sea water. Leslie A. Sirkin examined a pollen sample from near the base of the deposit and found abundant pollen suggesting a placement in the C1 subzone. The radiocarbon date from the same level falls readily within the expected range of c. 7500–4500 B.P. for that subzone. These findings, and the absence of salt water plants, support the hypothesis that the deposits at Buckner's are remnants of a fresh water wetland.

A complete sequence of core samples was, however, obtained with the Davis borer from two loci at the extensive Olaf Nelson Salt Marsh, on the north shore at West Harbor (FIG. 8). The maximum depth was 110 in (2.8 m) to sand and gravel. A basal peat sample was dated 8380 ± 110 B.P. Pollen analysis by Sirkin established that nearly the entire thickness of the deposit was from fresh water wetland, beginning at the transition from the B to C1 pollen zones and continuing from the C2 zone (c. 3405 B.P.) into the C3 zone (c. 1585 B.P.). Only the top 10 in (25 cm) showed significant growth of salt marsh plants. A sample of peat from this level was dated to modern times, c. 100 B.P.

A strip of salt marsh adjoins the west shore of a lobe of East Harbor, on the grounds of the Fishers Island Country Club. Probing of the sediments reached a maximum depth of 11 ft (3.3 m). Peat samples were obtained at five levels but the Davis borer could not retain loose, wet material at other depths. Leslie A. Sirkin analyzed pollen from 86–96 in (2.18–2.43 m) and 110–120 in (2.79–3.04 m) below surface. He concluded that samples from 86 and 96 inches probably correlated with the C2 and C1 pollen zones, respectively, and the 110-in level was possibly correlated with the B zone (pine-oak). Salt marsh species were not represented. Two peat samples from 48–58 in and 62–72 in were radiocarbon dated at 2370 ± 130 B.P. and 2800 ± 170 B.P., respectively, consistent with their stratigraphic position and with a placement in the late oak zone (C2). Pollen from these samples was not analyzed, but once again the sediments were deposited in fresh water. Therefore the evidence indicates that genuine salt marsh deposits are only weakly represented on Fishers Island.

Various writers have noted that few coastal peats are older than 2,000 years, and in fact most are younger. This is because rapid sea level rise from deglaciation until about 3,000 years ago forestalled the development of salt marshes. The slower rate of rise after 3000 B.P. permitted the growth, decay, and undisturbed accumulation of salt water plants (Gordon 1983; Bloom 1983; Oldale 1986; Lavin 1988).

Sirkin has analyzed the pollen samples from two inland kettle deposits. One is the 19-ft (6 m) deep H. L. Ferguson Museum Bog, and the other is the Wilderness Point Bog, which has up to 300 in (7.6 m) of peat. The results indicate a succession of standard pollen zones, beginning with the A zone or spruce-fir assemblage. The A zone is dated from 11,145 B.P. to 11,730 B.P. at HLFM Bog and 13,180 B.P. at Wilder-

Table 6. Radiocarbon dates from peat recovered from fresh water and salt water wetlands on Fishers Island (Uncorrected).

Site	Depth below surface	Lab. number	Date	Association
HLF Bog	75–100 cm	GX-13,806	4625 B.P. ± 160 (2675 B.C.)	Oak, holly, hickory
	140–187 cm	GX-12,596	5030 B.P. ± 330 (3080 B.C.)	Oak, holly, hickory
	232–280 cm	GX-12,595	5760 B.P. ± 75 (3810 B.C.)	No pollen sample
	427–475 cm	GX-12,594	9380 B.P. ± 110 (7430 B.C.)	Pine, oak, birch (B zone)
	475–523 cm	GX-12,593	10,170 B.P. ± 305 (8220 B.C.)	Transition A/B zones
	508–533 cm	GX-13,807	11,145 B.P. ± 285 (9195 B.C.)	Spruce-fir (A zone)
	533–559 cm	GX-13,808	11,730 B.P. ± 250 (9780 B.C.)	Spruce-fir (A zone)
Buckner Salt Marsh	9 ft (2.7m)	GX-12,597	6075 B.P. ± 90 (4125 B.C.)	No pollen data
Wilderness Point Bog	Series 1, 50–60"	GX-16,179	2245 B.P. ± 85 (295 B.C.)	Oak-hemlock pollen assemblage (C3 zone)
	Series 1, 80–90"	GX-16,180	None obtained; lab contamination	
	Series 1, 100–10"	GX-16,181	3100 B.P. ± 95 (1150 B.C.)	Oak-hickory pollen assemblage (C2 zone)
	Series 1, 140–50"	GX-16,182	4315 B.P. ± 105 (2365 B.C.)	Oak-hemlock pollen assemblage (C1 zone)
	Series 2, 200–10"	GX-16,183	8930 B.P. ± 305 (6980 B.C.)	Oak-pine pollen assemblage (B zone)
	Series 2, 270–80"	GX-16,184	13,180 B.P. ± 490 (11,230 B.C.)	Spruce-fir pollen assemblage
Nelson Salt Marsh	8–10"	GX-17,603	<100yr B.P.	Modern pollen with tidemarsh plants
	33–38"	GX-17,604	1585±145 B.P. (A.D. 365)	Oak, hemlock, chestnut pollen assmeblage (C3 zone)
	70–80"	GX-16,947	3405 B.P. ± 85 (1455 B.C.)	Oak-hickory pollen assemblage (C2 zone)
	75–85"	GX-16,948	4775 B.P. ± 90 (2825 B.C.)	Oak-hemlock pollen assemblage (C1 zone)
	100–110"	GX-16,949	8380 B.P. ± 110 (6430 B.C.)	Oak-pine pollen assemblage (B zone)
Sharp	Marsh test 1, 40 cm below surface	GX-16,123	270 B.P. ± 130 (A.D. 1680)	No cultural material
	Marsh test 1, 70 cm below surface	GX-16,124	<200 yr. B.P.	No cultural material
Fourteenth Green	48–58"	GX-18,240	2370 B.P. ± 130 (420 B.C.)	Pollen not analyzed
	62–72"	GX-18,241	2800 B.P. ± 170 (850 B.C.)	Pollen not analyzed

Figure 8. View of Nelson Salt Marsh looking northeast. Pollen samples are being collected using a Davis borer (1990 field season).

ness Point Bog (TAB. 6). The B zone at Wilderness Point was dated 8930 B.P., and C2 at 3100 and 2245 B.P. An anomalously late date of 4315 B.P. was obtained for the C1 zone. The pine-oak (B) zone at HLFM Bog was dated 10,170–9380 B.P. Here the dates for the C3 zone, 5760, 5030, and 4625 B.P., are unaccountably much too old when compared to the chronology at many other sites. They would be more appropriate for the C1 zone.

Although our analyses are incomplete, there is no doubt that Fishers Island and its environs have undergone major changes since the Wisconsin ice began its retreat from the end moraines. It remains to be seen whether linkages can be established between episodes of environmental change and changes in native adaptations during the Holocene epoch.

Conclusion

We partly achieved the objectives set forth in earlier pages. Reconnaissance, including systematic transects, that covered a variety of local habitats on the island, added 12 new sites to the total previously known on the island. A cultural sequence and chronology was delineated that begins with the Late Archaic about 4,200 years ago and ends in the Contact period around A.D. 1600. This sequence is anchored in time with the aid of 22 radiocarbon dates (TAB. 2), although some dates are inconsistent with other chronological indicators.

Most excavated sites produced charred nuts, and a few yielded faunal remains, including white-tailed deer, other mammals, birds, fish, and shellfish. A majority of the identified components pertained to the Late Woodland stage, and several of those produced maize kernels in addition to other subsistence remains. So far the data indicate spring through fall occupation of the island. It is uncertain whether people of any cultural period resided on the island year round.

Tentative classification of site types included shell middens, quartz cobble reduction stations, and hunting-gathering camps. Only three sites were over 400 m^2 in size, and they contained major Late Woodland components. Ceramics on Late Woodland sites pertain to the Windsor tradition, and Shantok traits are lacking, suggesting a relationship with the historical Niantic rather than the Mohegan-Pequot.

Pollen samples were obtained from two freshwater wetlands and three salt marshes. Analyses so far indicate that postglacial vegetation change on the island paralleled the sequence on the mainland and on Long Island. The Fishers Island pollen sequence is supported by 22 radiocarbon dates on peat (although several appear to conflict with the known chronology of associated pollen assemblages). Tidal marshes fringing the north and south shores seem to be remnants of fresh water wetlands invaded by the rising sea, capped by a thin layer of very recent salt marsh plants.

There have been occasional reports of drowned prehistoric sites revealed by dredging along the Connecticut shore (Glynn 1953; McWeeney 1986). To date, such reports are lacking for the vicinity of Fishers Island, but the existence of inundated sites just off the north shore on the bottom of Fishers Island Sound remains an exciting possibility.

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