

**Sherd** – a fragment of pottery. Based on the clay or paste of the pottery, the kind of temper (material added to the clay to make it easier to work and withstand the firing process), and any decoration or surface treatment, archaeologists can identify the ware type the sherd belongs to, including the time period that the pottery was most common.

**Shovel Test** – a method used for locating archaeological resources during an archaeological survey in regions where evidence of such resources is not sufficiently visible on the surface (usually because of vegetation cover). Shovel tests are also typically used when archaeologists need to clarify the boundaries, function, and degree of disturbance on archaeological sites. A shovel test consists of digging a circular hole about a foot in diameter and putting the dirt through a wire mesh screen to recover artifacts. The hole is dug until culturally sterile subsoil is reached. The layers of sediment observed in the wall of the shovel test give the archaeologist insight into how the site was formed and any activities that may have occurred that have compromised the site, such as vandalism associated with unauthorized collection of artifacts, erosion, recent construction, or plowing, among others.

**Spat** – the larval stage of the oyster, when it begins growing a shell. Prior to this stage, the oyster larvae are free-swimming.

**Test Unit** – a test unit is a block excavation that typically measures 1 by 2 meters in plan, though conditions at a site may warrant larger or smaller blocks. A test unit exposes a much larger area than a shovel test, and is useful in exploring how the site was formed by revealing the various layers that make up the site. Test units are also helpful in exposing the footprint of features such as storage pits, hearths, burials, post holes, or structural foundations. Test units are excavated stratigraphically – that is, each layer of soil is removed separately, so that the artifacts from one layer are not combined with the artifacts in subsequent, lower (and therefore deposited earlier) layers.

### **Additional Reading**

*A Study of First People of the Eastern Shore: Archaeological Evaluation of the Thomas Wharf Site (44NH1), Northampton County, Virginia*, by Dennis Blanton, 1999. Available here: <http://web.wm.edu/wmcar/thomaswharf.pdf>

*First People: The Early Indians of Virginia*, by Keith Egloff and Deborah Woodward, 2006. Available here: [http://www.dhr.virginia.gov/homepage\\_general/publications.htm](http://www.dhr.virginia.gov/homepage_general/publications.htm)

*The Jamestown Narratives: Eyewitness Accounts of the Virginia Colony, the First Decade: 1607-1617*, edited by Edward Wright Haile, 1998.

*Chesapeake Prehistory: Old Traditions, New Directions*, by Richard J. Dent, Jr., 1995.

*America, 1585: The Complete Drawings of John White*, edited by Paul Hulton, 1984.

“...THEY LIVE MUCH UPON OYSTERS  
GETTING VAST QUANTITIES OF 'EM  
AND SO ROAST 'EM IN A FIRE”

*Archaeological Data Recovery at the Gouldman Oyster Shell  
Midden Site (44WM0304) in Westmoreland County, Virginia*



**A PROJECT SUPPORTED BY THE VIRGINIA DEPARTMENT OF TRANSPORTATION  
AND THE FEDERAL HIGHWAYS ADMINISTRATION**

WILLIAM AND MARY CENTER FOR ARCHAEOLOGICAL RESEARCH

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***The quote on the title page appears in Bushnell (1913:536) and is from an early colonial account of American Indians from what is today the state of Maryland.***

**Archaeological Survey** – sometimes called a “Phase I”, the purpose of an archaeological survey is to locate sites, define their boundaries, and determine their function and the time period to which they date. Typical survey methods consist of systematic excavation of shovel tests across an area or, if there is little to no vegetation, careful examination of the ground surface may reveal the presence of an archaeological site.

**Hafted Biface** – a hafted biface is what most people think of when they hear “arrow-head”, though a hafted biface could be a scraper, spear point, or knife. A biface is a stone tool that has been worked on both sides (or faces). A hafted biface has a special area at the base of the tool that has been prepared to accept a hafting element, be it a handle (in the case of a knife or scraper) or a shaft (in the case of a spear, arrow, or dart).

**Midden** – A midden, sometimes called a trash midden, is an archaeological feature that represents an area of trash disposal. Unlike a post hole feature or a builders trench, which typically have few artifacts, a midden is full of materials people discarded, such as food waste, broken pottery, and fragments of tools. A shell midden is an area where the shells of oysters or mussels or other shellfish were discarded following harvest and processing.

**National Register of Historic Places (NRHP)** – The NRHP is a list of historic cultural resources that are considered to be significant under one or more of four criteria:

- A. be associated with events that have made a significant contribution to the broad patterns of our history; or
- B. be associated with the lives of persons significant in our past; or
- C. embody the distinctive characteristics of a type, period, or method of construction, or represent the work of a master, or possess high artistic values, or represent a significant and distinguishable entity whose components may lack individual distinction; or
- D. have yielded, or may be likely to yield, information important in prehistory or history.

Archaeological resources, in particular, are typically evaluated with regard to whether or not they would be eligible for listing in the NRHP under Criterion D. This criterion aids in making a determination of the potential for the archaeological resources to contribute to important research issues. The specific issues that might be addressed are dependent on the character of existing archaeological data for the time period and site type in question combined with a general knowledge of the background prehistory and history of the region that includes the site. Sites that are eligible for the NRHP should be avoided (even if they have been determined eligible for listing in the NRHP but have not yet been added to that list. If avoidance is not possible, the impacts of the proposed undertaking on the resource must be reduced or mitigated. One form of mitigation is an archaeological data recovery.

**Radiocarbon Dating** – a dating method that can be used with any material that has carbon in it, including wood, charcoal, bone, shell, leather, textiles, or teeth. When a plant or animal is alive, it is constantly taking in various kinds of carbon, including small amounts of a radioactive isotope of carbon, Carbon-14. When that plant or animal dies, it stops taking in new Carbon-14, so the existing Carbon-14 begins to decay at a known rate. In a laboratory, samples of carbon are burned and the ratio of Carbon-14 is measured, giving the date when the plant or animal died.

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## Glossary

**Archaeological Data Recovery** – this is what most people think of when they hear the term “archaeology.” A data recovery is driven by a research question or questions, and a series of methods will be devised to adequately answer those questions (or explain why those questions cannot be answered by data recovered from the site). Prior to the start of a data recovery, a treatment plan outlining the research questions and proposed methods is submitted to the interested parties, such as local, state, and federal agencies, landowners, and descendent communities. Data recoveries seldom involve total excavation of the site; rather the excavation plan takes into account the specific types of data at the site that are uniquely relevant and suitable for addressing the research questions that make the site significant, the methods available, the proposed impacts to the resource, and the constraints of budgets to craft the most responsible treatment of the archaeological site, a non-renewable resource.

**Archaeological Evaluation** – sometimes known as a “Phase II” or “intensive survey”, an archaeological evaluation is conducted at a specific, previously identified site. The goals of an evaluation are to clarify site boundaries, assess site integrity (degree of disturbance) and research potential, identify research questions, and establish the site’s eligibility for the NRHP. An evaluation may consist of systematic shovel testing across and around a site in order to identify activity areas based on the distribution of various types of artifacts. An area within the site characterized by a large number of brick fragments and nails may indicate the location of a structure, or a concentration of heat-altered stones may represent the location of a hearth feature. These potential features can be further investigated by the excavation of test units.

## Introduction

Two thousand years ago, a group of Virginia Indians came to the shore of the Potomac River near what is today Colonial Beach, Virginia. It was springtime. They had come to this place, as perhaps their relatives or even ancestors had, many times before. The stored foods of winter were gone or nearly so, and it would be months before the bounties of summer and fall foods. Time had come to harvest oysters from the reefs just offshore. Discarded shells from previous springs littered the ground, sometimes to a depth of a foot or more. Among the shells were fragments of pottery, discarded animal bones, and flakes of stone from making and repairing stone tools. After using up the season’s local supply of shellfish, the people would move on to another site seeking a fresh supply of food. They continued the annual cycle of hunting and foraging for food, and gathering the raw materials necessary for the items of daily life.

In 2007, archaeologists from the William and Mary Center for Archaeological Research (WMCAR) rediscovered that campsite (Figure 1). At the request of the Virginia Department of Transportation (VDOT), they conducted an **archaeological survey** because of plans to improve the nearby bridge and approaches. Before a road can be built or widened, engineers need to know what kind of soils are present, how the road will affect run-off from rain, and whether any important archaeological sites lie in the path of the road. Archaeologists visited this stretch of road and looked for evidence of pre-colonial Virginia Indian and/or any other historic occupation of the area.



Gouldman Oyster Shell Midden Site (44WM0304), view to the west. The oyster shell midden is on top of the ridge behind the thick growth of trees along a creek near the Potomac River.

It's rare for archaeological sites to be visible above ground in Virginia where much of the landscape is covered in trees and thick undergrowth. As a result, archaeologists rely on a sampling technique for finding buried artifacts, such as digging small, regularly spaced holes (or **shovel tests**) across their study area. The dirt from these shovel holes is sifted and checked for artifacts. The kinds and amounts of artifacts recovered indicate the type of activity that took place at a site and the time period when it was occupied.

In the case of the Gouldman Oyster Shell **Midden** Site, archaeologists recovered pieces of the kinds of pottery that were common during the Middle Woodland period (approximately 500 B.C. – A.D. 900). The picture we can draw of what life was like during that time is similar to a jigsaw puzzle that is missing some of its pieces. But how can we learn about the lives of the people who lived along the shores of the Potomac River during the Middle Woodland period—how can we fill in those missing pieces? Archaeology offers one important way to find this answer.

## Archaeology at the Gouldman Oyster Shell Midden Site (44WM0304)

Based on the results of the archaeological survey, it was clear that there was an archaeological site within one portion of the area proposed for road construction associated with the bridge replacement project. The next step after finding a site is investigating whether it is important enough for listing in the **National Register of Historic Places**. In general,

Gouldman Oyster Shell Midden Site (44WM0304), view to the northeast with the Potomac River in the background. Three open excavation units are visible across the center of the photograph.

Gouldman Oyster Shell Midden Site is named after the person who owned the area of the site when it was first discovered. All sites officially recorded in the United States also receive a three-part site number. In this case, the first part, "44", refers to Virginia's place in an alphabetical list of the states (excluding Alaska and Hawaii, which had not yet become states when this scheme was created). "WM" is the two-letter abbreviation for Westmoreland County. The final number "0304" indicates that this site was the 304th recorded within the county.



Instead, the small number of edible plant remains point to stored foods brought to the site during a short-term winter or spring habitation.

Early colonial accounts describe oysters as one of the few food sources available in spring. In a letter to the Virginia Company of London, Lord Delaware describes an encounter with Native Americans at Cape Henry on June 6, 1610:

*Whilst we were a-fishing, divers Indians came down from the woods unto us, and with fair entreaty on both sides I gave unto them of such fish as we took, which was good store and was not unwelcome unto them, for indeed at this time of the year they live poor, their corn being but newly put into the ground and their old store spent. Oysters and crabs and such fish as they take in their weirs is their best relief (Haile 1998:455).*

It is very likely that native peoples of the coastal plain during the Middle Woodland period would have relied on oysters—a relatively stable, predictable food source—during times when other foods (nuts, wild starchy seeds, fruits) would not have been available. In short, oysters have a long span of availability. While certain times of year are more suitable than others, oysters can be collected and consumed year-round.

Analysis of the oysters from the Gouldman Oyster Shell Midden Site indicates they were collected in spring or early summer. This is based on the lack of **spat** scars or oysters measuring less than 35 mm in height in the assemblage. Shells larger than 35 mm would represent the previous year's crop; the current year's spat would not yet have settled on the reef.

## Conclusion

The Gouldman Oyster Shell Midden Site is an oyster shell midden where pre-colonial Virginia Indians camped repeatedly over hundreds of years. The most frequent use occurred during the Middle Woodland period (500 B.C. – A.D. 900) by people who made and used pottery of the Popes Creek ware type. Waselkov (1987:116) says it well: "Their inhabitants returned again and again to the same general area until in time the debris from these innumerable visits completely covered the ground, creating an apparently continuous, undulating midden actually consisting of many small, individual, overlapping shell heaps." Besides harvesting tons of oysters during their seasonal visits, the inhabitants made and repaired flaked stone tools—using, resharpening, and discarding stone knives and spearpoints (many of which are consistent with an earlier hafted biface type called Bare Island). They supplemented their winter-spring diet of oysters with nuts and seeds that were likely stored foods; hunted deer, large birds, and possibly collected turtles; and used fired clay pots. The inhabitants of the site probably scooped oysters off the river bottom while wading along the shore, though they also may have collected oysters from deeper water in boats using rakes. It is also likely that the oysters were roasted, though other methods of cooking are also possible. The people who lived at the site (as well as their dogs) probably visited in the spring, as part of a seasonal round of activities. That is not to say that no one ever lived there at other times of the year, but most of the evidence suggests that oysters served as a "gap" food, to be relied upon when the winter stores were fading, but spring resources were not yet available.



John White's painting of North Carolina Algonkians fishing (White 1984:73). The man in the stern is holding what appears to be a rake, perhaps to gather shellfish as mentioned in an account of Virginia Indians collecting oysters along the Chesapeake Bay (Wennersten 1981:5).

ants trampled on shells that lay scattered about the camp. Shucking requires a thin, durable tool to slide between the two halves of the bivalve to force the shells apart. The site inhabitants probably would not have shucked their oysters because the tools available to them would have been too thick (stone tools) or not durable enough (wooden tools).

European explorers and colonists rarely wrote down observations about how the local American Indians cooked oysters, although roasting and boiling are both mentioned. In 1706 one Maryland colonist noted that they "live much upon oysters getting vast quantities of 'em and so Roast 'em in a fire" (from Bushnell 1913:536). George Percy described finding oysters in a recently abandoned Virginia Indian campfire during the first days of exploration of the Chesapeake region in the early seventeenth century (Haile 1998:90). According to William Strachey, "The savages used to boil oysters and mussels together; and

with the broth they make a good spoon meat thickened with the four of their wheat" (Haile 1998:684). Not all oysters were eaten immediately; some oyster meats may have been dried or smoked on "hurdles" or wooden frames over the fire (Hudson 1976:300) or on strings hung in smoke (Strachey in Haile 1998:684). Archer describes bartering in late May with Virginia Indians for food, including baskets of dried oysters (in Haile 1998:103).

**What time of year did people visit the site, or did they live there year-round?**

Based on the kinds of plant remains found at the site and the lack of others, the inhabitants of the Gouldman Oyster Shell Midden inhabited the site mostly or perhaps only in the spring. Over 650 liters of sediment were processed to find charcoal, mostly from burned wood. Edible plants identified among the charcoal fragments include nut shell (mostly from thick-walled hickory nuts) and seeds (two holly, three pigweed, and one each of hackberry, raspberry or blackberry, and grape; the rest are unidentifiable). Conditions within the oyster shell midden were excellent for preserving plant remains left on site by inhabitants during the pre-colonial era. Oyster shell has the effect of neutralizing soil acidity that would otherwise hasten the decay of plant material. Therefore, the small number edible plant remains that survive suggests that the inhabitants were not there during summer or fall, when edible plants would have been collected and many remains discarded.



Example of typical technique for excavating the rectangular pits called test units similar to the ones dug at the Gouldman Oyster Shell Midden. One archaeologist carefully removes the soil according to the layers of soil observed, while others sift the soil through large screens to recover artifacts. The finds are placed in bags according to the unit number and distinct soil layer where they were found. When the artifacts are brought to the lab, they are washed and then identified and catalogued according to where they were recovered on the site.

archaeological sites can be added to the National Register if they have the research potential to help answer questions we have about the past. Archaeologists can determine whether a site is eligible for the National Register by doing more intensive fieldwork at a particular site during an **archaeological evaluation**.

Archaeologists from WMCAR returned to the oyster shell midden site to conduct an evaluation in March 2008. First, they dug more closely spaced shovel holes to get a better sense of how evenly artifacts were spread across the site and if some areas might be more likely to have denser clusters of items that could reveal more detailed information about the site. They also excavated three rectangular 1 by 2 meter pits by hand, removing the soil according to the different layers of sediment they observed. From this further study of the site, they found that the oyster shell midden covers a peninsula formed by the Potomac River and Gouldman Creek. The artifacts date mostly to the Middle Woodland period (500 B.C. to A.D. 900), though a small number date to the Archaic (8000-1200 B.C.) and Late Woodland (A.D. 900-1600) periods. The artifacts represent some of the materials of everyday life: animal bones and oyster shells, fragments of stone from making and repairing stone tools, pieces of broken pottery, and heat-altered stones used in hot rock cooking or to line hearths.

In addition, a key artifact type was observed at the site: fragments of charcoal. Charred plant material is of great interest to archaeologists. First, specialists in ancient plant remains can look at the charcoal and determine what kind of wood it is from or identify the species of nut or seed. This can tell us about the kind of trees growing on or near the site at the time that people were living there and what kinds of plants were important to them, as food, medicine, or as raw materials for making textiles or baskets. Second, through a process called **radiocarbon dating**, charred material can be dated. So, if burned plant material is found in buried deposits together with an artifact (such as a piece of pottery or a stone spear point or knife), the age of the charcoal will probably be the approximate age of the artifact.

The oyster shell midden site had been plowed during the historic era, but otherwise there was little disturbance to the archaeological remains. The site held good potential to provide information on questions archaeologists have about the settlement and survival practices of Virginia Indians during the Middle Woodland period. In other words, due to its good condition and the artifacts it contained, the Gouldman Oyster Shell Midden was determined to be an important archaeological site. Accordingly, if the bridge replacement project was going to damage the site, then it would be necessary to offset any damage from the project. The final decision on how best to proceed took into account possible design changes that would avoid damage to the site. At the same time, the planning process balanced interests of many groups, including the local community, VDOT, the Federal Highways Administration, the Virginia state historic preservation officer, the National Park Service, and the descendant American Indian communities (represented by the Virginia Council on Indians and the Delaware Nation).

To offset the damage from the construction, further research of the site was necessary. This next step, called **archaeological data recovery**, involves the kind of excavation most people think of when they hear the term “archaeology.” Before a data recovery project begins, archaeologists do research to identify specific issues and questions that can be addressed using information from that particular site. It would not be practical to excavate and recover everything from an archaeological site to offset construction-related damage. Instead, archaeologists focus on material from a site that is likely to provide new answers and information relevant to the specific issues identified during background research.

The archaeological data recovery at Site 44WM0304 consisted of the excavation of small blocks (measuring 1 by 2 meters in plan) at regular intervals across the site. Based on findings from this first stage of excavations, more blocks (or units) were excavated to either expand already opened blocks or to investigate spaces between blocks. In all, 51 square meters were excavated during the data recovery, or approximately 0.4% of the total site.

One of the goals of the excavation was to reveal a profile or cross section view of the oyster shell midden. This single, extensive pile of shell comprises many small piles of shell left behind from repeated pre-colonial Virginia Indian habitation and activity. Only in a few areas did the archaeologists observe what appeared to be individual dumps of shells.

Approximately 6,714 kg (7 tons) of oyster shell were removed from the midden during the excavation. Among this shell were more than 700 fragments of pre-colonial pottery, 1,127 stone artifacts (mostly chips of stone from tool manufacture and repair), fragments of animal bone, and heat altered stones. Most of the stone is quartz or quartzite, which occurs locally in the form of river cobbles. The animal bone is mostly in very small pieces, although some (133 specimens) are large enough to be identified as belonging to deer. Most of the bones show signs of having been gnawed on by dogs, perhaps even dogs who accompanied the Virginia Indians to the site. Special soil samples (651 liters) were taken from every buried level in every excavation unit and processed to remove the charcoal for study; the effort produced approximately 112.8 g of carbonized material, mostly from wood charcoal. All of these artifacts, along with their contexts (where each item was found within the midden, both horizontally and vertically, and that artifact’s relationship to the other artifacts recovered) are the puzzle pieces that the archaeologists used to reconstruct what life was like at the site.

preferred for some specialized use at the site. This is particularly interesting: Bare Island tools may have been collected, reused, or perhaps continued to be manufactured long after the end of the Late Archaic period.

Another way to identify the time period during which a site was in use is through **radiocarbon dating** analysis of charred wood or other plant material from deposits that have not been disturbed by later activities. This method provides the age of the charcoal by estimating the length of time before present that the wood or other charred organic material was cut down or died. This is possible to identify because plant material absorbs carbon during the process of photosynthesis and then loses the Carbon-14 isotope at a constant rate after it is no longer living and growing. The radiocarbon samples for dating the Gouldman Oyster Shell Midden Site were pieces of hickory nut shell from three areas of the site; these nuts would have been eaten on the site, and would have been gathered during autumn season prior to the spring oyster gathering encampment. Date ranges from the three samples are: 160 B.C. – A.D. 10, 100 B.C. – A.D. 70, and A.D. 50 – 140. All three dates fall within the Middle Woodland period (500 B.C. – A.D. 900). Artifacts found with these samples of charcoal would date to the same time period. In other words, the radiocarbon dates returned for the site add to our overall knowledge of dates for Popes Creek pottery and Bare Island tools.

### *How did the people of the Gouldman Oyster Shell Midden Site harvest oysters?*

The inhabitants of the midden site may have used several methods for harvesting oysters, depending on season (Waselkov 1987:96–97). Based on studies of shell fishing around the world, the most common method was probably scooping oysters at low tide into baskets. In warmer weather, the site occupants may have collected oysters by diving below the surface. It is possible that rakes were used from canoes or other small water craft to procure oysters from deeper waters.

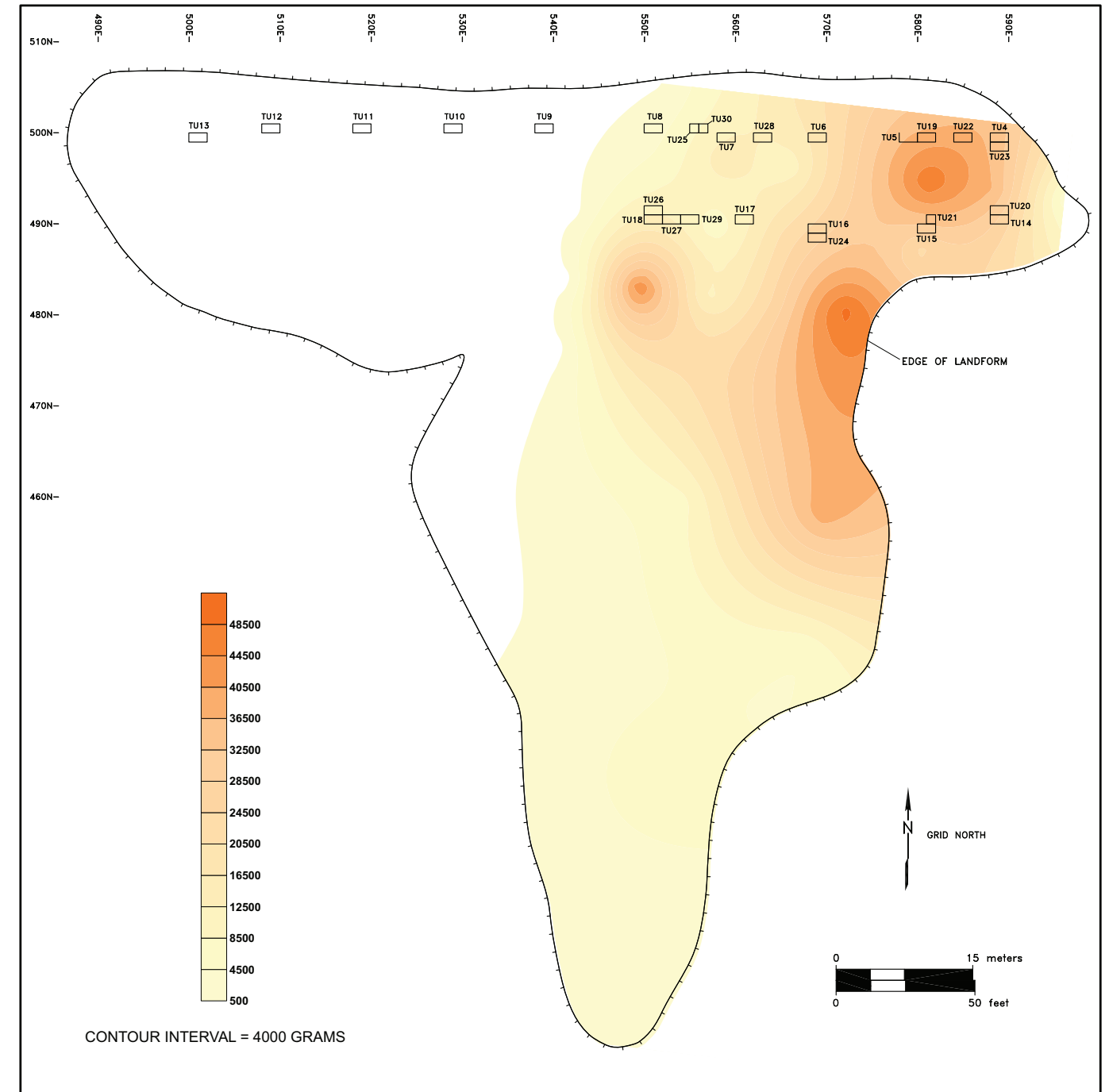
Documents from early European explorers and colonists in the mid-Atlantic region can also be useful in identifying the methods of shellfishing used locally. Wennersten notes (1981:5) that the Nanticoke Indians were “fond of raking up large piles of fresh oysters from creek bottoms with forked sticks and indulging in feasts that sometimes lasted several days.” John White, a sixteenth-century English colonist and artist, painted an image of North Carolina natives in a canoe; one person has an implement that looks like a rake (White 1984:73). Holes were observed in a small percentage of the oyster specimens at the Gouldman Oyster Shell Midden Site; analysis of 10,000 oyster shells from this site suggests that the holes are related to use of a rake to harvest oysters.

Oysters can be prepared for eating in a wide variety of ways, such as roasting, baking, steaming, boiling, shucking, and cracking or perforating. Though obvious signs of burning were noted on only a few oyster shell specimens within the midden, roasting probably was the most common way the site inhabitants opened and cooked the oysters. Roasting an oyster is relatively quick and would leave little evidence of burning on the shell (Waselkov 1987:103). Some oysters may have been boiled; a small number of the oysters in the midden may have been cracked/perforated by using hammerstones. Since not every shell was whole, though, such breaks could have occurred as the site inhabit-

Examples of the Popes Creek pottery from the site. Note the net-impressed surface treatment on sherds "a" and "b" and evidence of scraping the clay before it was fired on the interior of sherds "c," "d," and "e."



Examples of hafted bifaces from the site. Specimens "a" through "g" are the Bare Island type, while specimens "h" and "i" are fragments for which the type could not be identified.



Plan of the Gouldman Oyster Shell Midden Site. Metric grid coordinates measuring north and east from a chosen fixed point (0 North 0 East located southwest of the site) correspond to marked grid points on the actual site, which allow the archaeologists to record the location of archaeological information across the site area. Labeled rectangles across the northern portion of the site indicate the rectangular test pits excavated. The contoured color shading that varies from light yellow to dark orange represents an overlay of contour mapping of the density of oyster shell across the oyster shell midden as reflected in the relative weights of shell recovered from shovel test holes placed at 10-meter intervals across the site.

This profile/cross section view in the northeastern portion of the site shows the depth and general appearance of the oyster shell midden. The darker upper part of the profile has been affected by plowing during the historic and modern eras. The action of the plow broke up the uppermost shells and mixed them with the leaf mold and topsoil that had accumulated on top of the midden. (The black and white scale stick to the right of the sign is 1 meter long.)



This profile/cross section shows the thickest part of the oyster shell midden at the eastern edge of the site. The small cluster of rock in the light-colored soil at the base of the shell layers is where prehistoric inhabitants dumped cooking stones from a camp fire. (The arrow to the right of the sign points north and is 20 centimeters long.)



## What does archaeology tell us about the site?

### When in pre-colonial times did people live there?

Many pieces of evidence help to identify the time period when a site was in use. Some artifacts, known as “diagnostic,” are particularly helpful for dating sites. Based on studies at many sites, archaeologists have gradually identified the time periods represented by certain artifacts. For example, one of the defining characteristics of the Woodland Stage of pre-colonial times in North America is the introduction of pottery. If a site has pottery, it dates to the Woodland (1200 B.C. - A.D. 1600, in the region of the Gouldman Oyster Shell Midden Site). This time-frame can be broken down further, since pottery styles that were common among various culture groups changed over time. Combinations of characteristics of pottery—the type of clay, the temper (material mixed with the clay to help pottery hold its shape during the firing process), and types of decoration—had periods of popularity in the past. The artifacts recovered from the site include pottery that is known to archaeologists as Popes Creek ware. The clay in this pottery has a temper of sand particles, and the outside surface of the pottery has the imprint of open-weave netting. Based on the findings from numerous earlier archaeological excavations, archaeologists agree that Popes Creek ware was the predominant type among American Indians in this region from 100 B.C. to A.D. 250.

Some stone tools are also diagnostic of time period, especially a type of tool known to archaeologists as “hafted bifaces.” These tools were made by removing flakes of stone from both sides (or faces) of a stone tool and creating a special area (like a stem) at the base of the tool to attach it to a handle or spear shaft (haft). Small hafted bifaces may have been used as arrowheads, while others of various sizes may have functioned instead as spear points or knives. Some hafted bifaces were used to scrape hair or flesh from hides. Most of the hafted bifaces found at the site most closely resemble the Bare Island tool type. Traditionally, archaeologists have considered Bare Island tools to be indicators of the Middle and Late Archaic periods (3060–1000 B.C.). Finding eight Bare Island tools at the Gouldman Oyster Shell Midden along with the Popes Creek pottery sherds suggests that these tools may have been specifically

### Summary of Pre-colonial Artifacts Excavated at the Gouldman Oyster Shell Midden Site

	QUANTITY	WEIGHT (KG)
<b>Pottery*</b>		
Base	16	
Body	590	
Rim	28	
Unidentified Fragment	128	
<b>Faunal/Floral</b>		
Animal Bone	709	
Shell		6,714.4
<b>Flaked Stone</b>		
Biface	23	
Core	11	
Debitage	875	
Hafted Biface	20	
Informal Tool	115	
Other Formal Tool	22	
<b>Groundstone</b>		
Formal Groundstone	2	
Informal Groundstone	46	
<b>Other Ceramic</b>		
Fired Clay	9	
<b>Other Stone</b>		
Fire-Cracked Rock		137.7
Misc./Unmodified Stone	14	
<b>GRAND TOTAL</b>	<b>2,608</b>	<b>6,852.1</b>

\*Many of the pottery fragments could be identified as part of the base, rim, or body of a pot or other vessel type..