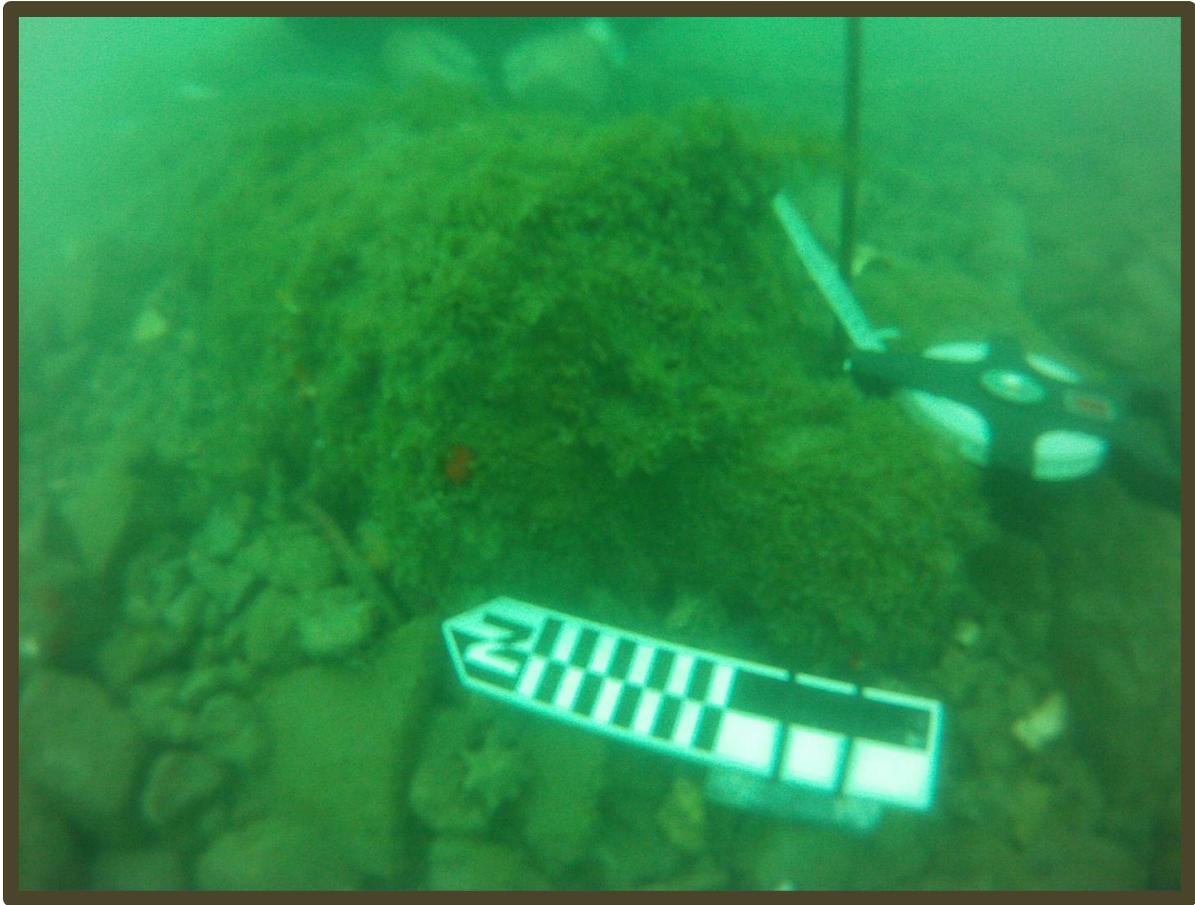


THE EXPLORERS CLUB FLAG 117 REPORT

Archaeological Exploration of Shipwrecks in Trinidad & Tobago

14 June, 2012 – 24 June, 2012



TRB-2 Cannon, Rocky Bay, Tobago



Jason Paterniti, FRGS, MN'10

Dedicated to the memory of Wesley Keith Hall

21 November, 1952- 27 August, 2012

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Summary:

This Flag 117 report describes the findings from the preliminary assessment survey to locate, evaluate and record 17th century shipwrecks within the territorial waters of Trinidad & Tobago. During the ten day expedition, the team located and recorded multiple cannon, anchor, ceramic, and metal artifacts as well as wooden hull remains of five to seven shipwrecks in Rockly Bay, Scarborough Harbour, Tobago. The team also investigated an 18th- 19th century wreck off of Monos Islands, Trinidad.



Figure 1: Dr Kroum Batchvarov, Project Director Rockly Bay Research Project, Jason Paterniti MN'10

Introduction & Background:

The 17th century was a period of great exploration and discovery. It was also an era of rapid technological change especially with regards to ship construction. Advances in ship technology provided European nation states with a previously unavailable ability to project power across the globe in their struggle for dominance over the resources of the new world (Batchvarov D. K., 2012). The strategically important island of Tobago was almost continually under attack during this period. For the Dutch, this power struggle for the control of the Caribbean culminated in March 1677 when a French squadron assisted by a large detachment of troops attempted to wrest control of Tobago from the Dutch West Indies Company. The squadrons fought a crucial battle in what today is the commercial port of Scarborough Harbour, Rocky Bay, on the island of Tobago. Twelve Dutch ships and four French ships were sunk or destroyed and over 1,200 men woman, children were killed in the action. The battle was one of the largest fought outside Europe in the 1600s, and the eventual loss of Tobago to the French marked a significant turning point in the history of Caribbean settlement (Batchvarov D. K., 2011). The battle marked the end of efforts by the United Provinces of the Netherlands to assert military and economic influence in the western hemisphere (Shomette, 1994). After the battle the island was abandoned and the wrecks were quickly buried under sediment run off from the hills surrounding the harbour.

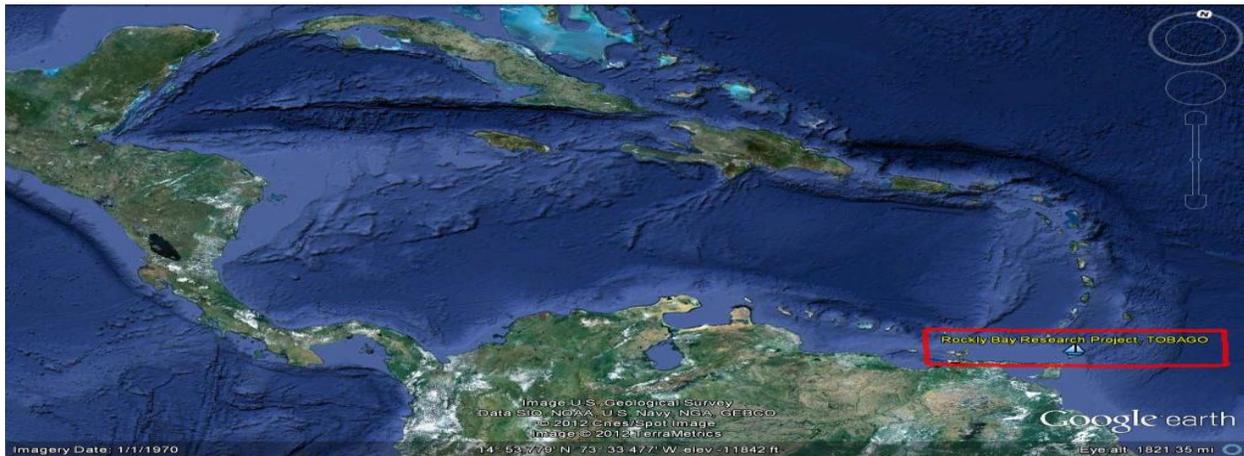


Figure 2: Location map of Trinidad & Tobago

In 1990, the Tobago House of Assembly (THA) commissioned the construction of a new marine terminal in Scarborough Harbour, Tobago. This project included the dredging of the harbor to facilitate larger draft vessels. During construction, ballast rock, cannon, ship timbers, associated artifacts and human bones were encountered.

Based on the material discovered by the construction crews including an 18 pound bronze cannon dated “1663” and bearing the crest of Louis XIV, it is possible that remains from the previously lost “Battle of Scarborough Harbour” had been uncovered.

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As a result of these finds, the THA commissioned Wes Hall, an experienced marine archaeologist and member of Clive Cussler's team which found the *C.S.S. Hunley* submarine, to conduct an underwater archaeological survey of the inner harbor. During the first survey, Hall identified two sites containing wreck material. Hall designated these sites "A" and "B" (Hall, Phase 1: A Marine Magnetometer Survey and Submerged Cultural Resource Reconnaissance of Rockly bay and Scarborough Harbour, Tobago, 1999, p. 10) .

In 1992, the THA commissioned Hall to conduct a second survey in order to identify the location and extent of Target "A" to ensure that a planned construction of a new Coast Guard pier would not impact the site. (Hall, 1999, p. 3)

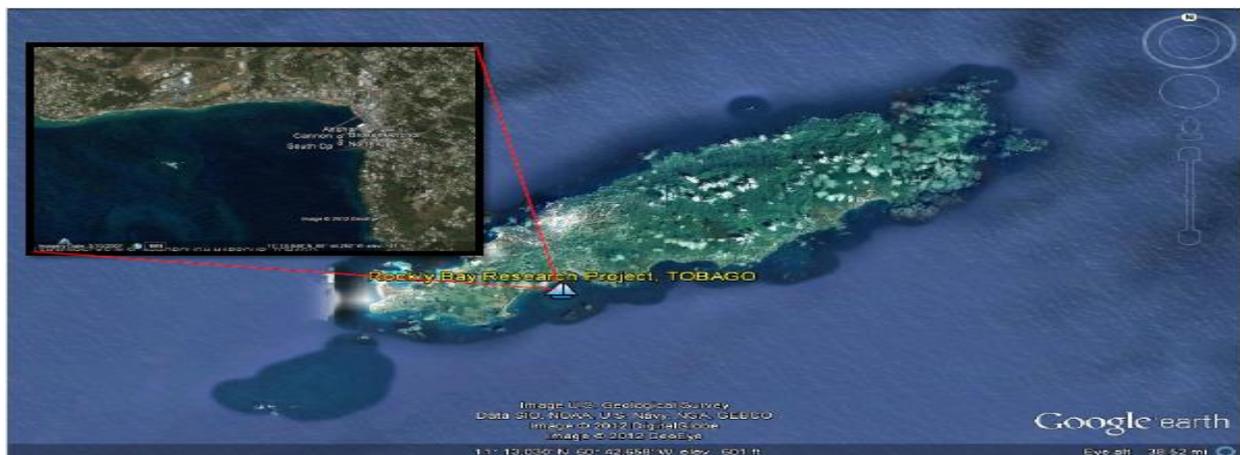


Figure 3: Location map of the project site in Scarborough Harbour

1999 Wes Hall again returned to the island this time to conduct a geophysical survey using a marine magnetometer¹ and positioning system with the objective of locating possible ship remains. From this survey 45 anomalies of interest were identified. Also during this period, a group from the Mary Rose Trust in the UK was requested to survey vessel "A". The Mary Rose trust team reportedly dug multiple test trenches, excavated the site and brought over 150 artifacts from site A to the surface. (McKewan, 2006, p. 12). Unfortunately, the location or condition of these artifacts is not known.

The cultural material & artifacts located in Scarborough Harbour are thought to be one of the world's primary sources of knowledge about the seafaring, ships and the maritime culture of the 17th century. As such, a concerted effort was initiated in 2007 to obtain permission from the THA to conduct a proper scientific excavation and conservation of these endangered material remains.

After many years of negotiation with the THA, in April 2012 our project team was issued a permit to conduct archaeological investigations of the shipwrecks located in Rockly Bay, Scarborough Harbour.

¹ A magnetometer is an electronic instrument which measures localized changes in the earth's magnetic field. Magnetometers are used in survey work to detect the presence of ferrous metals like iron and steel fasteners, anchors, cannons etc. (Hall, 1999)

Objectives:

1. To locate and survey the major extent of 17TH century shipwrecks associated with the Franco Dutch naval battle of 1677 which took place in Rockly Bay, Scarborough Harbour, Tobago.
2. In cooperation with the Tobago House of Assembly (THA) and the Tobago Ministry of Tourism, to establish conservation facilities on the island of Tobago for the eventual excavation, recording, documentation and proper conservation of endangered hull remains and associated cultural artifacts located in Rockly Bay.²
3. To investigate reports of undocumented 17th century shipwrecks in the islands around Trinidad for future possible study.

Expedition Members & Areas of Responsibility:

Name	Profession	Nationality	Role
Dr. Kroum N. Batchvarov	Assistant Professor of Maritime Archaeology, University of Connecticut	Bulgarian	Project Director
Fred Hocker	Director of Research and Publication for Vasa Museum	USA	Field Investigator
Emma Hocker	Chief Conservator of Vasa Museum	British	Project Conservator
Wes Hall	President Mid Atlantic Technology LLC	USA	Field Investigator
Robert Auerbach, Jr.	Volunteer	Trinidadian	Diver
Jason Paterniti	President, GEOS Foundation	USA	Operations
Dr. Levis Guy-Obiakor	Management Consultant	Tobagonian	Logistics
Iain "Waba" Milne	Boat Captain	Trinidadian	Boat Captain
Christian Milne	First Mate	Trinidadian	First Mate
Thomas Hocker	Student	USA	Volunteer
Simon Hocker	Student	USA	Volunteer

² The expedition rigorously adhered to the procedures used by the Institute of Nautical Archaeology (INA). It is the policy of the Project and INA to recover all objects for the sake of the host Government. No artifacts will be sold for profit.

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Figure 4: Project Team F.L.T.R: Wes Hall, Iain Milne, Dr Batchvarov, Dr Hocker, Emma Hocker, Thomas Hocker, Christian Milne, Robert Auerbach Jr., Simon Hocker, Jason Paterniti MN'10

Methods:

The primary task of this expedition was to re-locate the site "A" identified by Hall in 1999. Once located, the major extent of the site was de-lined by laying a perceived base line along the length of the site. Recording of the positions of the remains using both offset and trilateration methods were then employed in order to produce an accurate picture of the site with descriptions and measurements.

Based on the information obtained from this survey, the Project Director will be in a better position to establish a long term field work strategy (Bowens, 2009, p. 114) including what sites will be excavated and what equipment will be needed for the 2013 excavation season.



Figure 5: Using contemporary naval charts, historical survey records and modern recording data to try to establish the identity of a wreck

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Logistics:



Figure 8: Dive platform R/V “Blu Spartan”

The Project team arrived to Tobago by commercial aircraft and was housed in a rented bungalow eight miles from the harbor. Tanks, weights and other equipment was transported by rented cars to “R/V Blu Spartan”, a 45 foot catamaran chartered and outfitted to transport the team to various survey locations and to act as a dive platform. Accessing the site to be explored was not difficult to reach physically but due to the large volume of commercial traffic in the harbor it was at times un-accessible.

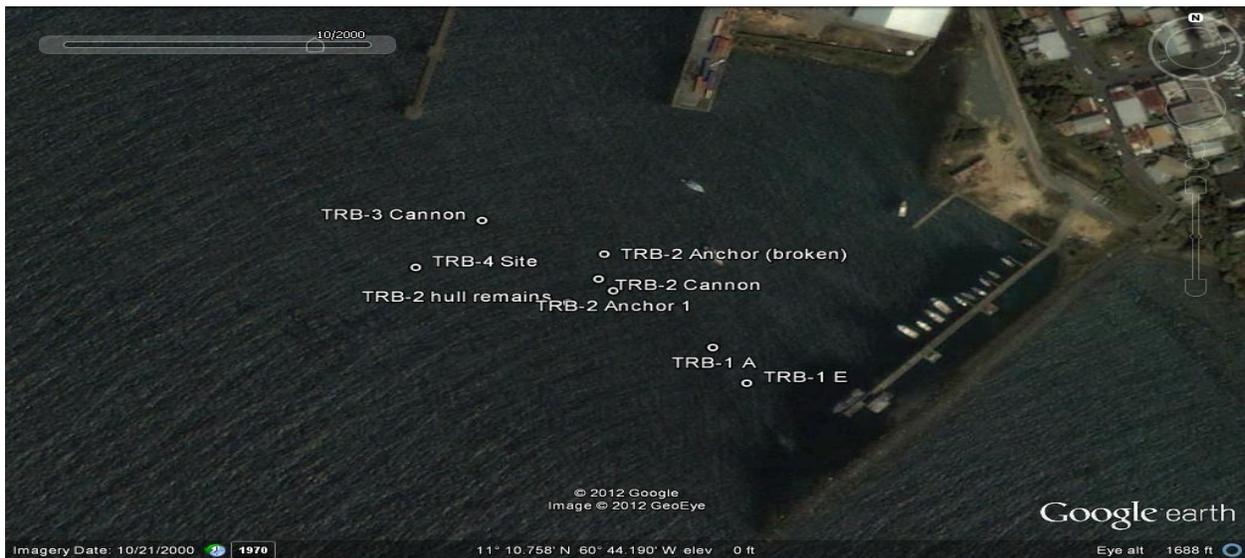


Figure 9: Hull remains and associated materials located during the 2012 Survey of Scarborough Harbour in Rockly Bay

Findings & Results:

I. Site TRB-1

Our primary objective for the expedition was to relocate site “A” which henceforth will be refer to in this



report as site “**TRB-1**”. The harbor floor in Rocky Bay is essentially featureless resembling photos of the moon surface. Besides man made debris there is virtually no coral, vegetation or other point of reference. We were operating in depth of 10 to 12 meters with visibility of 0.5 to 2 meters. Despite this poor visibility, Wes Hall relocated the TRB-1 ballast pile using references points on the shore. He then identified the ballast pile which appeared as an elevated mound.

Figure 10: Locating site TRB-1 using reference points on shore



Figure 11: Dr Batchvarov using trilateration method to measure distances between control points on site TRB1

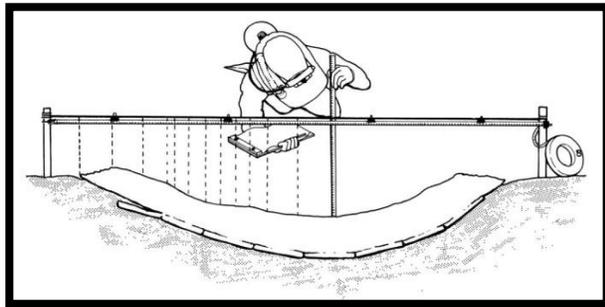
In his 1999 report Wes Hall noted: “The major extent of Vessel A (TRB-1) was identified and a single shallow test trench was excavated. The shipwreck consisted of a large pile of ballast (16 meters wide by about 45 meters long. The ballast pile (wreck) was covered by 20 to 150 centimeters of sticky grey

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sediment. Below and within the ballast were portions of the ship's hull, hardware, and artifacts still in an excellent state of preservation." (Hall, 1999, p. 3)

During the 2012 survey, a base line was established along a 135 degree orientation with both primary control points (A & E) were located in 11 meters of water at slack tide.

Once we had run a line down the perceived length of the ballast pile, Dr. Batchvarov, Dr. Hocker and Hall began probing the site to identify a perceived perimeter. The purpose of this exercise was to delineate



the size of the ballast pile and to establish context. Once this has been completed, offsets were taken in order to calculate how much overburden sits over the ballast pile and will need to be excavated.

Figure 12: Example of diver measuring vertical transects or offsets (NAS, 2010)

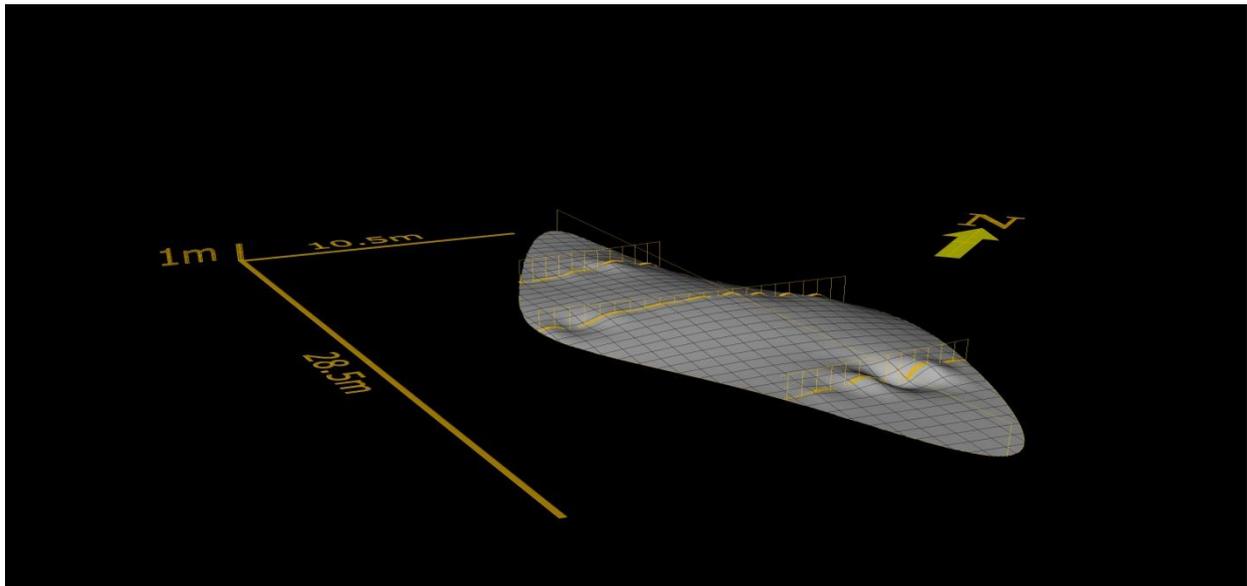


Figure 13: Extent of TRB-1 Ballast mound revealed by ground truthing using metal rods and poly propylene line. Transacts provide an estimate of depth. Data recorded in RHINO software. Image courtesy of Dr. Fred Hocker

Implications of the find:

The surface area of a ballast pile will typically be larger than the wooden container (the hull) in which it was originally located (Hocker, 2012). In this case the pile measured approximately 10.5 meters wide by 28.5 meters long. Based on the transect measurements Dr Hocker estimated that 177 cubic meters of overburden will have to be removed to get to ballast pile and any remaining hull structure.

This ballast pile is out of the commercial traffic lanes of the harbour and as a result is less disturbed than other potential excavation sites. Based on archival data (both reports and maps), the position, size of the ballast pile and orientation of the site, we believe it may be one of the Dutch West Indies Company ships (possibly the *de Gouden star*, 28 guns, the *Popkesburg* 24 guns, or the *Leyden* 34 guns). Because of its location and probable state of preservation, this will be a primary target for excavation and recording in future field seasons.

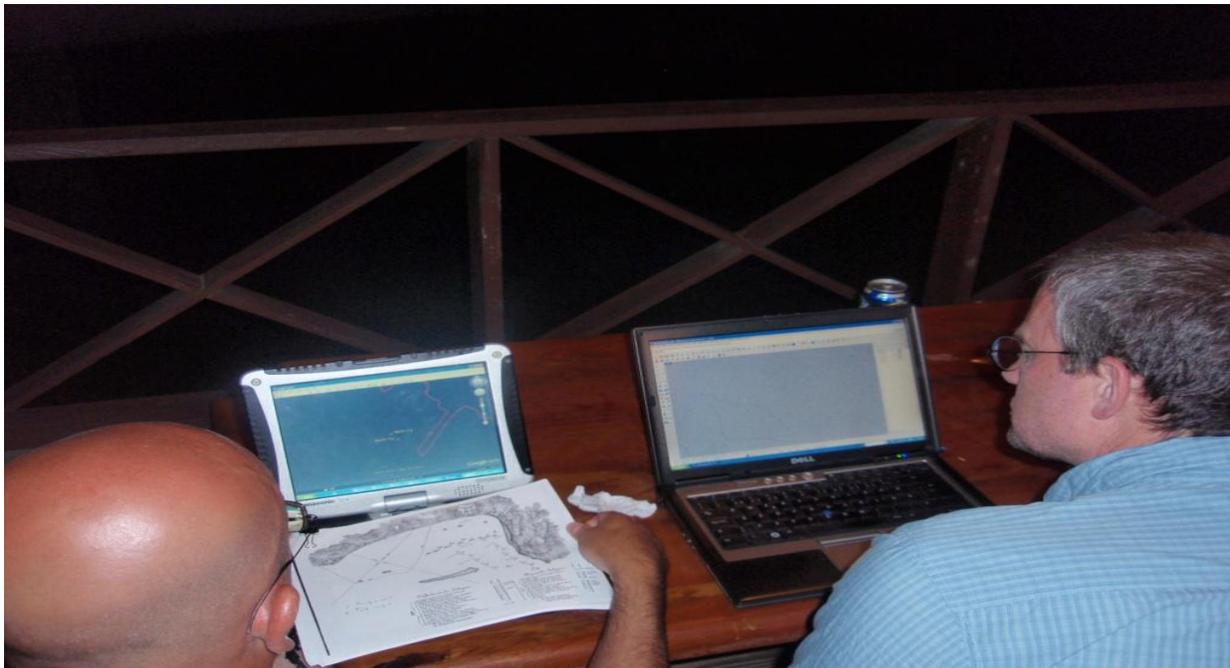


Figure 14: Dr. Batchvarov and Dr. Hocker examining contemporary maps against modern GIS data to attempt to identify hull remains of TRB-1.

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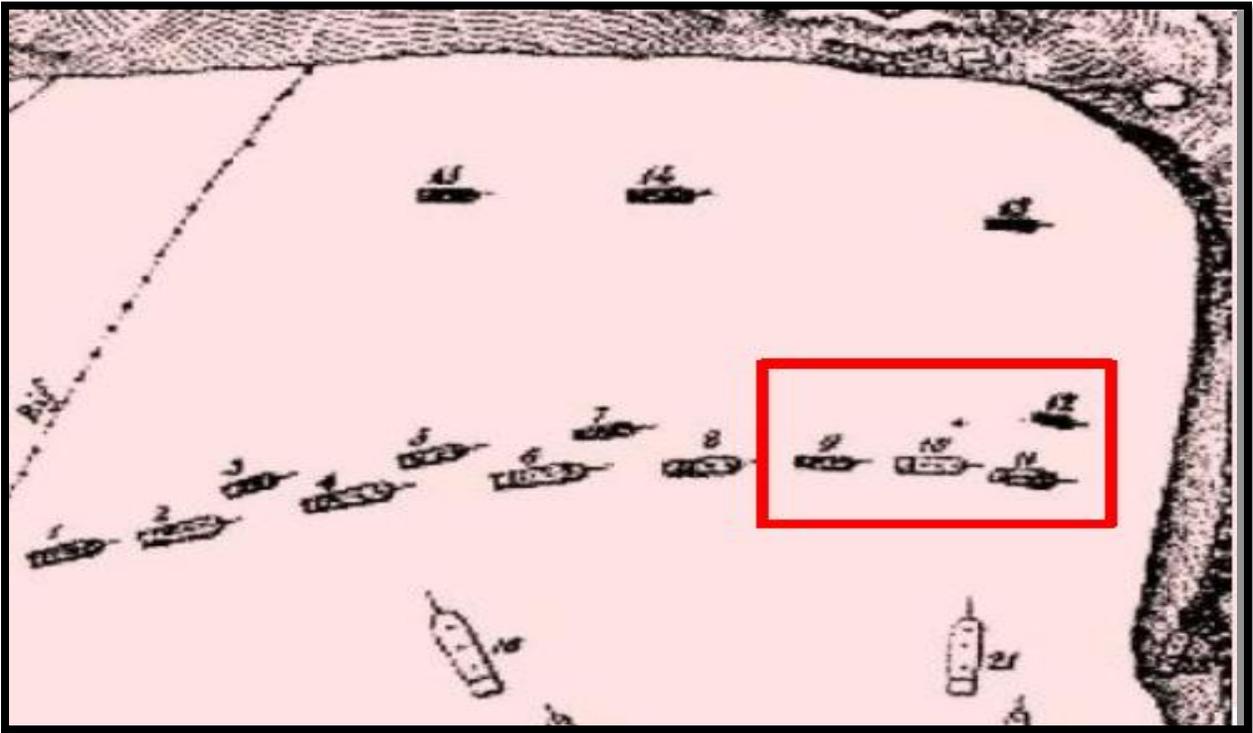
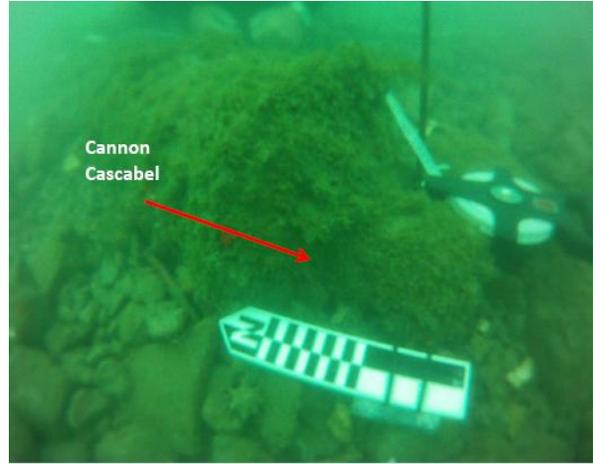


Figure 15: Dutch line of Battle: #9: *de Gouden Star*, #10 *Popkesburg*, #11 *Leyden*. From Woodcock, 1866, who used material compiled by de Jonge, a 19th century historian who had contemporary charts from the French and Dutch admiralty records.

II. Site TRB-2

On the 3rd day of the expedition, Robert Auerbach Jr. found a partially buried cannon in 11 meters of water approximately 68 meters N/NW from TRB-1. Typically one would expect to see material culture completely buried in an area with such high sedimentation rates as Rockly Bay, Scarborough Harbour. However propeller wash from commercial traffic in the harbour has exposed these artifacts.

Based on initial analysis, the cannon appeared to have similar casting markings “AB” on the trunion as the “French cannon from 1677” now on display in Scarborough Harbour. These markings are associated with a Swedish foundry. Upon closer examination, this may not be a mark but rather the jagged edge of a broken trunion. Of concern, the cannon shows evidence of a prior salvage attempt which is a chronic problem for the artifacts located in this easily accessible location.

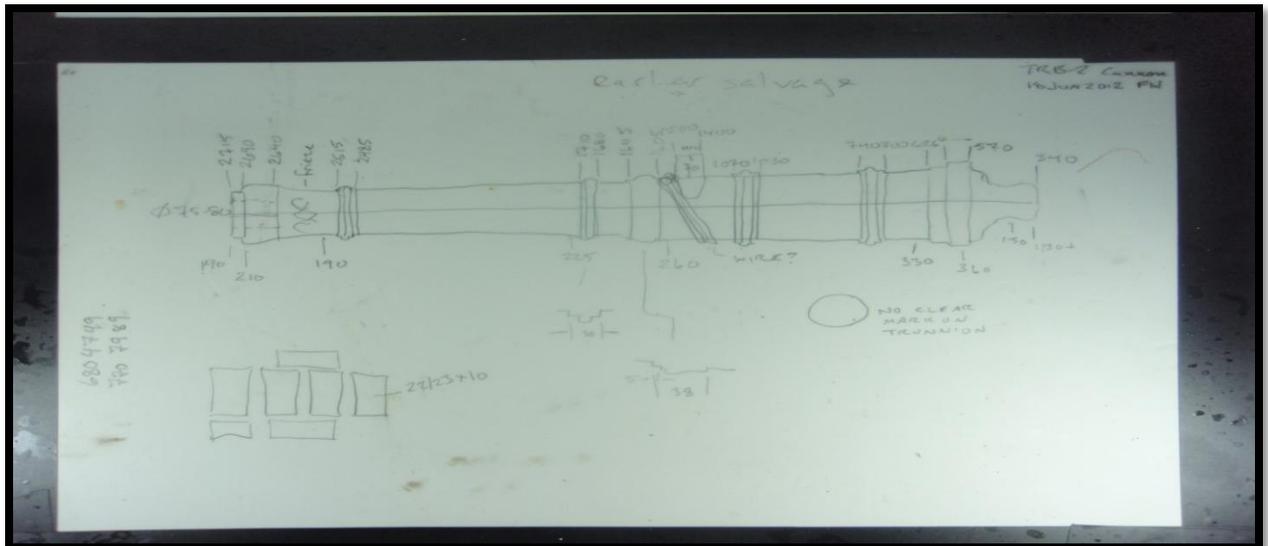


Figures: 16 & 17 Site TRB-2 cannon



Figure 18: Recording TRB-2 cannon.

Figure 19: (Below) TRB-2 cannon recorded by Dr. Fred Hocker



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Figure 20: Bricks found *in situ* near cannon TRB-2



Figure 21: TRB-2 Remains of what appear to be 10 x 10cm timbers near cannon TRB-2. A treenail hole is also evident



Figure 22 & 23: Anchors found near site TRB-2



Based on the shape of the anchor found at site TRB-2, our team believes these may be small kedge anchors from a 17th century vessel.



Figure 24: Small upright cannon near TRB-2



Figure 25: Disassociated artifacts and broken ceramics

Approximately twelve meters north of cannon TRB-2, we located a smaller cannon and a number of disassociated ceramic and clay artifacts. Unfortunately, all of this material has been disturbed, most has been broken. Almost all of the diagnostic finds appear to date from either the 17th century or late 18th/19th century which corresponds to the historical records. (Hall, 2012).

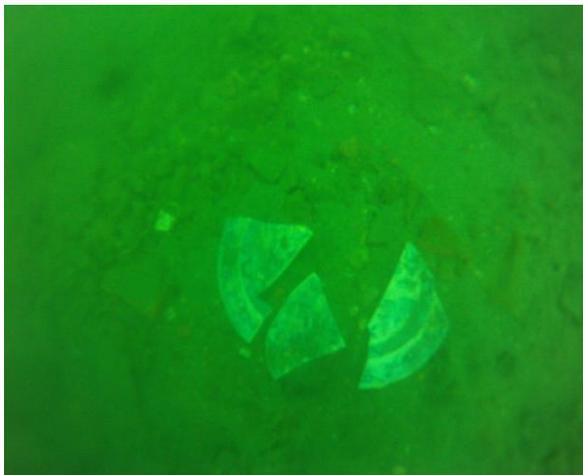


Figure 26: 17th-19th century pottery and ceramics litter the sea floor which has been scoured by the ferry prop wash



Figure 27: Loose clay pipes with delicate patterns at TRB-2



Figure 28: Dr Batchvarov and Jason Paterniti MN'10 preparing to dive in Scarborough Harbour

Whenever visibility dropped to less than 0.5 meters, we conducted radial searches around the TRB-2 site which is directly underneath the ferry path. As the ferry comes into the port, it turns, and as a result, sand and sediment has been displaced and only bed rock remains. Twenty meters S-SW of TRB-2 we discovered the wood remains of a hull almost completely buried. At this point it is not possible to determine whether these artifacts are associated with one or more wrecks. Material from 17th through 19th century has been uncovered and now washes around the bottom by the high energy environment. We had not planned on conducting artifact removal, but seeing this exposed material at risk, the Project Director and Conservator instructed the team to collect the more diagnostic, disassociated artifacts for cataloguing and then reburial in a trench near TRB-1 out of the ferry path.



Figure 29: Jar recovered from TRB-2



Figure 30: Spoon recovered from TRB-2



Figure 31: Aerial view of at risk cultural material located in the pathway of the Trinidad and Tobago Ferry



Figure 32: Partial remains of a jug



Figure 33: Bellarmine Jug

Bellarmino Jugs are highly diagnostic artifacts. They are stoneware fired at high temperatures but which are not hot enough to produce porcelain. This type of ceramic originates from northwestern Europe. It was produced from the end of the 16th century to 18th century. Based on preliminary analysis this jug appears to be 17th century (Batchvarov D. K., 2012). These ceramics are extremely rare and fragile. One jug was found intact and we located the handle of a second jar near TRB-2. As the intact jar was found disassociated from any context on the seabed floor and was deemed to be at risk, the Project Director and conservator decided to photograph and record the jug and then tag and reburial it out of the path of the ferry propeller wash.

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Implications of the find:

Underwater cultural heritage sites survive when protected beneath a layer of sand and sediment that cover the remains during the site formation process over the centuries. Once equilibrium is reached, this anaerobic environment protects the cultural material from damage and looting (Batchvarov D. K., 2012).

The current situation endangers cultural artifacts in Scarborough Harbour in three main ways:

- Deterioration from exposure to currents as well as biological agents such as wood-eating organisms
- High energy environment caused by the maritime traffic triggers breakage of fragile ceramic wood and ceramic artifacts
- Exposure of the material attracts looters

In Scarborough Harbour “propeller wash” from the ferry and other commercial activity have scoured the seabed floor disturbing the equilibrium, exposing the sites and related material culture to a new, more damaging phase of deterioration, as looting is added to the physical degradation of the material. As such establishment of conservation facilities to rescue and preserve this material has become a top priority for the project.

III. Site MIT1

Figure 34: “Down the Islands” Monos Island, Trinidad

After completing our primary objectives in Scarborough Harbour, Rockly Bay, Tobago, the project team moved to Trinidad to conduct an exploration of “old” wrecks purportedly located “Down the islands”, a series of small islands to the west of Trinidad near Venezuela. Our objective here was to investigate local reports of sports divers finding a “Dutch” wreck carrying yellow bricks.



Figure 35: Brick Wreck Site off of Monos Island, Trinidad

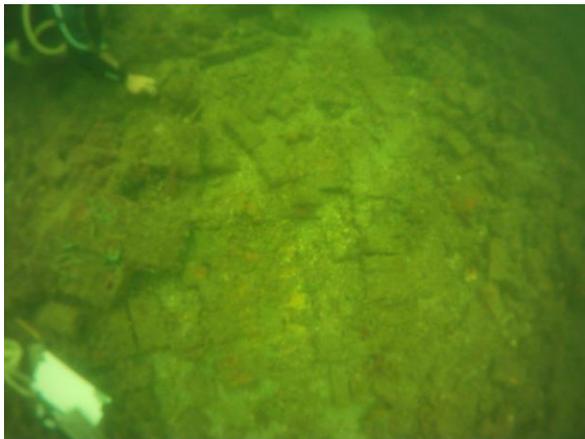


Figure 36: “Dutch” Brick wreck site



Figure 37: Close up of “yellow” bricks *in situ*

At the site we found a significant quantity of yellow colored bricks found *in situ*. We also found yellow metal sheathing and yellow metal bolts. At one time an anchor was known to be located in the area near the brick pile. When a sports diver attempted to recover the anchor, it disintegrated in his hands. This is an example of why it is so important that we work with the local sports diving communities to educate them on proper excavation of artifacts.

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Implications of the Find:

Based on the material culture observed, Dr. Batchvarov estimates that this wreck is no older than 1780's possibly 1830's and may in fact be British.

Conclusions:

The Rockly Bay Research project established as its primary objective locating 17th century shipwrecks for survey and recording. The project team was successful in identifying multiple sites in Scarborough Harbour Tobago which appear to contain 17th century material and artifacts.

Based on the material identified during the 2012 field season, site TRB-1 appears to be the most promising site to initiate a full excavation and recording because:

- While other possible sites were identified, the location of a wreck at Site TRB-1 been confirmed,
- The TRB-1 site lies out site of the path of commercial traffic in the harbour which will facilitate a safe and accessible working environment,
- TRB-1 remains buried which should increase the probability that the hull structure and associated artifacts may remain in a better state of preservation
- Any artifacts recovered from TRB-1 will be more unlikely to be intermingled with other material than sites which have been exposed.

Currently the project team is in negotiations with the Tobago House of Assembly (THA) to obtain use of space to house conservation facilities to enable proper conservation of endangered hull remains and associated cultural artifacts located in Rockly Bay.

The secondary site located in Trinidad was investigated but dismissed for further research by this team due to the presence of 18th or even 19th century material found on the site.

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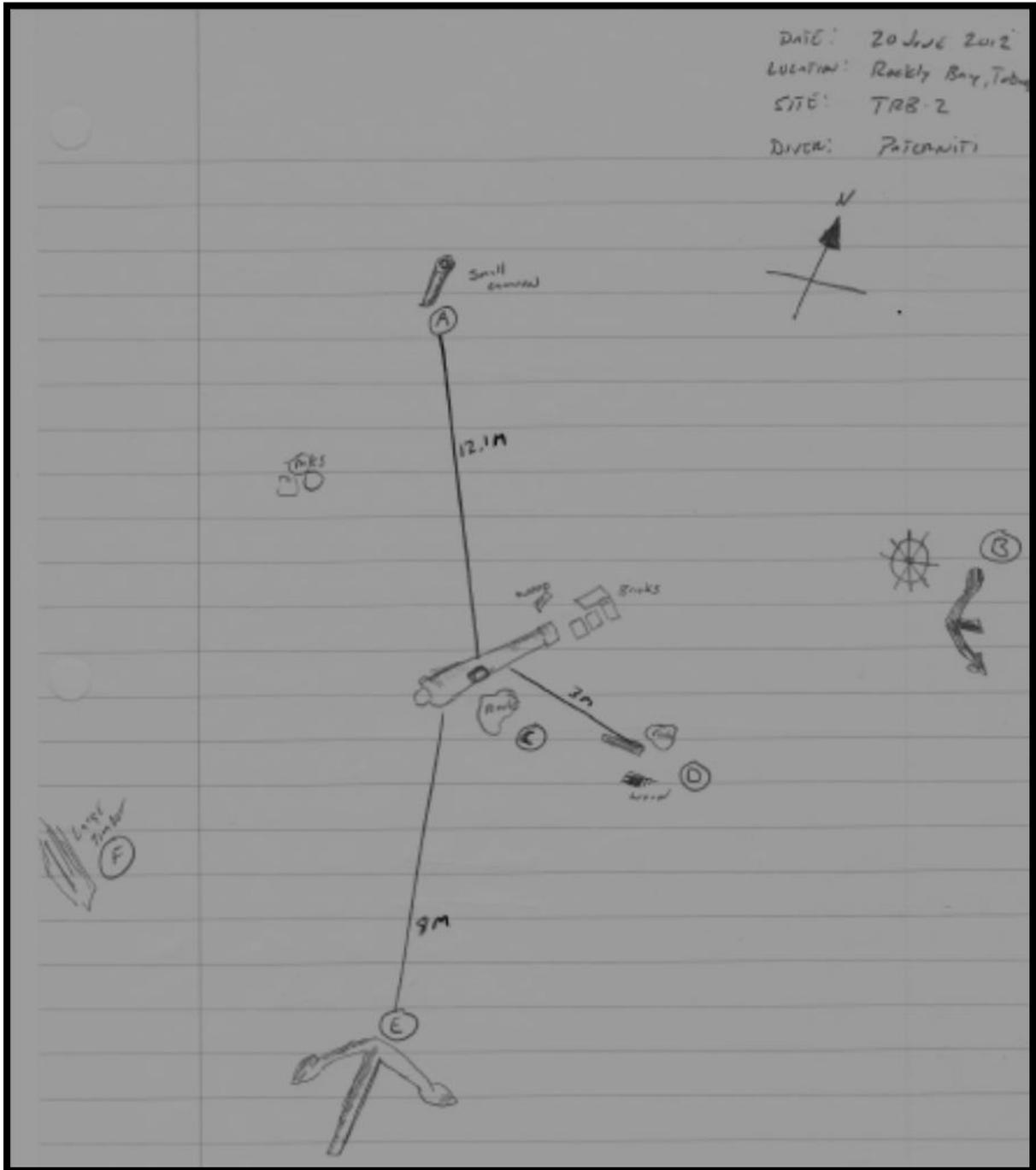
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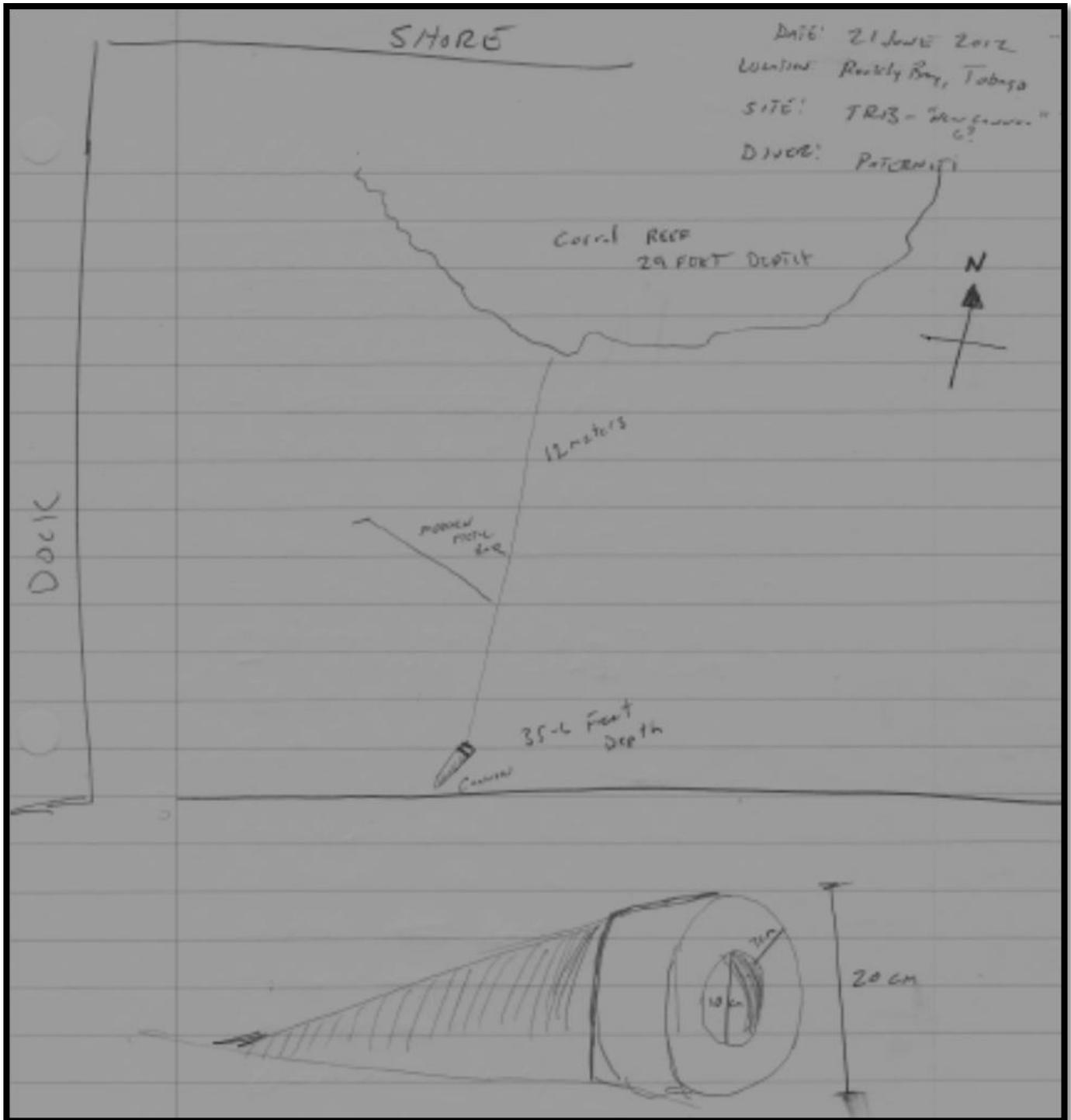
Figure 38: Dr Kroum Batchvarov, Her Excellency, Beatrice Welters, US Ambassador to Trinidad & Tobago, Jason Paterniti, Dr. Levis Guy-Obiakor, Director of Project Operations (Tobago), Todd Jungenburg, Economic and Commercial Affairs Officer, US Embassy

- Mr. Alvin “Big Dougie” Douglas from Frontier Divers, Tobago for his donation of tanks and weights.
- Mr. Robert Auerbach for his hospitality in hosting the Project Team, his invaluable assistance with managing local logistics and his long term support of the project.
- Mr. Todd Jungenburg, Economic and Commercial Affairs Officer, U.S. Embassy, Trinidad & Tobago and the rest of the team at the U.S. Embassy including Ambassador Welters for their tireless advocacy in support of the project and for their assistance in obtaining official permits.
- Dr. Levis Guy-Obiakor, for her boundless energy and positive attitude which was critical to the success of the project.
- Mr. Wes Hall for his expertise and his un-wavering commitment over a 20 year period to ensuring that a scientific excavation of this important site was conducted.

Appendix:



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PROJECT Rockly Bay Research Project
LOCATION Scarborough Harbour, Tobago
TBT 3,120 mins

DATE	6/15/2012	6/16/2012	6/17/2012	6/18/2012	6/19/2012	6/20/2012	6/21/2012
1	35	39	15	45	63	60	59
2	68	44	68	58	62	43	30
3	20	52	53	58	50	80	30
4	38	49	91	68	58	80	30
5	28	33	56	68	58	85	41
6		30	53	20	18	85	35
7		33	55	30	18		90
8		38	55	30	10		
9		37	33	62	70		
10		19	18	71			
11		68	18	79			
12		41	33				
13		36	60				
14			60				