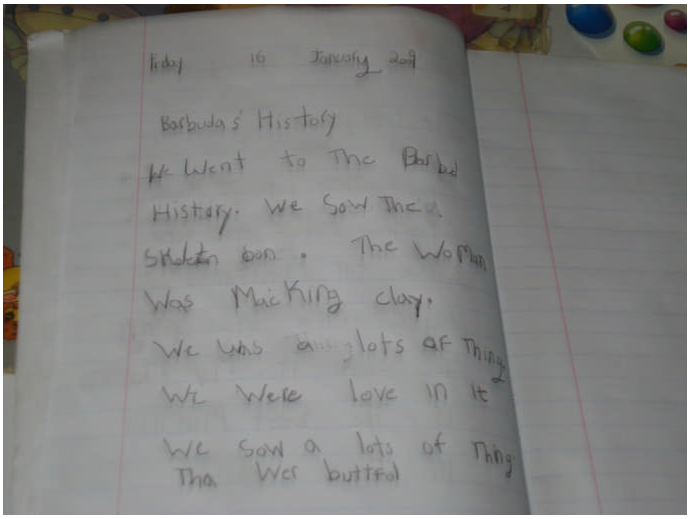
Field Report
Barbuda Historical Ecology Project 2009
Antigua & Barbuda National Parks Dept and
City University of New York
March 11, 2009



From the School Diary of a First Grader that Visited our Open Air Archaeology Exhibit

"Friday 16 January 2009
Barbuda's History
We went to the Barbuda History.
We saw the bones from a skeleton.
The woman was making clay.
There were lots of things. We were loving it. We saw a lot of things that were beautiful."

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Report Objectives

The work in Barbuda started in 2000 by CUNY archaeologists and an international team of environmental researchers in collaboration with the Antigua & Barbuda scholars and agencies and by the invitation of Dr. Reg Murphy, head of archaeology for National Parks Antigua and Barbuda. Previous seasons have established rich cultural heritage sites with deep chronological stratigraphy. The project emphasis is on interdisciplinary, international collaboration of scientists, education and outreach. This report provides an overview of the work completed in 2009. Reports from previous field seasons, AMS radiocarbon dates and additional specialist reports can be available upon request.

Acknowledgements: Our thanks are due to the excellent, hard working 2009 field crew, Mr. John Mussington, for fascilitating our research, training students in marine biology and opening his lab to us Mr. Calvin Gore for his continued

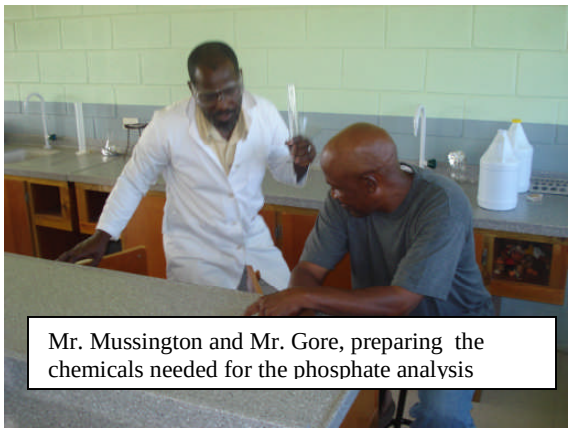
support, expertise and excellent advice, the school teachers of both the primary and secondary schools that have taken active roles in connecting their students with the visiting scientists, the people of Barbuda whose kindness, support and enthusiasm make this project possible. Funding for this project was provided by PSC-CUNY Grants Program, the CUNY Northern Science and Education Center, The CUNY Honors College, the CUNY STOCS Program, Universitet Laval, SUNY Buffalo and Manhattanville College. The research would not have been possible without the dedication, hard work and commitment of the previous crews of 2006, 2007, 2008 and 2009 field crews, who have our warmest thanks.

Dr. Thurston working with team members interpreting phosphate results

The 2009 project was intended to provide:

Field training,to beginning archaeology students that had received preparatory lectures and hands-on training in archaeology and Caribbean material culture, prior to their trip. In Barbuda the students received daily lectures, weekend excursions and hikes concentrating on Barbuda's ecology and cultural history guided by Mr. Gore, lagoon ecology guided by Mr. Mussington and terrestrial ecology, by Dr. Nancy Todd. Students also received hands-on training in flotation and paleoentomology by Dr. Allison Bain and phosphate analysis by Dr. Tina Thurston.

Team members getting a guided tour of the historic monuments in Codrington Village



Mr. Mussington and Mr. Gore, preparing the chemicals needed for the phosphate analysis

Community outreach

Students of the Holy Trinity Primary School after Professor Perdikaris lecture at assembly,

The 2009 field season establish a much closer bond with the Barbuda school system. Dr. Perdikaris was invited to a number of guest lectures at both the primary and secondary schools and developed hands on projects for the young students to work with the archaeology team and their students. The team has been offered the use of the primary school lab for the processing of artifacts in future seasons. Dr. Mussington will be in charge of the marine biology component of the project and has kindly extended access to email and support with the processing of chemicals for the phosphate analysis. Both primary and secondary schools will house a permanent display case displaying archaeological materials during the course of the school year. This year's Open Air Archaeological Exhibit was visited by all students of Barbuda and many local residents with an impressive number of visitors close to 600. Museum exhibits and screens were built by the local Youth Vocational Training Center. The Barbuda Council kindly provide all raw materials and the labor of the Barbuda Council construction team to organize the space for the open air exhibit.

Dr. Murphy overseeing the building of screens

The Barbuda Council team building tables for the open air exhibit

Discussions for the creation of a research station and a museum continued. There have been several buildings that have been identified as potential candidates but final decisions are still pending. The team was impressed with the developments since last

season. There has been effective signposting of all visible historical monuments. National Parks are also marked as such. The basement at the Government House remains the storage area for the archaeological artifacts. Community interest in the archaeological heritage of Barbuda remains high and there are plans for further integration of local youth participation in the archaeological team.

School teachers from the secondary school wanted to thank the archaeological team for the outreach work on the island and prepared an absolute feast of local delicacies. We are looking forward to be back in 2010 and continue the amazing collaboration to further develop awareness of cultural heritage and assist in further expanding the national parks and establishing the beginnings of a botanic garden.

Barbuda Historical Ecology Project 2009
Survey and Mapping for the Highland House, Barbuda

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Highland House is an 18th century complex built in part by the Codringtons, the leaseholders of Barbuda from 1685 until 1870. At least some of the compound was also built by sub-leasees, William Byam and Samuel Martin 1746-1761(Watters and Nicholson 1982). William Byam was said to have died and been buried on Barbuda in 1755 (Debrett 1824) but it is unlikely that any of the Codrington's ever lived on the island for any great length of time. They held a number of sugar plantations on Antigua as well as other islands. The family was prominent in the British colonial administration of the Leeward and Windward Islands. Barbuda was their own personal holding leased directly from the crown. Though there were attempts to raise cash-crops on the island they were unsuccessful and eventually Barbuda became a provisioning island for the other sugar islands. Along with this the island was apparently a retreat for the Codringtons, their friends and business associates. Highland House was built as a country house, possibly a hunting lodge, for the Codringtons. William Codrington, son of John Codrington, one of the original signers of the

Barbuda/Codrington lease, wrote a letter to (presumeably) one of his managers on Barbuda asking him to plant a wide variety of trees and fruit on the island, as well as to preserve the game. In this letter he says that he intended to build a house on the highlands and to retire there(Watters and Nicholson 1982). He died in England in 1738, but the letter does give some idea of what the Highland House estate might have originally been intended for.

"I beg yt youll have a good orange Orchard planted at Barbuda Sappordillers, grapes of all Sorts, plantings, Bonanahs Lime hedges, Lemons, Tammarins, Coccoe nuts for I design to end my days there, next to the highlands where [?whene] I designe a house one time or other – so pray pserve all y deere feasants & Partridges & and suffer none to be killed on any ptence wtever, nor no gentlem' to there shooting….." (Watters and Nicholson 1982)

The site would surely have been a lovely retreat. The site is on one of the highest points on the island and is exposed to an almost constant east wind that keeps the area cool and the air fresh. All the buildings seemed to be built with this breeze in mind as they all have a number of doors and windows open to the east in order to catch this breeze. The main house commands a view of the whole of the north section of the island, and possibly with its original height much of the southwest area of the island as well. It could certainly have seen the village of Codrington and the Castle. The site had a cistern and spillway for fresh water and had a wall around at least part of the complex. It is made up of a main house in a clearing on the edge of the Barbudan highlands. A number of stone out-buildings lie to the south of the main house in an area sheltered by trees.

The first task set for the survey of Highland House in January of 2009 was to walk the site in detail with the map created by Watters that was published in 1982. Watter's map proved very accurate considering the conditions he was working under. In his report he mentions a number of times that the site was overgrown with dense scrub. Barbudan scrub is a particularily hostile landscape filled with sharp thorns, cactus, and the skin irritating hog bush, so it is admirable that he was able to map it as well as he did. That being said the conditions for survey during the January 2009 season were much better. The site was largely cleared of scrub during 2008 at the behest of the Barbuda council. This was done to facilitate tourism to the site but it also had the effect of making our survey much easier. This clearing of the site also revealed a number of structures that were not mapped (though many were noted in his survey) by Watters. The site was mapped by total station (figure 1). Due to issues around ease of coding Watters numeral structure codes were not used but instead the structures were given letter codes. Table 1 gives codes used for this survey as well as Watters' codes for structures he mapped.

Two transects (north-south and east-west) were staked out through the complex. A surface survey of one two square meters every two meters on each transect was carried out. No significant artifact concentrations were found. After this it was decided to walk the whole site within the confines of the surrounding bush. Two possible midden concentrations were found- midden A to the south of structure F and midden B, downhill from structure K. There is a sparse but consistent spread of 18th century artifacts on the surface across the whole site.

There was also an informal survey of the path called Bun Jacket Road that was lead by Calvin Gore, a Barbudan whose knowledge of the history and folkore of the island is unparalled. Mr. Gore remembered that the area around Bun Jacket Road was known for having peculiar plants not considered native to the Island. Mr. Gores memory of this area coupled with the passage from the letter written by Sir William Codrington in 1720-1721 made a look at the area of great interest. Artifacts were found all the way out to the end of the path. We were accompanied by the tropical ecologist Dr Nancy Todd on this walk but due to time constraints and the extremely dense bush on either side of the path we could not penetrate into the interior. No obvious plant introductions were seen from the path. This area needs further investigation.

Description	**Watters 1982 Map Code**	**Hambrecht 2009 Map Code**
Cistern and Spillway	2	A
Main House	1	B
Walkway to Main House	-	C
"Garden" House	-	D
Structure at edge of escarpment	-	E
Structure	9	F
Structure	7	G
Structure	6	H
Structure	8	I
Structure	5	J
Stone Drain	4	K
Wall	-	L
Homefield	-	M

Table 1

Main House

The main house, structure B, is surrounded by an outer platform/patio area on the west and part of the south side. A more substantial reinforced platform surrounds most of the house structure itself. Stairs, of a large even formal character enter the house from the west, and southern side. The north side of the building might have stairs as well but the rubble from the collapsed walls obscures them if they exist. This rubble seems to have been rearranged sometime after collapse in a fashion suggestive of stairs making this side of the building difficult to interpret. The eastern side of the house has no stairs but does have a walkway (structure C) leading to it from the south.

Figure 2. Main House (Structure B) – West Stairs

The whole house structure itself is very strongly built with walls in excess of a foot and half thick. The quality of the masonry in some cases is high as can be evidenced from the pictures of the western stairs (figure 2). The walls of the Main House itself seem to be of a rougher quality (figure 3).

Historic documents suggest the structure had two stories (Watters and Nicholson 1982). Whether this was the case could not be determined. It is likely that at least some of the stone from the structure might have been removed for use elsewhere as building materials. This also might be the case for the surrounding wall and other structures (Calvin Gore, personal communication).

Figure 3. Main House (Structure B) – North Stairs to main house platform

The House lies on an axis roughly following the cardinal points. The ease of airflow from east to west of all the buildings at Highland House would have been even more effective in the Main House as it is on a raised platform that catches the breeze the constantly flows from the Atlantic.

Figure 4. Main House (Structure B) – Eastern Stairs, Entrance, and main house platform. The line of stones on the left of the picture leading up to the platform is part of the walkway (Structure C).

There is a pathway lined with stone (structure C) that starts in the southern part of the field around the Main House that proceeds north and then turns 90 degrees to the west meeting the platform around the Main House at a point where a doorway allows access into the building. Structure C seems on first observation to a be a formal landscaping element directing people from the area of the outbuildings as well as the general area of the main entrance to the south into the Main House.

Figure 5. Main House (Structure B) – the “passage” down to the “turret” on the north side of the house.

Figure 6. Main House (Structure B) – the octagonal “turret” on the north side of the main house.

A curious element of the Main House is on the northwest corner of the building. A passage leads from the northern “foyer” to the north ending in an octagonal stone structure (figures 5+6). There is a tree growing out of this structure whose roots have furthered the erosion of the structure and warped its original shape. This structure has been informally dubbed the “turret” as that was what it suggested when first observed. Calvin Gore, of the Barbuda Council and an invaluable source of information on all things Barbudan pointed out on the inside of this structure there is a reddish deposit that he usually associated with standing water. He suggested that this structure was a small cistern or even fish tank. Another possibility is that it was in fact a turret and what we see is the base of what was a tower for observing the northern end of the island. A further possibility is that it is a decorative feature.

The Main House has a number of places where plaster is still clinging to the walls. In most cases this plaster has been scratched in a cross-hatched pattern, most likely to facilitate the addition of another layer of plaster on top of the one on the masonry wall itself.

Structure B – The cistern and spillway

Figure 7. The Spillway going north, at a slight downgrade, toward the cistern. Structure A is the spillway leading at a slight downhill angle, to the north, into a cistern. Historic documents mention the presence of a cistern at Highland House, and the lack of freshwater anywhere near the house would have made storage a necessity (Watters and Nicholson 1982). The spillway has eroded significantly but it still clearly leads into the cistern which as built of good quality masonry.

Figure 8. Cistern (Structure A) – north side with view of the spillway

There are stairs leading into the cistern from the eastern side of the structure and on the opposite side there is an overflow drain (figure 9). The cistern is currently filled with rubble, dirt, and vegetation. The spillway also functioned as the western boundary wall of the complex itself. The wall (structure L) ends at the southern end of the spillway and directly abuts it.

Figure 9. Cistern (Structure A) – overflow drain on the western wall of the cistern.

Structure C

Structure C is the walkway mention before that connects the southern area of the complex containing the many outbuildings with the main house (figure 10). Whether this walkway was a decorative landscape element or had some more specific use is uncertain. Considering that the main enterance seems to have been in the south this walkway might have been a formal approach to the main house. More research on Georgian approaches to landscape in such a peculiar context as this must be undertaken before the whole complex can be understood as a landscape/architectural statement.

Figure 10. The Walkway leading from the south to the eastern entrance of the main house.

Figure 11. Structure D – north end

Structure D

Structure D is more enigmatic than the rest (figure 11). It consists of a low rectangular foundation with very little masonry left intact. The quality of the stonework also seems much more haphazard. This might be one of the more temporary structures associated with the sub-leasees Byam and Martin, though there are other possibly more relevant similarities in some of the other out-buildings. Regardless this large structure (in terms of area) seems to have been of less permance than the rest, unless it was dismantled and its masonry used for the other buildings at some time. Another possibility is that it was a garden element, possibly recreational and decorative in use.

Structure E

Structure E lies right on the edge of the escarpment (figure 12). Much of the northern end of the building has toppled off the escarpment leaving barely two walls intact. Initially it was thought that this building might have served as a watch tower considering its excellent view shed from the edge of the plateau. Yet there are many places from which to achieve this view, not least from the Main House itself. Another possibility that came to mind was that this might have been a privy. The drop off of the escarpment is farily severe and at least during the rainy season any waste would be have been washed further down the hill. It would have been a convenient place to get rid of human waste, close to the houses yet

with a good drop off from the escarpment that would have kept the waste at least somewhat distant. While no specific privy-like architectural elements (such as stone toilet holes) are present, much of the north side of the building has collapsed. The size and quality of the whole complex, as well as some of the more specific kitchen related elements suggest that the Codringtons might have invested in such a well built and solid privy. Finally Calvin Gore told the author that some of the best midden material associated with the site actually lies on the slope below the edge of the escarpment, suggesting that household trash was thrown over the side of the escarpment. This might also suggest that Structure E was a privy.

Figure 12. Structure E – southern end.

Structure F

Figure 13. Structure F – north wall.

Structure F is a large building built of high-quality stonework (figure 13). It has a number of patches of plaster still on its internal walls. It is not possible to do anything other than speculate on its use. It had a number of widows on each side as well as an entrance on its southwestern corner.

Structure G

Structure G is a smaller building also made of good quality stonework (figure 14). It had been cleared of most of the rubble and vegetation within it exposing a high quality flagstone floor (figure 15). This structure also shows evidence of a number of alterations throughout its life. A doorway on its eastern side as well as one on its northwestern corner were filled in half-way, creating windows. It also shows evidence of possible partitioning. Its relatively small size and the alterations made to it might suggest that this building contained administrative offices.

Figure 14. Structure G – north wall and entrance.

Figure 15. Structure G – flagstone floor

Structure H

Structure H is another structure constructed of high quality fitted masonry(figure 16). The walls of this structure survive to the greatest height of any of the buildings. Again the purpose of this building is unknown.

Figure 16. Structure H – south wall.

Structure I

Structure I is a building divided down the middle into two parts (figure 17). The northern part might have had high, complete, stone walls. The southern portion has foundation walls that rise to about 30-40 cm and then taper in. The inside of these walls have insets where presumably wooden structural beams were laid (figure 18). This structure might have been a small stone room with a projecting tented room to the south. Historical documents and letters mention two timber structures that might have been built by the sub-lessee Byam. This structure is a good candidate for one of these.

Figure 17. Structure I – north end.

Figure 18. Structure I – south end - note the spaces for structural inserts.

Structure J + K

Structure J is a two room building with access to the outside from both rooms as well as a doorway between the two (structure 19). The stonework of this building seems a bit rougher than the other buildings and there are some interesting indications that this might have been a kitchen or washing building. Inside of the western room there is a large stone basin as well as a length of stone gutter. Directly outside of the building on the south side from the basin lies structure K (figure 21). This is a long stone drain that leads from Structure J downhill away from the building running roughly southwest, outside the complex wall (figure 22, Structure L). Below where this drain ends there is a light but consistent spread of historic midden material, bone and ceramics, that has been labeled Midden B. A preliminary interpretation of this building and the drain is that this was either a wash-house or kitchen, or possibly both. The waste from the activities centered around the basin was thrown out into the drain so that the waste ran down the drain downhill away from the complex itself. It was not clear whether there was a direct connection through the wall from the basin to the drain.

Figure 19. Structure J – north wall and entrance.

Figure 20. Structure J – looking east – note the partition, the large stone basin on the right and the length of stone trough below the basin.

Figure 21. Structure K – the stone drain

Structure L – the Wall

The wall around the complex is an interesting element. It does not completely encompass the complex. The wall ends at its western terminus abruptly, and in ruins. Calvin Gore has suggested that this was due to the stonework being removed for other buildings. This would be odd in that the western end is farthest away from the village of Codrington. It could be that the wall was deconstructed for buildings on the western side of the island, though these are few and far between. Another possibility is that the wall just stopped being built at this point.

At the point where the wall ends near Structure J there might be indication of some sort of structural work between the Wall and Structure J. This could have

possibly been a gate or door. Strangely though, the wall does not continue to the south (figure 1).

Figure 22. The Wall – (Structure L)

This brings up the question of what purpose the wall served. Protection, from other colonial powers and their own slaves, would not have been served through a non-contiguous wall. Keeping animals out of their planted areas might have been one purpose. The wall could also have been a delineator between the Codrington's area of leisure and sport and the rest of the island and its farming and animal husbandry.

Figure 23. The South Gate

The southern gate of Highland House seems clearly to have been the main entrance to the complex. The approach would seem to have been from the south. The current approach from the west is modern and the opening in the wall one that was broken through, not an original gate.

Midden A

Just to the south of Structure F there was a fairly dense spread of historic midden material. A surface collection was taken. This area, like the rest of the site, has variable top soil, going from exposed limestone substrate to hollows in the limestone filled with an ochre colored soil. The surface collection has not been analyzed yet, but a casual survey revealed ceramics (mainly delft, some German stoneware, some Staffordshire Slipwares) bottle glass, shell, lead spall, small amounts of charcoal, and no mammal bones at all. The pH was 6.9-7.

Discussion

Nothing that we observed countered Watters and Nicholson's timeline for Highland House starting in the early 18th century with abandonment by the early 19th century at the latest (Watters and Nicholson 1982).

A question that arose was what exactly was Highland House used for. We know from the historical documents that the complex was at least intended as a 'vacationing' spot for the Codrington family and their friends and colleagues. We can also reasonably assume that the no one in the Codrington family ever

permanently resided in Barbuda, let alone Highland House, with the possible exception of the first generation of Codrington lessees, Christopher and his son William. What exactly Byam and Martin were doing on Barbuda is not exactly clear. There is one reference in Debrett's 'The baronetage of England' that states that what wealth the Codringtons enjoyed from Barbuda came from the "capital and exertions" of the sub-leasees Byam and Martin (Debrett 1824). The scale and investment behind this complex suggests that this was used for more than just a country retreat, regardless of first intentions. The viewshed from the site is magnificent. We were also informed by Calvin Gore that there is a platform on a piece of higher ground in the bush to the southeast from which you can see the whole of the east side of the island down to its southern tip. Such a placement would be an ideal place from which to observe shipping either in transit or in the process of foundering on the reefs of the east coast. Salvage was a source of income for the Codringtons. It has even been suggested that the Codringtons 'encouraged' shipwrecks on their reefs through false lighthouses. Highland House would have been an excellent place from which to manage such efforts.

Highland House has great potential for both the interdependent possibilities of making the site a better heritage tourism site and as a scholarly historical archaeological project. The site is a novel one for the 18th century Caribbean. It is not a plantation, and how it was utilized is not well understood. Highland House could be an important place to study a number of issues regarding the early modern British colonial system in the Caribbean in a context not directly within the sugar plantation system. It might also be a productive place to study the idea of leisure in the early modern period in an imperial context. As a pure landscape study it would be an important addition to the already substantial body of studies of early modern landscapes throughout the Atlantic and wider world.

Future Work

• Much more work needs to be done with the large amount of historical documents available. Both the Berleant-Schiller papers and Margaret Tweedy's dissertation need to be examined. The Codrington papers in their various forms need to be examined as well.

• A number of the buildings could be cleaned out in a systematic way in order to make the complex more conducive to tourism as well as recover any artifacts that might have been deposited in the buildings before and after abandonment.

• Over the 2009 January season there was discussion of some island residents who might know the recipe for the mortar traditionally used on the island. If this was found it might be beneficial to try to recreate this and use it to shore up some of the buildings at the Highland House complex.

• The area below the escarpment needs to be surveyed in order to look for the midden material Calvin Gore mentioned.

• More time needs to be taken on Bun Jacket Road and the surrounding bush to look for more structures as well as introduced flora.

• A comprehensive surface collection could generate a good assemblage to be used for better dating and interpretation of the site. Test pits around

Structure J and K (the possible kitchen/wash house and the stone drain) might also be a promising approach to excavation.

- An overall plan needs to be created with the Barbuda Council that addresses how to make Highland House a better asset for the island as a whole.

Barbuda Historical Ecology Project 2009

Assessment for Qualitative Field Analysis of Phosphates on Barbuda

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Approach

During January of 2009 the CUNY Barbuda Historical Ecology Project began maximizing non-destructive survey techniques in order to assess land-use as well as map the extent for the Seaview site (BA16). Phosphate mapping and analysis was supervised by Dr. Tina Thurston from SUNY Buffalo and carried out by doctoral student Cory Look from the CUNY Graduate Center. Elevated concentrations of phosphate are a generalized signature of human activity in soils. As bone, manure, cess, cooking and food processing residues are deposited, concentrations begin to accumulate. There are other possible sources that may contribute to positive scoring such as certain modern fertilizers and local geology. Both of these issues will be addressed in this report. Qualitative phosphate results were scored on a scale of 1-5, whereby a score of 1 was negative for phosphates and scores of 2-5 were positive. Increasing numbers correlated with an increase in qualitative phosphate levels.

Objectives 2009

Our Objectives for the 2009 January season were:

- Assess the applicability for phosphate testing on prehistoric and historic sites in Barbuda.

- Direct phosphate analysis of contextual layers collected from the January 2008 season at both BA16 and BA1 to provide a baseline for phosphate survey.

- Mapping and analysis of cores collected every 50 meters and then every 25 meters in order to assess the extent of the Seaview site (BA16), beginning a preliminary phosphate map of the island.

- To ascertain a better understanding of how phosphates translate into cultural deposits on Barbuda

Results

Discussion of Direct Phosphate Testing of Contextual Layers

BA16 - Seaview

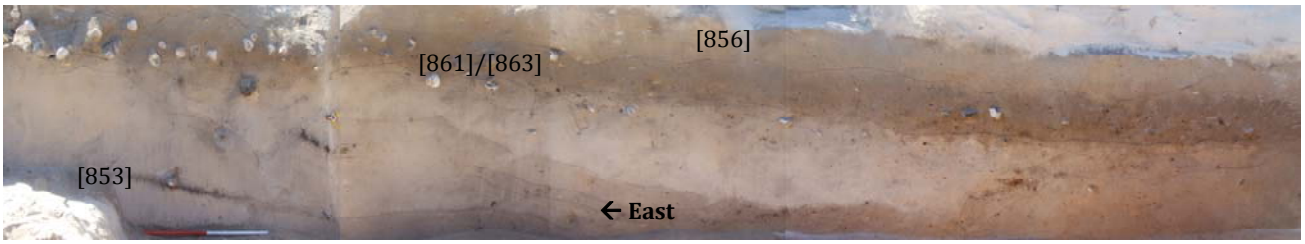
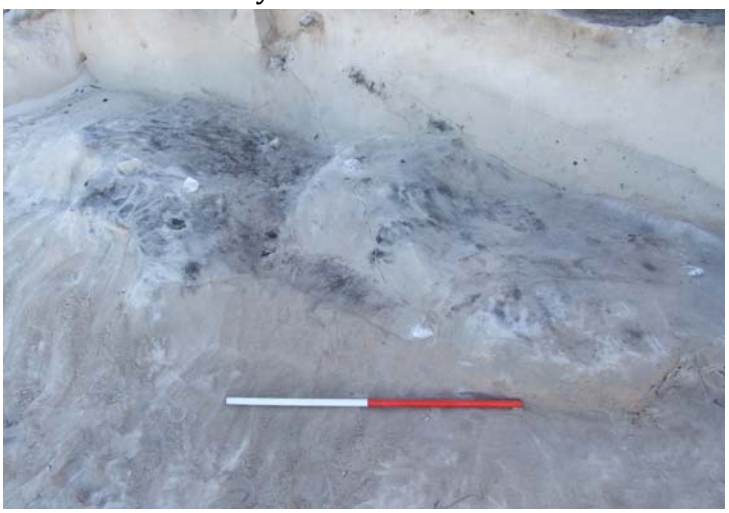


Figure 1 – Profile of A2 from the Seaview Site BA16

Soil samples were collected during the January 2008 season from contextual layers of both sites BA1 and BA16. Based on qualitative results, phosphate testing identified three separate layers. From the profile (fig. 1), all three layers are visibly identifiable, although it should be noted that cultural material was scattered throughout the profile. By analyzing the remains found in each contextual layer we hope to ascertain a better understanding of how phosphates translates into cultural deposits on Barbuda. Context [856] was the first archaeological layer. The significant cultural deposit observed in [861]/[863] is observable in the profile image. These layers formed the dominant cultural deposit for A2 consisting of bone, mollusk, ceramics, and charcoal. These layers tested positive for phosphates as well. Of great interest is how samples for [861] and [863], which are the same context layer, were collected. Context [861] consisted of a thick cultural deposit along the eastern section. The thicker section of context [861] coincidentally tested higher for phosphates than the thinner southern layer [863]. The thin organic layer [853] was the first cultural layer encountered and consisted mostly of charcoal and small amounts of cultural material. This layer continued along the profile although appeared truncated by 2 geological, Aeolian white/yellow sand layers. The upper layer of [853], separated by these sand layers, were assigned context [857]. [853] tested positive while [857] tested negative for phosphates.



[853] is the lower black layer separated by a sand deposit from upper [857] Photo looking SW

Seavew (BA16) Area A1

During the 2008 season a small cooking pit was excavated and soil samples were collected as well. Samples [803] and [804] were collected from this feature and tested for phosphates. Both tested negative, which is consistent with our initial assessment that this was not used over a long temporal span but may have represented the remnants of a small ash dump.

SV21

Located within the Mission Church Campsite is a small sinkhole approximately 2x4 meters. The landscape surrounding this area is predominantly exposed fossilized coral. SV21 was discovered during our phosphate survey, where a small concentration of cultural material found both in and surrounding this feature were noted. Large numbers of worked stones, shells and coral were found with unfinished beads and zemis. One fish vertebrate as well as a handful of crab claws and ceramics were found as well. Core samples were taken both directly inside the sinkhole and along the outer edge. Both samples tested negative for phosphates adding evidence for this being a small temporary production site.

Indian Cave

A number of caves exist just south of the Seaview site. One cave in particular has two small petroglyphs. A test core was obtained within the vicinity of these cave etchings. We were able to obtain soil from depths of up to 45 cm. After 20 cm depth, clay deposits similar to those identified within the cracks of the quarry were observed. No cultural material was observed from the core sample taken. Of greater interest were the phosphate readings obtained. The first 30 cm gave significantly high readings for phosphates while 30-45 cm dropped significantly. One possibility for these high readings are the presence of bats around these caves, where the presence of guano can increase phosphate readings significantly. Another possibility is the presence of phosphates in the geologic makeup of the Highlands. At one time, there was a brief attempt to mine phosphorous up in this region. (Watters 2005) While this is certainly a concern when interpreting results, it should be noted that negative phosphate results have been obtained both in the caves as well as the area surrounding the Highlands.

Fig. 3 Core sample taken from Indian Cave

BA1 Indian Town Trail

Preliminary testing of phosphates was conducted for BA1. Previous seasons have shown that BA1 poses significant challenges for future excavations. Thick concentrations of cultural material are found in stratified layers 150-170 cm deep. Surface surveys suggest that the site is greater than 80,000 square meters. The shear size as well as the dense vegetation has made it challenging in understanding both the landscape surrounding the site as well as the cultural material scattered along its surface.

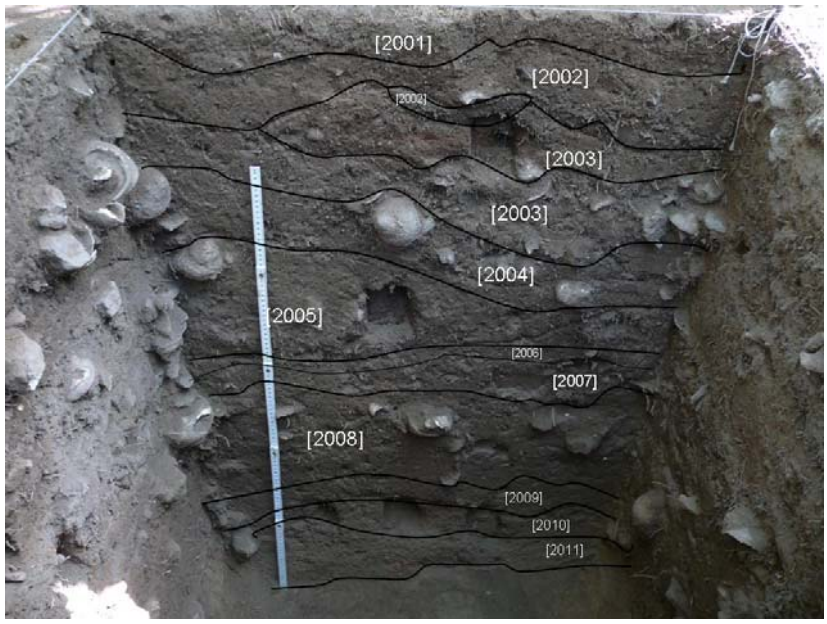


Fig. 4 BA1 Area C- South Wall profile

Soil samples were collected from a 1x1 meter test trench (Fig. 4) dug during the 2008 season at Indian Town Trail site code BA1. Samples were collected for both flotation as well as soil thin sectioning. The phosphate readings indicate a continuous deposition of cultural material within the observed profile (table 1). Only context [2008] and [2011] tested negative with context [2011] being the sterile layer.

It should be noted that the intensity of qualitative phosphate results are much higher for BA1 versus BA16 suggesting a more intense occupation. This is consistent with deposits observed from respective profiles (Fig. 1 & 4).

TRB-5


Fig. 5 Infill at TRB5

During the 2008 season, a series of test trenches were dug in order to assess the site boundaries. The test trench at TRB5 expanded to 2x2 meters due to the discovery of a charred wooden post. To the south of the post, and extending into the southern profile, a conical shaped dark soil outline was observed at 2.4 meters deep. The dark infill

may have been remnants of a storage pit or possibly infill associated with the charred post. Soil samples were collected from this dark infill that was floated and tested for phosphates during the 2009 field season. Phosphates came up negative lending support for the infill directly associated with the charred post. Preliminary results from flotation show a lack of cultural material but an abundance of fragmented charcoal. It should be noted that approximately 15 meters east of this feature did test positive for phosphates.

Island Phosphate Survey

We had two objectives for testing phosphates this season. Our first objective was to establish a baseline for prehistoric sites on the island of Barbuda, both early ceramic and late ceramic periods respectively. Our second goal was to define an optimal sampling strategy in order to maximize resolution without sacrificing the area covered by our survey. In meeting our two objectives we attempted to better define the site boundaries of BA16 by collecting phosphate samples at 50 meter as well as 25 meter intervals.

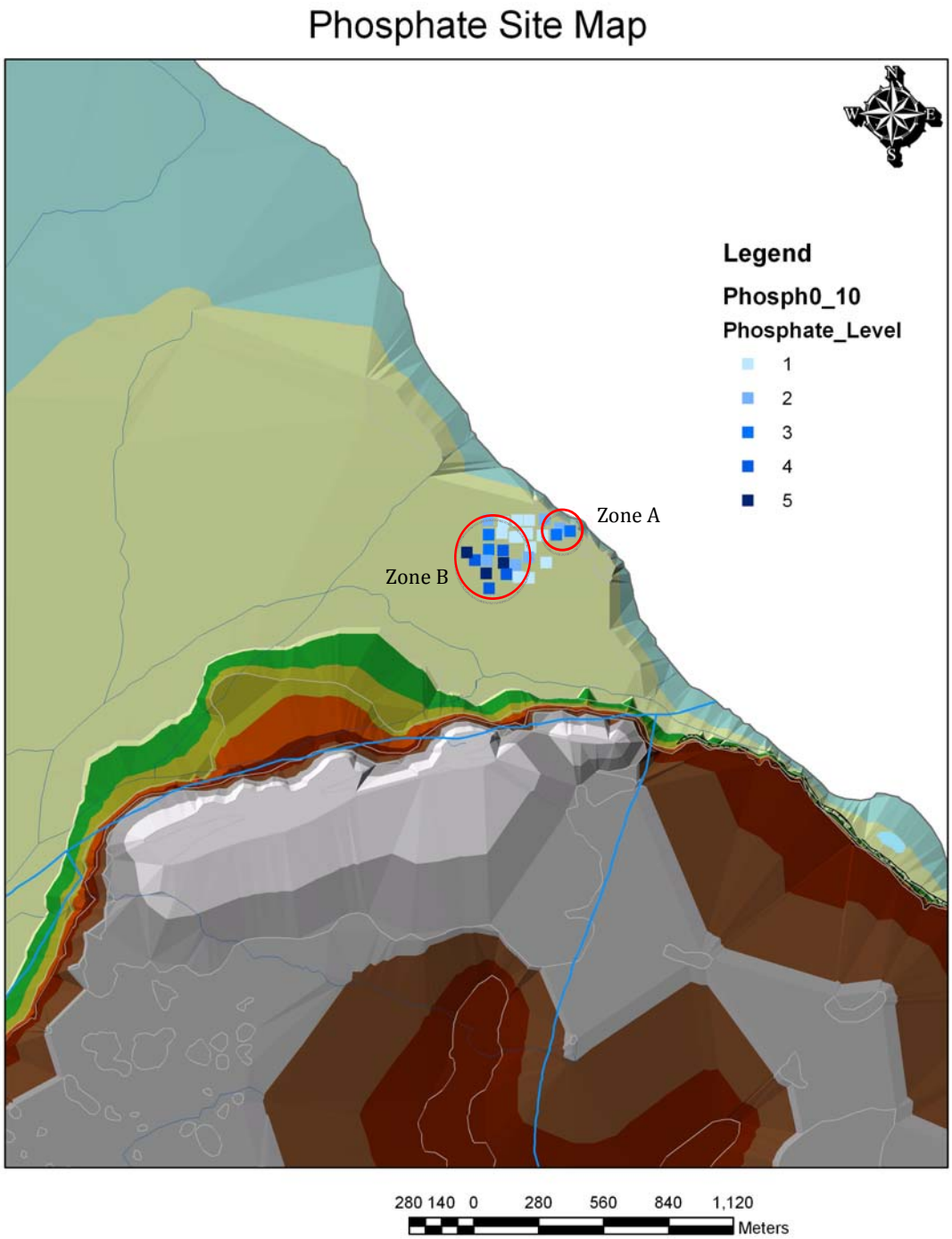


Fig. 6 Phosphate Map at 50 Meter Resolution

Sampling at 50 Meter Intervals

Seaview (BA16)

The strategy of taking cores every 50 meters produced results that allowed us to identify archaeological sites as well as potential modifications of the landscape. Based on direct analysis of contextual layers along with a number of test cores and shovel test pits, BA16 can be identified by phosphate readings of 2 and 3 respectively in Zone A (Fig. 6). An increase in phosphates can be observed in Zone B. This area had high phosphate levels of 3,4 and 5. While a few conch shells and adzes were observed on the surface, a number of shovel test pits found no cultural material present. This region had been used for industrial phosphate mining (Pers. Com. John Mussington) where remnants of past activity can be found up on Gun Shop Cliff, a late 19th century building connected to a brief phosphate-mining enterprise. This structure was first examined by David Watters in 1978, and is located at the base of Indian Cave along the Highland escarpment. This is one of the few historic structures that post-date the Codrington's lease on the island. Further analysis needs to be completed in order to see whether the high phosphate levels recorded during survey have formed naturally through erosion, or rather connected historically with past enterprises.

While the site location of BA16 can be identified at 50 meter intervals, this strategy did not provide the resolution necessary to identify the site's extent. By taking samples at smaller intervals we were able to increase our resolution and better identify cultural deposits surrounding the site. An approximate area of 50,000 square meters was mapped during this survey.

Indian Town Trail (BA1)

The core used during BA1's phosphate survey had a maximum depth of 30 cm. Core samples were taken at fifty meter intervals and varied considerably across the landscape. Since test trenches have shown that deposits can reach depths of 120-170 cm for this region, additional samples will be collected to better interpret our findings. Since we were able to pick up considerable variation of phosphate readings across the landscape, it maybe possible to identify the spatial distribution of middens and apply these methods to pre-existing models for village settlement. By focusing resources in a strategically defined space, we may minimize the need for mechanical scraping of surfaces due to the large scale of these sites.

During the 2008 season, we visited a neighboring farm to the southeast of BA1 in order to assess the site's boundaries. Aside from scant fragments of West Indian top shell and conch, there did not appear to be any exposed cultural material on the surface of the plowed farm. This year, we were allowed to take a number of soil samples for phosphate testing. Two areas tested positive for phosphates, which after minimal scraping of the topsoil revealed significant concentrations of West Indian top shell, conch, lithics, and heavy undecorated pottery consistent with material found at BA1. In one of these areas, we found clay deposits at 50-70 cm

depths. The area directly in the center of the plowed zone tested negative as did areas outside of the plow zone. This is consistent with the farmer's assertion that no manuring had occurred except for the natural grazing of his sheep. These findings suggest that BA1 does extend further West directly into the modern farm and that modern farming practices do not seem to obscure phosphate results.

Sampling at 25 Meter Intervals

Core samples were collected at 25-meter intervals. Based on previous test trenches, we concentrated on the Seaview site in an attempt at increasing the resolution of our phosphate map. Preliminary testing covered 3,750 square meters. Three areas tested positive for phosphates. (See Fig. 7) Positive phosphate results were in close proximity east of TRB5, a post-hole excavated during the 2008 season. Test cores BA16-9 and BA16-10 were taken within the vicinity of area G, a test unit that produced ZIC and WOR pottery as well as substantial amounts of shell and bone. The third area was not exposed, although shell and burnt charcoal were noted within the core.

At 25-meter intervals, we were able to get a better sense of Seaview's site boundaries as well as the spatial distribution of cultural deposits within the immediate vicinity of the erosion face. The next phase of our survey will be to dramatically expand the mapping of phosphates at Seaview, especially towards the direction of Indian Town Trail, to see if there is any overlap. By identifying a spatial overlap for these two sites, it maybe possible to increase our understanding of the chronology for settlement and/or abandonment during Saladoid and Post-Saladoid phases on Barbuda. We are also in the preliminary stages of incorporating soil resistivity as a means to compliment these non-destructive techniques.

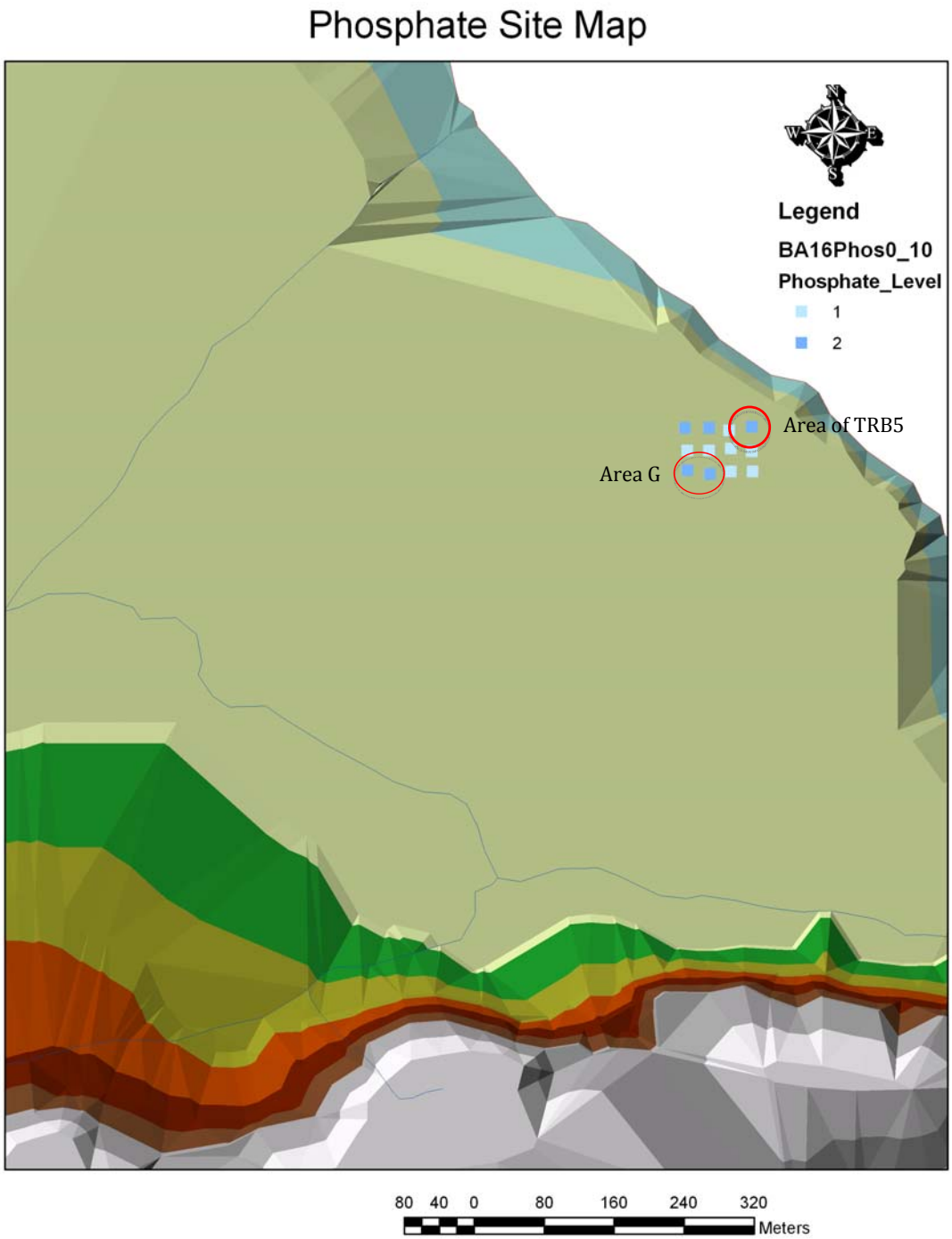


Fig. 7 Phosphate Map at 25 Meter Resolution

Discussion and Future Goals

Preliminary phosphate samples were collected from BA1, although it should be noted that the core extensions were not available during this survey and maximum depths collected were approximately 30 cm. This initial survey covered only 10,000 square meters of the 80,000 square meters of cultural material scattered upon the surface. Phosphate analysis holds a great deal of potential for BA1 due to the dense cover of vegetation and difficulties in assessing surface scatter. The area at the base of the quarry has been bulldozed, while the area south appears relatively undisturbed. Further phosphate testing of this area would help recover some of the lost information from the disturbed area and possibly indicate how much of the area has been disturbed. Preliminary phosphate results have been shown to be much higher at BA1, and three test trenches with depths of 120-150cm of stratified cultural material are consistent with these results.

Since a number of sites on Barbuda have been plowed or bulldozed, it has been difficult assessing the limits of these sites due to the level of disturbance. Since phosphate analysis is minimally impacted by these practices it maybe possible to better delimit these areas of occupation. Future analysis may also indicate the intensity of these sites. Two potential candidates are the Saladoid site Sufferer's as well as the Archaic site BA4, both originally identified by Dr. David Watters.

Concerns

It should be noted that soil samples tested directly from context layers were sealed in large plastic bags, stored in wooden crates, and housed in the Council's storage shed for one year. For future research we will address the concerns of long-term sample storage in the Caribbean.

Phosphate testing does not distinguish between sterile soil and areas where sparse cultural material is present. In order to properly assess site boundaries, quantitative analysis is strongly suggested. Attempts have been made on Montserrat using phosphate fractionation to distinguish between the inside and outside of Saladoid village rings.

Further investigation is required to assess the geologic affect of phosphates naturally occurring on the island of Barbuda. Based on preliminary results, the geology has not obscured the archaeological findings thus far, but strong awareness for potential noise must be strongly considered.

Tables

Table 1. Direct Phosphate Testing of Context Layers

Bag Code	Area	Context	Results
BA16	2	853	2
	2	856	2
	2	857	1
	2	858	1
	2	860	1
	2	861	1
	2	861	2
	2	863	2
	2	866	2
	2	867	1
BA16	TRB3	Level 6	2
BA16	G	702	1
		701	1
BA16	TRB1	Level 1	1
BA16	D	803	1
	D	804	1
TRB5		1001	1
		Layer 4	1
BA1	C	2003	2
		2004	2
		2005	3
		2006	3
		2007	2
		2008	1
		2009	3
		2010	2
		2011	1

Table 2. Phosphate Results of Survey

Bag Code	Lab #	0-10	10-20	20-30	30-40	40-50	50-60	60-70
SV1	1-3	1	1					
SV2	4-6	2	2	2				
SV3	7-9	1	1	2				
SV4	10-11	2	1					
SV5	12	3						
SV6	13-17	3	2	1	1	1		
SV7	18	1						
SV8	19	1						
SV9	20-22	1	1	1				
SV10	23	1						
SV11	24-25	1	1					
SV12	N/A							
SV13	26	1						
SV14	27	1						
SV15	28-29	1						
SV16	30	2						
SV17	31-33	3	3	4				
SV18	34	3						
SV19	35-37	4	3	4				
SV20	38-39	2	3					
SV21	40	5						
SV22	41-44	2	2	3	3			
SV23	45-48	4	4	4	4			
SV24	49	5						
SV25	50	4						
SV26	51-52	5	5					
SV27	53-54	4	4					
SV28	55-56	1	3					
SV29	57	1						
SV30	58-59	2	1					
SV31	60	1						
Bag Code								
BA16-1	1-3	2	1	1				
BA16-2	4-9	2	2	1	1	1	1	
BA16-3	10-13	1	1	1	1			
BA16-4	14-16	2	2	2				
BA16-5	17-19	1	1	1				
BA16-6	20-23	1	1	1	1			
BA16-7	24-27	1	1	1	1			

BA16-8	28-31	1	1	1	1			
BA16-9	32-35	2	1	1	2			
BA16-10	36-39	2	1	1	1			
BA16-11	40-41	1	2					
BA16-12	42-45	1	3	2	1			
ITT1	1-2	1	1					
ITT2	3-5	3	2	3				
ITT3	6-7	1	1					
ITT4	8-11	2	2	1	1			
ITT5	12-15	1	1	1	1			
ITT6	16-18	2	1	1				
ITT7	N/a							
ITT8	19-21	2	1	1				
FM1	1	1	2	1				
FM2	2	1	1	1				
FM3	3	2	1	1	1	1	1	2
FM4	4	1	1					
FM5	5	1	1					
Ind Cave	1	4	5	4	2	1		

CODING

SV = refers to core samples taken at 50 meter intervals surrounding Seaview

BA16 = refers to core samples taken at 25 meter intervals on/at the Seaview site

ITT = refers to core samples taken at 50 meter intervals on/at Indian Town Trail

FM = Farm at the base of the Highlands by Two Foot Bay

Ind Cave = Indian Cave, location of the petroglyphs

Barbuda Historical Ecology Project 2009
Seaview Excavation Team Report

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January 2009

Summary

In January 2009 the CUNY Barbuda Historical Ecology Project carried out small scale excavations at two localities within the Seaview site (BA016) near Two Foot Bay in eastern Barbuda WI. The excavation work was one component of the broader 2009 effort, and was aimed at both site conservation and student training. Field School students under the supervision of Dr. T.H. McGovern continued work begun in 2008 at the Seaview A2 coastal erosion face aimed at both recovering exposed Saladoid midden deposits and at stabilizing the most vulnerable portion of this eroding sand beach cliff. The teams also worked to recover stratigraphic information and stratified samples of artifacts and ecofacts from a pre-existing pit (Seaview inland unit G) located in 2008. Based on 2008 C14 dates, we suspect that the inland G deposits are associated with an earlier phase of Saladoid settlement on Barbuda. Both small excavations were successful in recovering Saladoid artifacts and ecofacts and provided opportunities for collaboration with the soil Phosphate and Resistivity survey teams. Rescue excavation and extensive sand bag reinforcement at the Seaview A2 beach front may have at least temporarily stabilized this area, and the inland G unit shows considerable potential for future stratigraphic excavation.

Objectives 2009.

Our objectives for the 2009 January season were:

- Continue a program of monitoring coastal erosion of midden deposits along the Seaview coastal erosion face (areas A1, A2, A3 in 2008 report).

- Selectively excavate the most immediately endangered portions of the Seaview coastal middens on a rescue- as- needed basis.

- Stabilize the most vulnerable portions of the exposed Seaview coastal deposits.
- Investigate looter pits in the inland portion of the Seaview site noted in 2008. The early C14 Dates obtained from the inland TP5 in 2008 suggested the importance of better understanding deposits in this area.
- Cooperate closely with the archaeological survey team, the Phosphate Survey Team, Resistivity Team, Artifact Analysis Team, visiting specialists (Dr. Tina Thurston, Dr. Alison Bain, Dr. Nancy Todd), and the planned Barbuda Heritage Day outreach.
- Provide hands on instruction in archaeological field methods to students participating in the CUNY Barbuda Field School.

Methods

As in 2007 and 2008 we made use of a slightly modified version of the successful FSI/NABO field recording system (based on a single context approach and ultimately modeled upon the Museum of the City of London, FSI manual available as download via www.nabohome.org). All photography was digital at 8 to 14 effective megapixels. All finds and samples are centrally registered using a system designed in collaboration with Dr. Reg Murphy of the *Antigua and Barbuda Parks Department*. Vertical & horizontal control was maintained with a Sokkia optical transit backed by the project mapping GPS (+/- 15 mm accuracy). All excavated deposits were dry sieved through 3 mm mesh sieves. All shell was retained for later analysis, fire cracked stones were counted per context and discarded. Whole soil samples for insect, charcoal, and phytolith analysis were collected (2 lt/context) from the G unit.

Seaview A2 Area 2009

The Seaview sea cliff erosion area had absorbed most of our resources in 2007 and 2008, and 2008 saw a major rescue effort by staff and students. Massive amounts of slumping cultural deposits full of eroding artifacts and ecofacts were found cascading down slope at the beginning of both prior seasons. The major rescue excavation and stabilization program of 2008 supervised by supervisor Konrad Smiarowski had successfully recovered a large collection of in situ finds across a profile extending over 10 m in A2 and 4 m in A1 and A4 respectively, but we were still concerned that ongoing beach cliff erosion could undo these efforts rapidly. If erosion of cultural deposits from the sea cliff face had caused a major collapse in 2008 we were prepared to concentrate much of our efforts on recovery of endangered stratified deposits in this area in 2009. Fortunately the initial view of the beach cliff areas indicated far less erosion than in previous visits in 2007 and 2008- only a few pot sherds and large shells (mainly West Indian Top Shell) had fallen from the cliff face over the summer and fall of 2008, and these had mainly come from the southern portions of the erosion face not excavated in 2008. It appears that at least for the present, our efforts in 2008 have served to stabilize this portion of the Seaview beach cliff, and have certainly not caused any additional damage (figure 1).

Figure 1. Seaview A2 erosion face Jan 09 showing only minor erosion damage since early 2008 (facing N).

The inspection in 2009 indicated that the only area where *in situ* cultural deposits were in danger of erosion was in the N end of the A2 excavation unit, in a strip approximately 1.5 m wide that had been covered by the improvised access stairway then partially covered with wooden pallets and flour sacks. This small area (ca 1.5 x 3 m in maximum dimensions) was catching wind and its erosion could contribute to the undermining of the nearby beach vegetation patch which is stabilizing the larger in situ deposit in area A4 just to the north. We decided to stratigraphically excavate this small patch, and to make use of the large stock of purchased sandbags acquired after the 2008 season to attempt a major reinforcement of this vulnerable area. We set up a temporary sub-datum (sub datum 2 at GPS N 17 42.576, W 61 46.507, + 13 m asl, accuracy +/- 4 m) which will be more precisely located with the mapping GPS unit, but which is located about 15 m SE of the 2009 A2 excavation unit.

We were able to directly match cultural layers in the 2009 A2 northern extension with the long profile drawn by Konrad Smiarowski and his team in 2008, and we have continued to use his context numbering system for the 2009 deposits, as these can be securely connected to the same layers observed and excavated in 2008. The contexts recorded and excavated in 2009 are:

[851] Light tan fine sand – natural overburden with some eroded artifacts and shells included.
[852] Slumped cultural deposits that have been undercut by erosion of sand deposits below and have moved as a semi-coherent mass downhill (the cultural deposits are far more compact and hardened than the natural beach sand deposits above and below). These are almost certainly derived from the uppermost midden layer [856] but as we cannot stratigraphically demonstrate this relationship we follow the 2008 practice of giving these deposits a new context number. Very little material was recovered from this context in 2008.
[856] Medium brown compact sandy loam that is rich in artifacts, bone, and shell. This was the uppermost midden deposit excavated in the 2008 season, and it is our main target for the 2009 small scale dig. This layer produced much ceramics (including both Zone Incised and White on Red painted pot sherds), bone (fish, turtle, rice rat) and many crab and West Indian Top Shell remains. In contents this deposit closely resembles the assemblage excavated in 2008 from the same deposit. A large piece of sea turtle lower shell was recovered from the upper portions of [856].

Figure 2. Sea Turtle lower shell plastron in [856] Seaview A2 2009

In 2009 we deliberately chose to leave the lower midden deposits unexcavated, as they provide a firmer base for sandbag reinforcement than the softer natural sand deposits below. We thus stop excavation at the base of the [856] context, and do not go deeper. The sandbag effort creates both a secure temporary access stairway via the A4 area and a thick stepped revetment protecting the beach plants at the A2/A4 boundary area. Additional sandbags have been added at backfilling after the group picture of the hard working crew shown below.

Figure 3 Excavation Crew 2 after sand bag work

Seaview Area G 2009

In 2008, Dr. Reg Murphy directed the excavations of a series of test pits on the landward (E) side of the dune complex at Seaview. Many of these small test pits encountered cultural material, and one (TP5) was expanded into a 2 x 4 m excavation unit which documented a charcoal filled post hole and a large deep storage pit. These stratified deposits were excavated by Dan McGovern and Jennifer Brown, and provided three consistent AMS C14 dates on wood charcoal that range from ca 250 BC to 100 AD, placing these deposits in the early Saladoid period and suggesting the presence of a substantial settlement pre-dating the later Saladoid materials eroding out of the Seaview coastal cliff face in the A2 area (see 2008 report for details). At the same time, we noted the presence of an open recently excavated pit approximately 100 m to the south of TP5, and collected sherds of Saladoid pottery, WI Top Shells, and lithics from the upcast debris surrounding the hole. Surface indications suggested that this pit had penetrated what could be a substantial linear midden feature, possibly one associated with the settlement documented by the TP5 unit in 2008.

Figure 4. Unit G Pit depression after clearing vegetation 2009

In 2009 we returned to this pit at Seaview with the intention of making use of the existing intrusion to obtain a better understanding of the Seaview inland site and to attempt to document any surviving stratigraphy. After some minor brush clearing the depression was emptied out, appearing as a rough oval ca 2 x 1.3 m in extent. The pit had been carried to the limestone bedrock, and was 60-70 cm deep. We squared up the pit, cutting back the slumping walls to provide fresh profiles on all four sides, dry sieving all excavated spoil and fill material through 3 mm mesh. Another sub datum was set up (Sub Datum 3, at GPS N 17 40 540 W 61 46.514 accuracy +/- 5 m, elevation ca 6 m asl) and this area was named Seaview inland unit G. The clearing of the pit produced both Incised and White on Red painted pottery, lithics (including two pieces of rose quartz) and substantial amounts of shell and bone. Perhaps even more importantly, the squared faces of the pit showed clear stratigraphy which could be followed all around the pit sides.

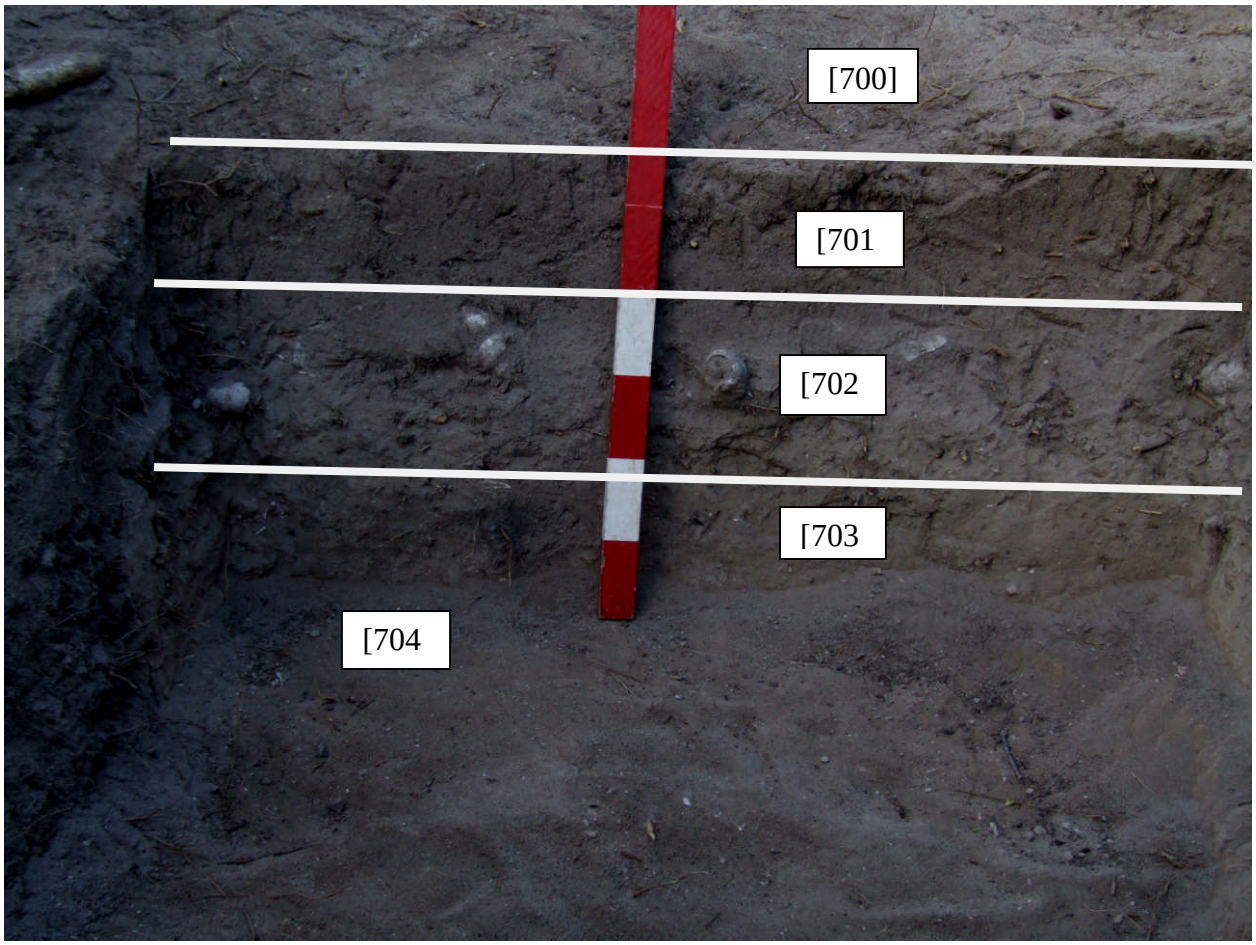

Figure 5 East Facing Profile Unit G with contexts

We were able to identify 6 contexts in the G unit at Seaview inland (see context sheets and profile G 2 for fuller description):
[699] the cut of the pit (not visible in figure 5 above)
[700] A light grey brown fine natural sand topsoil mixed in this area with some upcast spoil from the pit excavation.
[701] Medium brown sandy loam with some potsherds, bone, shell, fire cracked stones and charcoal- a cultural layer.
[702] Medium grey brown sandy loam with dense concentrations of bone, shell, fire cracked stones and potsherds. A rich midden deposit that contained substantial amounts of fish and turtle bone, including a concentration of turtle shell in the eastern side. This context produced the great majority of finds, including both Incised and White on Red pot sherds *in situ*.
[703] Light brown /tan loose sand, no cultural deposits visible. This appears to be the original top soil surface.
[704] Limestone bedrock surface with some exfoliated fragments. Natural bedrock surface.
We are able to do some small scale horizontal excavation around the edges of the squared pit, giving the students experience in combining horizontal and vertical excavation approaches. We also expanded the unit to the East, adding a 1 x 1 m extension unit onto

the east face of the unit. This provides some additional in situ material and provides some practice in following layers horizontally. While the boundaries of the contexts in G are somewhat blurred due to ongoing bioturbation (roots, land crabs, insect burrows), it proves very easy to peel back along the interfaces, and this suggests that a larger scale stratigraphic excavation with a greater horizontal exposure could be added to the G unit in the future without unduly over-taxing the skills of beginning excavators. The G unit reveals an amazingly dense Saladoid midden deposit in context [702], with a substantially less dense cultural deposit above in [701]. A substantial segment of a sea turtle plastron appears in [702] in the G extension unit, along with a disarticulated adult small dog jaw. The dog jaw does not seem to be associated with an entire skeleton, but appears to be of the same general configuration (compact, powerful, slightly bowed) as seen on the later Saladoid dogs in the Seaview coastal burials.

Figure 6 Seaview Area G surface of [702]

Figure 7. Seaview G [702] Dog jaw

Figure 8. Area G Seaview Excavation 2009 with extension unit.

Results and Recommendations

The BHEP excavation team carried out very small scale investigations in 2009, especially by comparison with the major effort and achievement on the Seaview erosion face in 2008. However, this small scale effort did accomplish its objectives, and contributed to the ongoing stabilization program at Seaview coastal erosion face. It was also possible to convert the intrusive pit from site damage to a useful view of what appears to be a substantial clearly stratified Saladoid midden in area G. Area G clearly offers potential for expansion, and may provide a good target for additional excavation in a field school or research context. The 2009 excavation team would thus recommend:

- Seaview coastal erosion face should be monitored, but additional large scale excavation there is probably not needed or desirable unless a large scale slump occurs.

- Seaview interior Area G can be expanded and additional Saladoid midden material appears to extend over a wide area in the immediate vicinity of this unit.

APPENDIX 1: Preliminary Artifact Assessment

Norie Manigault

Included is a basic quantitative field analysis of ceramic excavated at Sea View, January 2009. The analysis is based on Dr. Reg Murphy's methods and ceramic rim typology. The following steps included from Murphy's dissertation:

1. Sorting and classification: identification of diagnostic traits (e.g. rim shards, body shards, bases, griddle rims or fragments, spouts, and handles)
2. Recording/classification of surface finish (e.g. slip, scratching, ZIC, WOR)
3. Illustration of rim and vessel profiles. (Murphy: 1995)

Site	Context	Area	Unit	Total Shards	Total Rims	Total Bases	Handles	Legs	Griddles	Total MNI
BA016	[700]	G	Surface	2	0	2	2	0	0	0
BA016	[701]			2	0	0	0	0	0	0
BA016		G	Surface	21	0	0	0	0	0	0
BA016	[702]	G		81	10	0	0	3	0	6
BA016	[856]	A2		81	11	0	0	1	1	6

Site	Context	Area	Unit	Polychrome	WOR	ZIC	Incised	Scratched	Red/One Side	Red/ Both Sides	Black Paint
BA016	[700]	G	Surface	0	0	0	0	0	0	0	0
BA016	[701]			0	0	0	0	0	0	0	0
BA016		G	Surface	0	3	6	3	0	0	0	0
BA016	[702]	G		2	7	2	2	0	22	11	2
BA016	[856]	A2		0	0	4	6	0	11	11	3

The rim shards were segregated for further diagnostic analysis based on Reg Murphy's typology:

Site	Context	Area	Unit	Type 1	Type 2	Type 3	Type 4	Type 5	Type 6	Type 7	Type 8	Type 9	Type 10	Type 11
BA016	[700]	G	Surface	0	0	0	0	0	0	0	0	0	0	0
BA016	[701]			0	0	0	0	0	0	0	0	0	0	0
BA016		G	Surface	0	0	0	0	0	0	0	0	0	0	0
BA016	[702]	G		2	1	1	2	0	0	0	2	0	0	2
BA016	[856]	A2		2	0	1	3	1	0	1	2	0	0	0

The rim types above, from Murphy's Dissertation, are classified into 13 basic types:

1. Type 1 rim, wedges-shaped: Shape most common found in post-Saladoid assemblages.
2. Type 2, round

3. Type 3, tapered-point
4. Type 4, squared
5. Type 5, one-side rounded
6. Type 6, tapered
7. Type 7, thickened rim wall
8. Type 8, tee-shaped: This is common in Saladoid and Terminal Saladoid assemblages.
9. Type 9, one-side tee-shaped
10. Type 10, flanged rim: There is often incising along the flange, and this type of rim is a diagnostic feature of Saladoid pottery.
11. Type 11, out-turned, curved, and decorated: This unusual Saladoid rim has broad labial-flanges that often have a raised or elevated band, which is commonly incised.
12. Type 12, coiled (Murphy: 1995)

Contexts [702] and [856] from Sea View produced a high quantity of red slip shards, including painted White-on-Red and painted Zone-Incised-Crosshatched shards. These attributes correlate to Irving Rouse and Reg Murphy's typology dating to the Saladoid/Barrancoid phases.

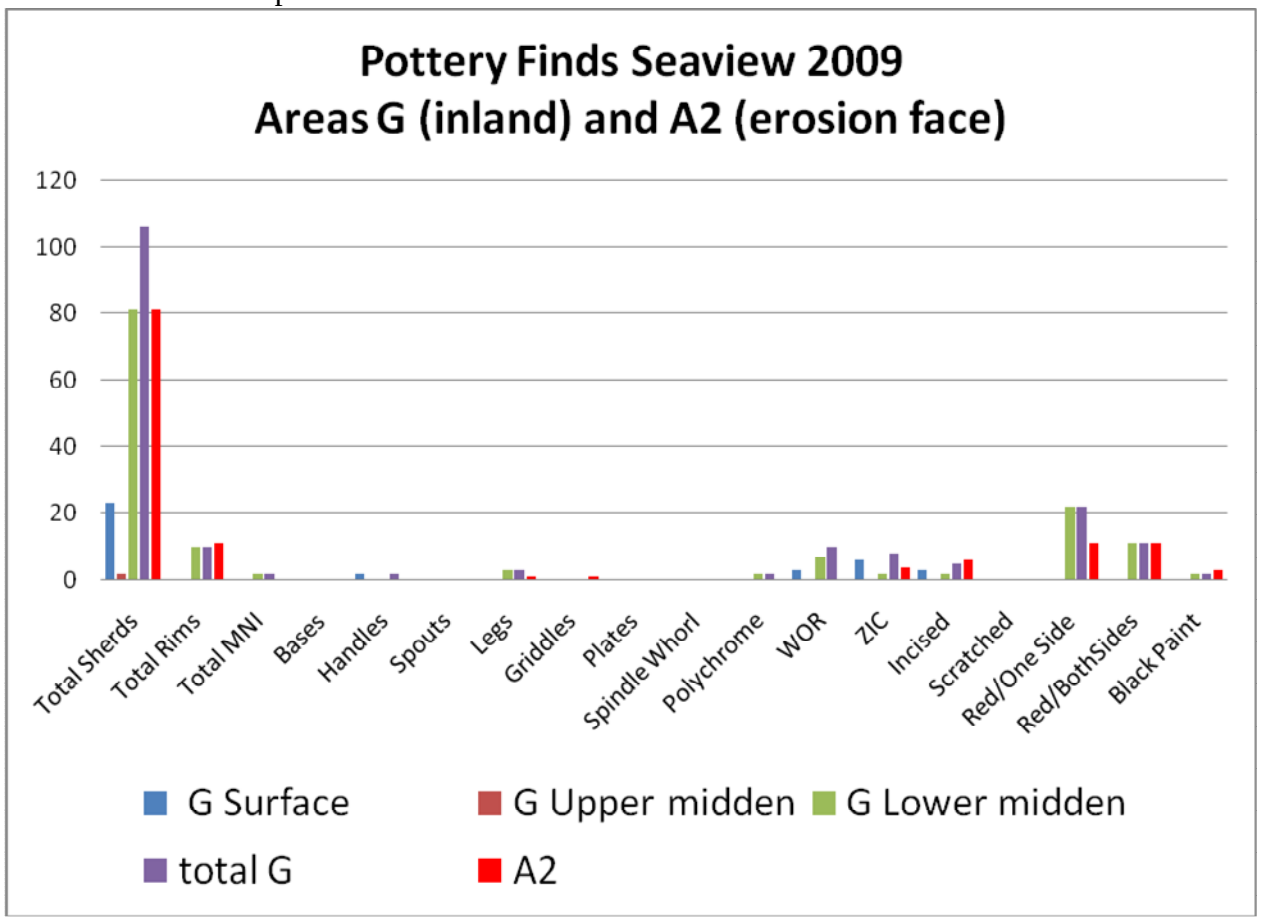

Figure 9 presents an initial count of pottery fragments and diagnostic sherds for the area G midden and the A2 midden area. Note that most pottery finds came from the lower midden layer at G, and probably most of the G surface finds also derive from this layer.

Other Artifact types:

Surface near A2 erosion face 1

Context	Area	Lithics	Shell Bead	Pumice Tools	Clay Pipe	Coral	Shell Axe	stone zemi
[702]	G	1	3	4		2	1	
[857]	A2		2					1
[856]	A2	1						
Pit fill	G	8	4			1		

APPENDIX 2 Registers from BA 016

BHEP 09 Sieve Bulk Sample register							***Jan-09***		running bag count	21
No.	Site	Area	Context	GPS	Grid	Vol	Wt.	# of bags	Description	date dd/mm/yy
1	BA 016	A2	856					1		12/1/2009
2	BA 016	A2	856					1		12/1/2009
3	BA 016	G	surface					1	small objects	12/1/2009
4	BA 016	A2	856					1		12/1/2009
5	BA 016	G	surface					1	bones and small shell	9/1/2009
6	BA 016	g	surface					1	small bones	9/1/2009
7	BA 016	G	fill					1		9/1/2009
8	BA 016	G	fill					1		9/1/2009
9	BA 016	A2	856					1		12/1/2009
10	BA 016	A2	856					1		13/1/09
11	BA 016	G	profile cleaning					1		13/1/09
12	BA 016	A2	856					1		12/1/2009
13	BA 016	G	profile cleaning					1		13/1/09
14	BA 016	g	surface					1		13/1/09
15	BA 016	G	surface					1		13/1/09
16	BA 016	g	profile cleaning					1		13/1/09

17	BA 016	g	700					1	Sieve	15/1/09
18	BA 016	g	701					1	Sieve	15/1.09
19	BA 016	g	702					1	Sieve	15/1/09
20	BA 016	g	702					1	Sieve	15/1/09
21	BA 016	g	702					1	Sieve	15/1/09

BHEP 09 Shell Sample Register									number in circle on bag	
#	Site	Area	Context	GPS	Grid	Vol.	Wt.	Quantity	Description	Date
								Bag/Buckets		dd/mm/yy
1	BA 016	A2	856					1	large shells	12/1/2009
2	BA 016	g	fill					1	Shells	13/1/09
3	BA 016	g	fill and profile					1	large shells	13/1/09
4	BA 016	A2	856					1	large shells	12/1/2009
5	BA 016	g	fill and cleaning					1	large shells	13/1/09
6	BA 016	A2	856					1	large shells	12/1/2009
7	BA 016	g	702					1	large shells	15/1/09
8	BA 016	g	702					1	large shells	15/1/09
9	BA 016	g	702					1	large shells	15/1/09
10	BA 016	g	701					1	large shells	15/1/09

BHEP 09	Drawings Register			

Author	Date	Media	Location	Description
McG & crew	Jan 14 2009	mylar context sheet	West Profile of unit G Seaview Inland	profile of cleaned and straightened looter pit w/ C14 sample point noted
McG & crew	Jan 8 2009	mylar context sheet	Area A2 N portion	composite plan of context [856] and surrounding features.
McG & crew	jan 15 2009	mylar context sheet	Area G	context sheet plan of [701]
McG & crew	jan 15 2009	mylar context sheet	Area G	context sheet plan of [702]
McG & crew	jan 15 2009	mylar context sheet	Area G	context sheet plan of [703]

Barbuda Historical Ecology Project 2009

Findings From SV13

Cory Look

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Intro

During the 2009 field season, a systematic survey of the area surrounding Seaview was conducted in order to begin collecting data for phosphate mapping on Barbuda. While on survey, an area assigned as SV13(Code assigned during phosphate survey), was found to have a high density of fractured mollusks, ceramics, shell beads, lithics, worked stone, worked coral, and coral zemis indicating an active prehistoric Amerindian presence. The site was initially exposed by a local Mission Church looking for potential well water sources, and was temporarily abandoned for the season. This disturbed feature located within a barren fossilized coral landscape is a depressed 2 x 4 meter sinkhole. The site's disturbance and impending future destruction reinforced the urgency for rescue archaeology of SV13. Preliminary data has been collected on the material recovered from SV13, some of which is presented in this early report.

Landscape and Background

There are two prehistoric Amerindian sites located within proximity to SV13. Seaview (BA16), an early ceramic age Saladoid site, lies along the coast of Two Foot Bay surrounded by a rich but treacherous reef system. Indian Town Trail (BA1), is a Post-Saladoid site situated approximately 600 meters inland from Seaview at the base of a large limestone outcrop that stretches along the Western coastline. Positioned Northwest of both Seaview and Indian Town Trail is an area of exposed fossilized coral outcrop with a number of scattered sink holes, mostly filled in by sediment. Several fresh water sinkholes scattered about the landscape are used today to hydrate crops, sheep, goats, and horses. It is common for sinkholes in this region to open and close rapidly, and as result active sinkholes used by local farmers, have built wooden frames in order to stabilize them. From the location of SV13, neither Seaview or Indian Town can be directly sited, although current vegetation may be the biggest factor. The open sea is visible to the north facing a rich reef system.

Fig 1 – Map showing the locations of Seavew (BA16), Indian Town Trail (BA1), and SV13

Excavation

The sinkhole itself is approximately 2x4 meters with an unknown depth. SV13 was first identified by the spoil heap left by the mission church in an attempt to explore the potential for fresh water. Sectioning of the spoil heap revealed no discernable stratigraphic layers. This material was taken out during the first two days of excavation and sifted. One coral zemi, along with a few fragments of shell and ceramics were recovered from the spoil. Once the spoil heap was removed and sifted we were able to identify two stratigraphic layers, A and B. Both layers contained sediment that was sandy clay. The majority of cultural material was recovered from Layer A, while Layer B contained rare fragments of shell and some fossilized shells. Due to time constraints, the remainder of the area was covered with large stones and backfilled.

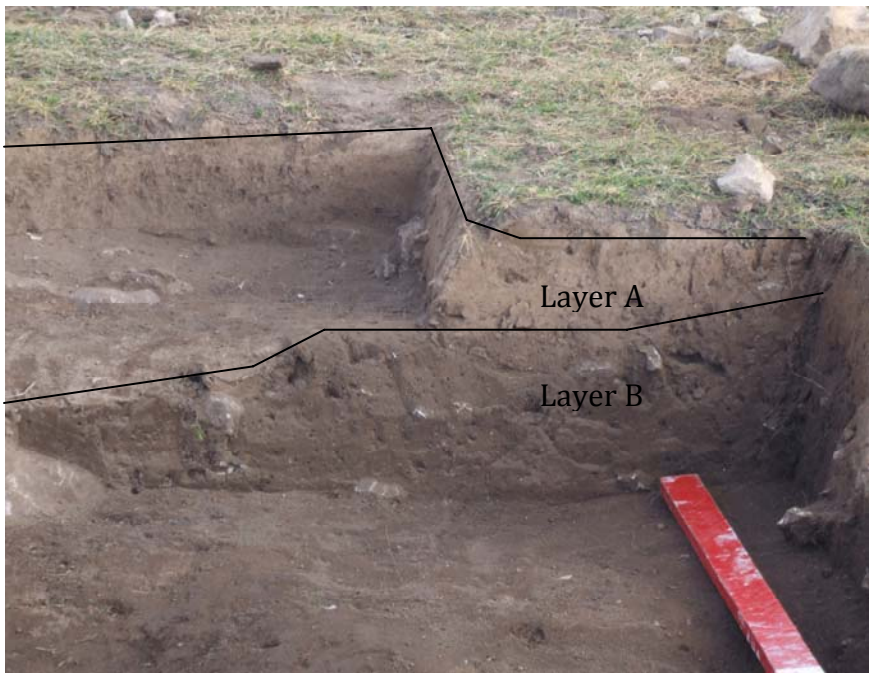


Fig 2 – Southeast profile of excavated sinkhole, SV13

Discussion of Data

Faunal

The majority of faunal recovered from SV13 consisted of crab and mollusks. While mollusks constituted over 82% of the material recovered, the majority were fragmented. Numerous pieces of shell have been worked and polished. Complete shells, except for holes created by food extraction, were rare on site. 95% of the crab remains are claws. One fish vertebrate represented all the fish remains present. It should be noted that this particular fish vertebrate has a natural perforation through its center. The lack of fish bones is significant

as both Saladoid and Post-Saladoid middens have high frequent fish bones present. Based on the context of this site, the fish vertebrate recovered may have served as raw material for bead production.

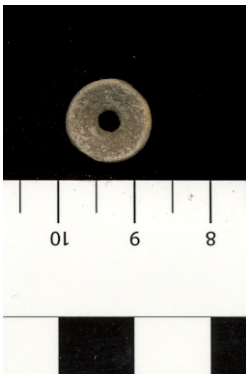


Fig 3 – Fish Vertebrate

Worked Shell

While mollusks are a significant component of the Amerindian diet as well, there is moderate evidence of worked shell found within SV13. Significant fragmentation is consistent with experimental studies of Strombus gigas shell strategically broken in order to create pre-forms for both tools and artifacts. Similar patterns of shell debitage are seen (Table 2, Graphs 2 & 3), although future analysis of middens excavated from both Seaview and Indian Town Trail should provide better insight as to how these ratios may differ. While mollusks showing evidence of food extraction is rare, when these perforated shells are present, they have additionally modified.

Fig 4 – Worked shell spoons. Far right is a perform, center is a final product, left is possible discard or error piece

Fig 5 – Shell bead blanks

Fig 6 – Shell braider

Fig 7 – Sample of the variety of possible bead blanks present with one broken bead in the center

There is a wide diversity of worked shell(see figures 4-8). Evidence of shell tool production is evident, from shell adzes to refined spoons made from the body whorl of Strombus gigas(see figure 4). There is a number of tinkler and bead blanks prepared from *Oliva sp* (fig 7). One shell fragment in particular showed signs of very fine wear, with small notches carved at even intervals. The function as of yet is unknown (fig. 6).

Coral

Fig 8 – Sample of the variety of coral abraiders present at SV13

Large quantities of coral have been brought to the area of SV13. 50 coral braiders and 90 pieces of coral showing signs of wear and use (fig 13-15). As for the braiders, there is significant variation in both the size of the pieces being used as well as the wear patterns (fig 8 & 9). These cylindrical pieces of coral exhibit three grades of wear: those worn on all sides, those showing wear on one side, and those with no signs of wear. The most common type present is Acropora cervicornis. This species occurs well below the water surface, but not at depths greater than 10 m. While this species naturally exist as branches, no intact branch has been found on site. A number of Acropora cervicornis have one broken end and one end exhibiting thorough wear. Does this variety offer

Fig 9 – Coral pieces showing significant wear

varying degrees of abrasion potential? Is this equivalent to having fine to coarse grain sandpaper? One piece of coral had a peculiar wear pattern on it, similar in shape to these coral braiders (fig 13). Large ovular worked coral pieces are abundant as well. Many show moderate wear, and a number of them may have been broken off during use (fig 15).

In addition to tools, coral also served as raw material for making zemis (fig 10 & 11). The two zemis found were made of coral, while one remained unfinished.

Fig 10 – Unfinished Coral Zemi

Fig 11 – Finished Coral Zemi

Lithics

Fig 12 – Stones exhibiting polish. Center and right are pink limestone.

Three microblades of Long Island flint, a cuboid piece of carnelian, and a few polished stones were recovered during excavation. Additional stones are present in the assemblage, but require further analysis in order to assess there makeup. While present, lithics are not the predominate resource present for tool usage.

Ceramics

83 fragments of ceramics were recovered as well. It should be noted that only 3 rim fragments were recovered (each different) and no bases. All pottery shards recovered were 5< cm and showed significant signs of weathering. The pottery shards present do not show signs of painting or grooves.

Phosphates

Two core samples were taken from SV13 for qualitative phosphate analysis. One was taken directly in the center of the sinkhole and the second was taken on the outer edges. Both samples tested negative for phosphates. This evidence indicates that little organic material was deposited in this depression and that the site was not used for long term occupation.

Discussion

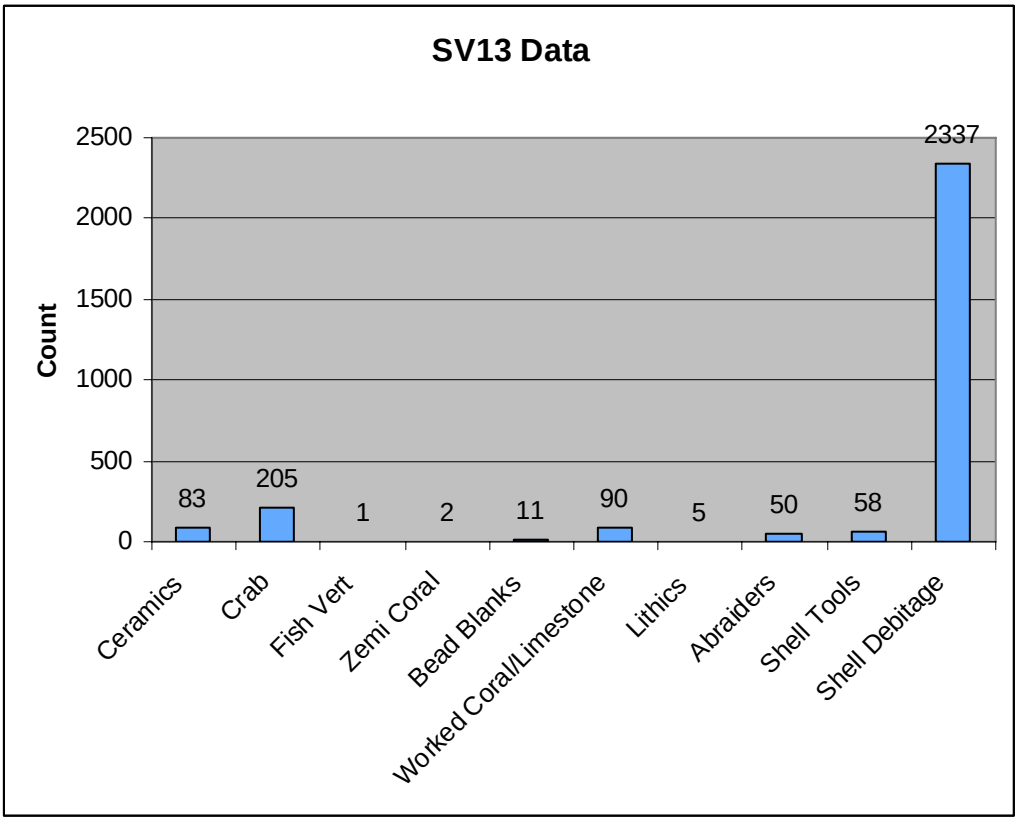
Based on preliminary evidence, SV13 appears to be a small multi-purpose work site producing everything from beads and zemis, to shell spoons and scoops. The difficulty in interpreting the disturbed context is compounded by the absence of typologic ceramics. Samples of West Indian Top Shell were collected at the bottom of layer A for future C14 dates. We suspected that this area had been used during the prehistoric ceramic age on Barbuda due to the presence of freshwater sinkholes, although no evidence had been found associating either Seaview or Indian Town Trail with these resources. Survey of the immediate area showed no sign of cultural material present on the surface.

Site ID	Artifact ID	Type	Material	Count
SV13	0172009	Abraiders	Coral	1
SV13	0152009	Abraiders	Coral	11
SV13	0182009	Abraiders	Coral	15
SV13	0162009	Abraiders	Coral	23
SV13	0032009	Bead Blank	Shell	1
SV13	0042009	Bead Blank	Shell	1
SV13	0022009	Blanks	Shell	7
SV13	0052009	Broken Bead	Shell	1
SV13	0092009	Ceramics	Clay	1
SV13	0102009	Ceramics	Clay	1
SV13	0082009	Ceramics	Clay	6
SV13	0262009	Ceramics	Clay	75
SV13	0232009	Conch Axes	Shell	3
SV13	0212009	Crab	Crab	215
SV13	0142009	Fish Vertebrate	Bone	1
SV13	0122009	Lithic	LI Flint	1
SV13	0132009	Lithic	Carnelian	1
SV13	0062009	Polishing Stone	Stone	4
SV13	0222009	Scoops	Shell	55
SV13	0202009	Shell Fragments	Shell	1070
SV13	0192009	Shell Fragments	Shell	1267
SV13	0112009	Worked Shell	Shell	1
SV13	0242009	Worked Shell	Shell	15
SV13	0252009	Worked Coral	Coral	90
SV13	0012009	Zemi	Pumice/Coral	1
SV13	0072009	Zemi	Pumice/Coral	1

Table 1 – Preliminary list of material from SV13

Function	Type	Count	Notes
Habitation	Ceramics	83	
Food	Crab	205	195 crab claws 10 non claw
Food	Fish Vert	1	
Product	Zemi Coral	2	
Product	Bead Blanks	11	Includes 112009
Tool	Worked Coral/Limestone	90	
Tool	Lithics	5	Includes Raw Carnelian
Tool	Abraiders	50	
Tool	Shell Tools	58	Includes Axes and Scoops
Tool	Shell Debitage	2337	

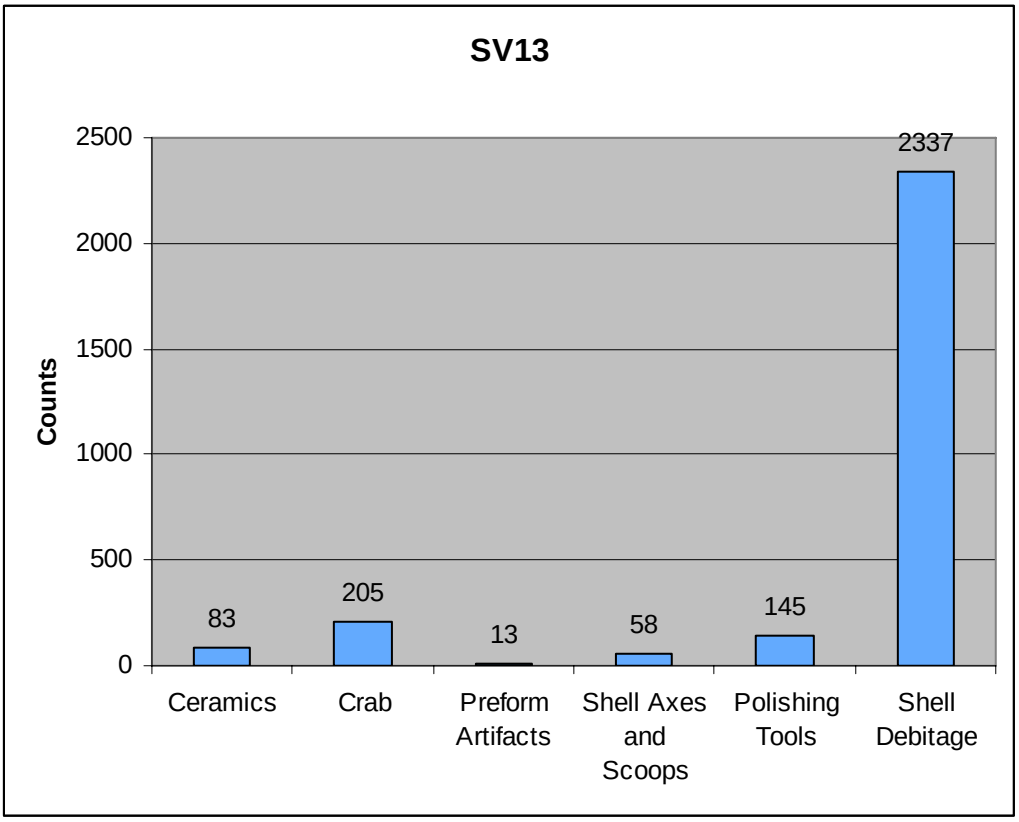
Table 2 – Preliminary counts ordered according to possible function



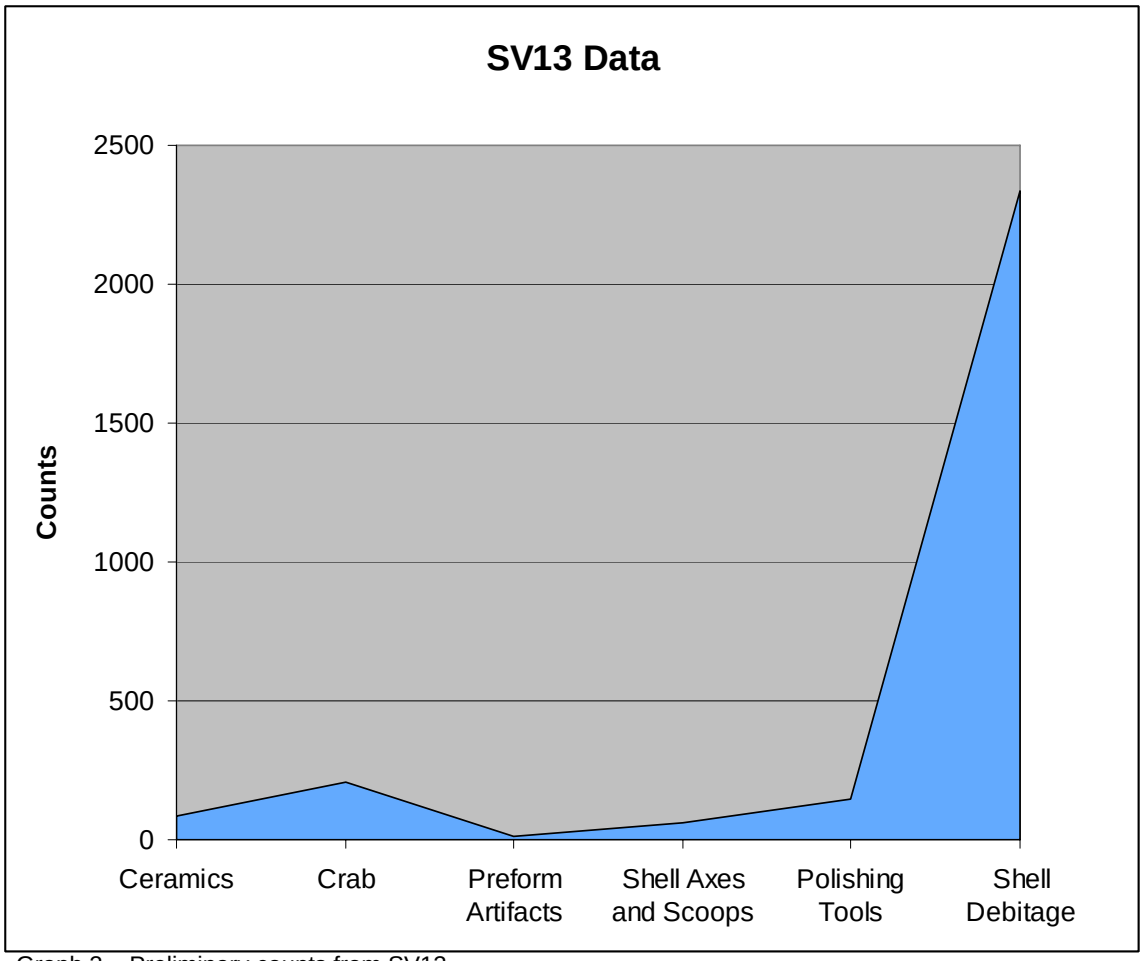
Graph 1 - Preliminary counts on materials recovered from SV13

Type	Count	Notes
Ceramics	83	
Crab	205	
Preform Artifacts	13	includes unfinished zemis, shell blanks and possible fish bead blank
Shell Axes and Scoops	58	Includes Axes and Scoops
Polishing Tools	145	
Shell Debitage	2337	

Table 3 – Material grouped together by type



Graph 2 – Preliminary counts from SV13



Graph 3 – Preliminary counts from SV13

Appendix A

Fig 13 – Coral exhibiting wear with worn coral abraider

Fig 14 – Worn Coral fragments exhibiting zoomorphic

Fig 15 – Variety of worked coral present at SV13