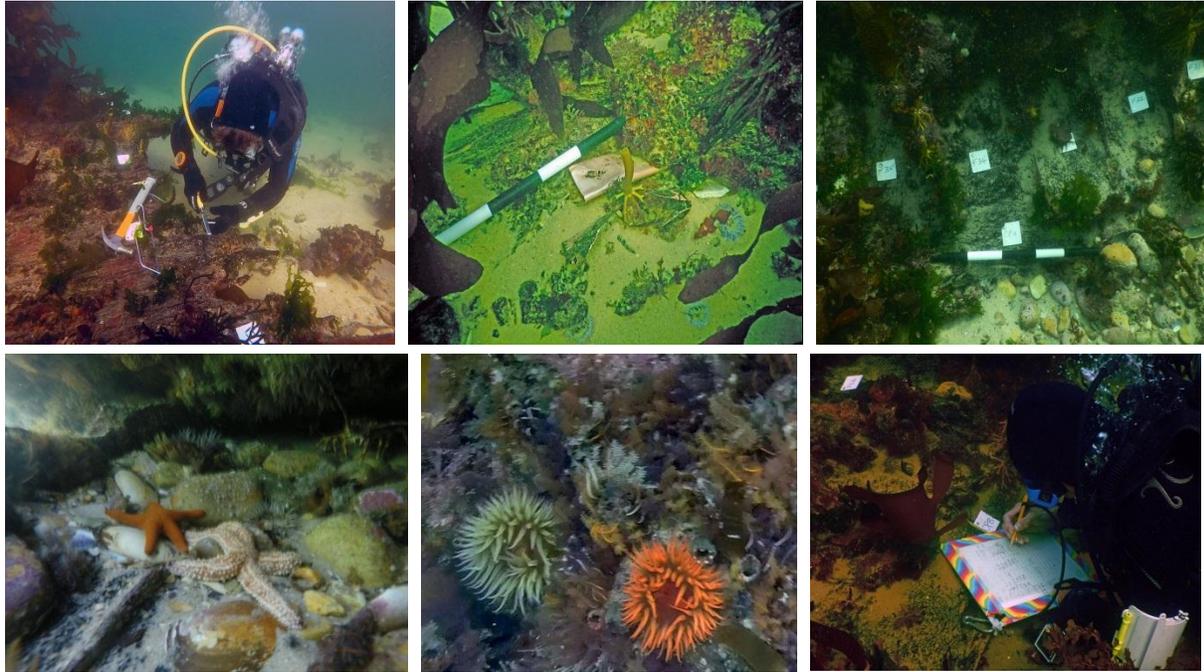

Bato (1806) and *Brunswick* (1805) Shipwreck Project Interim Progress Report December 18, 2014



Submitted to South African Heritage Resources Agency
Permit Numbers 1844 and 1845

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Acknowledgements

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Abstract

The Program in Maritime Studies at East Carolina University, North Carolina USA conducted a research project mapping two early 19th century two shipwrecks in Simons Bay as part of a Summer Study Abroad educational initiative for post-graduate students specializing in maritime archaeology and history. A study of the Dutch vessel *Bato* (1806) and British vessel *Brunswick* (1805) presented a unique opportunity to initiate a study to compare and analyse the maritime shipbuilding technologies available to these two powerful seafaring nations during the Napoleonic Era (1792-1815). The project was conducted over the total of a 5-day period in July and August 2014. The research team conducted pre-disturbance mapping, photography, and videography, plus collected and analyzed wood samples from the hulls in partnership with a research laboratory at Witwatersrand University in South Africa. The ultimate objective is to investigate ship construction choices, industrial limitations and environmental trends associated with Dutch and British shipbuilding during this period as part of Ivor Mollema's MA thesis research at ECU.

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SECTION 1. INTRODUCTION

The Program in Maritime Studies at East Carolina University, North Carolina USA conducted an educational and research project mapping two early 19th century two shipwrecks in Simons Bay as part of a Summer Study Abroad educational initiative for post-graduate students specializing in maritime archaeology and history. The project took place over a 5-day period from 27 July to 31 July, 2014. Further documentation continued sporadically through August as part of Master's thesis research for a student, Ivor Mollema, interning with the Maritime Unit at Iziko Museum. The research team's field tasks included pre-disturbance mapping, photography, and videography, and collect wood samples from the hulls to be analyzed by a research laboratory at Witwatersrand University in South Africa. The final research objective was to investigate ship construction choices, and potential industrial limitations and environmental trends associated with Dutch and British shipbuilding during this period.

Both sites are located within 200 m off Long Beach in Simons Town, South Africa. The respective locations are S34°10.998' E018°25.560' and S34°10.880' E018°25.607' (Wikitravel 2012a, 2012b). The sites can be accessed from the shore. In both cases, the bottom is made up of fine sand and some scattered rocks. The maximum depth for both sites is 5 m (Lindeque 2012). *Bato's* remains cover an area about 50 m long and 8 m wide. The total site area is about 400 m². The debris field is centered along a North/South line and extends from S34°11.012' E018°25.558' to S34°10.985' E018°25.561'. The remains are orientated parallel to shore. A large quantity of corroded iron is located in the southern region of the site. Copper is located in the northern portion of the shipwreck. The best dive conditions occur during winter. A shore entry to the site is recommended if the swell is low. The remains lie in a shallow and protected area of Simons Bay (Wikitravel 2012a).

Conditions on *Brunswick* are fairly similar. The debris field is about 58 m long and 17 m wide. Its area is about 800 m². It extends from S34°10.859' E018°25.625' to S34°10.884' E018°25.603'. The shipwreck is orientated away from the shoreline at a 45° with centerline at a heading of 215°. The ship's structure is broken apart and mostly buried (Wikitravel 2012)

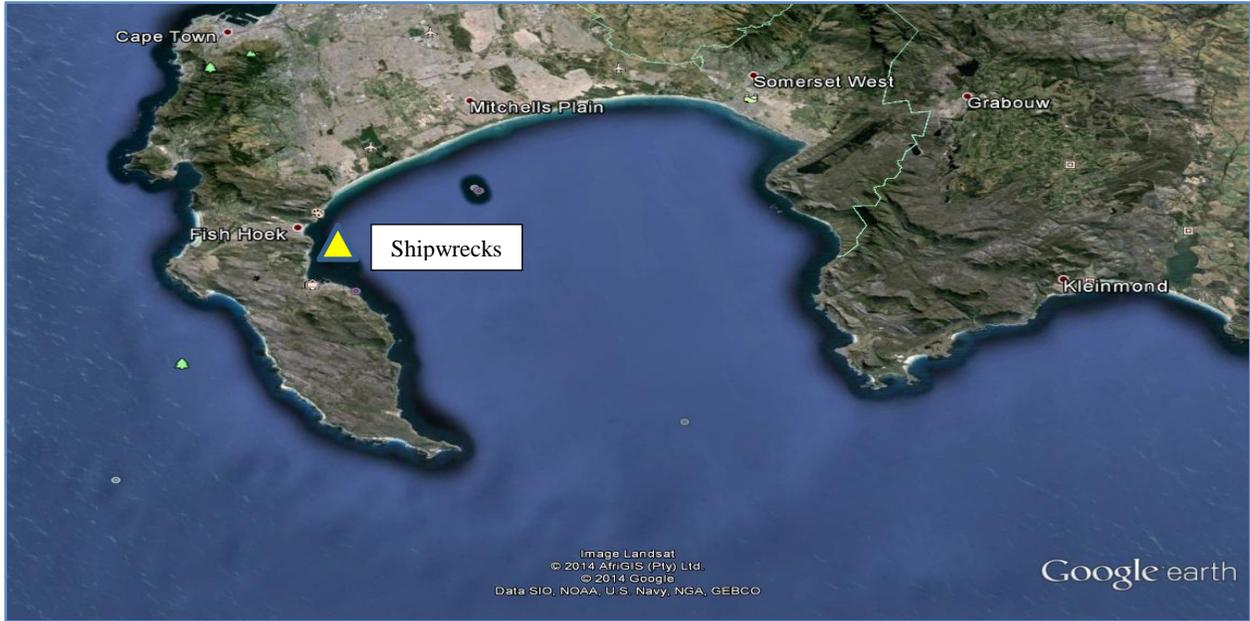


Figure 3. Shipwreck Sites in False Bay



Figure 4. Location of Shipwreck Sites in Relation to Landscape Features (Adapted from Google Earth)

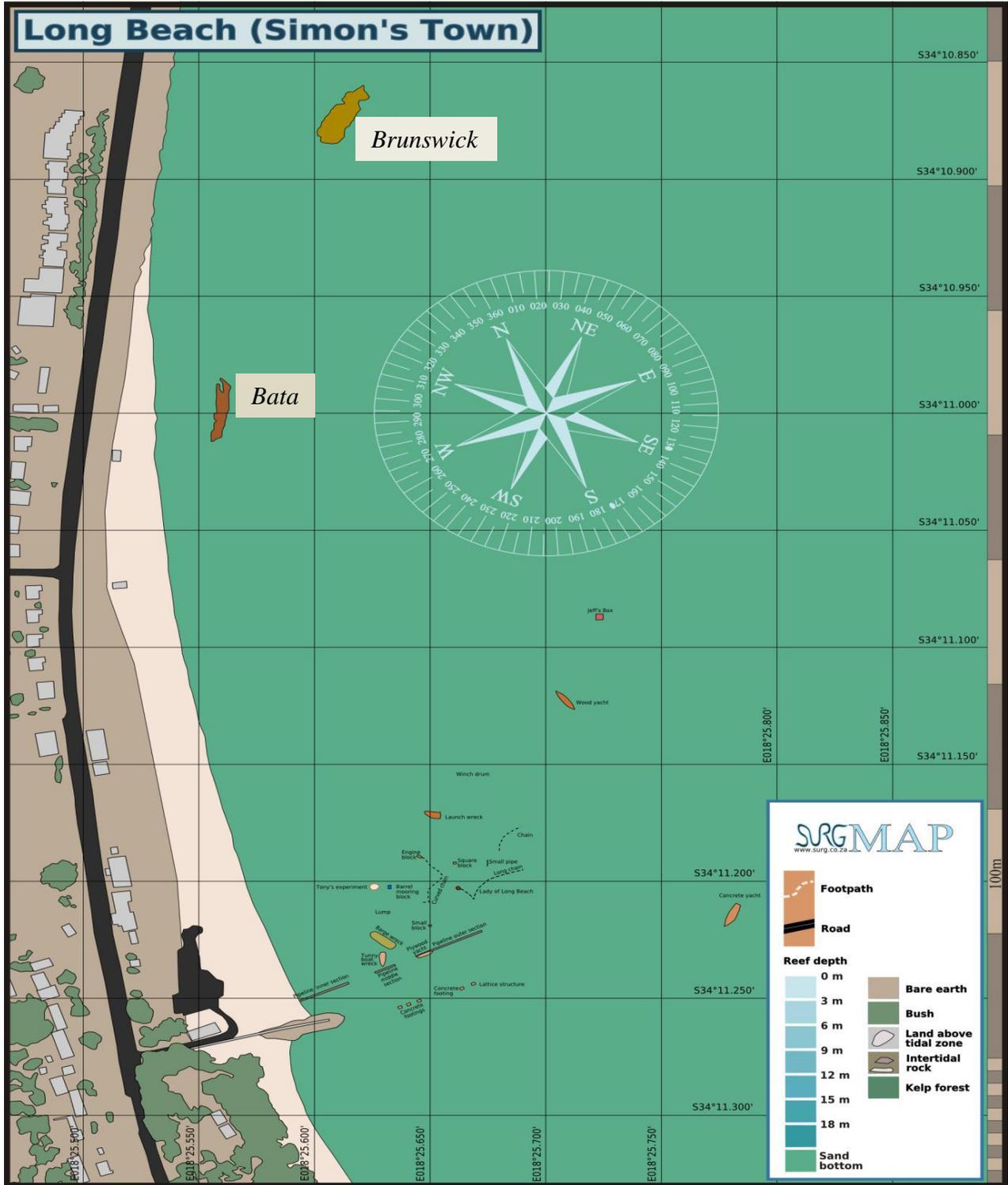


Figure 5. Map of dive sites at Long Beach showing the underwater environment and the position of the wrecks *Brunswick* and *Bata* (Created by SURG map Via Wiki Voyage)

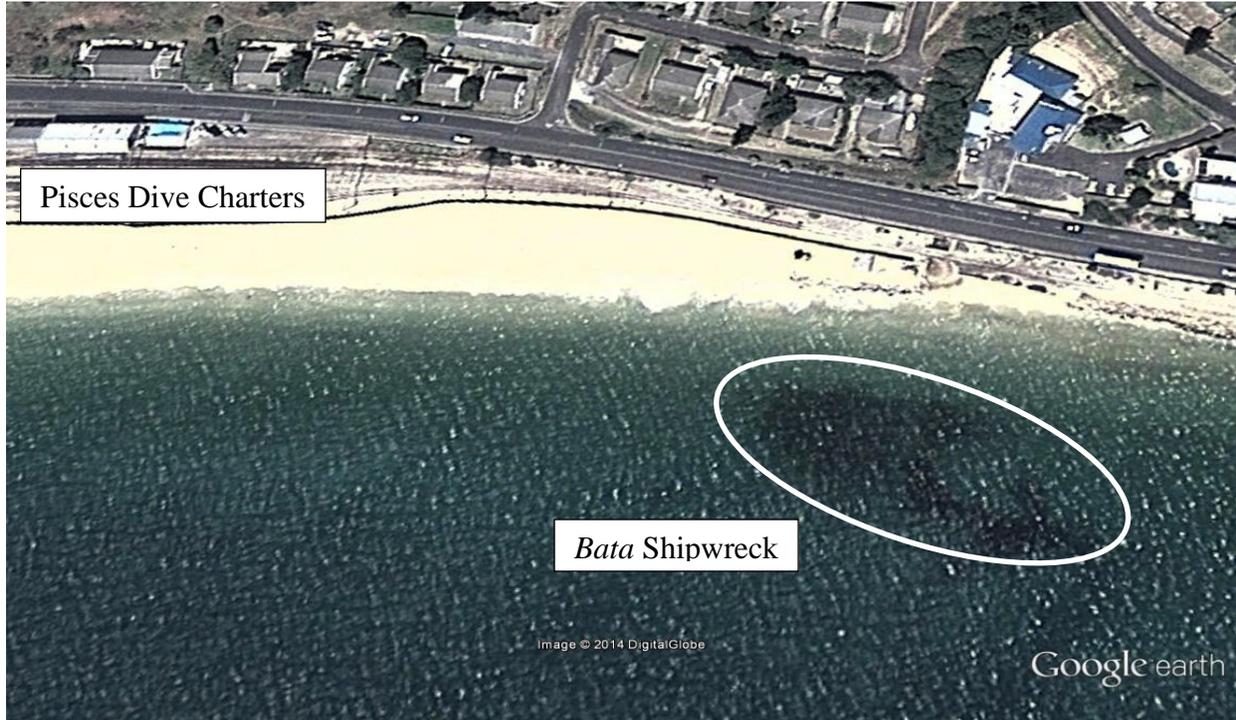


Figure 6. *Bata* shipwreck towards Shore (Adapted from Google Earth)



Figure 7. *Bata* and *Brunswick* Shipwrecks towards Shore (Adapted from Google Earth)

SECTION II. SHIP HISTORY

The Dutch vessel *Bato* (1806) and British vessel *Brunswick* (1805), wrecked in False Bay, South Africa present a unique opportunity to compare and analyse the maritime shipbuilding technologies available to these two powerful seafaring nations during the Napoleonic Era (1792-1815). Little archaeological work has been undertaken on Dutch naval shipwrecks to date. Most archaeological work focuses on VOC ships or coastal and fishing vessels from the Dutch golden age in the seventeenth century. The majority of these wrecks are located in Australia, the Netherlands, South Africa, and the United Kingdom. An in-depth study of *Bato* will investigate not only a Dutch naval vessel, but also one present at the end of the early nineteenth century. This time period is understudied in maritime archaeology. While some line drawings are available for Dutch ships of the line of the early nineteenth century, no such plans exist for *Bato*.

Much has been written about maritime technology in the latter half of the nineteenth century. We know little, however, about the technology available during the Napoleonic Era. A juxtaposition of the technology used in *Bato* and *Brunswick* provides an opportunity to compare maritime and naval technologies of the time. Such a comparison will allow archaeologists and historians to gain a fuller perspective of the relative technological might and advantages of nations in the early nineteenth century.

A detailed study of *Bato* and the subsequent comparison to *Brunswick* will also provide information about particular groups in the past. Due to the nationality of the shipwrecks, new information will focus on the Dutch and British people of the Napoleonic Era. By analyzing the available maritime technologies, it may be possible to gauge the level of industrialization that was achieved within each country. Furthermore, it would demonstrate the effects of the Napoleonic Wars on both nations.

Brunswick was constructed in 1792 in London as a 1,244 ton East Indiaman with 30 guns on board. As such, the ship was built to strict government and insurance standards to ensure a long life for the ship. The ship was on its sixth voyage to the Far East when it was captured by a French frigate and brought into Cape Town in August 1805. It wrecked while at anchor on 2 September 1805 (Harding 2013). *Bato* was a 74-gun Dutch ship of the line built in 1784 in the Rotterdam shipyards. After construction in 1786, *Bato*'s original name was *Staatens Generaal* (Rijksmuseum 2014a). It formed part of the reconstruction effort of the Dutch naval forces

(Octopus 1998). After losing the Fourth Anglo-Dutch War (1781-1784), the Dutch needed to rebuild their navy to its former strength. *Staten Generaal* was one of the largest ships constructed during this time with a strength of 74 guns. *Staten Generaal*, later *Bato*, is also listed as 67 gun warship at times (Rijksmuseum 2014a). Only two other ships, *Brutus* and *Vrijheid*, were of equal strength. Both of these ships were constructed contemporaneously with *Staten Generaal*. Initially, the ship served in European waters as part of Vice-Admiral Jan de Winter's squadron in the North Sea. Winter sought to clear the North Sea of British Royal Navy vessels under Admiral Vince Duncan. With North Sea free of enemies, a clear passage to Ireland for an invading French army was opened (de Jonge 1861a:291). After the battle, *Staten Generaal* was renamed *Bato* and assigned to the defense of Amsterdam. At this time, *Bato* carried only 34 guns out of a possible 74 (de Jonge 1861b:493). This is referred to as sailing *en flute*, or without any guns on the lowest gundeck.

In August 1802, *Bato* readied itself to sail to the Cape Colony (NL-HaNA, Marine suppl. 2, 2.01.29.03, inv.nr. 108). Jan Willem Janssens, future governor-general of the Cape colony, was on board with his family. Janssens sailed to the Cape to reclaim the colony for the Dutch after its return under the Treaty of Amiens. The vessel departed the Dutch port of Texel on 5 August 1802. At the time of sailing, *Bato* carried 36 guns out of a possible 74 and had on board 311 people. Most of these were naval crewmen and officers, but some women and children also boarded *Bato*. Harteke mentions these as the wives and children of either Janssens or the other officers. Its tonnage is unknown. *Bato* served as part of the East India squadron and travelled between Cape Town and the Dutch colonial capital Batavia, situated in modern Indonesia.

After an uneventful journey, *Bato* anchored in Table Bay on 25 December 1802. Janssens soon departed the ship to take his place as the new governor-general of the Cape Colony. Now part of the Dutch East India Squadron, *Bato* was ordered to sail to Batavia (modern Jakarta, Indonesia) in February 1803 (NL-HaNA, Marine suppl. 2, 2.01.29.03, inv.nr. 109). Along the way, *Bato* protected trading vessels from hostile ships and pirates. Bad weather and general disrepair, however, put a stop to these plans. *Bato* was forced to dock at St. Louis, Mauritius for repairs to her rudder mechanism. *Bato* departed the French colony in January 1804 (NL-HaNA, Marine suppl. 2, 2.01.29.03, inv.nr. 110). With the renewal of hostilities, *Bato* was ordered to capture any enemy trading ships she could. No mention is made of combatting enemy naval forces. On 27 February 1804, *Bato* returned to Table Bay. The ship did not leave South African

waters again. Deemed unseaworthy, the vessel was used as a floating battery to defend Simons Town. The crew was ordered to burn it when the Dutch lost the Battle of Blaauwberg to the British and a new occupation became inevitable. *Bato* burned on 8 January 1806 (Clowes 1997).

Both *Bato* and *Brunswick* are contemporary to one another in construction and wrecking dates. As such, they provide a platform for the comparison of British and Dutch maritime technology of the Napoleonic Era. The wrecking events occurred within six months of each other, meaning that both vessels are contemporary to one another in construction and wrecking dates. As such, they provide a platform for the comparison of British and Dutch maritime technology of the Napoleonic Era. The wrecking events occurred within six months of each other, meaning that any newly retrofitted parts would be of the same time period. Both vessels were under complete or partial government control and will highlight the technologies each government chose to use when constructing its ships

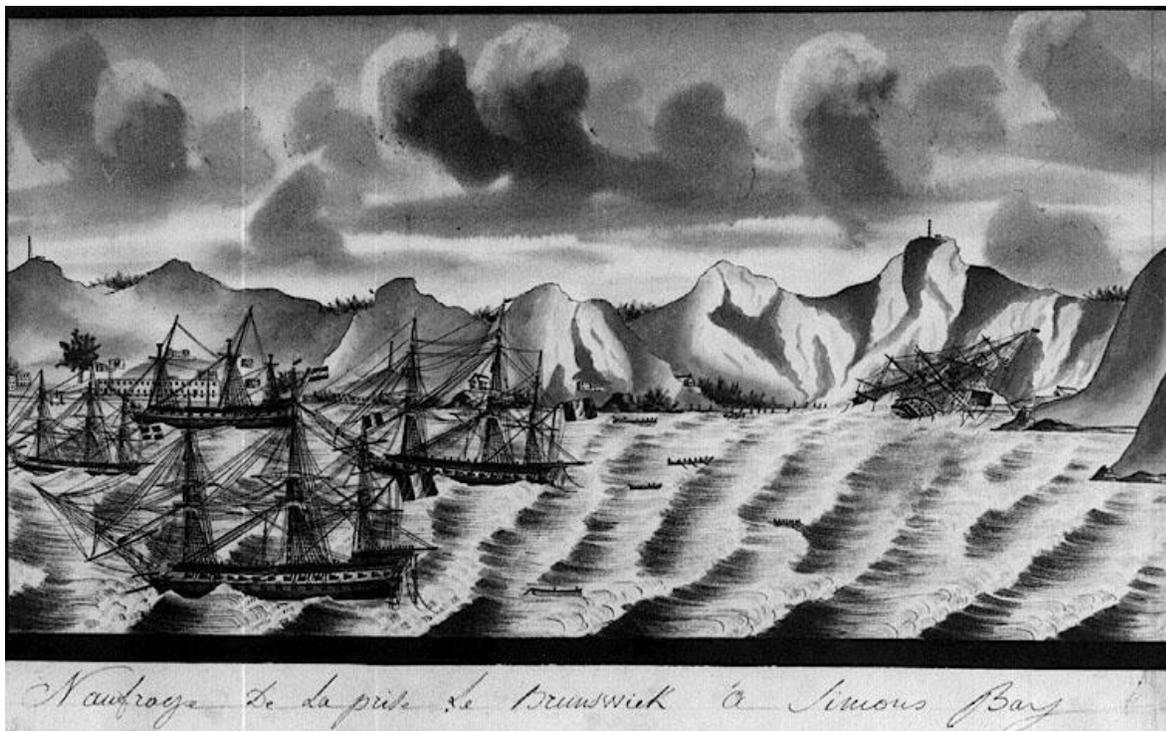


Figure 8. *Brunswick*'s wreckage is viewed in the right background. *Bato* is shown flying a Dutch flag in the left background (Gardiner 1997).



Figure 9. The Dutch 74-gun ship *Staaten Generaal* under Vice-Admiral Pieter Melville. (Maritiem Digitaal Collection)



Figure 10. View from the high ground above Admiralty House of the harbor and shipping in Simons Bay c. 1838. (Christopher Webb Smith).

SECTION III.

Primary Sources

A number of primary of sources deal with *Bato*. Foremost amongst these are the journals in the National Archives of Netherlands. James John Melville, second in command of *Bato*, maintained a journal from 9 July 1802 to 12 May 1804. J. Harteke, first pilot, recorded events from 21 July 1802 to 8 January 1806. Daily notes on wind direction, weather, and distance travelled are recorded in these journals. The journals provide detailed information about certain historic events that took place the role of the ships. This is especially true of the burning of *Bato* described in Harteke's journal. These documents will provide historical background to the shipwreck that would otherwise have been unattainable.

The Dutch National Archive contains several documents relating to the Battle of Blaauberg. An entire officer's journal was discovered along with several maps. Examinations of these documents reveal that *Bato*'s crew was ordered to burn the vessel and retreat to the Hottentots-Holland Mountains. Further examination of these documents will undoubtedly provide a more complete historical background to the local warfare, power struggles, and events surrounding the destruction of *Bato*.

The Cape Town Gazette and African Advertiser was published in Cape Town from 1800 – 1826. The conditions of the capitulation of the Cape Province signed by the governor of the Cape, Governor-General Jan Willem Janssens, were published in its issue on 18 January 1806. Examination of other issues might reveal information about the days preceding the second occupation of Cape Town by the British. Copies of old issues are available in the National Library of South Africa.

Primary sources for *Brunswick* are located at the India Office Records administered by the British Library. Several ledgers, paybooks, and journals of *Brunswick* are available for viewing by the public. Analysis of these documents will help create a full account of *Brunswick*'s history.

Secondary Sources

Jeremy Black's *The British Seaborne Empire* (2004) and C. R. Boxer's *The Dutch Seaborne Empire* (1965) provide the basis of information required to analyse the colonial efforts

of both nations. While the later work only covers history up to 1800, this is not a strict limit and some information about later years is available. Black (2004) has an entire chapter dedicated to the rise of the British Empire during the Napoleonic Era. In both cases, the motives of each nation are thoroughly examined. There is little information, however, on the technological means each power had at their disposal.

Many scholars have focused their research on naval activity during the Napoleonic Era. Efforts of the British Royal Navy take centre stage in these narratives. Roy Adkins' and Lesley Adkins' *The War for All the Oceans* (2006) is an example. Occasionally, they discussed features of life unique to the British Royal Navy to provide a complete historical picture. Yet, no archaeological data is used to verify their claims. Primary documentation and secondary sources form the entirety of their references. While this provides a good historical overview, it is not specific enough to apply to Simons Town or the Cape Peninsula.

Robert Albion's (2000) *Forest and Sea Power* outlined the logistical issues faced by the British Royal Navy during the wars with Revolutionary and Napoleonic France. The author details the challenges of a global search for shipbuilding timbers. Albion focuses on Canada, the Baltic, and Asia as possible sources of timber. During the search for timber, Dutch markets were considered and approached several times, but this supply was soon cut off by the spread of Napoleon's influence. Dutch wood was sourced from the interior of north-western Europe.

Archaeological research facilitated several typologies for ship's fasteners, iron knees, and copper sheathing. Bingeman et al. (2000) describes the history of copper and other sheathing methods in the Royal Navy and the Dutch navy. Information from this article will be useful for a dating purposes and a preliminary analysis of the copper sheathing remains of *Bato*. Michael Stammers (2001) created a typology of iron knees in wooden vessels which provides illustrations of various types, and dates them to the late eighteenth or early nineteenth centuries. The iron knees on *Brunswick* can be identified using these illustrations and archaeological measurements. Finally, McCarthy (1996) has expanded upon a typology of various fasteners used in wooden ships. Many fastenings are reported to be present and visible on both *Bato* and *Brunswick* and can be identified. How shipbuilders supplemented and complemented wooden ship construction with metal components may yield insights into composite design and industrial trends related to timber shortage or new innovations

SECTION IV. PREVIOUS WORK ON THE SITE

Early Salvage

Salvage work on *Bato* and *Brunswick* started soon after their sinking. Once the British established control of the Cape, they permitted salvors to recover the cargo and metal fittings on the wrecks (*Cape of Good Hope Gazette* 1806:2). An advertisement in the Cape Town Gazette announced the sale of metal fittings, iron knees, and large amount of sandalwood from *Brunswick*. Also mentioned is some copper and *Bato*'s rudder. An American captain purchased the material salvaged from *Brunswick* for 3,500 rix-dollars (Harding 2013:7). The valuable metals contained within the wrecks would entice a number of salvors and treasure hunters over the years.

Modern times witnessed further salvage attempts on both wrecks. In 1967, the American salvor Jim Knowles recovered *Brunswick*'s rudder (Harding 2013:26). The South African Navy assisted Knowles after his rubber dingy started sinking. The rudder was eventually stored in what is now the IZIKO Slave Lodge Museum in Cape Town. Conservators applied only a limited covering of fungicide to the rudder remains. No other conservation work has taken place.

Harry Dilley, a Simons Town resident, recovered two cannons from *Bato*'s remains in 1976 (Dilley 2012:2). The cannons were recovered and loaded onto a truck at the Simons Town Jetty. Dilley stored the cannons in the town's Municipal Yard while forming a conservation plan. Eventually, it was decided to heat the cannons in a railway furnace to over 1000° C and allowed to cool (Harry Dilley 2014 pers. comm.). Salt River Works provided the furnace. Upon completion of the procedure, Allan Brinkley of Nautilus Marine, sandblasted the anchor and covered it with preservative paint. The cannons are displayed on the Simons Town Jetty.

Both wrecks are located near a major South African naval base that houses a contingent of South African Navy (SAN) Divers. With the easy access provided by both wrecks, SAN divers have performed training exercises on both wrecks (Jaco Boshoff 2014 pers. comm.). In *Brunswick*'s case, Navy divers descended on the wreck to practice the removal of large metal rods from shipwrecks. Divers sawed through a number copper drift bolts, leaving broken hacksaw blades as evidence. No direct evidence exists for such activity on *Bato*.

Project Sandalwood (1994-1995)

Both *Bato* and *Brunswick* shipwrecks were subject to previous archaeological exploration. South African Heritage Resource Agency (SAHRA) researchers investigated *Brunswick* in 1994. Project Sandalwood in 1994 and 1995 was part of a Nautical Archaeology Society (NAS) training course. During this project, the identity of the *Brunswick* shipwreck was confirmed. A combination of grid recordings, triangulation, and baseline offset measurements were used to create an accurate site plan of the remains. Chains, iron knees, construction, fasteners, dimensions, musket balls, glass, and ceramics were all used to confirm the identity of *Brunswick* (Harding 2013). Chris Kruyshaar, one of the principal investigators of Project Sandalwood provided a copy of the unpublished report on *Brunswick* (Kruyshaar 2014, elec. comm.).

After a basic pre-disturbance survey, participants uncovered the shipwreck and created a detailed site plan using an intricate grid system. Little digging was done once the wreck was exposed, except near the rudder structure. Scaled sketches were made of iron knees and some guns found nearby. It is still unconfirmed if the guns were on board *Brunswick* when it sank. It is possible, however, that the guns were being transported from the ship and were somehow deposited there. Some artifacts were recovered and conserved. These include copper bolts, nails, some bottles, ceramic

Octopus Maritime Archaeology Research (1996-1998)

From November 1996 to June of 1998, the Hungarian maritime archaeology organization Octopus performed a detailed investigation of *Bato* (Octopus 1998). The team required several weeks to clear the wreck of growth and some concretion prior to starting any further work. As *Bato* is overgrown with kelp and algae, this greatly assisted their investigation. It is unclear; however, if there was any lasting damage to the shipwreck as a result. Once the remains were cleared of growth, divers positioned datum points around the shipwreck and used them to section the site into manageable portions. The team used a baseline offset method to create a detailed site map of the area. Many artifacts were also recovered, but never conserved. Artifacts include glass bottles, copper sheathing, nails, fasteners, barrels, cannonballs, and a supposed fire mechanism for a musket. The artifacts were removed from the concretion using a hammer and chisel. A

photographer took pictures of each artifact prior to storage. Wood samples were also taken from *Bato*'s remains. Each sample was composed of European oak.

University of Cape Town (2013)

In 2012 and 2013, Jake Harding performed a predisturbance survey of the *Brunswick* shipwreck as part of his honours thesis. The team collected multi-beam images and some basic measurements. Harding also investigated site formation processes on *Brunswick*, with special attention to currents and marine life on *Brunswick*. Jake Harding (2013) completed a Bachelor's Thesis at the University of Cape Town on the maritime environment surrounding *Brunswick*. Harding's work revealed that while the metal objects located within the shipwreck were stable, timber remains were damaged by mussels and starfish. Harding created a list of species found on *Brunswick* and crafted measures to continue monitoring the effects of natural processes on shipwrecks.

SA Heritage Resources Agency (2014)

SAHRA recording took place prior to the arrival of ECU. The data set was not available at the time.

Current project (2014-2015)

Specific research questions for this project include:

Primary

- What shipbuilding technologies and timber types were utilized by British and Dutch naval forces in the early 1800s and did any of these technologies or wood choices provide an imperial advantage to either nation?
- How does the archaeological record of the two shipwreck case studies, *Bato* and *Brunswick*, and associated primary source documents reflect these advantages or disadvantages?

Secondary

- Why did nations develop, or not develop, different technologies when timber or specific timbers became scarce?
- To what extent was the technology of copper sheathing and iron knees used by the Dutch and British?

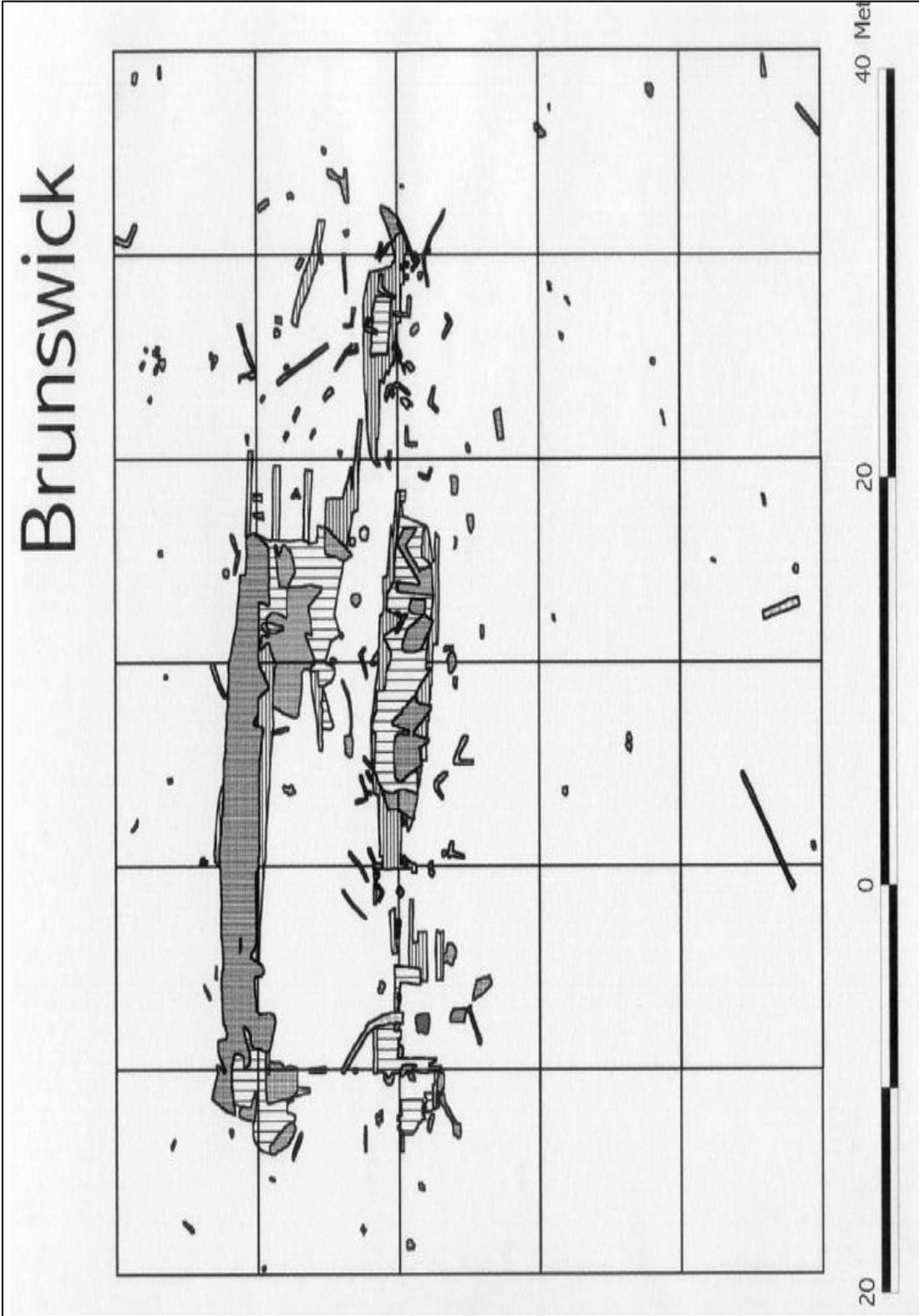


Figure 12. Site Map of *Brunswick* from Jake Harding's Thesis

SECTION V. METHODOLOGY

The ECU investigation of *Bato* and *Brunswick* produced results of a pre-disturbance survey and some intrusive sampling. Archival research and laboratory investigations were also completed. The team consisted of Dr. Lynn Harris, James Smailes, Justin Edwards, Nathaniel King, and Ivor Mollema. In total, the participants completed over 45 hours of diving. Each evening, the team spent two hours in immediate post-processing. Final analysis and post processing is still taking place.

On the first dive on each shipwreck, each diver completed a basic map. Not to scale maps display a rudimentary layout of the remains and identify good sampling locations. The mapping exercise allowed team members to familiarize themselves with the wreck and plan future operations. *Bato*'s remains oval in shape, form a substrate for an active living reef, and are orientated on a rough north-south axis. Debris is scattered in area about 50m by 8m at its widest points. The southern end of the shipwreck consists of burned and charred timber remnants. Closer examination revealed the presence of frames, hull planking, and ceiling planking. All timber remains show signs of *Bato*'s fiery demise. The northern end of *Bato*'s debris field revealed large segments of copper sheathing. The center remains formed a large concreted mass, overgrown with kelp. A large timber protrudes out from the Northeastern part of the wreck. An anchor is located in the southeastern sector of the wreckage. Participants were able to identify timbers in the Southeast section easier than anywhere else.

The *Brunswick* wreckage is more dispersed over a sand bed substrate than *Bato site*. A primary feature is located to the north that comprises the keel, keelson, planking, and frames. Several fragments and iron knees lie to the south of the primary feature. Copper drift bolts are visible all over the wreckage and are in various stages of deterioration and erosion. On average, these measure about 3 cm in width. It was difficult to determine an accurate length of these bolts as most are buried in timbers or broken off. Although the maximum depth on *Brunswick* is 6m, the wreckage rises up to 1.5m above the sea floor. On average, the hull fragments range from 50-100cm above the sea floor.

After analyzing our site maps, the team labelled 60 frames, 6 ceiling planks, and 9 hull planks on *Bato*. It took three dives to complete the labelling. A hard, white plastic tag was nailed to each timber to ensure longevity and identification. Frames were marked with a large F and a number, ceiling planking with IP and a number, and hull planking with OP and a number. All the

labelled timbers tags were located in the southern half of the wreckage. Most of the planking was located near the concretion found in the center of the wreckage reef.

Scantling measurements were recorded when the labelling was completed. Each dive team was assigned 10 frames to measure. The following measurements were taken: sided, molded, length, and space between frames. If the next frame was too far away, space was not recorded. On average, space was between 2cm and 5cm. While the other measurements were accurate, a complete length could not be measured as the frames disappeared under the concreted reef in *Bato*'s center. While recording our measurements, the team noted caulking material and marked it for sampling. The remains of caulking had not yet eroded and protruded from the eroded space between frames. Similar measurements were taken of each plank after tagging. Scantlings of some 'frames' in the southern section of the debris field revealed them as possible hull planking.

Three planks, frames, knees, and the keelson were labelled on *Brunswick*. The iron knees on *Brunswick* were recorded in detail. The length of each section was recorded along with the width of each leg. A sided dimension was not possible as the team could not dig into the bottom under our permit. However, previous work indicates that the knees were about 10 cm sided. The team took wood samples on diagnostic timbers on both *Bato* and *Brunswick*. Ceiling planking, hull planking, and frames were sampled. Divers also sampled any keel and keelson structures that remained. In each case, sampled timbers were labelled to assist in identification. The basic maps produced earlier were used to plan and target our sampling procedures.

GPS Co-ordinates were recorded on both shipwrecks. Each wreck was outlined and important features marked. For *Bato*, this meant the anchor and northern pile. The outcropping in the southwest was also documented. The GPS team also recorded iron knees and several segments on *Brunswick*.

SECTION VI. FIELDWORK RESULTS

1. Scantling Comparison of Bato and Brunswick (centimeters)

Frames	Moulded		Sided		Space	
	Brunswick	Bato	Brunswick	Bato	Brunswick	Bato
	38	18.81	16	26.52	2	8.51
Outer Hull Planking	Thickness		Width			
	Brunswick	Bato	Brunswick	Bato		
	10	4.375	32	27		
	10	4.375	32	27		

2. Fastenings on both Shipwrecks

Fastening Type	<i>Brunswick</i>	<i>Bato</i>
Copper Drift bolts	Yes	Yes
Iron Drift bolts	Yes	No
Sheathing Nails	Yes	Yes
Spike	Yes	Yes
Rudder Nails	Yes	No
Dump Bolt	Yes	Yes

3. Brunswick Knees

Wreck Perimeter and Knees	Zone	Band	Easting	Northing	
1	34	H	262851	6214774	
2	34	H	262846	6214764	
3	34	H	262857	6214747	
Knees	4	34	H	262855	6214744
5	34	H	262852	6214751	
Knees	6	34	H	262856	6214758
Knees	7	34	H	267862	6214769
8	34	H	262849	6214765	
9	34	H	262853	6214764	
10	34	H	262859	6214769	

4. Brunswick Knee Measurements

Knee #	Dimension	Measurement
1	L1	111
	W1	14
	L2	67
	W2	14
	L3	17
	W3	12
2	L1	160
	W1	12
	L2	51
	W2	12
	L3	
	W3	
3	L1	132
	W1	13
	L2	134
	W2	11
	L3	
	W3	
4	L1	112
	W1	12
	L2	280
	W2	12
	L3	
	W3	
5	L1	111
	W1	17
	L2	120
	W2	10
	L3	12
	W3	10
6	L1	71
	W1	10
	L2	100
	W2	10
	L3	
	W3	
7	L1	113
	W1	10
	L2	106
	W2	10

	L3	
	W3	
8	L1	103
	W1	12
	L2	138
	W2	9
	L3	
	W3	

5. *Bato Frame Dimensions (centimeters)*

Frame #	Dimension	Measurement
F1	Sided	16
	Moulded	29
	Length	155
	Space to F	
F2	Sided	30
	Moulded	25
	Length	102
	Space to F	
F3	Sided	Tag missing
	Moulded	
	Length	
	Space to F	
F4	Sided	22
	Moulded	33
	Length	120
	Space to F	600
F5	Sided	25
	Moulded	16
	Length	94
	Space to F	
F6	Sided	30
	Moulded	23
	Length	
	Space to F	19
F7	Sided	24
	Moulded	19
	Length	
	Space to F	

F8	Sided	42
	Moulded	22
	Length	110
	Space to F	
F9	Sided	
	Moulded	
	Length	122
	Space to F	
F10	Sided	No measurements possible due to marine growth
	Moulded	
	Length	
	Space to F	
F11	Sided	26
	Moulded	27
	Length	93
	Space to F12	2.5
F12	Sided	29
	Moulded	17
	Length	28
	Space to F13	2
F13	Sided	29
	Moulded	14
	Length	60
	Space to F14	
F14	Sided	same frame as f13
	Moulded	
	Length	
	Space to F	
F15	Sided	24
	Moulded	10
	Length	
	Space to F16	1
F16	Sided	24
	Moulded	14
	Length	
	Space to F17	2
F17	Sided	25

	Moulded	5
	Length	27
	Space to F	2
F18	Sided	25
	Moulded	2
	Length	50
	Space to F	2
F19	Sided	25
	Moulded	2
	Length	62
	Space to F	2
F20	Sided	25
	Moulded	2
	Length	50
	Space to F	2
F21	Sided	25
	Moulded	18
	Length	53
	Space to F	3
F22	Sided	25
	Moulded	11
	Length	46
	Space to F	2
F23	Sided	25
	Moulded	10
	Length	22
	Space to F	3
F24	Sided	29
	Moulded	23
	Length	25
	Space to F	16
F25	Sided	15
	Moulded	18
	Length	35
	Space to F	too far away
F26	Sided	25
	Moulded	17
	Length	55
	Space to F	too far away
F27	Sided	22
	Moulded	21

	Length	57
	Space to F	7
F28	Sided	27
	Moulded	25
	Length	75
	Space to F	1
F29	Sided	26
	Moulded	10
	Length	55
	Space to F	7
F30	Sided	20
	Moulded	15
	Length	61
	Space to F	No accurate measurement possible
F31	Sided	10
	Moulded	18
	Length	44
	Space to F	2
F32	Sided	26
	Moulded	24
	Length	60
	Space to F	2
F33	Sided	25
	Moulded	21
	Length	45
	Space to F	2
F34	Sided	30
	Moulded	10
	Length	29
	Space to F	2
F35	Sided	26
	Moulded	33
	Length	31
	Space to F	3
F36	Sided	28
	Moulded	34
	Length	55
	Space to F	3
F37	Sided	27
	Moulded	40
	Length	38

	Space to F	2
F38	Sided	25
	Moulded	31
	Length	30
	Space to F	1
F39	Sided	26
	Moulded	24
	Length	59
	Space to F	2
F40	Sided	24
	Moulded	21
	Length	45
	Space to F	3
F41	Sided	27
	Moulded	28
	Length	89
	Space to F	No accurate measurement possible
F42	Sided	28
	Moulded	30
	Length	153
	Space to F	1
F43	Sided	22
	Moulded	31
	Length	40
	Space to F	26
F44	Sided	23
	Moulded	24
	Length	74
	Space to F	3
F45	Sided	24
	Moulded	25
	Length	87
	Space to F	No accurate measurement possible
F46	Sided	36
	Moulded	8
	Length	162
	Space to F	1
F47	Sided	21
	Moulded	6
	Length	163
	Space to F	14

F48	Sided	38
	Moulded	4
	Length	142
	Space to F	2
F49	Sided	43
	Moulded	4
	Length	161
	Space to F	No accurate measurement possible
F50	Sided	37
	Moulded	4
	Length	143
	Space to F	1
F51	Sided	29
	Moulded	8
	Length	160
	Space to F	No accurate measurement possible
F52	Sided	No accurate measurement possible
	Moulded	
	Length	
	Space to F	
F53	Sided	47
	Moulded	33
	Length	199
	Space to F	3
F54	Sided	21
	Moulded	29
	Length	365
	Space to F	67
F55	Sided	34
	Moulded	26
	Length	196
	Space to F	76
F56	Sided	20
	Moulded	15
	Length	191
	Space to F	No accurate measurement possible
F57	Sided	12
	Moulded	8
	Length	290
	Space to F	19
F58	Sided	26

	Moulded	21
	Length	198
	Space to F	No accurate measurement possible
F59	Sided	No accurate measurement possible
	Moulded	
	Length	
	Space to F	
F60	Sided	37
	Moulded	37
	Length	120
	Space to F	last tagged frame

6. *Bato Anchor Dimensions (centimeters)*

Dimension	Measurement	
Ring Outer	18	
Ring Inner	15	
Shank L	77	
Shank Diameter	25	
End of Bills along shank	55 down from eye	
distance away from shank	23L/22L	
Crown	13	
L Fluke	36	
R Fluke	27	
End fluke	16	

7. GPS co-ordinates of Bato Wreckage

Position Number	Zone	Band	Easting	Northing	
1	34	H	262783	6214531	
2	34	H	262782	6214506	
3	34	H	262777	6214500	
4	34	H	262768	6214500	
5	34	H	262773	6214506	
6	34	H	262774	6214508	
7	34	H	262777	6214511	ANCHOR
8	34	H	262779	6214526	
9	34	H	262780	6214532	
10	34	H	262785	6214543	
11	34	H	262788	6214542	
12	34	H	262785	6214528	

Images of Bato Frames

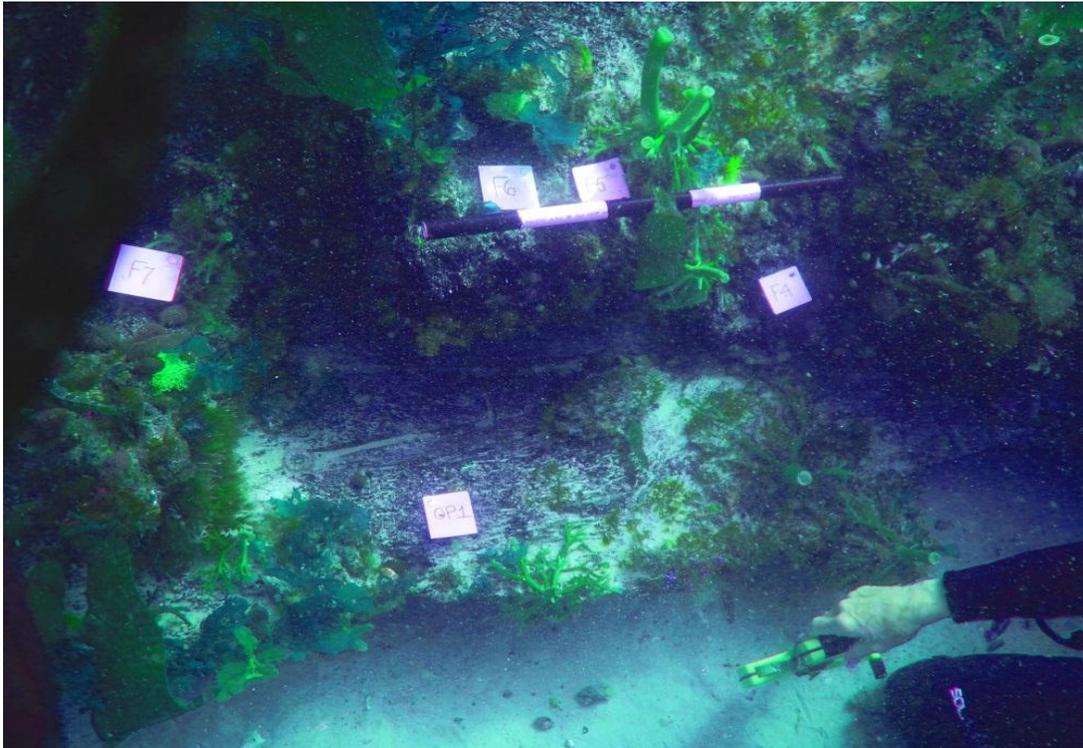


Figure 13. Frame 4-7 and Outer Plank 1



Figure 14. Outer Plank 3

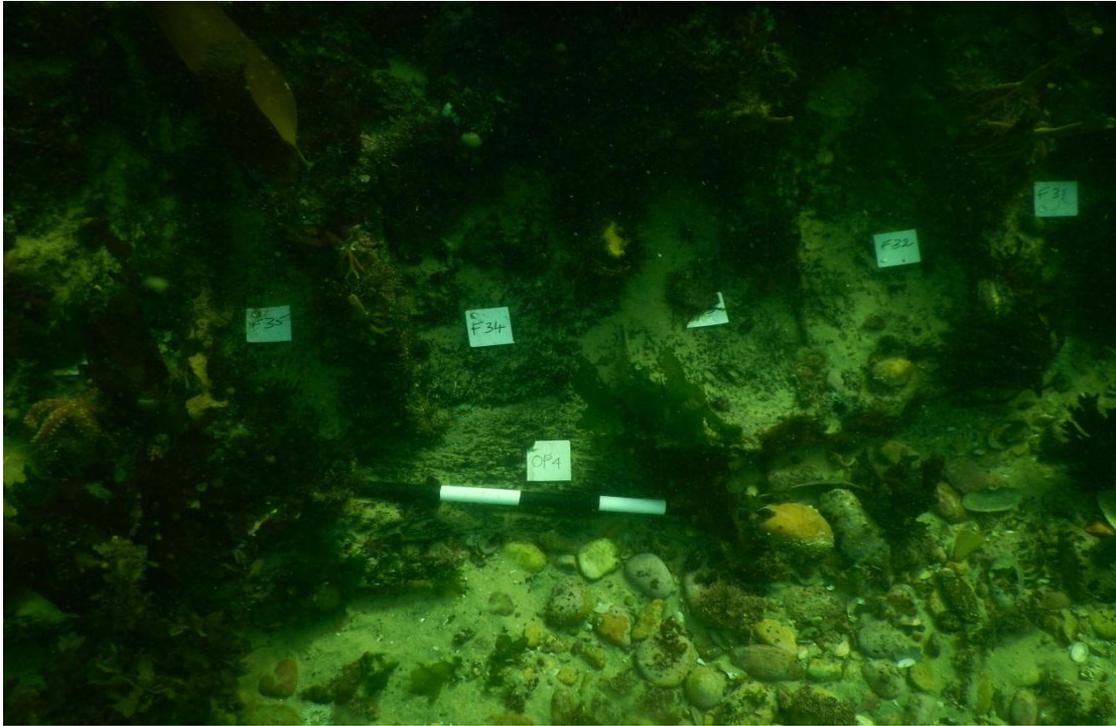


Figure 15. Frame 31-35 and Outer Plank 4



Figure 16. Frame 39-41 and Outer Plank 5

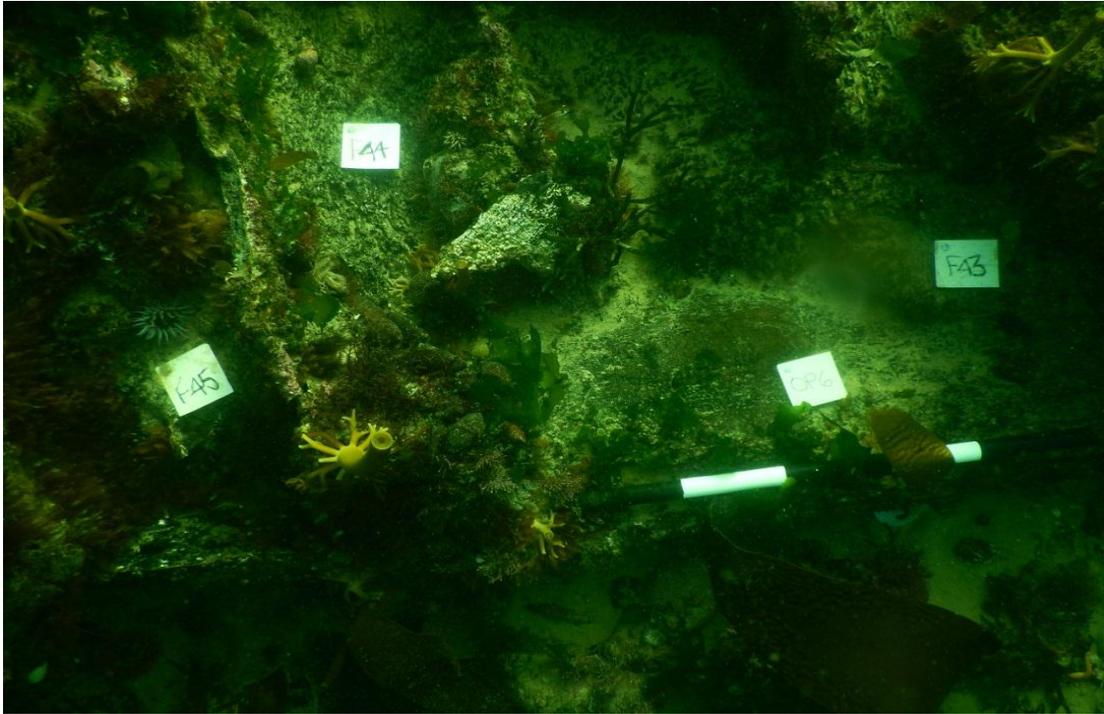


Figure 17. Frame 43-45 and Outer Plank 6

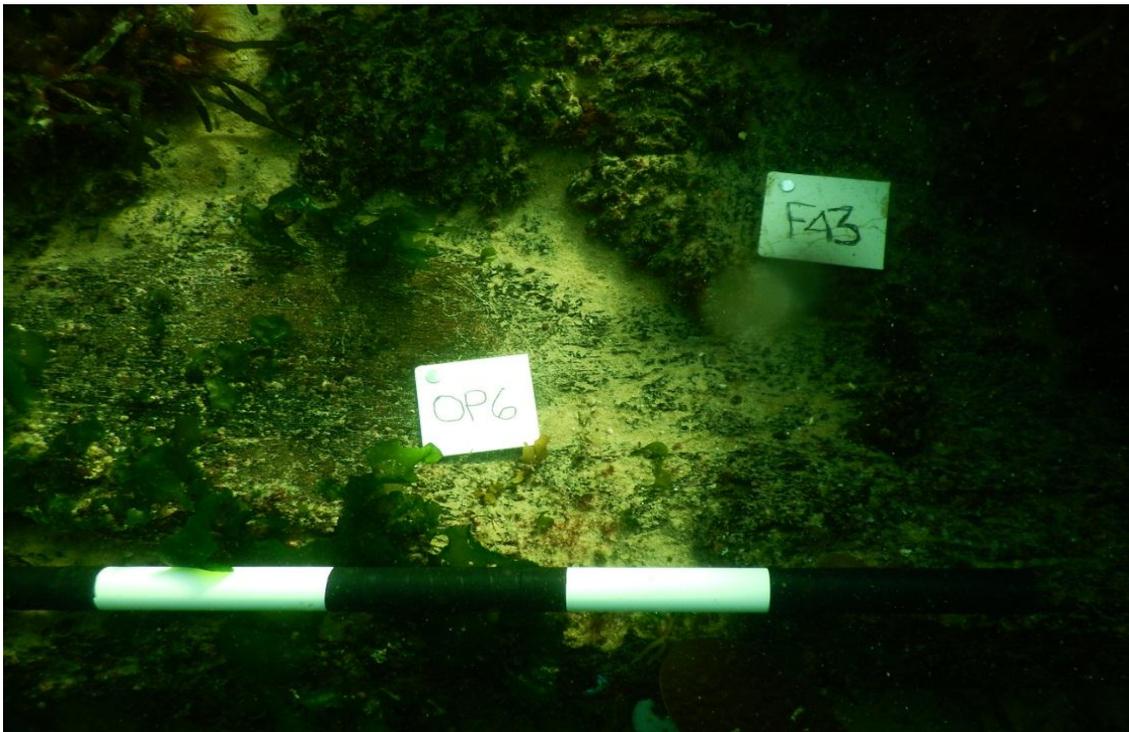


Figure 18. Frame 43 and Outer Plank 6

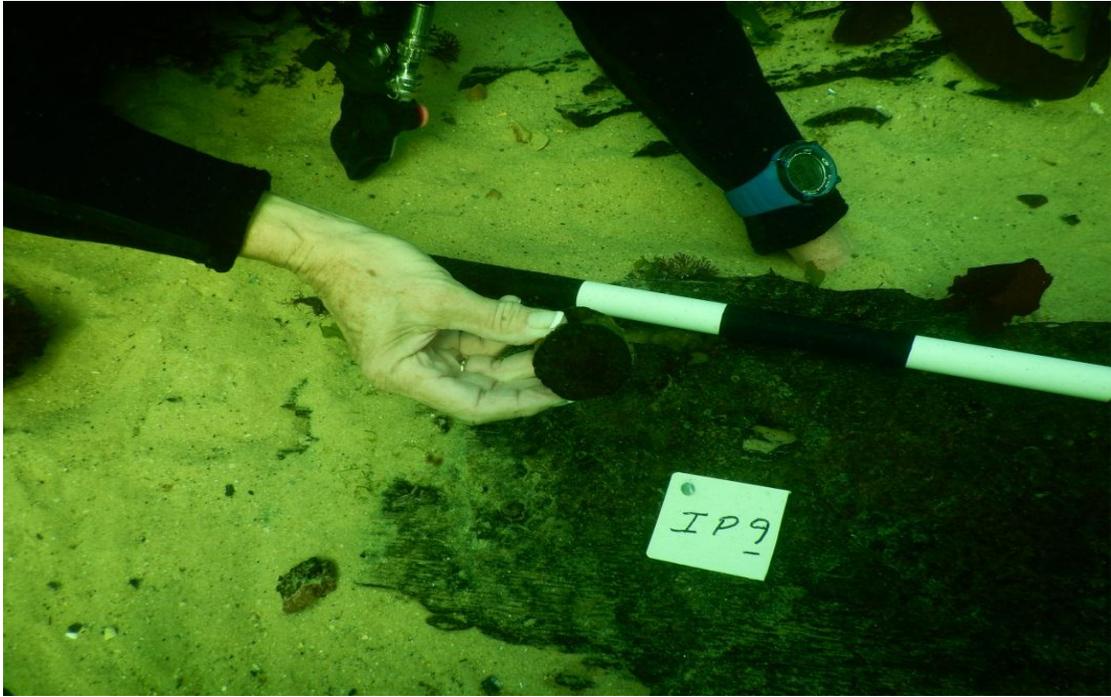


Figure 19. Outer Plank 6 with wooden dowel



Figure 20. Keelson

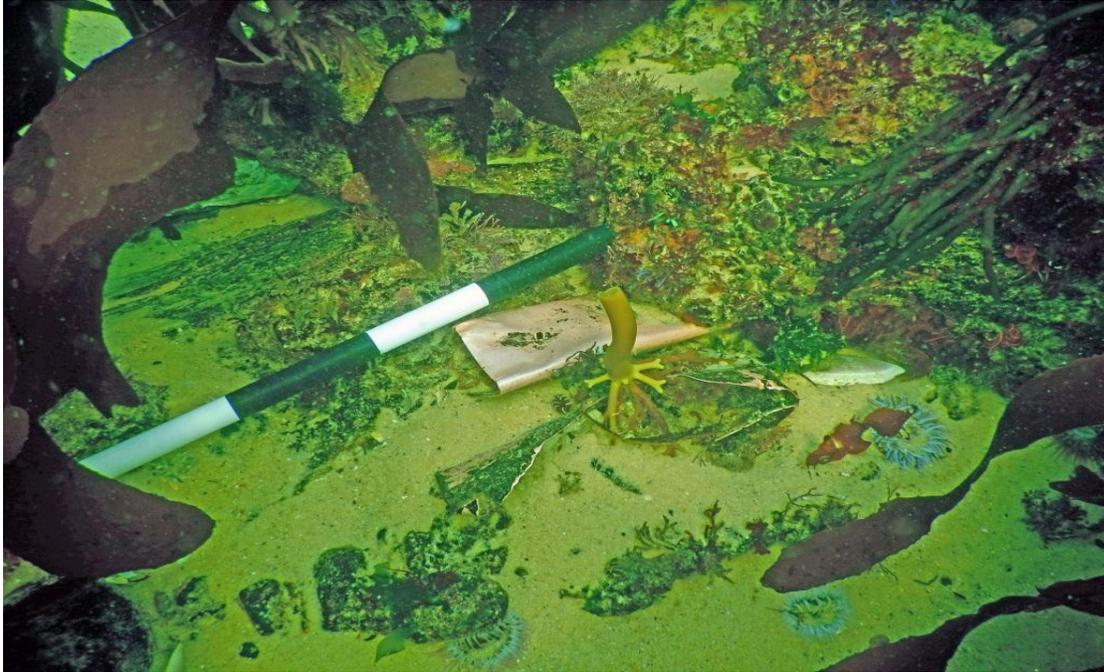


Figure 21. Copper Sheathing on *Bato*



Figure 22. Sheathing at Inner planking 18



Figure 23. Brass Frame Fastening on *Brunswick* Site



Figure 24. Brass bolt head on *Brunswick* Site



Figure 25. Brass hardware on *Brunswick* Site under marine colony



Figure 26. Copper Drift bolts in *Brunswick* Keelson



Figure 27. Copper Drift bolts in *Brunswick Keelson*

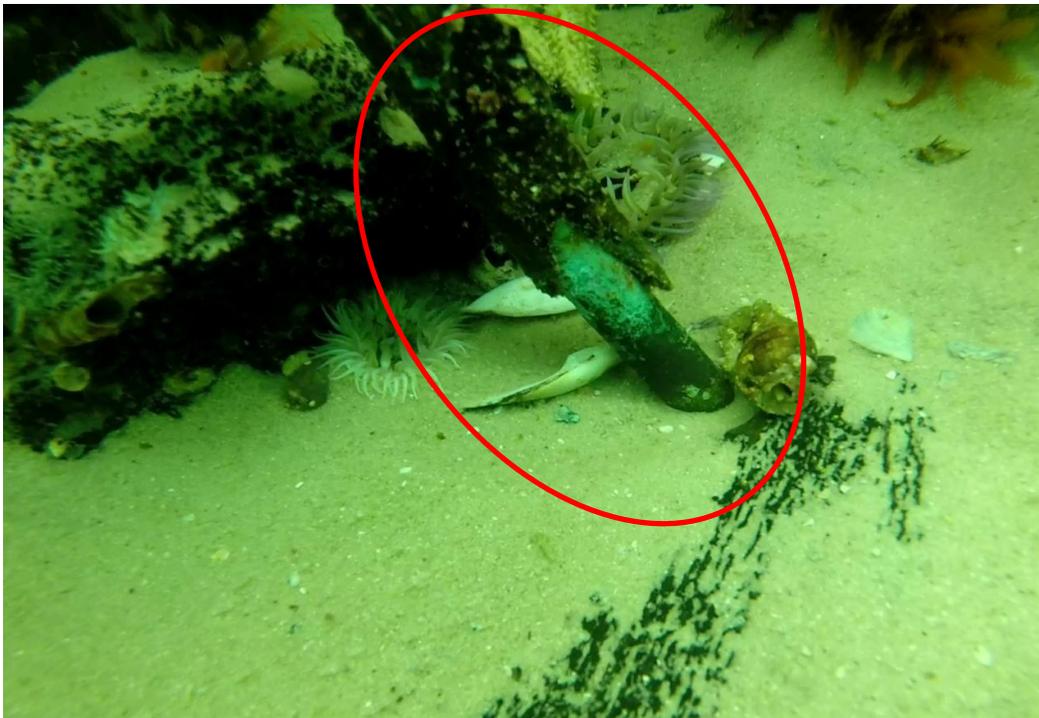


Figure 28. Copper Drift bolts in *Brunswick Keelson* with Corrosion evident

8. Wood Sample Identification

Sample No	Location	Wood identification
<i>BRUNSWICK</i>		
BRWS1	OP2	<i>Quercus sp. A (Fagaceae)</i>
BRWS2	F3	<i>Quercus sp. A</i>
BRWS4	OP3	<i>No sample in box</i>
BRWS6	F2	<i>Quercus sp.</i>
BRWS9	Keelson	<i>Abies sp (Pinaceae)</i>
BRWS10	Keelson	<i>Quercus sp.</i>
<i>BATO</i>		
WS1	F49	<i>Quercus sp. B</i>
WS4	IP2	<i>Quercus sp. C</i>
WS5	F44	<i>Quercus sp. B</i>
WS7	Keelson	<i>Quercus sp. C</i>
WS8	F54	<i>Quercus sp. C</i>
WS10	OP3	<i>Quercus sp. C</i>
WS11	Keelson	<i>Quercus sp.</i>
WS12	IP1	<i>Quercus sp.</i>

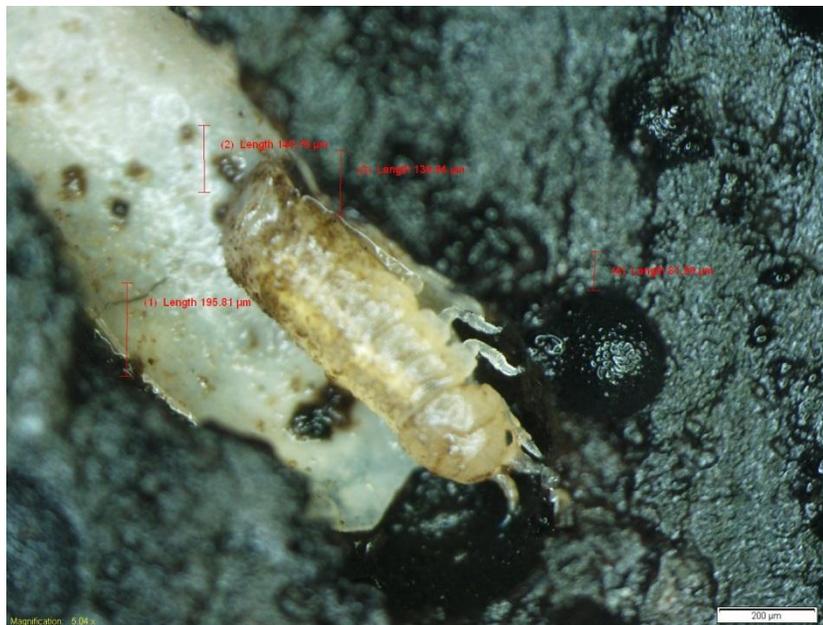


Figure 29. Wood Worm in timber sample (Courtesy of Marion Bamford)



Figure 30. Wood Sample Images (Courtesy of Marion Bamford)

9. Mud Map field drawing

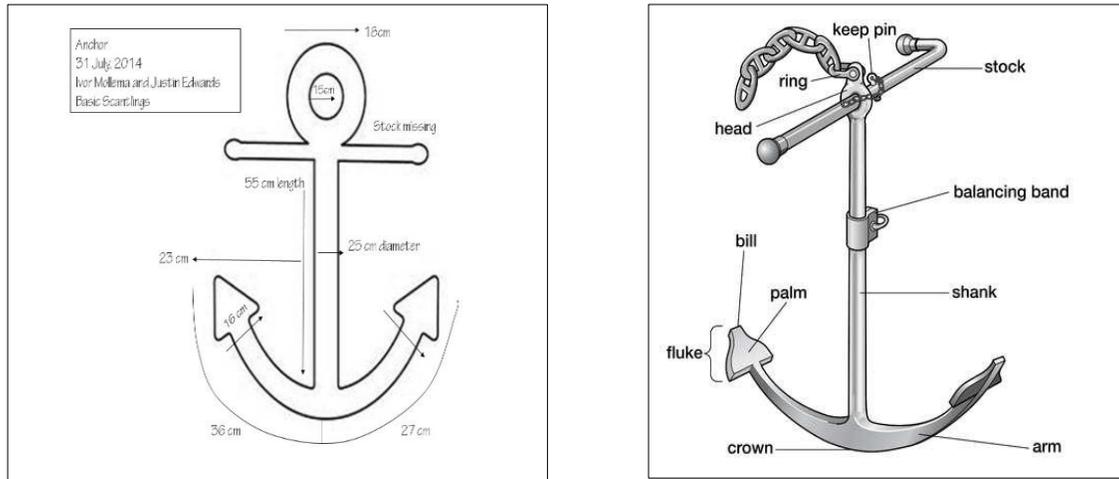


Figure 31. Anchor Measurements

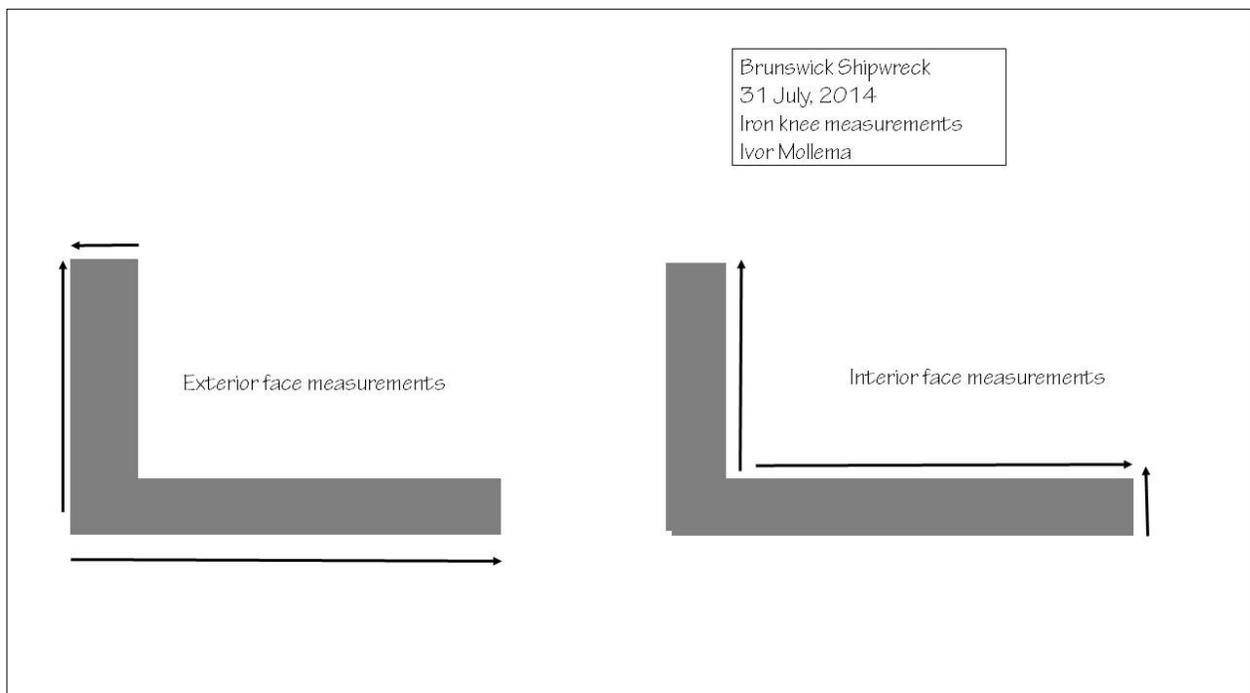


Figure 32. Iron Knee Measurement Area

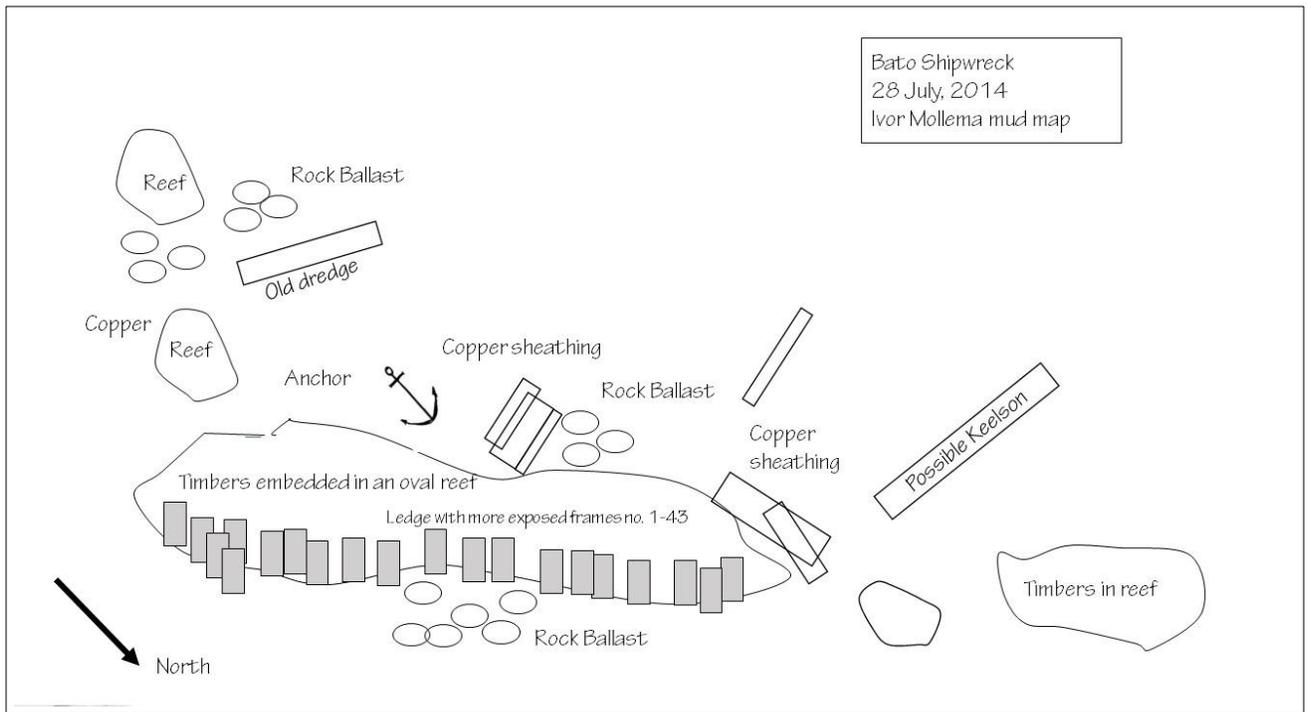


Figure 33. Mud Map of *Bato*

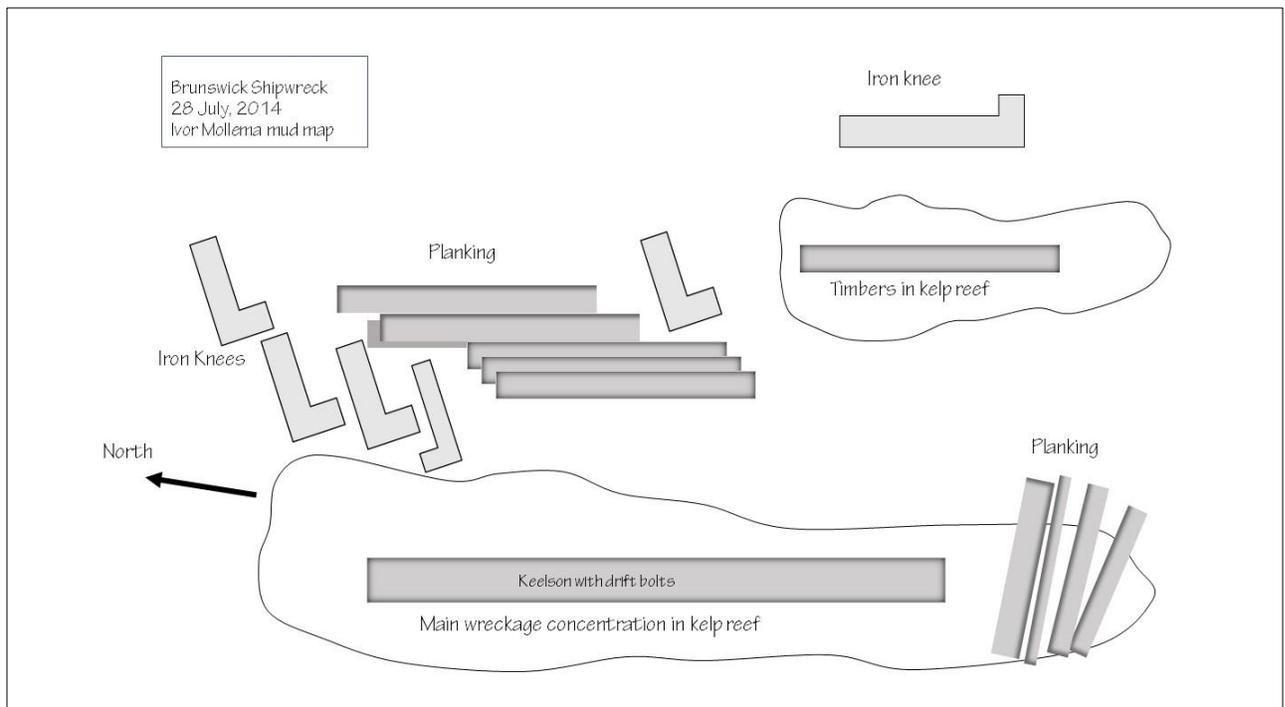


Figure 34. Mud Map of *Brunswick*

SECTION VII. Discussions and Future Directions

Further areas of investigation include artifacts recovered from the wrecks by divers and accessioned in the Iziko museum collections, in addition to the cannons in front of the Simons Town Post Office. These were reportedly salvaged from *Bato* at some point after the wrecking event. The guns have been treated and are preserved for display in an outdoor environment. The team anticipates further analysis of the results of wood samples from Dr. Marion Bamford, University of Witwatersrand. The results of the project will be written up as a MA thesis in Maritime Studies by ECU candidate, Ivor Mollema, a Dutch citizen. The team will actively seek opportunities to engage and share information about the project with local recreational divers, Simon's Town Museum, and Simon's Town Historical Society. Additionally, the entire team plans to deliver papers on the project at the Society for Historical Archaeology Conference in Seattle, WA in January 2015. This is an internationally conference well attended by maritime archaeologists from around the world. Articles on the shipwreck study will be submitted to academic refereed journals for publication. Dr. Marion Bamford, University of Witwatersrand archaeological botanist, has also been invited to co-publish with the team.

Bibliography (cited and tentative)

Albion, Robert Greenhalgh

2000 *Forests and Sea Power the Timber Problem of the Royal Navy, 1652 – 1862*. Naval Institute Press, Annapolis, MD.

Adkins, Roy and Lesley Adkins

2006 *The War for All the Oceans From Nelson at the Nile to Napoleon at Waterloo*. Abacus, London, UK.

Bamford, Marion

Associate Professor, Witwatersrand University,

<<http://www.wits.ac.za/academic/science/geosciences/staff/6412/bamford.html>> Accessed June 8, 2014.

Black, Jeremy

2004 *The British Seaborne Empire*. Yale University Press, New Haven, CT.

Boxer, C. R.

1965 *The Dutch Seaborne Empire: 1600 – 1800*. Alfred A. Knopf, New York, NY.

Bruijn, Jaap R.

1993 *The Dutch Navy of the Seventeenth and Eighteenth Centuries*. University of South Carolina Press, Columbia, SC.

Cain, P. J. and A. G. Hopkins

2002 *British Imperialism, 1688-2000*. Longman, Harlow, UK.

Clowes, William Laird.

1997 *The Royal Navy, A History from the Earliest Times to 1900, Vol. 5*. Chatham Publishing, London, UK.

Creasman, Pearce Paul

2010 An Evaluation of Dendrochronology as a Tool for the Interpretation of Historical Shipwrecks. *ACUA Underwater Archaeology Proceedings*, Horrel, Chris and Melanie Damour, editors, pp. 250-254. Advisory Council on Underwater Archaeology.

Harding, Jake

2013 *The Brunswick: An archaeological assessment of the wreck and its surrounding context*. Honors Thesis, Department of Archaeology, University of Cape Town, Cape Town, RSA.

Lindeque, Clare

2012 Dive Sites: HNMS Bato. <<http://www.learntodivetoday.co.za/blog/2012/12/12/dive-sites-hnms-bato/>> Accessed April 6, 2014.

Nash, Michael (editor)

2007 *Shipwreck Archaeology in Australia*. University of Western Australia Press, Crawley, Australia.

Nationaal Archief, Den Haag, Archief Marine, Aanhangsel II, nummer toegang 2.01.29.03, inventarisnummer 126

Nationaal Archief, Den Haag, Collectie 036 Janssens, 1700-1906, nummer toegang 2.21.092, inventarisnummer 61

Nationaal Archief, Den Haag, Collectie 036 Janssens, 1700-1906, nummer toegang 2.21.092, inventarisnummer 67

Nationaal Archief, Den Haag, Collectie 036 Janssens, 1700-1906, nummer toegang 2.21.092, inventarisnummer 70

Nationaal Archief, Den Haag, Archief Marine, Aanhangsel II, nummer toegang 2.01.29.03, inventarisnummer 108

Nationaal Archief, Den Haag, Archief Marine, Aanhangsel II, nummer toegang 2.01.29.03, inventarisnummer 109

Nationaal Archief, Den Haag, Archief Marine, Aanhangsel II, nummer toegang 2.01.29.03, inventarisnummer 110

Nationaal Archief, Den Haag, Archief Marine, Aanhangsel II, nummer toegang 2.01.29.03, inventarisnummer 119

Nationaal Archief, Den Haag, Departement van Marine: Monsterrollen, nummer toegang 2.01.30, inventarisnummer 173

Nationaal Archief, Den Haag, Departement van Marine: Monsterrollen, nummer toegang 2.01.30, inventarisnummer 256

Nationaal Archief, Den Haag, Departement van Marine: Monsterrollen, nummer toegang 2.01.30, inventarisnummer 314

Nationaal Archief, Den Haag, J.W. Janssens - Kaarten en Tekeningen, nummer toegang 4.JSF, inventarisnummer 66

Nationaal Archief, Den Haag, J.W. Janssens - Kaarten en Tekeningen, nummer toegang 4.JSF, inventarisnummer 13

Octopus

2000 Bato Dutch Warship Exploration. <<http://deepresearch.hu/hu/project/bato.asp>> Accessed March 10, 2014.

Pisces Divers

Goods Shed, Main Road, Simon's Town, Cape Town, Ph: +27 21 786 3799
<<http://www.piscesdivers.co.za/dives/diving-in-false-bay>> Accessed March 10, 2014.

Program in Maritime Studies,

East Carolina University <<http://www.ecu.edu/cs-cas/maritime/>> Accessed March 10, 2014.

Rippon, Rt. Hon. Geoffrey Rippon

1970 South Africa and naval strategy. *The Round Table: The Commonwealth Journal of International Affairs* 60(239):303–309.

Stokesbury, James

1983 *Navy and Empire. William Morrow and Company, Inc., New York, NY.*
Turner, L. C. F.

1966 The Cape of Good Hope and Anglo-French rivalry 1778–1796. *Historical Studies: Australia and New Zealand* 12(46):166–185.

Visser, John Halley

2004 *The Simon's Bay Rudders: The Documentation and Conservation of Underwater Cultural Heritage.* Master's Thesis, Department of Archaeology, University of Cape Town, Cape Town,

Wikitravel

2012a Diving the Cape Peninsula and False Bay/HNMS Bato.

<http://wikitravel.org/en/Diving_the_Cape_Peninsula_and_False_Bay/HNMS_Bato> Accessed April 5, 2014.

2012b Diving the Cape Peninsula and False Bay/Brunswick.

<http://wikitravel.org/en/Diving_the_Cape_Peninsula_and_False_Bay/Brunswick> Accessed April 5, 2014.

Appendices

Appendix 1. *Bata* and *Brunswick* Permits

CaseNo:

[Investigations of Bato Shipwreck in Simonstown Bay](#)

Heritage Authority:

- [SAHRA](#)
- **PermitID:** 1845 **PermitHolder:** [Lynn Harris](#) [Ivor Roderick Mollema](#)
- **PermitTo:**

[Lynn Harris](#) **PermitDate:**

Wednesday, June 18, 2014 to Thursday, June 18, 2015

NHRA: [35\(4\)](#)

Activities:

- [Pre-disturbance survey](#)
- [Sampling](#)

Conditions:

This permit is issued to Lynn Harris and Ivor Mollema for the pre-disturbance survey of the Bato shipwreck off Long Beach, Simon's Town.

Conditions:

1. If the permit holder is not present on the site at all times then the heritage authority must be provided with the names and qualifications of the authorised representatives.
2. Adequate recording methods as specified in the Regulations and Guidelines pertaining to the National Heritage Resources Act 25 of 1999 must be employed. The positions of all datum points from the wreck must be marked on an accurate plan of the site, which must also include a title, date, north arrow and scale.
3. Work must be limited to the exploration (pre-disturbance survey) in order to determine the identity, condition and extent of the site, "Bato". This permit does not allow for excavation or the removal of material from the wreck site.
4. The permit holder will be allowed to collect wood samples no larger than 1cmx1cmx1cm as stipulated in the project proposal from areas where this will have no adverse impact on the site. Sample location is to be recorded, mapped and photographed and provided in the report to the heritage authority. Please note that this permit does not give the permit holder permission to export any samples out of South Africa.
5. This permit gives the holder the sole right to work on the site for the duration of the permit period.
6. A detailed log book must be kept to record daily progress, the mapping and location of finds, features of the wreck and sea and weather conditions.
7. A report on the results of the pre-disturbance survey must be submitted to the heritage authority issuing this permit on or before the 18 December 2014 and a final report is due on or before 18 June 2015. Reprints of all published papers or copies of theses and/or reports resulting from this work must be lodged with the heritage authority.
8. If satisfactory progress reports are not received, this permit may be cancelled. If a published report has not appeared within three years of the lapsing of this permit, the report required in terms of the permit will be made available to researchers on request.
9. It is the responsibility of the permit holder to protect the site during work and ensure it is stabilized after work has been completed on site to the satisfaction of the heritage authority.
10. It is the responsibility of the permit holder to obtain permission from the landowner for each visit, and conditions of access imposed by the landowner must be observed.
11. The heritage authority shall not be liable for any losses, damages or injuries to persons or properties as a result of any activities in connection with this permit.
12. The heritage authority reserves the right to cancel this permit by notice to the permit holder

Brunswick shipwreck in Simonstown Bay

CaseNo:

[Brunswick shipwreck in Simonstown Bay](#)

HeritageAuthority:

- [SAHRA](#)

PermitID:

1844

PermitHolder:

[Lynn Harris](#)

[Ivor Roderick Mollema](#)

PermitTo:

[Lynn Harris](#)

PermitDate:

Wednesday, June 18, 2014 to Thursday, June 18, 2015

NHRA:

- [35\(4\)](#)

Activities:

- [Pre-disturbance survey](#)
- [Sampling](#)

Conditions:

This permit is issued to Lynn Harris and Ivor Mollema for the pre-disturbance survey of the Brunswick shipwreck off Long Beach, Simon's Town.

Conditions:

1. If the permit holder is not present on the site at all times then the heritage authority must be provided with the names and qualifications of the authorised representatives.
2. Adequate recording methods as specified in the Regulations and Guidelines pertaining to the National Heritage Resources Act 25 of 1999 must be employed. The positions of all datum points from the wreck must be marked on an accurate plan of the site, which must also include a title, date, north arrow and scale.
3. Work must be limited to the exploration (pre-disturbance survey) in order to determine the identity, condition and extent of the site, "Brunswick". This permit does not allow for excavation or the removal of material from the wreck site.
4. The permit holder will be allowed to collect wood samples no larger than 1cmx1cmx1cm as stipulated in the project proposal from areas where this will have no adverse impact on the site. Sample location is to be recorded, mapped and photographed and provided in the report to the heritage authority. Please note that this permit does not give the permit holder permission to export any samples out of South Africa.
5. This permit gives the holder the sole right to work on the site for the duration of the permit period.
6. A detailed log book must be kept to record daily progress, the mapping and location of finds, features of the wreck and sea and weather conditions.
7. A report on the results of the pre-disturbance survey must be submitted to the heritage authority issuing this permit on or before the 18 December 2014 and a final report is due on or before 18 June 2015. Reprints of all published papers or copies of theses and/or reports resulting from this work must be lodged with the heritage authority.
8. If satisfactory progress reports are not received, this permit may be cancelled. If a published report has not appeared within three years of the lapsing of this permit, the report required in terms of the permit will be made available to researchers on request.
9. It is the responsibility of the permit holder to protect the site during work and ensure it is stabilized after work has been completed on site to the satisfaction of the heritage authority.
10. It is the responsibility of the permit holder to obtain permission from the landowner for each visit, and conditions of access imposed by the landowner must be observed.
11. The heritage authority shall not be liable for any losses, damages or injuries to persons or properties as a result of any activities in connection with this permit.
12. The heritage authority reserves the right to cancel this permit by notice to the permit holder.

Appendix 2. Iziko Artifact Repository Agreement



Maritime and Historical Archaeology Section

Social History Collections Department

October 2011

Repository Agreement

Conditions for the Submission of Archaeological Material to Iziko Museums of Cape Town

1. All archaeological material submitted to Iziko must have a valid heritage agency permit, a copy of which must be given to Iziko before any material is accepted. The submitter must already have signed this repository agreement, but this does not guarantee acceptance of material until a valid HWC or SAHRA permit is issued.
2. A conservation agreement for unconserved artifacts that include provision for a budget for treatment until the object is in a stable condition must be entered into before excavation and recovery.
3. All objects from a shipwreck or marine context must have a condition assessment done according to a form supplied by Iziko.
4. All objects from a shipwreck or marine context must be handled according to best practices and as suggested by the advice of a professional conservator or person with a proven track record in conservation of waterlogged materials
5. Shipwreck items or artifacts from a marine context that has not been dried out and/or conserved should have temporary, but durable labels attached to the object. Containers should be clearly marked as well including any treatment procedures already undertaken.
6. Iziko expects the submitter to have sorted materials into faunal, floral, cultural and other standard and relevant components and sub-components, bagged them and labeled each bag with full provenience details. As far as possible, stable artefacts larger than a R1 piece should be labeled between an appropriate barrier layer and seal, all of which must be reversible
7. All bags and containers (except the curation box) should be ventilated.
8. Bags and boxes should be packed in such a way that material will not be damaged by, *inter alia*, over-packing, packing delicate items like bone together with stone, packing large items in overly small bags, and so forth. Ideally, artefacts of similar type and weight should be packed together.
9. A limited number of representative bulk samples, usually not exceeding 10 kg, will be accepted unprocessed.
10. Iziko is unwilling to accept large quantities of unsorted fine-fraction sieved bulk samples for storage.
11. The submitter must transfer all archaeological material to the standard Iziko archaeology boxes. Iziko will provide information on the type, dimensions and supplier of boxes to the submitter. Boxes, bags and other materials are for the account of the submitter.
12. The submitter must provide Iziko an informed estimate of how much material they are likely to submit. Iziko does not normally accept more than a few dozen boxes from any one site. If dozens and even hundreds of boxes are to be submitted, Iziko may charge a box fee.
13. Boxes must not be written on other than with legible pencil and should be uniquely labeled with full provenience data of the site, layer and so forth.
14. The submitter must provide an inventory of the boxes and bags (square, layer, date (if possible) and material) in Excel format to assist Iziko in compiling an electronic register of materials.
15. Material submitted may not contain hazardous material such as live ammunition, toxic or radioactive material.
16. Any human remains submitted are subject to Iziko's policy on human remains. The submitter needs prior to physical hand-over, inform Iziko staff of any human remains, which need to be separate in the Physical Anthropology collection.
17. The submitter must provide Iziko with all documentation relevant to the site and excavation/collection. Iziko prefers originals but will accept high quality reproductions. Relevant documentation includes, *inter alia*, photographic material, all plans and maps, all profiles, all excavation notes and all documentation of the stratigraphic succession. The final report to HWC and/or SAHRA is also required. Iziko prefers both hard and digital copy, but at a minimum, hard copy. Iziko respects the intellectual

property contained within this meta-data and will embargo access to them for a period of three years after the permit has expired unless otherwise permitted by the submitter and/or person(s) who generated the meta-data.

18. Once material has been handed over to Iziko, decisions on storage, access and the like rest ultimately with Iziko but these decisions are, wherever possible, informed by the expertise and experience of the submitter and other relevant parties. Iziko respects the expense and effort of each submitter and, in line with SAHRA repository guidelines and national legislation, grants the original submitter(s) of material preferential access to that material for the duration of the permit plus three years after its expiration. Where external requests to said material are made, Iziko will make every effort to consult with and take seriously the advice of people who have previously generated and/or worked on any collection or part thereof.

I, **Lynn Harris**, hereby declare that I have read this document, that I understand the contents and that I accept the provisions therein.

Dr. Lynn B. Harris, Program in Maritime Studies, History Department, East Carolina University

FULL NAME, INSTITUTIONAL AFFILIATION AND SIGNATURE OF SUBMITTER

Signed at **11:30am Friday** on this **18** day of **April 2014** LH

Jaco Jacques Boshoff

FULL NAME AND SIGNATURE OF IZIKO ARCHAEOLOGY CURATOR AND/OR COLLECTIONS MANAGER

Signed at Cape Town, on this 26 day of May 2014.



Useful References for Curating Archaeological Material

- Caple, Chris. 2000. *Conservation skills: judgement, method and decision-making*. London: Routledge
- Caple, Chris. 2006. *Objects: reluctant witnesses to the past*. London: Routledge.
- Childs, S. Terry and Eileen Corcoran. 2000. *Managing archeological collections: technical assistance*. Washington, DC.: Archeology and Ethnography Program, National Park Service. URL: www.cr.nps.gov/archeology/collections. Accessed 1 August 2011.
- Cronyn, J.M. 1992. *The elements of archaeological conservation*. London: Routledge.
- Henderson, Zoë. 2008. Standards for curation of archaeological material: some thoughts on the issues. *The South African Archaeological Bulletin* 63(187):79-82.
- South African Heritage Resources Act 25 of 1999. Pretoria: Government Printer.
- South African Heritage Resources Agency. 2002. Guidelines to ethical and curatorial considerations for accredited repositories. Cape Town.
- Sullivan, Lynne, P and S. Terry Childs. 2003. *Curating archaeological collections: from the field to the repository*. Walnut Creek: Altamira.
- Pearson, Colin. 1987. *Conservation of Marine Archaeological Objects*. London: Butterworths
- Hamilton, Donny. 2010. *Methods for Conserving Archaeological Material from Underwater Sites*. Nautical Archaeology Program, Texas A & M University. URL: <http://nautarch.tamu.edu/CRL/conservationmanual/>

Appendix 3. Diver Working Photos



Figure 35. Ivor Mollema taking Wood Samples



Figure 36. Ivor Mollema taking wood samples with timber tags in background



Figure 37. Lynn Harris recording plankton dimensions and burning evidence

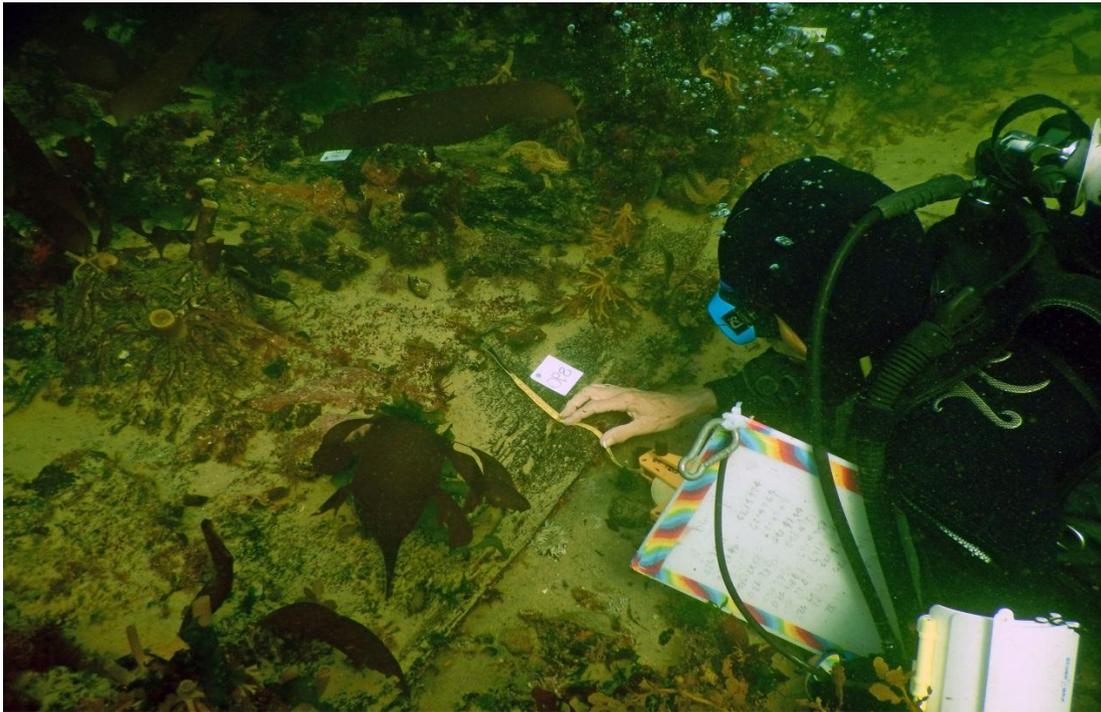


Figure 38. Lynn Harris recording plankton dimensions and burning evidence



Figure 39. Ivor Mollema and Justin Edwards recording a knee on *Brunswick*

Appendix 4. Marine Life Photographs



Figure 40. False Plum Anemones on *Bato*

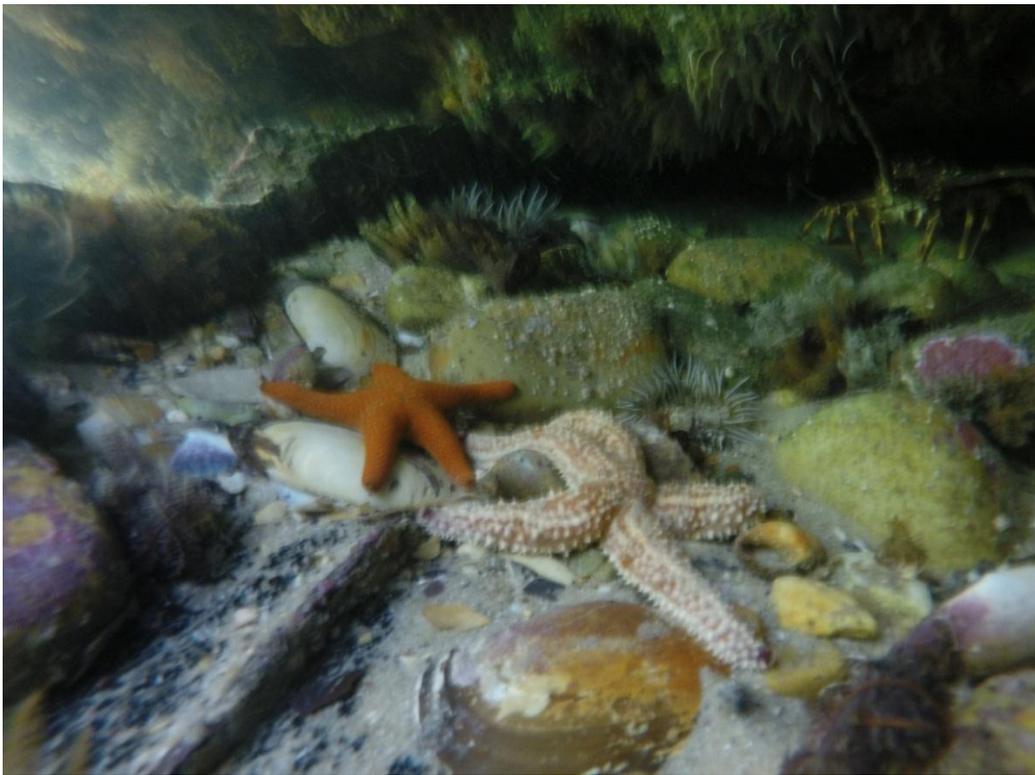


Figure 41. Diverse starfish on *Bato*



Figure 42. Sea Bass



Figure 43. Seaweeds and kelp on *Brunswick*



Figure 44. Klipvis



Figure 45. Puff adder shy shark (*haplobepharus edwardsii*) on Brunswick.



Figure 46. Puff adder shy shark (*Haplobepharus edwardsii*) on *Bato*



Figure 47. Crayfish (*Jasus lalandii*) under *Bato* wreckage



Figure 48. Sea slug or Nudibranch



Figure 49. Klipvis on *Bato*



Figure 50. Green grass (*ulva algae*)



Figure 51. Two tone finger fin or butter fish (*chirodactylus brachydactylus*)



Figure 52. Rapid gastropod re-population of timber tags



Figure 53. False Plum Anemones on *Bato*



Figure 54. Crinoids on *Bato* shipwreck



Figure 55. Spiny Starfish (*Marthasterias glacialis*) on *Brunswick*.



Figure 56. Kelp forest and butterflyfish on the *Bato* shipwreck



Figure 57. Timber tag numbers and Hottentot Seabream (*pachymetopon blochii*)