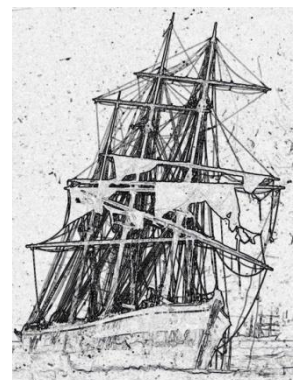

UNDERWATER HERITAGE IMPACT ASSESSMENT, PROSPECTING WITH BULK SAMPLING APPLICATION FOR WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A, WESTERN CAPE, SOUTH AFRICA



UNDERWATER HERITAGE IMPACT ASSESSMENT FOR A PROSPECTING WITH BULK SAMPLING APPLICATION FOR WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A**WESTERN CAPE****SOUTH AFRICA****Report #:** 2023/WC/004**Status:** Revision**Revision #:** 1**Date:** 10 June 2024**Prepared for:** EnviroAfrica**Representative:** Bernard de Witt**Tel:** +27 21 851 1616**Address:** Unit 7, Pastorie Park, Reitz Street, Somerset West, 7130**E-mail:** maboee@enviroafrica.co.za**Prepared by:** Vanessa Maitland**ASAPA Registration #:**326**Field:** Maritime Archaeology**Address:** 203/71 Elandskraal, Sedgefield Rural, Western Cape**Cell:** 082 490-4066**E-Mail:** vanessa@cocojams.co.za

Declaration:

I, Vanessa Maitland, declare that I have no financial or personal interest in the proposed development, nor its developers or any of their subsidiaries, apart from the provision of heritage assessment and management services.



Vanessa Maitland

Maritime Archaeologist

10-06-2024

EXECUTIVE SUMMARY

This report is an Underwater Heritage Impact Assessment (UHIA), a part of the Heritage Impact Assessment for the Environmental Impact Assessment (EIA) for a Prospecting with Bulk Sampling Licence in WC 50/1/1/2/10454/ PR within Concession 11A, Western Cape, South Africa.

It is a Desktop Assessment of the possible shipwrecks in the area based on the historical records and maritime cultural resource discoveries in the area to date. There are no definite wrecks in the area, and six possible wrecks. It must be kept in mind that wrecks on this historically under populated region of the coast often went unreported and therefore there is always a possibility of uncovering Maritime and Underwater Cultural Heritage (MUCH) resources during operations and the recommended management measures must be implemented.

The recommended management measures can be summarised as follows: the workers and contractors must be made aware of the possibility of heritage resources being found and these must be reported to the Environmental Control Officer, who will report it to the heritage practitioner and SAHRA. These resources must not be removed, destroyed or interfered with. If they are accidentally recovered, photographs of them must be taken, noting the date, time, location and types of artefacts found.

SPECIALIST REPORT REQUIREMENTS AS PER EIA REGULATIONS 2014 (AS AMENDED)

Table 1 outlines the requirements of the Specialist Reports as per the NEMA EIA Regulations, 2014 (as amended). According to Appendix 6 (1) "A specialist report prepared in terms of these Regulations must contain ..." the information outlined in Table 1 below.

Table 1: Prescribed contents of the Specialist Reports (Appendix 6 of the EIA Regulations, 2014) (as amended)

Relevant section in GNR. 982	Requirement description	Relevant section in this report
(a) details of—	(i) the specialist who prepared the report; and	Page 2
	(ii) the expertise of that specialist to compile a specialist report including a curriculum vitae;	Appendix III
(b)	a declaration that the specialist is independent in a form as may be specified by the competent authority;	Appendix IV
(c)	an indication of the scope of, and the purpose for which, the report was prepared;	Section 2
(cA)	an indication of the quality and age of base data used for the specialist report;	Section 4 & 5.2
(cB)	a description of existing impacts on the site, cumulative impacts of the proposed development and levels of acceptable change;	Section 5
(d)	the duration, date and season of the site investigation and the relevance of the season to the outcome of the assessment;	Not Applicable
(e)	a description of the methodology adopted in preparing the report or carrying out the specialised process inclusive of equipment and modelling used;	Section 5
(f)	details of an assessment of the specific identified sensitivity of the site related to the proposed activity or activities and its associated structures and infrastructure, inclusive of a site plan identifying site alternatives.	Section 6
(g)	an identification of any areas to be avoided, including buffers;	Not Applicable
(h)	a map superimposing the activity including the associated structures and infrastructure on the environmental sensitivities of the site including areas to be avoided, including buffers;	Section 5
(i)	a description of any assumptions made and any uncertainties or gaps in knowledge. Note: Uncertainties should be qualified within the report – there will always be uncertainties due to ?? and gaps in knowledge should also be qualified – a gap is to record that not all knowledge can be obtained for a study.	Section 4.2.1 Section 6
(j)	a description of the findings and potential implications of such findings on the impact of the proposed activity or activities;	Section 6
(k)	any mitigation measures for inclusion in the EMPr; Note: We need to include whether these mitigation measures (excluding ongoing monitoring) can be practically implemented prior to commencement or not.	Section 8
(l)	any conditions for inclusion in the environmental authorisation;	Section 8
(m)	any monitoring requirements for inclusion in the EMPr or environmental authorisation;	Section 8
(n) a reasoned opinion—	(i) whether the proposed activity, activities or portions thereof should be authorised;	Section 6
	(iA) regarding the acceptability of the proposed activity or activities; and	Section 6
	(ii) if the opinion is that the proposed activity, activities or portions thereof should be authorised, any avoidance, management and mitigation measures that should be included in the EMPr, and where applicable, the closure	Section 6 Section 8

	<p>plan.</p> <p>Note: We need to include whether these mitigation measures (excluding ongoing monitoring) can be practically implemented prior to commencement or not.</p>	
(o)	a description of any consultation process that was undertaken during the course of preparing the specialist report;	Not applicable
(p)	a summary and copies of any comments received during any consultation process and where applicable all responses thereto; and	Not applicable
(q)	any other information requested by the competent authority.	Not applicable
(2)	Where a government notice gazetted by the Minister provides for any protocol or minimum information requirement to be applied to a specialist report, the requirements as indicated in such notice will apply.	Not applicable

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GLOSSARY OF ACRONYMS

ASAPA	Association of Southern African Professional Archaeologists
EIA	Environmental Impact Assessment
HIA	Heritage Impact Assessment
MUCH	Maritime and Underwater Cultural Heritage (Includes underwater and land maritime heritage)
NHRA	National Heritage Resources Act (No. 25 of 1999)
NM	Nautical Mile
SAHRA	South African Heritage Resources Agency
SAHRA DAU	South African Heritage Resources Agency, Development Applications Unit
UHIA	Underwater Heritage Impact Assessment

1. INTRODUCTION

This report is an Underwater Heritage Impact Assessment (UHIA), a part of the Heritage Impact Assessment (HIA) undertaken by ASHA Consulting for the Environmental Impact Assessment (EIA) for a Prospecting with Bulk Sampling Licence. While the majority of the concession is above the high-water line and the cultural heritage resources are under Heritage Western Cape, the area below the high-water mark is administered by South African Heritage Resources Agency, Development Applications Unit (SAHRA DAU) in conjunction with the SAHRA MUCH Unit, directly. For a full understanding of the processes please see the HIA.

This report fulfils Section 38 of the National Heritage Resources Act (NHRA) (25 of 1999) which states that an assessment of potential heritage resources in the development area needs to be done. It is a desktop survey of existing shipwreck databases in the areas, as delineated in Section 5. It concludes with recommended management measures for the area, in terms of cultural heritage resources.

2. TERMS OF REFERENCE

The aim of this desktop survey is to determine if there are any known shipwrecks within the defined area.

The scope of work consisted of the following:

- Desktop study, consisting of a database of known and suspected wrecks in the area ascertained through study of available written and oral resources.

The objectives were to:

- Identify potential MUCH sites within the designated area.
- Recommend management measures for potential sites before and during development.

3. SUMMARY OF PROPOSED ACTIVITIES

There are three phases envisioned: non-invasive analysis of the geophysical survey; prospecting pits and bulk sampling.

The prospecting pits are similar in design to bulk sampling trenches but on a much smaller scale. Up to 20 prospecting pits will be dug of approximately 5m (L) x 2m (W) x 6.5m (D) will be excavated, analysed and immediately backfilled.

The bulk sampling trenches need to recover 1000 carats of diamonds, it is estimated that this will be achieved from 4 trenches. The trenches will be excavated perpendicular to the low water mark. Sizes will be dictated by the amount of overburden or beach sand that need to be removed. The deeper the overburden, the wider the trench, the beach sand will be used to create a berm which should keep the ocean at bay for the duration of the excavation. Thereafter, 5 m of alluvial material will be removed and screened to remove the fine material. The concentrate from the trommel screen will be bagged and removed from site to be processed. The trench will be backfilled before another trench is started.

4. HERITAGE RESOURCES

4.1. THE LEGISLATION

According to Section 32 (1) of the NHRA (No. 25 of 1999), heritage objects consist of:

“An object or collection of objects, or a type of object or list of objects, whether specific or generic, that is part of the national estate and the export of which SAHRA deems it necessary to control, may be declared a heritage object, including— (a) objects recovered from the soil or waters of South Africa, including archaeological and paleontological objects, meteorites and rare geological specimens.”

The Act further stipulates that the term “archaeological” includes:

“wrecks, being any vessel or aircraft, or any part thereof, which was wrecked in South Africa, whether on land, in the internal waters, the territorial waters or in the maritime culture zone of the Republic, as defined respectively in sections 3, 4 and 6 of the Maritime Zones Act, 1994 (Act No. 15 of 1994), and any cargo, debris or artefacts found or associated therewith, which is older than 60 years or which SAHRA considers to be worthy of conservation.”

Section 35 of the Act states:

- “(1) Subject to the provisions of section 8, the protection of archaeological and palaeontological sites and material and meteorites is the responsibility of a provincial heritage resources authority: Provided that the protection of any wreck in the territorial waters and the maritime cultural zone shall be the responsibility of SAHRA.
- (2) Subject to the provisions of subsection (8)(a), all archaeological objects, palaeontological material and meteorites are the property of the State. The responsible heritage authority must, on behalf of the State, at its discretion ensure that such objects are lodged with a museum or other public institution that has a collection policy acceptable to the heritage resources authority and may in so doing establish such terms and conditions as it sees fit for the conservation of such objects.
- (3) Any person who discovers archaeological or palaeontological objects or material or a meteorite in the course of development or agricultural activity must immediately report the find to the responsible heritage resources authority, or to the nearest local authority offices or museum, which must immediately notify such heritage resources authority.
- (4) No person may, without a permit issued by the responsible heritage resources authority—
- (a) destroy, damage, excavate, alter, deface or otherwise disturb any archaeological or palaeontological site or any meteorite;
 - (b) destroy, damage, excavate, remove from its original position, collect or own any archaeological or palaeontological material or object or any meteorite;”
 - (c) trade in, sell for private gain, export or attempt to export from the Republic any category of archaeological or palaeontological material or object, or any meteorite; or
 - (d) bring onto or use at an archaeological or palaeontological site any excavation equipment or any equipment which assist in the detection or recovery of metals or archaeological and palaeontological material or objects, or use such equipment for the recovery of meteorites.”

Furthermore Section 38 of the Act states:

- “(1) Subject to the provisions of subsections (7), (8) and (9), any person who intends to undertake a development categorised as—
- (a) the construction of a road, wall, powerline, pipeline, canal or other similar form of linear development or barrier exceeding 300m in length;
 - (b) the construction of a bridge or similar structure exceeding 50 m in length;
 - (c) any development or other activity which will change the character of a site—
 - (i) exceeding 5 000 m² in extent; or
 - (ii) involving three or more existing erven or subdivisions thereof; or
 - (iii) involving three or more erven or divisions thereof which have been consolidated within the past five years; or
 - (iv) the costs of which will exceed a sum set in terms of regulations by SAHRA or a provincial heritage resources authority;
 - (d) the re-zoning of a site exceeding 10 000 m² in extent; or
 - (e) any other category of development provided for in regulations by SAHRA or a provincial heritage resources authority, must at the very earliest stages of initiating such a development, notify the responsible heritage resources authority and furnish it with details regarding the location, nature and extent of the proposed development.
- (2) The responsible heritage resources authority must, within 14 days of receipt of a notification in terms of subsection (1)—
- (a) if there is reason to believe that heritage resources will be affected by such development, notify the person who intends to undertake the development to submit an impact assessment report. Such report must be compiled at the cost of the person proposing the development, by a person or persons approved by the responsible heritage resources authority with relevant qualifications and experience and professional standing in heritage resources management; or
 - (b) notify the person concerned that this section does not apply.
- (3) The responsible heritage resources authority must specify the information to be provided in a report required in terms of subsection (2)(a): provided that the following must be included:
- (a) The identification and mapping of all heritage resources in the area affected;
 - (b) an assessment of the significance of such resources in terms of the heritage assessment criteria set out in section 6(2) or prescribed under section 7;
 - (c) an assessment of the impact of the development on such heritage resources;
 - (d) an evaluation of the impact of the development on heritage resources relative to the sustainable social and economic benefits to be derived from the development;

- (e) the results of consultation with communities affected by the proposed development and other interested parties regarding the impact of the development on heritage resources;
 - (f) if heritage resources will be adversely affected by the proposed development, the consideration of alternatives; and
 - (g) plans for mitigation of any adverse effects during and after the completion of the proposed development.
- (4) The report must be considered timeously by the responsible heritage resources authority which must, after consultation with the person proposing the development, decide—
- (a) whether or not the development may proceed;
 - (b) any limitations or conditions to be applied to the development;
 - (c) what general protections in terms of this Act apply, and what formal protections may be applied, to such heritage resources;
 - (d) whether compensatory action is required in respect of any heritage resources damaged or destroyed as a result of the development; and
 - (e) whether the appointment of specialists is required as a condition of approval of the proposal.
- (5) A provincial heritage resources authority shall not make any decision under subsection (4) with respect to any development which impacts on a heritage resource protected at national level unless it has consulted SAHRA.
- (6) The applicant may appeal against the decision of the provincial heritage resources authority to the MEC, who—
- (a) must consider the views of both parties; and
 - (b) may at his or her discretion—
 - (i) appoint a committee to undertake an independent review of the impact assessment report and the decision of the responsible heritage authority; and
 - (ii) consult SAHRA; and
 - (c) must uphold, amend or overturn such decision.
- (7) The provisions of this section do not apply to a development described in subsection (1) affecting any heritage resource formally protected by SAHRA unless the authority concerned decides otherwise.
- (8) The provisions of this section do not apply to a development as described in subsection (1) if an evaluation of the impact of such development on heritage resources is required in terms of the Environment Conservation Act, 1989 (Act No. 73 of 1989), or the integrated environmental management guidelines issued by the Department of Environment Affairs and Tourism, or the Minerals Act, 1991 (Act No. 50 of 1991), or any other legislation: Provided that the consenting authority must ensure that the evaluation fulfils the requirements of the relevant heritage resources authority in terms of subsection (3), and any comments and recommendations of the relevant heritage resources authority with regard to such development have been taken into account prior to the granting of the consent.
- (9) The provincial heritage resources authority, with the approval of the MEC, may, by notice in the *Provincial Gazette*, exempt from the requirements of this section any place specified in the notice.
- (10) Any person who has complied with the decision of a provincial heritage resources authority in subsection (4) or of the MEC in terms of subsection (6) or other requirements referred to in subsection (8), must be exempted from compliance with all other protections in terms of this Part, but any existing heritage agreements made in terms of section 42 must continue to apply." (NHRA 1999)

4.2. CONCLUSION – THE LEGISLATION IN TERMS OF THE PROJECT

There is extensive national legislation covering MUCH sites. Within the scope of this project, Section 38 of the NHRA (25 of 1999), states that an assessment of potential heritage resources in the concession area needs to be done. This is the purpose of the desktop study. These processes identify potential MUCH sites. If a potential MUCH site is uncovered during the work, a maritime archaeologist needs to be contacted to assess the find. Thereafter, in conjunction with SAHRA, a decision will be made regarding the significance of the site. If it is deemed to be culturally significant, the company can apply to the Maritime Unit of SAHRA for a permit for removal, excavation, or destruction in terms of Section 35 of the NHRA.

5. STUDY APPROACH AND METHODOLOGY

5.1. EXTENT OF THE ASSESSMENT

This desktop survey is concerned with MUCH and covers the area as described in Section 5. However, shipwrecks are a difficult cultural resource to pin to a specific area, and therefore this UHIA covers a broader area, than the designated areas.

In addition to shipwrecks, a much larger part of our cultural heritage encompasses pre-colonial history. It is not possible to do a desktop assessment of Stone Age sites underwater. However, the possibility of their existence must be borne in mind. The transition from Middle to Later Stone Age and the earliest part of the LSA took place during the coldest time of the last glacial period, when sea levels were much lower than today. Therefore, while prospecting and sampling is being undertaken, artefacts from this period may be part of the materials recovered, this is covered in greater detail in the HIA.

5.2. METHODOLOGY

5.2.1. DESKTOP SURVEY

A shipwreck database was compiled from the available written and oral sources and is available in Section 5.

LIMITATIONS

- The database is a research tool that is constantly evolving as information is uncovered and added.
- The solitary nature of many wrecks means that information may be scarce and/or inaccurate. Therefore, without definitive information, shipwrecks are allocated to an area, based on limited information and certain assumptions regarding the dynamic nature of the environment.
- Shipwrecks that may initially be considered outside of the area, may drift more many miles on the surface or just under the water surface after being abandoned. Therefore, these are also included in the Desktop Survey.

6. DESCRIPTION OF THE AFFECTED ENVIRONMENT

6.1. SITE LOCATION AND DESCRIPTION

WC 50/1/1/2/10454/ PR within Concession 11A is considered in this report (Figure 1). The area c. 2.74 km² and is south of the Salt River mouth (Soutriviermond), on the west coast of South Africa. The beach is sandier with some rocky areas. It encompasses two bays, Piet Booi se Baai and Blinkwaterbaai (Figure 3 and Figure 4).



Figure 1: Location of WC 50/1/1/2/10454/ PR within Concession 11A (Google Earth 2023)



Figure 2: West Coast Place Names (Garmin Marine Charts 2022; Google Earth 2023; SA Navy 1997)



Figure 3: View of the sandy beach looking towards WC 50/1/1/2/10454/ PR (Orton 2023)

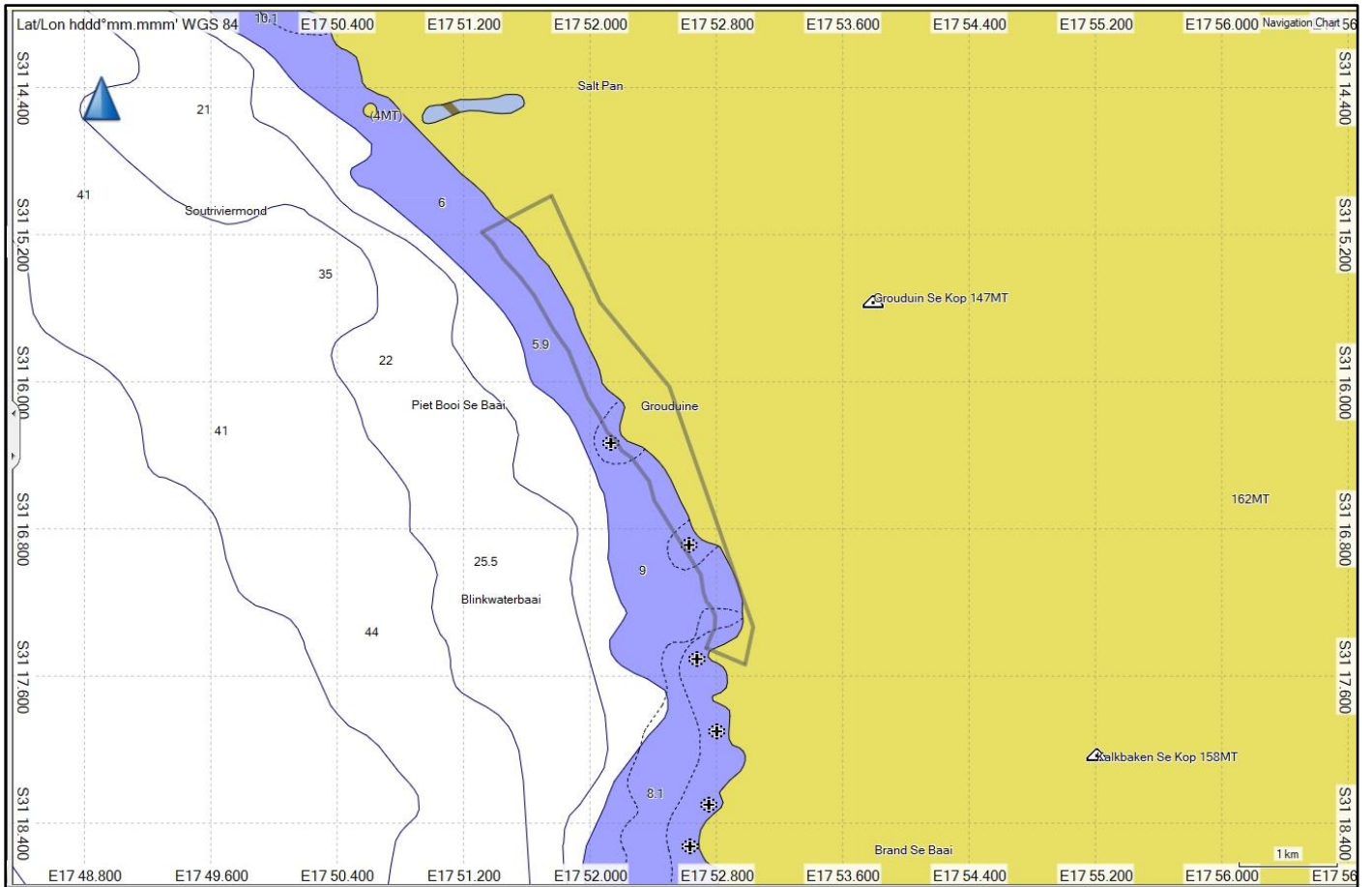


Figure 4: WC 50/1/1/2/10454/ PR Navigational chart showing sandy shore with some rocky sections (Garmin Marine Charts 2022)

6.2. SHORT MARITIME HISTORY OF THE AREA

Soutriviermond or Salt or Zout River (Figure 5 and Figure 6) is 50 km south of Groen River and 60 km north of Olifants River. Although it is a minor river, it still features on many of the earlier maps (Archdeacon 1879; Gordon 1786).

There is a cave, Heerenlogement, 45 km southeast of the Olifants River Mouth, near a spring and most travellers up the west coast have stopped here, many carved their names on the walls. One of these was Jan Philip Griebeler in 1739, apparently, he was on his way to look for a shipwreck on the Namaqua coast. Green (1967) states that he could find no record of a wreck in 1739. The *Krooswijk*, a VOC vessel was part of the homeward-bound fleet of December 1738 and it was lost sight of after 17 February 1739, before the Cape was reached (Huygens Instituut 2023). It is possible that the *Krooswijk* rounded the Cape and was subsequently lost on the west coast. In 1739 of the 66 VOC vessels that departed from the East or the Netherlands, eight never arrived. One was condemned at the Cape, and 7 went missing. Two departed Ceylon (Sri Lanka) in January, the *Van Alsem* and the *Landskroon* (Huygens Instituut 2023), and were never heard from again. Although these ships did not call at the Cape as was customary, it does not mean that they didn't round the Cape before being wrecked. The other five vessels left in December 1739, too late to have been wrecked on the west coast in 1739. Therefore, there are at least three ships that are reported as missing and may be what Griebeler was after. Further research may reveal more information.



Figure 5: Extract from the Great Map of Southern Africa (Gordon 1786)

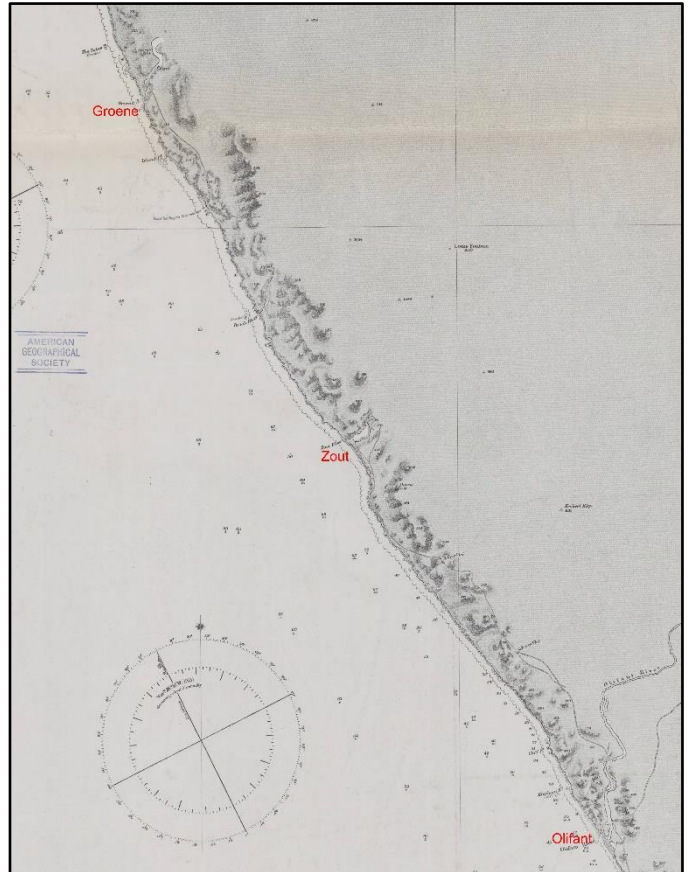


Figure 6: Extract of Admiralty Chart No. 896 (Archdeacon 1879)

6.3. SHIPWRECK DATABASE

The nature of the environment, poor historical reporting, and the length of time since the wrecks occurred means that underwater cultural heritage sites may literally be anywhere and are thus hard to pinpoint with any accuracy beforehand. It is important to have a database because if MUCH sites are uncovered during the project, it will be easier to identify the wreck and thus assess its cultural and historical significance.

There are several points to bear in mind when compiling and making use of any shipwreck database.

- There are thousands of reported wrecks around the South African coastline and thousands more that disappeared mid-ocean (Figure 8).
- There is some anecdotal evidence that the Phoenicians circumnavigated Africa (Herodotus 1954). However, if this is true, these ships had to stick right to the coastline and therefore are unlikely to be far offshore.
- There's increasing evidence that the Chinese voyages of the 1400s explored parts, if not all, of the African coast (Paine 2013). However, once again the archival evidence to date, and availability to Western researchers, limits this knowledge.
- The first recorded European voyages down the west coast of Africa were by the Portuguese. When the Portuguese first sent out their explorers, they stuck close to the coastline, in order to map the land. The present-day Cape Voltas may be a survival of the Portuguese name Volta das Angras. Dias and his fleet passed the Orange River Mouth in 1487/1488 (Axelson, 1973). Thereafter, the rate of exploration and trade increased exponentially, as is evidenced by the increase in shipwrecks over the centuries. These early voyages were not well documented, and the archives often merely report that a fleet of a certain number of vessels left and only a certain amount returned, with only vague references to their place and manner of loss. Additionally, it seems that there were often private vessels that accompanied the fleets, these are underreported (Subrahmanyam 1997). Therefore, there are many undocumented Portuguese wrecks. This statement is reinforced by the Cabral Fleet of 1500 (#40-43 below).
- Due to the Treaty of Tordesillas in 1494, Spain claimed all lands west of 46° 30' W, while Portugal claimed all lands to the east (Paine 2013). However, the Portuguese and Spanish, Iberian Union from 1580 to 1640, brought both kingdoms and colonies under the Spanish monarchy (Marques 1972). This increased the presence of Spanish vessels along the west coast of Africa, especially with regard to the trans-Atlantic slave trade (Landers 1997). While there are no recorded Spanish wrecks on the west coast, there is anecdotal evidence of a Spanish wreck south of Bogenfels (c. 100 km south of Lüderitz) and a report on the recovery of Spanish cannon in 1859 at Walvis Bay (Cape & Natal News 1859-09-05). Therefore, the presence of Spanish wrecks cannot be ruled out.
- While the Vereenigde Nederlandsche Geocroyeerde Oostindische Compagnie or Dutch East India Company (VOC) kept detailed records of their voyages and this information is freely available online (Huygens Instituut 2023), there is evidence of a vast unofficial Dutch trade, specifically in the trans-Atlantic slave trade, of which there are fewer records. Additionally, there was a rich history of pirates and privateers operating on the west coast of which there are few records except brief newspaper articles referring to unsuccessful attacks (Sutton 2009).
- Bear in mind when reading the below database, the term "Abandoned", generally means that the vessel was further out to sea. Older ships were sometimes badly maintained. A lifetime of rough seas had a heavy toll on the old vessels. Through storms and possibly bad maintenance, ships could become death traps. If the vessel was leaking badly and running repairs and continuous pumping had little to no effect, the captain would decide to abandon ship. However, sometimes these vessels would not sink but float along in the currents and could end up thousands of miles from where they were abandoned. There are numerous accounts of such derelicts being spotted. Figure 7 is an example of such a sighting. This vessel was spotted off the Cape south coast, it was on fire and had been abandoned. The whaler that spotted it could not read the name.

ST. HELENA, 26th July.
 A black clipper barque, apparently abandoned, was seen off the Cape of Good Hope 4th July, by the *Beejopore*. M^rClay, arrived here.
 A ship on fire was seen 6th July, in lat. 35 S. lon. 24 E., by the *Benjamin Morgan* (whaler), arrived here, which vessel lowered a boat and went alongside but could ascertain her name, her stern being burnt away; saw the Danish bark *Mathilde*, setting course

Figure 7: London Lloyd's List 13-09-1856

- The ocean currents could move abandoned vessels hundreds of kilometres away from their reported position, Figure 11 and Figure 12 are examples of seasonal variation in the strength and direction of the ocean currents off the southern tip of Africa.

The Shipwreck Database uses several conventions to assess the impact of projects on heritage resources (Appendix I). The important ones, in terms of this project are:

Certainty of prediction:

- **Definite:** More than 90% sure of a particular fact. Substantial supportive data to verify assessment
- **Probable:** More than 70% sure of a particular fact, or of the likelihood of that impact occurring
- **Possible:** More than 40% sure of a particular fact, or of the likelihood of an impact occurring
- **Unlikely:** Less than 40% sure of a particular fact, or the likelihood of an impact occurring

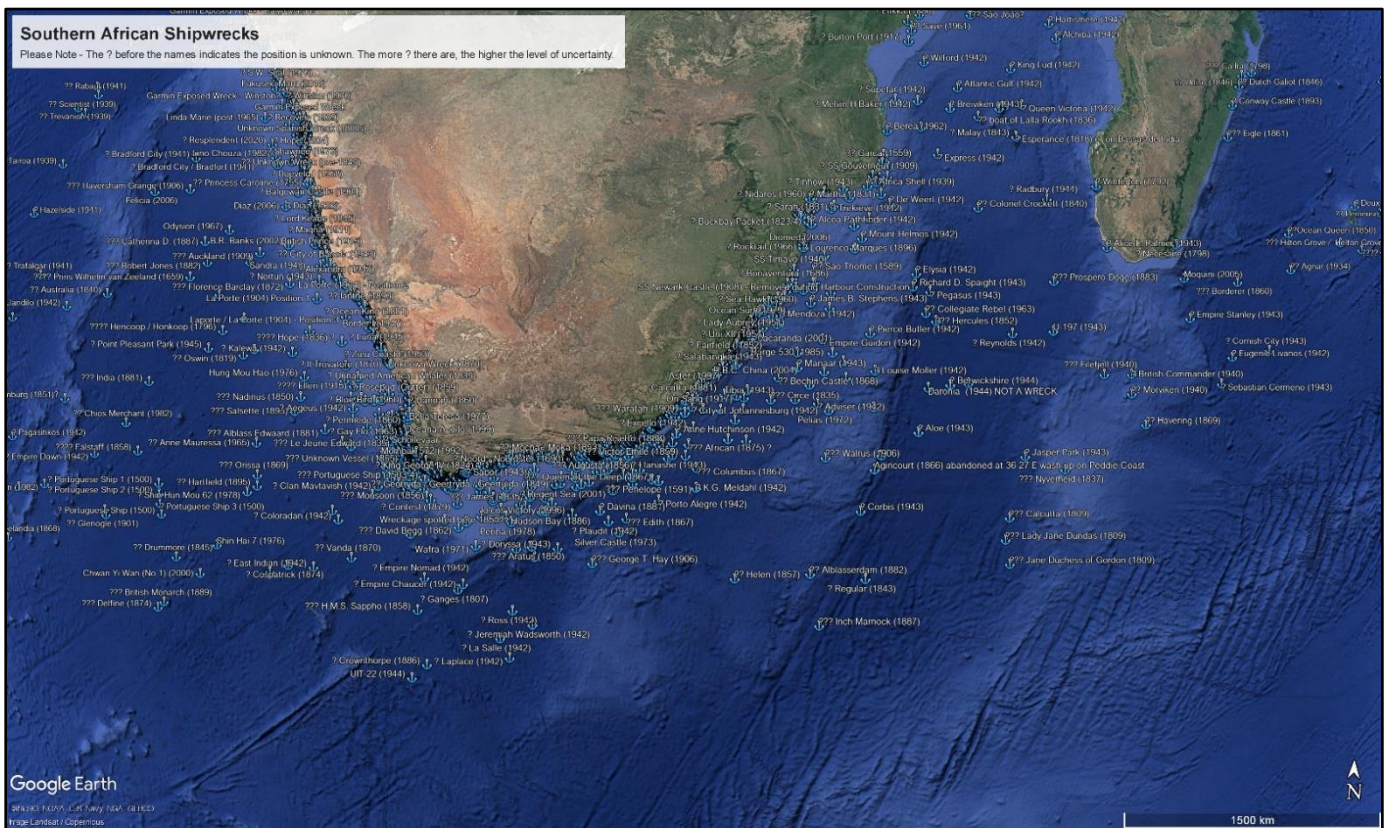


Figure 8: South African Shipwrecks (Google Earth 2023; Hocking 1969; Levine 1989; Maitland 2023; Reocities 2022; SAHRA 2022; Turner 1988; U-boat.net 2022; van den Bosch 2009)

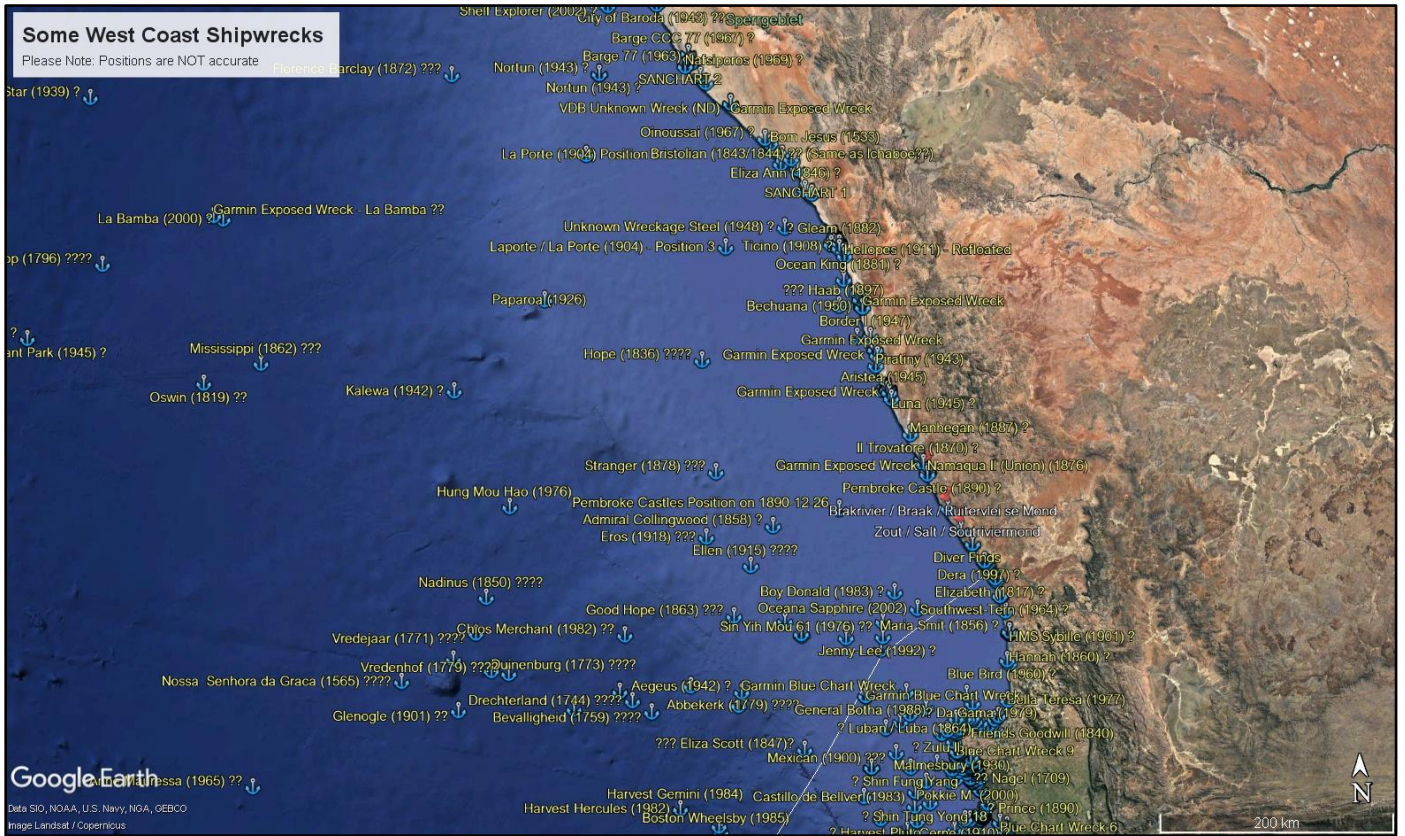


Figure 9: West Coast Shipwrecks in relation to WC 50/1/1/2/10454/ PR within Concession 11A (Google Earth 2023; Hocking 1969; Levine 1989; Maitland 2023; Reocities 2022; SAHRA 2022; Turner 1988; U-boat.net 2022; van den Bosch 2009)



Figure 10: Shipwrecks in and around WC 50/1/1/2/10454/ PR within Concession 11A (Google Earth 2023; Hocking 1969; Levine 1989; Maitland 2023; Reocities 2022; SAHRA 2022; Turner 1988; U-boat.net 2022; van den Bosch 2009)

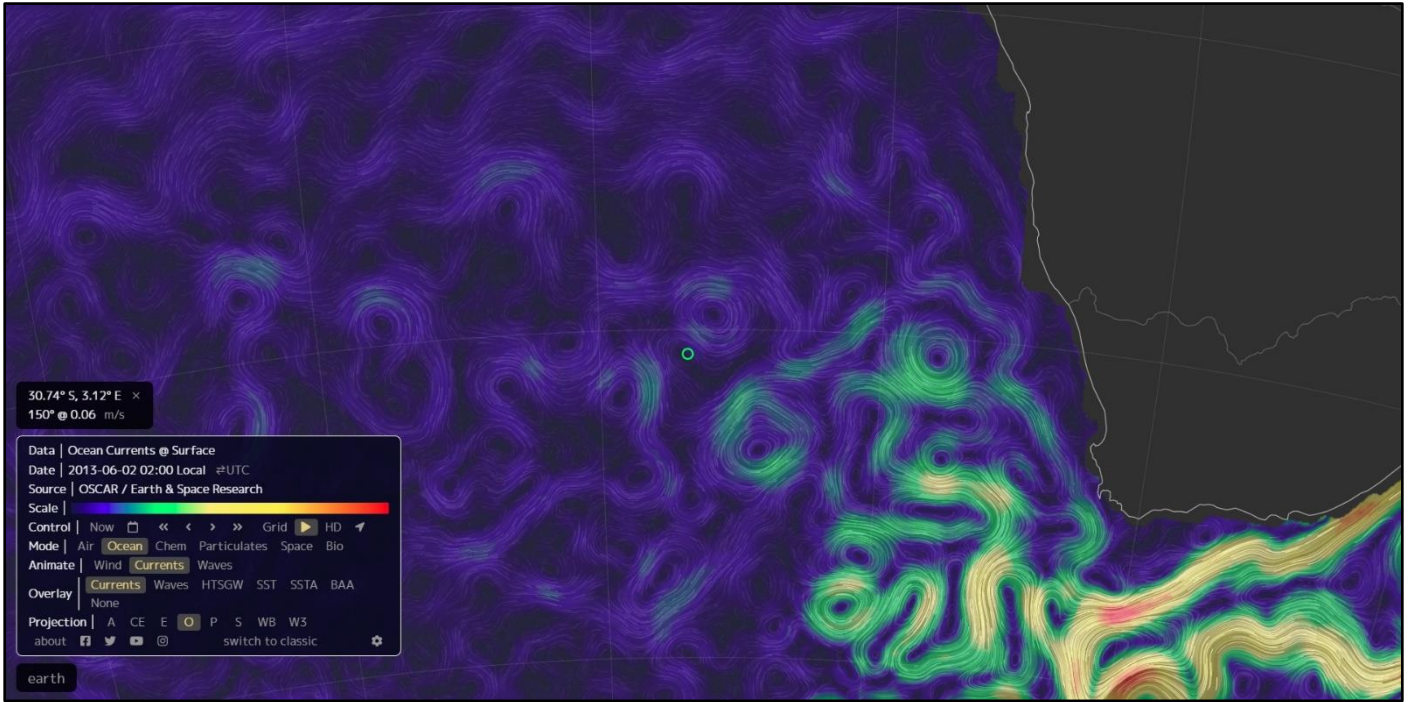


Figure 11: Winter ocean currents around South Africa (Beccario 2022)

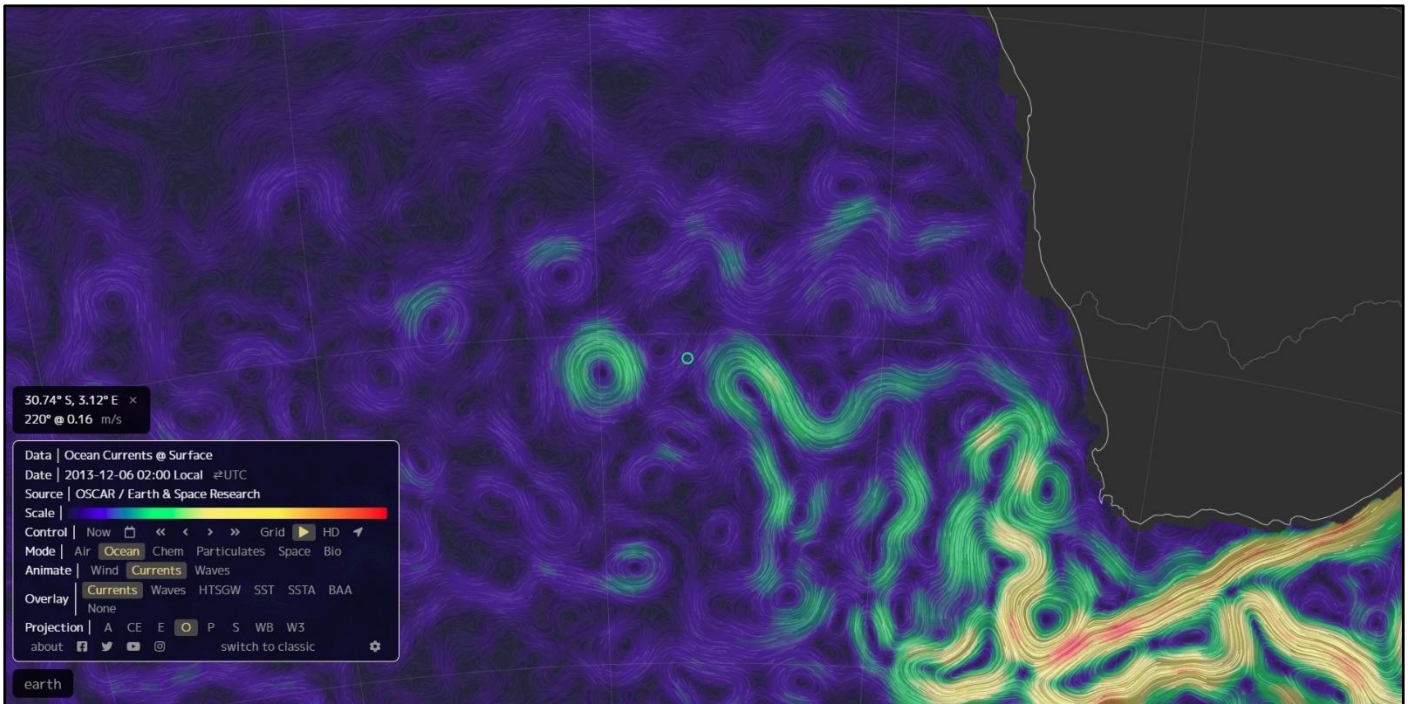


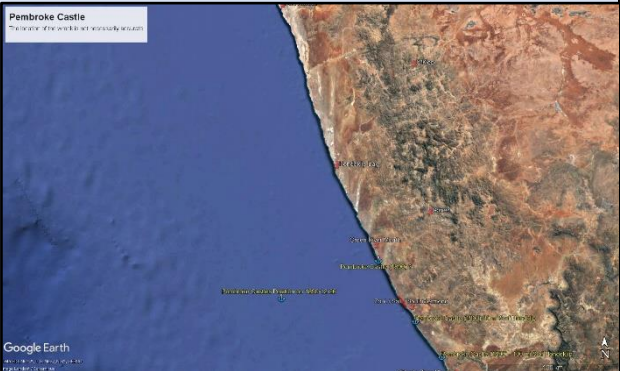

Figure 12: Summer ocean currents around South Africa (Beccario 2022)

6.3.1. SHIPWRECKS DEFINITELY IN WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A

There are no definite shipwrecks in WC 50/1/1/2/10454/ PR within Concession 11A.

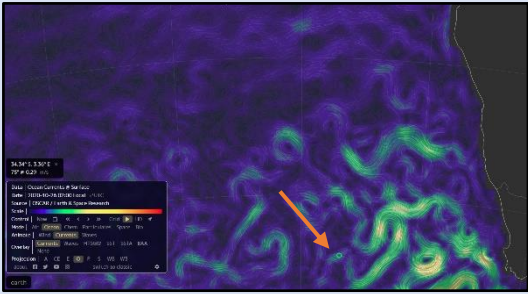
6.3.2. SHIPWRECKS POSSIBLY IN WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A

#	Name	Events	Nation	Date	History	Location
1	<i>Van Alsem</i>	Missing	VOC	1739	This vessel departed Sri Lanka in January 1739 and was never seen again (Huygens Instituut 2023). Although it never called at the Cape, it is possible that it rounded the Cape and was wrecked on the West Coast (See Section 6.2).	Unknown
2	<i>Il Trovatore</i>	Wrecked	Cape Colony	1870-07-04	This Cape Town registered cargo boat was on its way from the Berg River with a wheat cargo when it is reported as being wrecked near the Groen River. Two of the three crew were drowned (Levine 1989). I can find no further information on this wreck. This wreck is probably the "Unknown Wreck" of 1870 in the SAHRA database (SAHRA 2022).	Near Groen River
3	<i>Krooswijk</i>	Missing	VOC	After 1739-02-17	It part of the homeward-bound fleet of December 1738 and it was lost sight of after 17 February 1739, before the Cape was reached (Huygens Instituut 2023). It is possible that the <i>Krooswijk</i> rounded the Cape and was subsequently lost on the west coast. (See Section 6.2)	Unknown
4	<i>Landskroon</i>	Missing	VOC	1739	This vessel departed Sri Lanka in January 1739 and was never seen again (Huygens Instituut 2023). Although it never called at the Cape, it is possible that it rounded the Cape and was wrecked on the West Coast (See Section 6.2).	Unknown
5	<i>Pembroke Castle</i>	Aground, wrecked	Britain	1890-12-26	<p>This iron barque of 410-tons was built in 1863 by Stephen & Sons, Glasgow and was owned by Simpson Bros. of Swansea. The reported dimensions were, L=140.2', B=26.2', D=16.3'. Under Capt Thomas sailed from Swansea, Britain to Rosario, Argentina in October. After discharging its cargo, the vessel sailed in ballast for Port Nolloth for a copper cargo (Port Elizabeth Telegraph 1891-01-13).</p> <p>They were near the Groen River and after being wrecked, the crew walked to Garies, from there they were taken by wagon to O'kiep and then Port Nolloth where they would board the <i>SS Nautilus</i> for Cape Town (Port Elizabeth Telegraph 1891-01-13).</p> <p>There are various reports as to the location of this wreck: near Groen River, "eighty miles south ... in about the same place as the U S.S. <i>Namaqua</i> [sic] was in 1877 (Port Elizabeth Telegraph 1891-01-06), then a few days later, "almost a hundred miles this side of Hondeklip Bay" (Port Elizabeth Telegraph 1891-01-10); "near Morral Island, south of Hondeklip Bay" (Liverpool Journal 1891-02-05). This reference to "Morral Island", which does not exist, is a hangover from the guano rush days of the 1850s. Morrell was an American sea captain that reported on the guano islands of the west coast. There were always rumours of the next Ichaboe and references to Morrell's islands often surfaced in the popular media.</p> <p>The wreck was put up for auction and apparently sold (Liverpool Journal 1891-02-25). A Court of Inquiry was held in Cape Town where it was found that the captain was at fault for negligent navigation, relying on his ability to navigate the route through dead reckoning and even though he stated that observations were taken, there were very few recorded in the logbook. A position is reported the day of the wreck at 31° 11' S 16° 51 E, this is 85 km off the coast and between the Sout and Groen Rivers. However, 35 minutes later, the vessel hits a rock and it wrecked. The court suspended the master's certificate for six months (Western Morning News 1891-03-11).</p> <p>In conclusion, this coast was largely uninhabited and often shipwreck reports refer to the closest place, not necessarily the actual location. If the wreck was 80 miles from Hondeklip, this places it c. 10 km south of the Sout River, if it was 100 miles south of Hondeklip, the wreck would be 20 km north of the Olifants River. If it was that close to the Olifants River, the survivors would have gone there, the fact that they went to Garies, 50 km inland (as the</p>	Between Groen and Sout Rivers

#	Name	Events	Nation	Date	History	Location
					<p>crow flies) points to the wreck being between the Sout and Groen Rivers, possibly closer to the Groen (Figure 13).</p>  <p>Figure 13: Positions related to the wreck of the <i>Pembroke Castle</i></p>	
6	<i>Zulu Coast I</i>	Aground, wrecked	Britain	1953-04-08	<p>This British registered coaster was built in Ardrossan, Scotland in 1934 by the Ardrossan Dockyard Company. This 380 GRT vessel, had a length of 41.3 m and breadth of 7.7 m. It was steel, and it was fitted with one diesel engine. Under Captain Patterson, it serviced the route between Cape Town and Port Nolloth (Lloyd's Register 1953).</p> <p>On 7 April 1953, the vessel went ashore on the Namaqualand Coast during severe weather. The crew were rescued by a fishing boat and taken to Hondeklip Bay (Rand Daily Mail 1953-04-10). The court case in July of 1953 found the mate responsible for not keeping a proper watch and the captain was to be reprimanded (Rand Daily Mail 1953-07-25).</p> <p>According to van den Bosch (2009), the wreck is these co-ordinates 31 10.90S, 17 46.30E. This places the wreck off the concession (Figure 14).</p>  <p>Figure 14: van den Bosch co-ordinates for the wreck of the <i>Zulu Coast</i> (1953)</p> <p>However, the newspaper reports of the time state that the wreck occurred 40 miles south of Hondeklip Bay, which places the wreck near the Groen River (Rand Daily Mail 1953-04-10). This location is further enforced by the Lloyd's Register of merchant ship losses which states that the vessel was lost 2 NM (Nautical Mile) north of Groen River (Lloyd's Register 1953)</p> <p>While the preponderance of evidence points to the wreck being at Groen River, the wreck has been stated as being further south.</p>	Probably Groen River

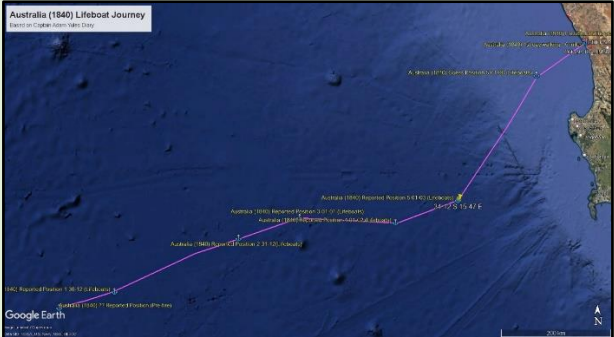
6.3.3. SHIPWRECKS **IMPROBABLY** IN WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A

#	Name	Events	Nation	Date	History	Location
6.3.3.1. SHIPWRECKS WITH No HERITAGE SIGNIFICANCE						
7	<i>Boy Donald</i>	Sank	RSA	1983-03-22	This 20 m long fishing vessel was built in 1961 and owned by the Lamberts Bay Fishing Company. The boat was under Capt J. Hunter when it foundered. At least five of the crew were rescued.	Off West Coast

#	Name	Events	Nation	Date	History	Location
					It sank rapidly and the search was concentrated in an area 55 miles northwest of Lamberts Bay (van den Bosch 2009). Therefore, this vessel may be in the area.	
8	<i>Girl Anne</i>	Wrecked	RSA	1969-02-25	This South African fishing vessel was wrecked on Island Point (Levine 1989; van den Bosch 2009)	Island Point, south of the Groen River
6.3.3.2. SHIPWRECKS WITH A LOW HERITAGE SIGNIFICANCE						
9	<i>Ellen</i>	Capsized		1915	Capsized by a wave. None of the databases list a location (Pocock 2015; van den Bosch 2009). However, the West Coast was a prime fishing area, so it is left in the database.	Unknown
10	<i>Eros</i> (ex. SS <i>Ceres</i>)	Foundered	Britain	1918-05-26	This 174-ton steel steamer, built in 1900 by Selby Shipbuilding & Engineering Co. Ltd in Selby, had been sent to the Cape for the Namaqua Copper Company. After several voyages, it was laid up in order to alter its specifications. On 25 May, it left Table Bay for Port Nolloth under Captain Robert Brooks or Capt Richard Walter Powell (<i>Wrecksite.eu</i> 2022). However, it foundered en-route. There were 14 crew members on board, and one man died (Levine 1989). In Green (1984), it is stated that all the crew died and the only sign of the wreck was one lifeboat, found adrift, with a crewman that seemed to have died of exposure. According to van den Bosch (2009), the vessel is off Port Nolloth and according to the Miramar Ship Index (2017), it is off Lambert's Bay. The information is contradictory and further research may show that it grounded on the coast or sank between the two points. However, it is included here for the moment.	West Coast
11	<i>Glenogle</i>	Fire, abandoned	Britain	1901-10-27	This 914-ton steel barque caught fire and was abandoned at 34 38.00S, 03 40.00E (<i>Lloyd's Register</i> 1901; van den Bosch 2009). The Equatorial current which runs west to east here could have pulled the abandoned vessel into the Benguela current and up the west coast. Using the online current website (Beccario 2022), and placing the reported position on the same month and day, one can see how the currents could pull the vessel towards the coast (Figure 15). Obviously, there are many other factors at play, including wind, swell, drag of the vessel, how quickly it sinks, etc. But this shows how vessels can be moved from their place of abandonment and will not be repeated for every abandoned vessel.	Atlantic Ocean
						
					Figure 15: Reported position of the <i>Glenogle</i> and the ocean currents at that time of year	
12	<i>Ianthe</i>		Britain	1890-07-18	This wooden barque, of 380-tons was built by A. Stephens & Sons in Dundee in 1858 (<i>Lloyd's Register</i> 1845). Under Capt. Clay, the vessel left Port Nolloth for Swansea on 18 July with a copper cargo. She was seen tacking and "well out to sea" when later, the ship's crew arrived at the jetty in one of the boats, apparently wrecked 18 miles up the coast (<i>Whitstable Times</i> 1890-08-23). According to Turner (1988), it was wrecked at Cliff Point, just north of the Olifant's River Mouth and three lives were lost. Therefore, despite some databases placing this wreck at Olifants River, it is more likely near Port Nolloth, this also makes more	Reported as near Olifant's River BUT ACTUALLY near Port Nolloth

#	Name	Events	Nation	Date	History	Location
					sense as Port Nolloth is north of Olifant's River and the ship was travelling to Britain.	
13	<i>Namaqua</i>	Aground, wrecked, partly salvaged	Britain	1876-03-29	<p>This steamer was owned by the Union Company and had been trading on this route for three years. Under Capt Gibbs they left Table Bay on 28 March for Port Nolloth with cargo and passengers. The following day in the early afternoon, the captain and mates went to lunch even though a fog was developing, on returning to the wheelhouse, they steered what they thought was a course to avoid the land. The second officer reported that he heard the surf, but this was ignored, there was no lookout forward and no soundings were taken. The speed was reported as 7 ½ knots (c. 14 km/hr) and it ran aground on Island Point (Hampshire Independent 1876-06-07). The SS <i>Zulu</i> found it "high and dry on a solitary reef, which rose out of a sandy beach". (Western Morning News 1876-05-08). The captain tried to blame "unusual currents" and the belief that the fog affected the compass, he was found guilty of negligence and his certificate was suspended for two years (Hampshire Independent 1876-06-07).</p> <p>The vessel was promptly sold for £5 to a local farmer, that was already dismantling the wreck when the <i>Zulu</i> arrived (Western Morning News 1876-05-08). The cargo was sold to two locals who were unloading it for the underwriters. The speedy sale and salvage of the wreck caused no shortage of consternation locally (Hampshire Independent 1876-05-10; Western Morning News 1876-05-08)</p> <p>When reporting on the wreck's location, it is said that it wrecked either at Island Point or "Morell Island" (see <i>Pembroke Castle</i> below) (Hampshire Independent 1876-05-10).</p> <p>The reports are reliable in terms of reporting the location of the wreck, speaking not just of a general location, as in near the Groen River, but directly stating that the wreck is on Island Point, a known point that retains the same name today.</p>	Island Point, south of the Groen River
6.3.3.3. SHIPWRECKS WITH A MEDIUM HERITAGE SIGNIFICANCE						
14	<i>Admiral Collingwood</i>	Foundered	Britain	1858	<p>This 360-ton barque under Captain Smith was bound from London for Algoa Bay when it apparently foundered 320km off St Helena Bay (Levine 1989; van den Bosch 2009).</p> <p>This may put her in the West Coast area.</p>	West Coast
15	<i>American Whaler (no name)</i>	Wrecked	USA	Before – March 1835	An unknown American whaler was wrecked at the mouth of the Olifant River, and eight men died (Levine 1989).	Near the Olifants River Mouth
16	<i>Catherine and Isabella</i>	Ashore, wrecked	Canada	1845-05-17	<p>This wooden 99-ton schooner, under Capt. Nicolson, was built in Nova Scotia, Canada in 1844 and owned by Nicolson & Co. (<i>Lloyd's Register</i> 1845).</p> <p>It left Cape Town on the 29th of April for Paternoster Island (Morning Post 1845-07-01). On the 17th of May, the schooner was anchored near the Olifant's River when three cables parted during a north-westerly gale. It went ashore at about 3 AM and became a total wreck. The crew entered the surf boat at first light, but it capsized in the surf and one crewman drowned. The wreck was put up for sale on the 11th of June (Shipping & Mercantile Gazette 1845-07-30). The wreck was sold on for £75 on the 20th of June (Shipping & Mercantile Gazette 1845-09-16).</p>	Near the Olifants River Mouth
17	<i>Australia</i>	Fire, sank	Britain?	1840-12-27	This brig of 250 tons (Figure 16) was completed in August 1840 at Dundee, Scotland. Built and owned by Thomas Adamson, it was built of oak, larch, pine, elm and fir, and copper sheathed (Lloyd's Surveyor 1840). On its maiden voyage from Leith, Scotland to Sydney and Port Phillip, Australia it was lost. There were 14 crew. And 15 passengers aboard, including five orphaned siblings (Geelong Advertiser 1841-04-17; M'Gavin 1853)	West Coast

#	Name	Events	Nation	Date	History	Location
					 <p data-bbox="708 568 1326 595">Figure 16: Alleged Image of the <i>Australia</i> (Unknown n.d.)</p> <p data-bbox="708 600 1326 1039">After leaving Leith, the brig spent a few days in Rio de Janeiro in early December before crossing the Atlantic towards the Cape experiencing strong winds, on 27th the weather cleared. On 29th, the brig had "all sails set, with a fair strong wind, and a heavy sea ... by recent observations, ...latitude 35° 51' south, and longitude 8° 8' east of Greenwich, or, in round numbers, about 600 miles from the nearest land, which was the Cape of Good Hope." (M'Gavin 1853: 12). At this time the Captain Adam Yule believed that something was burning, searching the ship, he found smoke coming from the "fore bulk-head on the starboard side of the mainmast". They tracked the fire to an unoccupied berth and cleared away the goods that had been stuffed into the space. However, they realised the fire came from deeper within the vessel, "... the whole interior of the vessel like the womb of a volcano, and the entire cargo of coals and combustible goods in a blaze" (1853: 14).</p> <p data-bbox="708 1043 1326 1715">The captain ordered the sails eased and broke a hole in the deck over the area of the blaze. Water was pumped over the fire, to no avail. The deck was then covered with a sail to smother the fire. The captain knew that the vessel would not survive so he prepared to abandon ship. The longboat was being used as a "stall" for two bulls, and while attempting to lower the bulls into the sea, one escaped and ran all over the deck, it took a while for "the ferocious animal [to] be secured and despatched" (1853: 18). Apparently, it was despatched with axes (Geelong Advertiser 1841-04-17). Thereafter, hardly able to breathe for smoke, the longboat was launched. In the meantime, the steward collected supplies for the journey. These were put in the skiff and two casks of water were brought for the longboat, one of which was lost during loading. The women and three children went in the skiff with two seamen, unfortunately two male passengers hid themselves in the skiff as well, overloading it. The "small boat" was also launched and everyone else got into it, leaving the captain alone. He boarded the longboat as the masts started to burn. It was three hours since the fire was first discovered. The three boats were attached to the burning vessel, in the hopes that a passing ship might spot the fire and come to their rescue. However, the rope burnt through. The captain redistributed the people, 16 went into the long boat with the captain, seven were in the skiff and four in the small boat (M'Gavin 1853).</p> <p data-bbox="708 1720 1326 2101">The three boats drifted off, lit by the glow of the burning ship. At some stage during the night explosions were heard, the captain surmises it is the ship's alcohol. By the morning each boat was rigged with sails, made from the oars and some sails they had aboard. Yule stated that it would take them 10-12 days to reach land, and the provisions were insufficient, each person is allowed three tablespoons of water per day (M'Gavin 1853). Despite having insufficient supplies, apparently there was enough time to save the captain's desk and papers (Geelong Advertiser 1841-04-17), this small fact is omitted from the diary. Each day the captain records his position. As the days pass, circumstances are dire, and some people start to drink seawater, this leads to delirium. On the first day, the weather was wild so the people in the small boat were transferred to the other boats and the small boat let go. By</p>	

#	Name	Events	Nation	Date	History	Location
					<p>January 5, the weather had driven the skiff apart from the longboat. However, the skiff came back in contact the following day.</p> <p>Yule managed to take positions (Figure 17) up till the 3rd when his chronometer broke, this meant his latitude readings were a guess. On the 5th, he reports that his sextant had been "spoiled by the loss of its top", so thereafter all his positions are dead reckoning (1853: 41).</p>  <p>Figure 17: Reported positions of the lifeboat journey (Google Earth 2023; M'Gavin 1853)</p> <p>On the morning of the 7th, John Chrisholm, one of the orphans died. At this stage the captain thought they were north of St Helena Bay but was trying to head south. They then spotted land but saw "... an iron-bound coast, fringed only with foam, and hoary with tremendous breakers" (1853: 51). The skiff is sent off to search for a break where they could safely land the boats, but it got too close to the shore and was forced to run for the beach. The longboat assumed they had found a landing spot and followed. After hitting on rocks and some crew being thrown overboard, they all landed safely. As soon as they landed, a storm blew up and "lifted our little boats upon its billows to a height of 40 or 50 feet upon the beach" (1853: 58). They had been in the lifeboats for nine days. George Peat died on the 8th, after being carried ashore and put in the tents that had been erected from the oars and sails. The two deceased were buried, either on the beach or just off the beach. The captain tried to take some readings and his dead reckoning led him to believe they were about 11 miles north of the Olifants River. The survivors spent the 8th looking for water and food, they didn't find any and so prepared to walk south on the following day (M'Gavin 1853). The desk was left on a hill next to the landing site, along with an explanation of the events (Geelong Advertiser 1841-04-17).</p> <p>On the first day, 9 January, that they walk south, they see two huts "below a cliff", that is unreachable, the huts belonged to a local fishing company, they also see a path leading to the interior and eventually stop after walking for six miles. One of the passengers was delirious and threw away his coat with two bottles of water. One of the other passengers drank a full bottle of water that he was carrying, essentially endangering the entire group. Thereafter all the water was carried by one of the trusted seamen. By this stage everyone had bloated faces, torn and chapped lips, swollen limbs and were covered in sores. On the second day, it was a real battle to keep everyone moving but eventually a hill was crested and below them the Olifants River flowed. People from the settlement there saw them and sent a boat across the river to rescue the bedraggled survivors.</p> <p>On the Olifant's River farms, the survivors received the food water and medical care that they need and 9 days later on the 19th, the group make their way to Cape Town where they arrived on the 28th. Two of the steerage passengers decided to stay in the Cape while the rest continued their journey (M'Gavin 1853) including the remaining orphan children who were on their way to their uncle in Geelong, Australia (Geelong Advertiser 1841-04-17). The captain returned to Britain.</p> <p>Conclusion:</p> <p>On the evening of 29 December, the <i>Australia</i> was discovered to be on fire. Three hours later all passengers and crew had</p>	

#	Name	Events	Nation	Date	History	Location
					<p>abandoned ship aboard lifeboats. These were rigged with sails and the captain took positions for the first few days until firstly, his chronometer broke, this meant that he could no longer be sure of his latitude. A few days later, his sextant broke and he could now only reckon where his position was. On abandoning ship, during the night, they all heard explosions from the vessel. Although there are cases of ships being abandoned, in the belief that all was lost, only for the vessels to reported drifting, for example the <i>Salsette</i> (1895), it is likely that the <i>Australia</i> sank shortly afterwards.</p> <p>There is little doubt that the lifeboats landed north of the Olifants River as they reached the farms there. Although the newspaper reported that the party walked for four days (Geelong Advertiser 1841-04-17), the diary states two days to reach the river (M'Gavin 1853).</p> <p>The diary records cliffs and wild rocky shores, this tallies with the area around Cliff Point, the survivors apparently named the little cove they landed in, "Happy Cove" (Geelong Advertiser 1841-04-17), this correlates with the cove at Cliff Point.</p> <p>While the diary is written by and for a Christian audience and there is an inordinate amount of the text dedicated to their salvation by God, and the captain doesn't mention the fact that his desk was saved at the expense of more supplies (no doubt this would have detracted from his heroics - Figure 18), the account is clear and no doubt factual with respect to the physical details of the journey. I wonder if he returned for his desk or if it was picked up by a local. Perhaps it is still there, covered in sand.</p> <p>While the wreck of the <i>Australia</i> is unlikely to be found on the west coast, the remains of the lifeboats may be found near the beach as well as the graves.</p>  <p>Figure 18: An example of a captain's desk from the 1800s (S&S 2023)</p> <p>This 250-ton brig, under Capt. A. Yule was built in Dundee, Scotland in 1839. It was on its maiden voyage to Australia with passengers and cargo when the vessel caught fire and sank, apparently 9.6 nautical miles (NM), north of the Olifants River Mouth.</p> <p>However, it was 4-500 miles (640-800 km) from Cape Town when the fire broke out. One of the long boats contained two bulls that were being shipped from Leith. The noise and fire caused them to break out of the boat, one fell overboard and the other ran down the deck of the brig, until the crew killed it with axes. The long boat could now be launched, and the twenty-eight passengers and crew escaped the burning ship. The burning ship was visible until sunrise the following morning. Two night later, the cable joining the lifeboats broke and they were separated. The following day, they were reunited. A boy died at sea and a man died after they made land, 200 miles northwest of Cape Town after nine nights at sea. The survivors then walked south for four days before reaching the Olifants River where they were assisted by local farmers (Port Phillip Patriot 1841-04-12).</p>	
18	<i>Catterina D / Catherina D.</i>	Fire, abandoned	Austria	1887-10	This 610-ton barque from Liverpool for Cape Town with a cargo of coal caught fire. It was apparently abandoned before it sank, 480km west of Hottentot Point. The captain and crew reached Walvis Bay in the lifeboats (Levine 1989; van den Bosch 2009).	West Coast

#	Name	Events	Nation	Date	History	Location
					As it was abandoned before it sank and could have drifted south, this vessel is included in the database.	
19	<i>Elizabeth Jane</i>	Unknown		1834-01-20	This vessel seems to be a whaler that operated in Tasmania and the southern oceans (van den Bosch 2009). Although I can find no further information on its status at this time, I have left it in the database.	Unknown
20	<i>Florence Barclay</i>	Fire, abandoned	Britain	1872-11-7	This 243-ton barque was built in 1866. Under Captain J.H. Voller, it was bound from Hull for Table Bay and Mauritius. Somewhere off the west coast, the vessel caught fire and was abandoned. The crew were in three lifeboats, one of which disappeared during the first night at sea. The other two boats arrived at Pomona Island (Namibia) three days later. The survivors were taken to Table Bay by the <i>Lilla</i> (Levine 1989; van den Bosch 2009). As the crew beached on the west coast of southern Africa, I have included this vessel.	West Coast
21	<i>Good Hope</i>	Fire, sank	Cape?	1863-7-31	I have very little information on this wreck. Only that it was a Cape trader and burned at sea (van den Bosch 2009).	Unknown
22	<i>Haab</i>	Abandoned	Norway	1897-10-8	This 861-ton wooden barque was according to Levine (1989), grounded on Dassen Island. Van den Bosch (2009), states the vessel was abandoned 260 NM from Table Bay. According to the Brisbane Courier (1897-11-04), the vessel caught fire and was abandoned, the crew, in lifeboats, eventually landed on Dassen Island. Dassen Island is only c. 35 NM from Table Bay (i.e., the Port). 260.5 NM means that the vessel was abandoned in the area and may be anywhere between there and Dassen Island.	Between Port Nolloth and Dassen Island
23	<i>Hartfield</i>	Fire, sank	Britain	1895-9-9	According to van den Bosch (2009) and Levine (1989), this 852-ton iron barque caught fire at 34 30.00S, 11 30.00E, 259 NM west of Table Bay. The Equatorial current which runs west to east here could have pulled the abandoned vessel into the Benguela current and up the west coast.	West Coast
24	<i>India</i>	Abandoned	Sweden	1881-8-24	This British iron barque, under Capt McPhail, was on a voyage from Britain to Australia, when it began leaking after being battered by several gales. From 2 January to 24 February, the barque limped down the west coast of Africa. At this time, as the leak was so serious, the crew abandoned ship at 7° E. Their lifeboats had been smashed in one of the storms, so when they saw a passing ship, they asked for assistance. When they left the distressed vessel, it was still afloat (van den Bosch 2009). The currents may have pulled it towards the West Coast or further out into the Atlantic.	West Coast / Atlantic Ocean
25	<i>Joachim</i>	Fire, abandoned	German	1868-10-10	Apparently the 763-ton barque under Captain Helenmeyer was on a voyage from Bremen to Rangoon with a cargo of coal. When it "burnt off the Cape". The crew were rescued by the American vessel, <i>China</i> and brought to Cape Town (Levine 1989). The currents may have pulled it towards the West Coast.	Off the Cape
26	<i>Juno</i>	Fire, abandoned	Sweden	1885-4-9	The 1274-ton schooner, under Captain T. Keyller was bound from Norway for Melbourne with a cargo of deals (timber). It caught fire and was abandoned at approximately 37 24.00S, 11 30.00E. the 22-man crew took to the lifeboats and set off towards the Cape. The currents washed them towards the Orange River. They attempted to beach the lifeboat 32km south of the river but capsized and there were only four survivors. These four were picked up by the <i>Namaqua</i> and taken to Cape Town (Levine 1989; van den Bosch 2009). It follows that if the current brought the lifeboat towards the Orange River, that the same principle could apply to the abandoned schooner.	Atlantic Ocean

#	Name	Events	Nation	Date	History	Location
27	<i>Luba / Luban</i>	Fire, abandoned	Cape	1864-2-11	This barque was on its way from Leith for Cape Town with a cargo of coal and coal tar when it caught fire and sank 86.3 NM off Table Bay. The crew were rescued (Levine 1989; van den Bosch 2009). This position is in the general vicinity of the concession.	West Coast
28	<i>Mary</i>	Disappeared	Britain	1870-07-24	Under Captain Anderson, this vessel left Simon's Bay for Falmouth and disappeared (Levine 1989). As the intended route goes up the west coast, I have included this vessel.	Atlantic Ocean
29	<i>Mississippi</i>	Abandoned	USA	1862-08-31	This 2030-ton steamship was abandoned about 450 km off the West Coast after severe weather was causing extensive leaks (Daily Southern Cross 1862-11-27). It may have drifted closer to land before sinking.	Off West Coast
30	<i>Mona</i>	Fire, abandoned	Britain	1887-09	The 1045-ton barque under Captain Pearson was on a voyage from Grimsby to Durban with coal when it caught fire at 27° 14' S 24° 55' W. The following day the crew took to the lifeboats. After a week, the crew were picked up by the German barque, <i>Livingstone</i> and landed at Mossel Bay (Levine 1989). The current was clearly pushing the survivors towards the Cape coast and, so it follows that their vessel, abandoned before sinking, may also have been pulled by the currents towards the west coast.	Off West Coast
31	<i>Oliver Cromwell</i>	Fire, abandoned	Britain	1874-8-30	This 1112-ton vessel, under Capt. Jack was on a voyage from Newcastle to Aden with a cargo of coal It caught fire 300 miles (482 km) from Table Bay. The 21 crew members entered the lifeboats while the ship was burning. The boat was overloaded and leaking. They had the bail water out the entire trip, and while they did spot one vessel that could have saved them, it did not notice the lifeboat. Three days later they entered Table Bay, and the <i>Saxon</i> took them aboard (London Magnet 1874-10-19). As it was abandoned off the west coast, it is included in the database.	Off West Coast
32	<i>Orissa</i>	Fire, abandoned	Britain	1869-9-27	This 634-ton, three-masted, wooden ship was built in 1862. Under Captain R. Adams, bound for Mauritius with a cargo of coal, it caught fire and was abandoned 343.2 NM west of Table Bay (Levine 1989; van den Bosch 2009). The Equatorial current which runs west to east here could have pulled the abandoned vessel into the Benguela current and up the west coast.	Atlantic Ocean
33	<i>Oswin</i>	Leaking, abandoned	Britain	1819-1-27	This vessel was en-route to the East. According to Captain Ray, the commander of the vessel, the ship rounded the Cape and sprung a leak in the vicinity of the Agulhas Bank and while the pumps were working 24 hours a day, they were unable to make any headway on the leak. By the next day, there was 1.5m of water in the hold and this was increasing. The crew launched the longboat and filled it with supplies. "Embarking in the boat the commander and crew steered for Saint Helena and were from 31 Jan to 12 Feb exposed to great sufferings and anxiety, until they reached Saint Helena. During this time, they ran about 1400 miles and were particularly fortunate in making the Island to a mile." (The Asiatic Journal and Monthly Register 1820) Despite having rounded the Cape, the Benguela current seems to have pulled the vessel back around the Cape while they were attempting to repair it. They state that they travelled 1400 miles after abandoning it. Depending on whether this report was using nautical miles or statute miles, makes a difference to the location of the wreck. Statute miles puts the vessel off Lüderitz, nautical miles puts the wreck in the vicinity of the West Coast.	Off West Coast
34	<i>Stranger</i>	Fire, abandoned	Britain	1878-8-27	This 288-ton barque was built in 1872. Under Captain Bendon, it was bound from London to Port Nolloth with a general cargo. The	West Coast

#	Name	Events	Nation	Date	History	Location
					vessel caught on fire and was abandoned at sea. Two days after taking to the lifeboats, the crew arrived at Port Nolloth (Levine 1989). The location of the abandonment puts this vessel firmly in the West Coast area.	
6.3.3.4. SHIPWRECKS WITH A HIGH HERITAGE SIGNIFICANCE						
35	<i>Abberkerk</i>	Wrecked	Netherlands	Post – 1779-06-24	This vessel was built in 1772 for the van Hoorn Chamber. It was 140 Dutch feet long, 850 tons and had a crew of 174-268 people. Under Capt. Kasper Burger, the ship left China on the 29 th of January 1779, reached the Cape on the 26 th of May, and departed for the Netherlands on the 24 th of June and was not heard from again (De VOC Site 2023) This vessel could be on the west coast.	Off South Africa
36	<i>Aegeus</i>	Torpedoed, sank	Greece	1942-10-31	This 3 792-ton steamship left Trinidad for Saldanha Bay and then Durban and never arrived (Hocking 1969). After WWII, German records indicated that it was torpedoed by the U-177 at 32° 30'S, 16° 00'E (U-boat.net 2022). These coordinates are just southwest of the concession and are where the U-boat reports torpedoing the vessel, not necessarily where it sank. In addition, the coordinates mentioned are subject to the technical limitations of the period.	West Coast
37	<i>Bevalligheid</i>		Netherlands	1769	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between Cape Town and the Netherlands
38	<i>Boa Viagem</i>			1585	Under Lourenço Soares de Mel,) lost at sea due to overloading (Domingues et al. 2023).	Between the East and Portugal
39	<i>Bevalligheid</i>			Post – 1759-02-26	This VOC 850-ton vessel under Albert Verzaat, was built in 1746 by and for the Rotterdam Chamber. On its return voyage from Batavia, it left the Cape on the 26 th of February 1759 and was never seen again (Huygens Instituut 2023).	Between Cape Town and Europe
40 - 43	<i>Cabral Fleet</i>	Lost	Portugal	1500	Levine (1989) states: "Thirteen vessels under command of Pedro Alvares Cabral – the first Portuguese fleet which sailed annually to the Indies – and found Brazil. Twenty days after the fleet sailed from Brazil, it was struck by storms and four ships, including the one under command of Bartolomeu Dias, foundered. Duffy [Shipwrecks and Empire, 1955] writes that the ships were lost off the Cape of Good Hope, but, according to Axelson [Levine cites personal correspondence], the fleet could not have been off the Cape of Good Hope then; they would have been in the vicinity of the shortly-to-be-discovered islands of Tristao da Cunha." There is such scant and contradictory information regarding the loss of these four vessels that I am including them in this database, even though the chances of them being here is exceedingly slim.	Unknown – Atlantic Ocean
44	<i>Cedro</i>			1563	Under D Rodrigo or Pedro de Castro, lost at sea (Domingues et al. 2023)	Between the East and Europe
45	<i>Columbine</i>	Torpedoed, sank	South Africa	1944-06-16	This 3 268-ton steamship owned by the South African government was initially a German vessel. It was seized at the start of WWII. On 16 June 1944, it had 52 people on board when it was torpedoed by the U-198. 23 people died when their lifeboat capsized, including two naval officer wives. The coordinates for its torpedoing are 32° 44'S, 17° 22'E (U-boat.net 2022; van den Bosch 2009). These coordinates are south of the concession and is where the U-boat reports torpedoing the vessel, not necessarily where it sank. In addition, the coordinates mentioned are subject to the technical limitations of the period.	West Coast

#	Name	Events	Nation	Date	History	Location
46	<i>Consolacao</i>			1607	Lost (Cordeiro & da Roche 2016)	Between the East and Europe
47	<i>Discovery</i>	Disappeared	Britain	1644	This ship of 500 tons, was built in 1621 at Woodbridge. Under Capt John Allison. 1640/1 Surat and Persia. Capt John Allison. Its last trading voyage was as follows: Depart: Downs 3 Apr 1641 At: Surat 27 Sep At: Bandar Abbas 2 Feb 1642 At: Surat 13 Apr At: Mokha 22 Aug - 31 Oct At: Surat 30 Jan 1643 - 18 Feb At: Bandar Abbas 27 Apr At: Mokha 3 Nov At: Surat 29 Jan 1644 After leaving Surat, India, the ship was not seen again (<i>Wrecksite.Eu</i> 2022).	Unknown
48	<i>Drechterland</i>		Netherlands	1744	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between the Cape and Europe
49	<i>Duinenburg</i>		Netherlands	1773	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between the Cape and Europe
50	<i>Elizabeth</i>	Ashore, wrecked	Britain	1817-12	The Elizabeth was a wooden ship of 252-tons (Lloyd's Register 1816), chartered by London merchants for a return voyage to the Cape (General Evening Post 1818-01-15), presumably to transport whale oil. This vessel under Captain Bartholomew White was anchored off the Robben Island at Murray's Whaling Station, loading 200 leagers of whale oil (the equivalent of about 120 000 litres) in casks (General Evening Post 1818-01-15; Theal 1902). Desertion from the British army was a big problem in the Cape at the time. It seems that a sentry on the Island released some convicts and armed them. The five soldiers and seven convicts then took a boat off the Island, rowed out to the Elizabeth and boarded it. Locking the crew below deck, the band set sail to the north-west. At some stage the pirates tried to get the crew to join them. All but one crew member, the mate, refused. The crew and captain were then put into one of the ship's boats with water and bread and released. Fifteen hours after the vessel was stolen, the crew managed to row back to the Island where they reported the incident. The authorities sent the HMS Mosquito to follow the ship, but adverse winds delayed them (General Evening Post 1818-01-15; Globe 1818-01-13; Green 1967; Theal 1902). The vessel was wrecked in early December just north of the Olifant's River Mouth (Anon. ca. 1972; Levine 1989; Turner 1988). Most of the databases rely on Green's (1967) book, <i>On Wings of Fire</i> and state that there is no account of the fugitives. However, an article in the <i>London Packet & New Lloyd's Evening Post</i> (1818-02-23) states that on the 6th of December, 14 of the mutineers and convicts were taken captive by the Khoes-San on the West Coast and returned to the Cape as prisoner. The remainder of the wreck and its cargo were offered up for sale in the Cape Town Gazette (Green 1967). Most the databases or histories (Anon. ca. 1972; Green 1967; Levine 1989), refer to a bay to the north of the mouth as Elizabeth Bay, except for the South African Shipwreck Database (van den Bosch 2009) who states the wreck is in "Mietjie Frans se Baai". Elizabeth Bay is not marked in the Admiralty Chart No. 896 (Archdeacon 1879). These names are often applied locally and then fall out of use as the story is forgotten.	Possibly Mietjies Bay
51	<i>Enkhuizen</i>	Disappeared	Netherlands	Post – 1742-06-12	This VOC vessel of 1850 tons was built by the Amsterdam Chamber at Enkhuizen in 1735. It departed China for the Cape in December 1741 and arrived on the 27th of May 1742 at Robben Island. It departed the Cape on the 12th of June 1742 en route to	Between Cape Town and Europe

#	Name	Events	Nation	Date	History	Location
					the Netherlands and was never seen again (Huygens Instituut 2023).	
52	<i>Galega</i>			1538	Capt. Bernardim da Silveira. lost at sea. Left Lisbon 6 April (Domingues et al. 2023)	
53	<i>Hofvliet</i>			Post – 1744-05-19	This VOC 1000-ton vessel under Pieter Lakeman, was built in 1729 by and for the Rotterdam Chamber. On its return voyage from Batavia, it left the Cape on 05-03-1744, in a convoy that included the <i>Herstelder</i> , <i>Nieuwerkerk</i> , <i>Eendracht</i> , <i>Schellach</i> , <i>Domburg</i> , <i>Ida</i> , <i>Duinenburg</i> and <i>Drechterland</i> . The <i>Drechterland</i> also disappeared and was last seen on 19-05-1744 (De VOC Site 2023; Huygens Instituut 2023) There is a 61-day period from when the vessels left the Cape and when they were last seen. The other vessels arrived in the Netherlands between the 17 th of June and 4 th of July 1744. So presumably when they went missing, they were two thirds of the way home and were lost somewhere in West Africa.	Between Cape Town and the Netherlands – probably West Africa
54	<i>Honkoop / Honcoop / Hencoop</i>	Disappeared	Netherlands / Britain	c.1796	This Dutch vessel of 1 150 tons and 20 guns, under Capt Alex Landt was built in 1770 for the Zeeland Chamber was taken by the British at The Battle of Saldanha (1871), it was being sailed at a prize back to England when it disappeared (van Niekerk 2015).	Atlantic Ocean
55	<i>Loreto</i>			1607	Lost (Cordeiro & da Roche 2016)	Between the East and Europe
56	<i>Maria Adriana</i>			Post – 1743-09-14	This VOC 650-ton vessel under Jan Elswout, was built in 1730 by the Rotterdam Chamber for the Zeeland Chamber. On its return voyage from Batavia, it left the Cape on the 14 th of September 1743 and was never seen again (Huygens Instituut 2023). There are reports of the wreck being near Ascension Island or the Isle of Scilly, however these are unsubstantiated (<i>MaSS - Stepping Stones of Maritime History</i> 2023)	Between Cape Town and the Netherlands
57	<i>Meteren</i>	Aground, wrecked	Netherlands	1723-11-07	This VOC hoeker of 190 tons, under Willem van Turenhout, was built at the Enkhuizen yard in 1719 for the Amsterdam Chamber. She departed the Netherlands on the 24th of May 1723, bound for Asia (Huygens Instituut 2023). I have included a transcription of the VOC Day Register or Journal as translated by Leibrandt (1896) below, however it may be summarised as follows: The <i>Meteren</i> left at the end of May and at some stage, probably at the end of November, the ship arrives off the west coast. The crew had been at sea for about six months, possibly without fresh for the entire time. All aboard were severely sick from scurvy and were clearly desperate for supplies. While travelling down the coast, possibly looking for water and/or signs of people, they are becalmed. They drop anchor and then the wind picks up. Too weak to quickly lift anchor and get themselves away from the shore, the vessel is driven onto the rocks. Of the 29 still alive on the ship, only 18 make it ashore, here four die shortly. The remaining 14, nine decide to attempt to walk to Cape Town, but only four get there. Of the remainder, it is written that five decided to “remain” presumably at the site because it is reported by a local Khoe man who tried to help one of the survivors but he ran away, the tracks of the survivors were seen both sides of the Olifant’s River Mouth. It is stated that the wreck was lying seven or eight Dutch miles beyond the Oliphants River, 1 Dutch mile is equal to 5.5 – 6.25 km. If we average that to 6 km, and based on the use of the word “beyond” it may be deduced that the wreck lies 42 – 50 km north of the mouth. However, given that the tracks of weak survivors were seen on both sides of the river mouth, it may be that the wreck is closer to the river. Unfortunately, we are guided a translation and not the original document. In 1963 diamond prospectors found four cannons with VOC markings, two bronze and two iron. It is reported that an “iron cannon still held its gunpowder and cannon ball” (Anon. ca. 1972;	Near the Olifant’s River Mouth

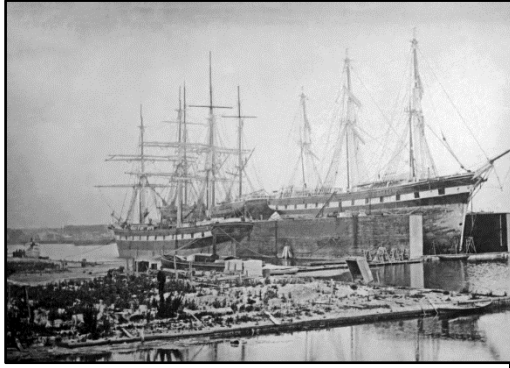
#	Name	Events	Nation	Date	History	Location
					<p>Green 1967). Levine (1989) states that two were bronze breech-loading swivel guns. Besides these references I was unable to track down more information on where these were found or where they are today.</p> <p>Recently the MUCH Unit of SAHRA was alerted to the presence of iron cannon in the surf zone. This has been verified by the Unit (R. Brand, pers. comm. 2023-06-15). It is probably the site of the Meteren and is c. 23 km south of the Sout River, further north than previously thought. It is a cautionary tale in assuming the location of historical wrecks.</p> <p>Leibrandt (1896) translates and transcribes the VOC Day Register or Journal, and writes that on the 16th December 1823: The farmer, Frans Haarhof, reports to the Governor that between the "Oliphants River" and "Verloren Vlei" [possibly Elands Bay] a hooker had been wrecked. The skipper, one mate, and seven men saved. Name unknown. Vessel laden with bricks. Supposed to be the "Meteren".</p> <p>17th of December that, One mate and three men of the hooker arrive [in Cape Town], reporting that ... because of sickness on board, they had been obliged to look for land which they found in latitude 31° 20' south, and 35° 20' longitude [the first accurate chronometer was only perfected in the latter half of the 18th century, so all the early longitude readings were off, this reading puts the vessel in the Indian Ocean, 500 km east of the coast] between Alomba [Gabon] and Montes bay [possibly Argentina] on the 9th November last. Becalmed and obliged to anchor. Wind then rose and they were thrown on the rocks. Three sick drowned in their beds. Two were beaten off the raft, six died on the journey, and of the 29 only 18 were on shore under an awning. Four of these died. The rest (14) undertook the land journey, and wandered about miserably before meeting with any people. Five remained on the way. Hendrik Moel ordered by the Government to look for them with his ox-wagon, and proceed to the wreck. Nothing of the cargo expected to be saved. The distance to the wreck is great, and the roads are very inconvenient.</p> <p>On 1 January 1724, the entry reads: Hendrik Moel returns from the wreck ... the wreck was lying seven or eight Dutch [1 Dutch mile = 6.5 – 6.25 km] miles beyond the Oliphants River. He arrived there on the 1st January, but found no crew, only one dead body was lying near a tent which had been pitched on a high sand hill. The body had been buried under staves of casks in the sand, and with a rude cross at the head. Another corpse was found on the beach, very likely one of the two drowned when the raft capsized. A Hottentot whom he met near the Oliphants river on the road coming from the Amaquas, told him on the 5th that he had almost on the same spot met a European carrying three hams on his shoulder on a stick, one of them partly used. He had by signs shown him the road as well as he could, but he could not find him or any of the others, though he searched for miles around and inquired of the neighbouring settlers and the Bushmen. Their spoors went mostly along the beach to this side or that of the Oliphants River. The wreck was still lying on the same spot, the heavy waves washing clean over it. It was surrounded by rocks, with its stern to the shore. Its bottom was entirely knocked out, and the fragments were washed on shore with broken casks, boat, ropes, firelocks, &c. It is presumed that the decks had fallen on the cargo, and so prevented the latter from being washed on shore. He had taken 17 days for the expedition.</p>	
58	<i>Muskaatboom / Notenboom (1665) ????</i>			1665-02	This VOC 600-ton vessel was bought by the Amsterdam Chamber in 1659. On its return voyage from Batavia, was wrecked in a storm off the Cape in February 1665 (Huygens Instituut 2023).	Near the Cape
59	<i>Nortun</i>	Torpedoed	Panama	1943-03-20	This 3 663-ton ship was bound from Table Bay to Bahia when it was torpedoed and sunk by the U-516 about 130km south-west of Lüderitz at 28° 00' S 14° 55' E (Levine 1989; van den Bosch 2009). According to U-boat net (2022) the position is further north at 27° 35'S, 14° 22'E.	Off West Coast Approximately:

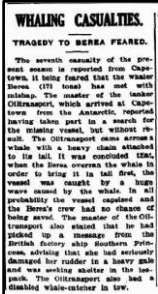
#	Name	Events	Nation	Date	History	Location
					Although these coordinates are well north of the concession, there are conflicting positions, and it is where the U-boat reported torpedoing the vessel, not necessarily where it sank. In addition, the coordinates mentioned are subject to the technical limitations of the period.	28° 00' S 14° 55' E Or 27° 35'S 14° 22'E **
60	<i>Nossa Senhora da Graça</i>		Portugal	1565-03-15	Captain: Diogo Lopes da Lima. Lost at the Cape of Good Hope; however, the early Portuguese often used this term when referring to southern Africa (Guinote et al. 1998)	Near the Cape
61	<i>Prins Wilhelm van Zeeland</i>		Netherlands	1659	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between the Cape and Europe
62	<i>Reis Magos</i>			1573	Capt. Duarte de Melo, lost at sea (Cordeiro & da Roche 2016)	Between the East and Europe
63	<i>S'-Graveland</i>			Post – 1729-06-18	This VOC 600-ton vessel under Gideon Kuiper, was built in 1722 by and for the Amsterdam Chamber. On its return voyage from Batavia, it left the Cape on the 18 th of June 1729 and was never seen again (Huygens Instituut 2023). However, reports are that she was lost in the Bay of Biscay, Spain (De VOC Site 2023)	Possibly Bay of Biscay, Spain
64	<i>Santa Bartolomeu / S. Bartholomeu</i>		Portugal	1590	Disappeared between Portugal and India (Cordeiro & da Roche 2016)	Between the East and Europe
65	<i>Santa Cruz /Burgalesa</i>			1555	Lost on way back to Portugal, Capt. Belchior de Sousa (Domingues et al. 2023)	Between the East and Europe
66	<i>São Bartolomeu</i>			1595-04-15	Under Lopo de Pina de Azavedo, lost at sea, en route to Portugal (Cordeiro & da Roche 2016; Domingues et al. 2023)	Between the East and Europe
67	<i>São Francisco</i>			1573-04-23	Under Pedro Leitão de Gamboa, lost at sea (Domingues et al. 2023)	Between the East and Europe
68	<i>São Jacinto</i>			1604	Lost, cargo saved (Cordeiro & da Roche 2016)	Between the East and Europe
69	<i>São Joao</i>			1600	Lost, cargo saved (Cordeiro & da Roche 2016)	Between the East and Europe
70	<i>São Lucas</i>			1590	Lost (Cordeiro & da Roche 2016)	Between the East and Europe
71	<i>São Martinho</i>			1563	Capt. Jorge Manuel, lost at sea (Domingues et al. 2023)	Between the East and Europe
72	<i>São Pedro</i>			1593	Lost, but cargo was saved (Cordeiro & da Roche 2016)	Between the East and Europe
73	<i>Trindade / Bicaíinha</i>			1552	Lost between Lisbon and the East.	Between the East and Europe
74	<i>U-179</i>	Depth charges	Germany	1942-10-8	U-179 was responsible for torpedoing the British steamship City of Athens, about 45km to the south-east on the same day as the U-boat was surprised on the surface by H.M.S. Active. As it dived, the British vessel launched depth charges. Van den Bosch (2009) gives its coordinates as 33 25.00S, 17 10.00E, U-boat.net (2022) gives the position as 33.28S, 17.05E. All hands were lost (61 crew). These coordinates are well south of the concession and is where the vessel reports depth charging the U-boat, not necessarily where it sank. In addition, the coordinates mentioned are subject to the technical limitations of the period.	West Coast Approximately: 33 25.00S 17 10.00E Or 33.28S 17.05E **


#	Name	Events	Nation	Date	History	Location
75	<i>Vredejaar</i>		Netherlands	Post – 1771-01-12	This VOC 850-ton vessel under Arie Arkebout, was built in 1769 by and for the Enkhuizen Chamber. On its outward bound voyage for China via the Cape, it left the Netherlands on the 12 th of January 1771 and was never seen again (Huygens Instituut 2023).	Between Europe and the East
76	<i>Vredenhof</i>		Netherlands	1779	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between the Cape and Europe
77	<i>Zeelt</i>		Netherlands	1672	VOC vessel, homeward bound from Batavia, left the Cape and disappeared (Huygens Instituut 2023)	Between the Cape and Europe

6.3.4. WRECKS THAT SHOULD BE REMOVED FROM THE WEST COAST DATABASES

These are included, as they are in many databases and should be removed, for the reasons given below. Their inclusion mitigates against a belief that they were ignored.

#	Name	Events	Nation	Date	History	Location	Significance
1	<i>Adventurer</i>	Wrecked	Britain?	1843	From Sandown Bay (Isle of Wright?) to Table Bay or Algoa Bay. The Reocities (2022) website states the vessel was lost west of Saldanha. But the newspaper states lost in Sandown Port. Ann Barrett (pers. comm. 2017), a researcher from the Isle of Wright stated the wreck is not on their lists. The vessel is not listed in Lloyds as per Levine (1989). The wreck may be in the South African Sandown Bay near Kleinmond, Western Cape. Therefore, South African shipwreck database, I believe it needs more research.	Sandown Bay (Kleinmond) or Isle of Wright	
2	<i>Alblasserwaard</i> (in databases as the <i>Alblass Edwaard</i>)	Fire and abandoned		1881-11-28	Caught fire and abandoned on 28-11-1881 (van den Bosch 2009). This Dutch “fregat” (Figure 19) was built in 1874 by Franz Harms von Lindern in Alblasserdam, South Holland. It is taken off the books in 1882, listed as wrecked or missing (Marhisdata 2022). The <i>Otago Witness</i> (1882-04-15) states that the vessel was abandoned midway between Australia and South Africa. One of the lifeboats was picked by and dropped the survivors in New Zealand, the other lifeboat was picked up and the survivors taken to Cape Town (Figure 20).	Between Australia and South Africa	Medium
							
					Figure 19: The Alblasserwaard loading ballast in Amsterdam (Marhisdata 2022)		

					<p>A short time since the ship Phasis, which arrived at Lyttelton, from Calcutta, brought a boat's crew—the captain, second officer, and ten men—that the master of the Phasis had picked up at sea. They had belonged to a Dutch ship named the Alblasserwaard, which took fire, and they had been compelled to abandon her. From their report the other boat's crew had not been heard from, but the following taken from a Montrose (Scotland) paper, announces the arrival of the missing boat at Cape Town. There were, therefore, no lives lost:—"Cape Town, January 15th.—The Alblasserwaard, from Shields for Batavia, was abandoned on fire November 28th, in latitude 35.5 N., 80 E. Part of the crew saved by the U.S. barque Caprera, and afterwards landed here by the British ship Titania. Eleven of crew are known to be safe. Nothing known of remainder—captain, second officer, and 10 men." The news of the arrival at Lyttelton of the captain and men had clearly not reached the Cape at the time the above was written.</p> <p>Figure 20: Report on the <i>Alblasserwaard</i> (Otago Witness 1882-04-15)</p>		
3	<i>Antoinette</i>			1854	The only database that mentions this wreck is SAHRIS (SAHRA 2022). I could not find any mention of a vessel with this name wrecking in southern Africa from 1852 – 1856 in any historical newspapers.		
	<i>Australia</i>			1840	This wreck is in all the databases (Levine 1989; SAHRA 2022; van den Bosch 2009) as being in this area because the survivors' lifeboats can ashore north of the Olifants River. See above for analysis. While the wreck should be removed there is still the possibility of heritage resources at the coast due to the burials and lifeboats.	Atlantic Ocean	
4	<i>Berea</i>	Disappeared	RSA	1933-11-4	In the databases, this steam whaler disappeared after leaving Table Bay (Levine 1989; van den Bosch 2009). However, a newspaper article (Figure 21) clearly states that the <i>Berea</i> was whaling in the southern Atlantic Ocean when it foundered (Sydney Shipping List 1933-12-23).	Southern Atlantic Ocean	Low
					 <p>Figure 21: Report on the search of <i>Berea</i></p>		
5	<i>Earl of Abergavenny</i>	Disappeared	Britain	1805	This English East Indiaman, under Captain J. Wordsworth was lost "off the Cape Coast" (van den Bosch 2009). However, removed off the database as it was actually wrecked on The Shambles, Isle of Portland (Cumming 2016).	The Shambles, Isle of Portland	
6	<i>Hope</i>			1836	The only reference to this vessel is in van den Bosch's (2009), and therefore in the SAHRIS database. Possibly lost on the West Coast. However, I can't find any other evidence, in the historical newspapers, of this vessel.		
7	<i>Leonine Mary</i>	Disappeared	Cape	1859-2	This vessel is an entry mistake and confused for the <i>Leontine Mary</i> , a coaster that sank between Algoa Bay and East London in 1859.		
8	<i>Prins Wilhelm van Zeeland</i>		Netherlands	1659?	SAHRIS is the only database that has this wreck. The only reference to this vessel I could find was the Prins Willem which sank near Madagascar in 1662. However, as it is from a period with few records, I am leaving it in the database for now.		
9	<i>Valkyrie</i>	Wrecked	Racing cutter	1894-5-16	This sailing cutter was apparently lost "Off the coast of Africa" (Anglo American Times 1894-05-19; van den Bosch 2009) However,	NOT A WRECK	

				<p>"Valkyrie was subsequently sold to Mr. Florio, an Italian nobleman, but did not fare well in the Continental regattas. Mr. Florio then engaged William Cranfield's brother Lemon and a crew of Rowhedgers for the 1894 Mediterranean regatta season and Valkyrie competed at Monaco, Monte Carlo, Nice, Cannes etc, but against the much larger and up-to-date Britannia she was outclassed. Valkyrie made the news in May 1894 when it was reported that she had been lost with all hands off the coast of Africa. The story proved to be untrue but Lord Dunraven, in his memoirs, admitted that even he did not know what became of her" (Simons 2020). Independent verification of this came from a newspaper report in the Philadelphia Enquirer (Figure 22)</p>  <p>Figure 22: Report on the <i>Valkyrie</i> (Philadelphia Inquirer 1894-05-19)</p>	
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** Please note these coordinates are all approximations. The datums and methods used through time and within various areas, to record latitude and longitude, change. This can cause large deviations in real-world locations. Without knowing the datum and method that was used to record the coordinates, they cannot be converted accurately. In addition, the recording of coordinates has become much more accurate in the 21st century. All coordinates here WGS84.

7. CONCLUSIONS

A wide variety of sources were consulted to build this database. It may well be missing earlier, unrecorded wrecks. There is always the possibility of an early unknown wreck being found, as happened in Oranjemund when the *Bom Jesus* (1533) was discovered in 2008 during diamond mining operations (Alves 2011). There were no submerged objects or wrecks noted on SAN Chart 116 (SA Navy 1995) or in the Garmin electronic charts (Garmin Marine Charts 2022).

In WC 50/1/1/2/10454/ PR within Concession 11A there may be 77 shipwrecks, dating from the 1500s through to modern times.

According to database, there are no DEFINITE wrecks, within the area.

There are six wrecks that may POSSIBLY be in WC 50/1/1/2/10454/ PR within Concession 11A. One is a modern wreck, dating to 1953. While the wreck is officially protected by the NHRA, as it is older than 60 years, it has a low heritage significance. Two date from 1870 and 1890 and also have a LOW significance. There are reports of a search for a shipwreck in Namaqualand in 1739, ergo the three missing VOC ships from 1739 are included here. These could be anywhere on this coast and without more information, the area or even the existence of the wrecks cannot be verified.

The other 71 shipwrecks may be found in this area during work, although it is IMPROBABLE. These are vessels that either disappeared between two ports or were abandoned mid-ocean. One tries, through research, to narrow down the areas where these vessels were lost, if they are still in the list, it is because there is insufficient information to remove them. Two of the IMPROBABLE shipwrecks are modern (younger than 60 years) and are not protected by the NHRA. Three of the vessels are from the early 20th century (prior to 1963), and four were sunk during World War II. Twenty-four vessels are from the 19th century, the heyday of sailing vessels. Thirteen vessels are from the 18th century, all VOC ships that went missing en route to or from the Netherlands, and eight are from the 17th century, both VOC and Portuguese. Seventeen are missing Portuguese vessels from the 16th century.

The significance of most of the wrecks is low or medium. There are, however, a few that may have a high significance factor. These include very old ships, war-time losses, and other vessels with a specific national or international significance. The significance of a shipwreck is hard to pinpoint without significant research and would have to be dealt with on an ad hoc basis if they are discovered.

The potential for recovering pre-Colonial, Stone Age artefacts must be borne in mind.

At the time of writing this report, no geophysical data for the area was available. If such surveys are undertaken, and any shipwrecks or shipwreck debris is noted, images and coordinates for these should be shared with the heritage practitioner and the MUCH Unit at SAHRA.

This specialist study has found that there is a very low possibility that impacts to underwater heritage could occur through the proposed development. The present report finds that the project is feasible, so long as the stipulated management (mitigation) measures are applied. With mitigation there is the possibility of a benefit to our heritage knowledge base through the discovery and recording of previously unknown underwater heritage.

8. IMPACT TABLE

Table 2: Impact Table for Possible Individual Shipwrecks; Generalised Table for Improbable Shipwrecks

Impact Assessment pre-mitigation																	Impact Assessment post-mitigation												
Name of Vessel	Year	Aesthetic	Historic	Scientific	Social	Importance (0-12)	Authenticity / Credibility (0-3)	Integrity (0-3)	Value (0-18)	Spatial Scale	Duration	Severity	Consequence	Probability	Magnitude	Impact Significance	Rating	Status	Mitigation	Spatial Scale	Duration	Severity	Consequence	Probability	Magnitude	Impact Significance	Rating	Status	
<i>Van Alsem</i>	1739	3	3	3	3	12	1	3	16	3	3	3	9	1	9	144	Medium	-ve	Reporting on Finds	1	1	1	3	1	3	48	Low	+ve	
<i>Il Trovatore</i>	1870	1	1	1	1	4	1	3	8	3	3	3	9	1	9	72	Low	-ve		1	1	1	3	1	3	24	Low	+ve	
<i>Krooswijk</i>	1739	3	3	3	3	12	1	3	16	3	3	3	9	1	9	144	Medium	-ve		1	1	1	3	1	3	48	Low	+ve	
<i>Landskroon</i>	1739	3	3	3	3	12	1	3	16	3	3	3	9	1	9	144	Medium	-ve		1	1	1	3	1	3	48	Low	+ve	
<i>Pembroke Castle</i>	1890	1	1	1	1	4	2	3	9	3	3	3	9	1	9	81	Low	-ve		1	1	1	3	1	3	27	Low	+ve	
<i>Zulu Coast I</i>	1953		0	0	1	1	2	3	6	3	3	3	9	1	9	54	Low	-ve		1	1	1	3	1	3	18	Low	+ve	
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
									0				0		0	0										0	0	No Cha	+ve
<i>Unknown Wrecks 1500 - 1800</i>		3	3	3	3	12	2	3	17	3	3	3	9	1	9	153	Medium	-ve		1	1	1	3	1	3	51	Low	+ve	
<i>Unknown Wrecks 1800- 1900</i>		1	2	2	2	7	2	3	12	3	3	3	9	1	9	108	Low	-ve	1	1	1	3	1	3	36	Low	+ve		
<i>Unknown Wrecks 1901-1988</i>			1	1	1	3	2	3	8	3	3	3	9	1	9	72	Low	-ve	1	1	1	3	1	3	24	Low	+ve		
<i>War Wrecks</i>		2	3	3	3	11	2	3	16	3	3	3	9	1	9	144	Medium	-ve	1	1	1	3	1	3	48	Low	+ve		

CUMULATIVE IMPACTS

There has been a recent increase in applications for prospecting and exploration rights along the west coast and increased prospecting/survey activity in the short term and marine mining in the long-term is anticipated. This means that cumulative impacts of marine prospecting and mining should be considered at a broader spatial scale in a strategic manner.

The value and significance of heritage resources is a highly emotive and subjective field. Certain sites are deemed significant due to their age, or the activity they were engaged in at the time of the event, these include slave and war ships, others may be unique in respect of their construction and rarity in the archaeological record. Some wrecks are not unique or even very old but may have spiritual significance to a local fishing community due to fatalities at the time of wrecking. One must be careful to not to project one's own values and belief systems onto the heritage resources and think about future generations. While some wrecks are not necessarily deemed important now, destruction without due diligence can have a negative future impact.

The wreck databases are built on reported wrecks. Ergo, the confidence in the historical reporting around inhabited port areas is generally higher. The west coast's low population density means that confidence in the historical reports is lower. There are, no doubt, many unreported wrecks, particularly older ones. Shipwreck sites are not always easily located. There are generally three stages to the formation of a wreck site. The first stage, the wreck event is precipitated by environmental conditions (storms) interacting with anthropogenic factors (captain's response to the environmental challenge). The second stage is a dynamic stage where the wreck interacts with and is transformed by the environment. The third stage is where the remains are assimilated with the environment. These stages do not necessarily progress linearly, and the stages may cycle, for example a second wreck can occur on the initial wreck and the process starts again; the second and third stages may be cyclical as storms could disturb the assimilated wreck site and transform the site further. Over hundreds of years, the site can be virtually indistinguishable from the surrounding seabed or reef. With the mitigation measures mentioned within this report, and assuming a best-case scenario, wrecks should be located during prospecting and bulk sampling phases.

It is not possible to assess cumulative impacts with any level of confidence due to the unknown nature of the heritage resources in the region. Each wreck must be assessed as it is found, and if it is treated with the knowledge that we do not always know if is significant, whether locally or internationally, we can mitigate against high, negative cumulative impacts.

9. RECOMMENDED MANAGEMENT MEASURES

Heritage sites are fixed features in the environment, occurring within specific spatial confines. Any impact upon them is permanent and non-reversible. Those resources that cannot be avoided and that are directly impacted by the proposed development can be excavated/recorded (with an approved Mitigation Permit from the MUCH Unit at SAHRA) and a management plan can be developed for future action. Those sites that are not impacted on can be written into the management plan, whence they can be avoided or cared for in the future.

Objectives

- Protection of heritage sites within the project boundary against vandalism, destruction, and theft.
- The preservation and appropriate management of new discoveries in accordance with the NHRA, should these be discovered during development activities.

The following shall apply:

- The contractors and workers should be notified that archaeological sites might be exposed during the prospecting and bulk sampling activities.
- Should any heritage artefacts be exposed during prospecting and bulk sampling, work on the area where the artefacts were discovered, shall cease immediately and the Environmental Control Officer and SAHRA shall be notified as soon as possible;
- All discoveries shall be reported immediately to a heritage practitioner so that an investigation and evaluation of the finds can be made. Acting upon advice from these specialists, the Environmental Control Officer will advise the necessary actions to be taken;
- Where possible, if any heritage resources are accidentally recovered photographs of them must be taken, noting the date, time, location and types of artefacts found. Under no circumstances may any artefacts be removed, destroyed or interfered on the site, unless under permit from SAHRA.

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- Under no circumstances shall any artefacts be removed, destroyed or interfered with by anyone on the site; and
 - Contractors and workers shall be advised of the penalties associated with the unlawful removal of cultural, historical, archaeological, or palaeontological artefacts, as set out in the NHRA (Act No. 25 of 1999), Section 51. (1).

10. REFERENCES

- Alves, F. 2011. The 16th century Portuguese shipwreck of Oranjemund, Namibia; Report on the missions carried out by the Portuguese team in 2008 and 2009. (Trabalhos Da Dans 45). Portugal: .
- Anglo American Times. 1894-05-19. Valkyrie: Loss. In: Anglo American Times.
- Anon. ca. 1972. A Beachcombers Guide to Shipwrecks. Unpublished. Vanessa Maitland Library.
- Archdeacon, W. E. 1879. Admiralty Chart No. 896 Africa Cape Colony: Donkin Bay to Milkbosch Point. Map. London: The Admiralty. Available at:
https://upload.wikimedia.org/wikipedia/commons/d/dc/Admiralty_Chart_No_896_Africa_Cape_Colony_Donkin_Bay_to_Milkbosch_Point%2C_Published_1879.jpg [Accessed: 2022-10-21]
- Barrett, A. 2017. Loss of Adventurer. Pers. comm.
- Beccario, C. 2022. Earth.nullschool.net Geographic Information. Earth.Nullschool.Net. Available at:
<https://earth.nullschool.net/> [Accessed: 2022-10-18]
- Brand, R. 2023-06-15. Report of Cannon. Pers. comm.
- Brisbane Courier. 1897-11-04. Haab: Loss. In: Brisbane Courier.
- Cape & Natal News. 1859-09-05. Interesting Discovery (Spanish Cannon). In: The Cape and Natal News.
- Cordeiro, M. & da Roche, J. N. 2016. Apresto e sucessos das Armadas da India 1590-1607. Universidade de Lisboa. Available at: https://repositorio.ul.pt/bitstream/10451/25939/1/ulfl221672_tm.pdf
- Cumming, E. 2016. John Wordsworth and the wreck of the Earl of Abergavenny. United Kingdom: MIBEC Publications.
- Daily Southern Cross. 1862-11-27. Mississippi: Loss. In: The Daily Southern Cross: 3.
- De VOC Site. 2023. De VOC Site. De VOC Site. Available at: <https://www.vocsite.nl/>
- Domingues, F. C., Oswald, C., Mead, Z. & Castro, F. 2023. Portuguese India Route – The Nautical Archaeology Digital Library. The Nautical Archaeology Digital Library. Available at:
<https://shiplib.org/index.php/shipwrecks/iberian-shipwrecks/portuguese-india-route/> [Accessed: 2023-06-07]
- Garmin Marine Charts. 2022. HXAF002R-g3-South Africa v2022.0. Switzerland: Garmin Ltd.
- Geelong Advertiser. 1841-04-17. Loss of the Brig Australia. In: The Geelong Advertiser.
- General Evening Post. 1818-01-15. Elizabeth: Piracy. In: General Evening Post.
- Globe. 1818-01-13. Elizabeth: Stolen at Robin Island. In: The Globe.
- Google Earth. 2023. Google Earth Pro. Google.
- Gordon, R. J. 1786. Upper (northern) half of Gordon's great map of Southern Africa. Map. Available at:
<https://www.rijksmuseum.nl/en/search/objects?q=maps&v=list&f=1&p=2&ps=10&type=drawing&st=Objects&i=6#/RP-T-1914-17-3-A,16> [Accessed: 2022-10-21]

- Green, L. G. 1967. *On Wings of Fire*. Cape Town: Howard Timmins. Available at:
<https://ia800209.us.archive.org/14/items/OnWingsOfFire/OnWingsOfFire.pdf>
- Green, L. G. 1984. *Eight Bells at Salamander*. Cape Town: Howard Timmins. Available at:
https://archive.org/stream/LawrenceGreen-Index-Ver-25/LawrenceGreen-Index-Ver-25_djvu.txt [Accessed: 2022-10-20]
- Guinote, F., Frutuoso, E. & Lopes, A. 1998. *Naufragios e outras perdas da carreira da India*. Lisbon: Grupo de Trabalho do Ministerio da Educaao para as Comemoracoes dos Descobrimentos Portugueses.
- Hampshire Independent. 1876-05-10. *The Wreckof the Namaqua*. In: *The Hampshire Independent*.
- Hampshire Independent. 1876-06-07. *The Loss of the Namaqua: Court of Inquiry*. In: *The Hampshire Independent*.
- Herodotus. 1954. *The Histories*. Harmondsworth: Penguin Books Ltd.
- Hocking, C. 1969. *Dictionary of Disasters at Sea during the Age of Steam: Including sailing ships and ships of war lost in action 1824 – 1962*. London: Lloyd's Register of Shipping.
- Huygens Instituut. 2023. *The Dutch East India Company's shipping between the Netherlands and Asia 1595-1795 Database*. *The Dutch East India Company's Shipping between the Netherlands and Asia 1595-1795*. Available at: <https://resources.huygens.knaw.nl/das/search>
- Landers, J. 1997. *Diversity and Social Identity in Colonial Spanish America: Native American, African, and Hispanic Communities during the Middle Period*. In: *Historical Archaeology*: 31(1): 84–103.
- Leibbrandt, H. C. V. 1896. *Precis of the Archives of the Cape of Good Hope. Journal, 1699-1732*. Cape Town: W.A. Richards & Sons.
- Levine, M. 1989. *Shipwreck History of Southern Africa: A Chronology of Shipping Disasters 1488-1989*. Unpublished. Vanessa Maitland Library.
- Liverpool Journal. 1891-02-05. *Pembroke Castle*. In: *The Journal of Commerce*.
- Liverpool Journal. 1891-02-25. *Pembroke Castle: Auction*. In: *The Journal of Commerce*.
- Lloyd's Register. 1953. *The Register of Shipping: Merchant Ships Totally Lost, Broken Up, Etc*. London: Lloyd's Register.
- Lloyd's Register 1816. 1816. London: The Gregg Press Limited. Available at:
<https://archive.org/details/HECROSU1818>
- Lloyd's Register of British and Foreign Shipping 1845. 1845. London: J. & H. Cox (Brothers), (Late Cox & Sons); Mystic Seaport Museum - Collections & Research. Available at: <https://hec.lrfoundation.org.uk/archive-library/lloyds-register-of-ships-online>
- Lloyd's Register of British and Foreign Shipping 1901: *Returns of Vessels totally Lost, Condemned, &c*. 1901. London: White Lion Court. Available at: <https://hec.lrfoundation.org.uk/archive-library/lloyds-register-of-ships-online>

- Lloyd's Surveyor. 1840. Australia: Lloyd's Survey 1840. Lloyd's Register Foundation; Lloyd's Register Foundation: Heritage & Education Centre. Available at: <https://hec.lrfoundation.org.uk/archive-library>
- London Magnet. 1874-10-19. Oliver Cromwell: Loss. In: London Magnet: 7.
- Maitland, V. 2023. Maritime & Underwater Cultural Heritage Database. Shipwreck and MUCH Database - In Progress.
- Marhisdata. 2022. Stichting Maritiem-Historische Databank. Database. Stichting Maritiem-Historische Databank. Available at: <https://www.marhisdata.nl/>
- Marques, A. H. R. de O. 1972. History of Portugal: From Lusitania to empire. New York: Columbia University Press.
- MaSS - stepping stones of maritime history. 2023. Available at: <https://mass.cultureelerfgoed.nl/> [Accessed: 2023-02-05]
- M'Gavin, J. R. 1853. The Loss of the Australia: A Narrative of the Loss of the Brig Australia, by Fire, on her Voyage from Leith to Sydney. New York: Robert Carter & Brothers.
- Miramar Ship Index. 2017. Database. Miramar Ship Index. Available at: <http://www.miramarshipindex.nz/>
- Morning Post. 1845-07-01. Catherine & Isabella: Sailing. In: The Morning Post.
- New Lloyd's Evening Post. 1818-02-23. Elizabeth: Capture of Mutineers. In: London Packet and New Lloyd's Evening Post.
- Otago Witness. 1882-04-15. Alblasserwaard: Loss. In: Otago Witness: 15.
- Paine, L. 2013. The Sea and Civilization. London: Atlantic Books.
- Philadelphia Inquirer. 1894-05-19. Valkyrie : No Loss. In: Philadelphia Inquirer.
- Pocock, M. W. 2015. Maritime Quest Shipwreck Database Database. Maritime Quest Shipwreck Database. Available at: <https://www.maritimequest.com/database.htm> [Accessed: 2017-10-01]
- Port Elizabeth Telegraph. 1891-01-06. Barquentine Wrecked: Pembroke Castle. In: Port Elizabeth Telegraph and Eastern Province Standard.
- Port Elizabeth Telegraph. 1891-01-10. Wreck of a Barque up the Coast: Pembroke Castle. In: Port Elizabeth Telegraph and Eastern Province Standard.
- Port Elizabeth Telegraph. 1891-01-13. The Wrecked Vessel: Pembroke Castle. In: Port Elizabeth Telegraph and Eastern Province Standard.
- Port Phillip Patriot. 1841-04-12. Australia: Loss of the. In: The Port Phillip Patriot and Melbourne Advertiser,; 2.
- Rand Daily Mail. 1953-04-10. Wrecked Ship Abandoned: Zulu Coast. In: Rand Daily Mail.
- Rand Daily Mail. 1953-07-25. Court Blames Mate for Ship Disaster: Zulu Coast. In: Rand Daily Mail.
- Reocities. 2022. Reocities Web. Available at: <http://www.reocities.com/Heartland/ridge/2216/text/MARITIME.TXT> [Accessed: 2017-10-01]
- SA Navy. 1995. SAN Chart 117 Olifantsrivier to Cape Columbine. Map. Cape Town: The Hydrographic Office.
- SA Navy. 1997. SAN Chart 116 - Island Point to Olifantsrivier. Map. Cape Town: The Hydrographic Office.

- SAHRA. 2022. SAHRIS. Available at: <https://sahris.sahra.org.za/>
- Shipping & Mercantile Gazette. 1845-07-30. Catherine & Isabella: Wrecking. In: Shipping and Mercantile Gazette. Available at: <https://www.britishnewspaperarchive.co.uk/viewer/bl/0001702/18450730/018/0003>
- Shipping & Mercantile Gazette. 1845-09-16. Catherine & Isabella: Sale. In: Shipping and Mercantile Gazette. Available at: <https://www.britishnewspaperarchive.co.uk/viewer/bl/0001702/18450916/035/0003>
- Simons, D. 2020. Gunfleet: East Donyland/Rowhedge: Valkyrie I Database. Gunfleet.Net. Available at: <https://www.gunfleet.net/valkyrie-i> [Accessed: 2022-10-16]
- National Heritage Resources Act (No. 25 of 1999), (1999).
- S&S. 2023. Antique Ship Captain's Writing Desk From Mid 1800's Must See. S & S Estate Sales Auction Company. Available at: <https://www.savacoolandsons.com/item-16616.html?title=Antique+Ship+Captain%27s+Writing+Desk+From+Mid+1800%27s+Must+See> [Accessed: 2023-06-14]
- Subrahmanyam, S. 1997. The Career and Legend of Vasco da Gama. Cambridge: Cambridge University Press.
- Sutton, A. 2009. 'Infested with Pyratts': Piracy and the Atlantic Slave Trade. MA. Vanderbilt University.
- Sydney Shipping List. 1933-12-23. Whaling Casualties: Tragedy to Berea Feared. In: Sydney Daily Commercial News And Shipping List: 4.
- The Asiatic Journal and Monthly Register. 1820. The Asiatic Journal and Monthly Register for British India and its Dependencies. Calcutta: Asiatic Intelligence.
- Theal, G. M. 1902. Records of the Cape Colony from December 1815 to May 1818. (Vol. 11). The Government of the Cape Colony: London.
- Turner, M. 1988. Shipwrecks and Salvage in South Africa: 1505 to the Present. Cape Town: C. Struik.
- U-boat.net. 2022. U-boat.net Database. U-Boat.Net. Available at: <https://uboat.net> [Accessed: 2022-10-18]
- Unknown. n.d. The Brig Australia (1840). Retrieved 14 June 2023, from Available at: http://lostbrig.net/image_gallery.html [Accessed: 2023-06-14]
- van den Bosch, F. 2009. South African Shipwreck Database. CD-ROM. Cape Town: .
- van Niekerk, J. 2015. Of Naval Courts Martial and Prize Claims: Some Legal Consequences of Commodore Johnstone's Secret Mission to the Cape of Good Hope and the 'Battle' of Saldanha Bay, 1781 (Part 1). In: Fundamia: 21(2): 392–456.
- Western Morning News. 1876-05-08. Loss of the Union Company's Steamer Namaqua. In: Western Morning News.
- Western Morning News. 1891-03-11. The Wreck of the Pembroke Castle: Court of Inquiry. In: Western Morning News.
- Whitstable Times. 1890-08-23. Ianthe: Wreck. In: Whitstable Times and Herne Bay Herald.
- Wrecksite.eu. 2022. Database. Wrecksite.Eu. Available at: <https://www.wrecksite.eu/>

APPENDIX I: CONVENTIONS USED TO ASSESS THE IMPACT OF PROJECTS ON HERITAGE RESOURCES

Significance

The significance of heritage sites and artefacts is determined by its aesthetic, architectural, historical, scientific, social, spiritual, linguistic or technical value in relation to the uniqueness, condition of preservation and research potential. It must be kept in mind that the various aspects are not mutually exclusive, and that the evaluation of any site is done with reference to any number of these.

Matrix used for assessing the significance of each identified site/feature

1. Importance

Artistic	Historic	Scientific	Social
Importance in aesthetic characteristics	Importance to community or pattern in country's history	Possession of uncommon, rare or endangered natural or cultural heritage aspects	Association to community or cultural group for social, cultural or spiritual reasons
Degree of technical / creative skill at a particular period	Site of significance relating to history of slavery	Information potential	Importance in demonstrating the principal characteristics of human activities (including way of life, philosophy, custom, process, land-use, function, design or technique) in the environment of the nation, province, region or locality
	Association with life or work of a person, group or organisation of importance in the history of the country	Importance in demonstrating principle characteristics	

2. Authenticity / Credibility

Score	Description	Rating
0	Credibility of information cannot be determined: conjecture, unverified personal opinions; biases evident.	None/negligible
1	Secondary and tertiary information sources: popular media, newspapers, magazines; 'information' websites e.g. Wikipedia, etc.; individual opinions.	Low
2	Credible secondary sources: factually correct textbooks, popular publications, etc.; official websites; verifiable oral accounts.	Medium
3	Highly credible information sources: peer reviewed publications; primary sources; verified oral accounts.	High

3. Integrity

As the wrecks are mostly unknown, they are all given a full integrity score, to err on the side of caution

The degree of integrity is based on the condition of the resource at the time of assessment, compared to an ideal or other example. Integrity can therefore only be assessed once the resource's authenticity has been determined, as information regarding a heritage resource should provide comparative examples against which its condition may be measured.

Score	Description	Rating
0	Resource degraded to extent where no information potential exists; resource cannot be restored; single, isolated find, without any site context;	None/negligible
1	Poor condition, active decay visible; excessive restoration required; little information potential	Low
2	Fair to good condition; well preserved; some decay present; can be easily restored / conserved / preserved; good information potential	Medium
3	Excellent/pristine; extremely well preserved; little to no decay present; little restoration required/restoration will greatly enhance resource; excellent information potential	High

4. Value

This is a combination of Importance, Credibility, and Integrity

5. Consequence

This is a combination of Scale, Duration and Severity.

Scale		
Score	Description	Rating
0	No effect on any part/aspect of heritage resource	None
1	Isolated parts/aspects of heritage resource will be affected	Low
2	Large parts/aspects of heritage resource will be affected	Medium
3	Most or entire heritage resource will be affected	High
Duration		
Score	Description	Rating
0	No impact will occur during life of project	None
1	Impact will be short and reversible	Low
2	Impact will occur throughout life of project, but is reversible	Medium
3	Impact is permanent and irreversible	High
Severity		
Score	Description	Rating
0	Negligible to no change/alteration/damage/destruction of heritage resource	None
1	Reversible changes/alterations to heritage resource	Low
2	Parts/aspects of heritage resource will be permanently altered/changed/destroyed	Medium
3	Entire heritage resource will be permanently altered/changed/destroyed	High

6. Probability

Probability pre-mitigation		
Score	Description	Rating
0	Impact will not occur	None
1	Impact could occur	Low
2	Impact may occur	Medium
3	Impact will definitely occur	High
Probability post-mitigation		
Score	Description	Rating
0	Impact will not occur	None
1	Impact could occur, but will minimise impacts	Low
2	Impact may occur during life of project regardless of implementation of project mitigation measures	Medium
3	Impact will definitely occur, project mitigation measures will minimise impacts	High

7. Magnitude

This is Consequence multiplied by Probability.

Score	Description	Rating
0	No/negligible environmental impacts expected on heritage resource.	None/negligible
1-8	Low magnitude of environmental impacts on heritage resource	Low
9-16	Medium magnitude of environmental impacts on heritage resource	Medium
17-27	High/exceptional magnitude of environmental impacts on heritage resource	High

8. Significance of Impact

This is Magnitude multiplied by Value.

		Archaeology / Palaeontology	Built Environment/Structures	Historic Landscape	Intangible/Associations
0	No Change	No change	No change to fabric or setting	No changes to landscape elements, parcels, or components; no visual or audible changes; no changes in amenity or community factors.	No change
1-122	Low	Very minor changes to key archaeological materials, or setting.	Slight changes to historic building elements or setting that hardly affect it.	Very minor changes to key historic landscape elements, parcels or components; virtually unchanged visual effects; very slight changes in noise or sound quality; very slight changes to use or access; resulting in very small change to historic landscape character.	Very minor changes to area that affect the ICH activities or associations or visual links and cultural appreciation
123-243	Medium	Changes to key archaeological materials, such that the resource is slightly altered; slight changes to the setting.	Change to key historic building elements, such that the resource is slightly different; change to setting of an historic building, such that it is noticeably changed.	Change to few key historic landscape elements, parcels or components; slight visual changes to few key aspects of the historic landscape; limited changes in noise or sound quality; slight changes to use or access; resulting in limited changes to historic landscape character.	Changes to area that affect the ICH activities or associations or visual links and cultural appreciation
243-486	High	Changes to many key archaeological materials, such that the resource is clearly modified; changes to the setting that affect the character of the asset	Change to many key historic building elements, such that the resource is significantly modified; change to setting of an historic building, such that it is significantly modified.	Change to many key historic landscape elements, parcels or components; visual change to many key aspects of the historic landscape; noticeable differences in noise or sound quality; considerable changes to use or access; resulting in moderate changes to historic landscape character.	Considerable changes to area that affect the ICH activities or associations or visual links and cultural appreciation
		Changes to attributes that convey outstanding national value of national estate; Most or all key archaeological materials, including those that contribute to ONV such that the resource is totally altered; comprehensive changes to setting	Change to key historic building that contribute to outstanding national value of national estate such that the resource is totally altered; Comprehensive changes to setting. Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to h	Change to most or all key historic landscape elements, parcels or components; extreme visual effects; gross change of noise or change to sound quality; fundamental changes to use or access; resulting in total change to historic landscape character unit and loss on outstanding national value.	Major changes to area that affect the ICH activities or associations or visual links and cultural appreciation

APPENDIX II: PENALTIES ASSOCIATED WITH CONTRAVENING THE NHRA (No. 25 OF 1999)

Any person who fails to protect any heritage object or contravenes the NHRA is guilty of an offence and liable to a **fine** or **imprisonment** or both a **fine and imprisonment** for a period of up to **five years**.

Any person who fails to protect any structures, archaeology, palaeontology, meteorites, burial grounds or graves or who exports or imports objects protected in terms of laws of foreign states is guilty of an offence and liable to a **fine** or **imprisonment** or both such **fine and imprisonment** for a period of up to **three years**.

Any person who fails to protect any heritage area or structures is guilty of an offence and liable to a **fine** or **imprisonment** or both such **fine and imprisonment** for a period of up to **two years**.

Any person who fails to comply with any notice in connection with a national heritage site or provincial heritage site, heritage object, structures, archaeology, palaeontology, meteorites, burial ground or grave is guilty of an offence and liable to a **fine** or **imprisonment** or both such **fine and imprisonment** for a period of up to **one year**.

Admission of guilt fines and daily fines for not complying with permit conditions

The Minister or the MEC may make regulations in terms of which the magistrate of the district concerned may— levy admission of guilt fines up to a maximum amount of **R10 000** for infringement of the Act for which such heritage resources authority is responsible; and serve a notice upon a person who is contravening a specified provision of the Act or has not complied with the terms of a permit issued by such authority, imposing a daily fine of R50 for the duration of the contravention, subject to a maximum period of 365 days.

Damages

When any person has been convicted of any contravention of the Act which has resulted in damage to or alteration of a protected heritage resource, the court may order such person to remedy the result of the act of which he or she was found guilty in a specified manner and time.

In addition to other penalties, if the owner of a place has been convicted of an offence in terms of the NHRA involving the destruction of or damage to a place, the Minister on the advice of SAHRA or the MEC on the advice of a provincial heritage resources authority may order the owner that **no development** of such place may be undertaken, except to fix the damage and maintain the cultural value of the place, for a period of up to 10 years.

The Minister, on the advice of SAHRA, may reconsider an order of no development and may amend or repeal such order.

Vandalism

In any case involving vandalism, and whenever else a court deems it appropriate, **community service** involving conservation of heritage resources may be substituted for or instituted in addition to a **fine or imprisonment**.

Forfeiture order

Where a court convicts a person of an offence in terms of the NHRA, it may order the **forfeiture** of a vehicle, craft, equipment or any other thing used or otherwise involved in the committing of the offence to SAHRA or the provincial heritage resources authority concerned. Such object may be **sold** or otherwise disposed of as the heritage resources authority concerned deems fit.

APPENDIX III: CURRICULUM VITAE OF SPECIALIST

VANESSA MAITLAND MARITIME ARCHAEOLOGIST

Elandskraal, Western Cape

Cell: 082 490-4066

E-mail: vanessa@cocojams.co.za

ASAPA (Association of Southern African Professional Archaeologists) Member No: 326

EDUCATION

1986	Hill College	Port Elizabeth
■	Matriculated	
1987-1988	University of Cape Town	Cape Town
■	BA – First & Second Year	
1992-1993	University of Witwatersrand	Johannesburg
■	Completed BA, majored in Archaeology and Jewish Studies	
■	Other subjects studied include: Anthropology, Geology, Classical Civilizations, Hebrew, History, Biblical Archaeology	
1996	University of Witwatersrand	Johannesburg
■	BA Honours – Archaeology	
2010 - 2012	NAS/SAHRA/IZIKO	Cape Town
■	NAS I, II & III: Underwater Survey and Fieldwork Courses	
■	Iziko Waterlogged Artefact Conservation Course	
2010	University of Witwatersrand	Johannesburg
■	ARCGIS Course	
2011	University of Witwatersrand	Johannesburg
■	GRASS & QGIS Course	
2013-2015; 2019-2022		University of South Africa
	Pretoria	
■	Masters Degree in Maritime Archaeology	

ARCHAEOLOGICAL EXPERIENCE

Archaeological excavations at:

- Border Cave, KZN (Stone Age Archaeology)
- The Castle, C.T. (Historical Archaeology)
- Roosfontein Shelter, F.S. (Stone Age Archaeology)
- Rose Cottage Cave, F.S. (Stone Age Archaeology)
- de Hoop, Mpumalanga (Stone Age Archaeology)
- Nettleton Dump, JHB (Historical Archaeology)
- Modderfontein Railway Dump, JHB (Historical Archaeology)
- Stone Age Site near Maun, Botswana. (Stone Age Archaeology)
- Bulhoek, Eastern Cape (Historical Archaeology)
- Site Archaeologist on the *County of Pembroke* wreck (Maritime Archaeology)
- Site Archaeologist on the *Karin* wreck site (Maritime Archaeology)
- Survey of Robben Island wrecks (Maritime Archaeology)
- Survey of "The Barrel Wreck", Table Bay (Maritime Archaeology)
- Survey of *Odd* wreck site, Durban (Maritime Archaeology)
- Scoping Report, Berths 203-5 & Salisbury Island, Durban Harbour
- Underwater HIA, Berths 203-5 & Sand Winning Sites, Durban Harbour
- Underwater HIA and Land HIA, Pier 1, Durban Harbour
- Platberg Mission Station (Historical Archaeology)
- Inhambane (Mozambique) Slave Wreck Project Magnetometer Survey
- Bloubergstrand, Cape Town Slave Wreck Project Magnetometer Survey
- Senegal, African Slave Wreck Project Magnetometer Survey & Training
- Ilha de Mozambique Slave Wreck Project Magnetometer Survey & Training
- Durban, SAPREF Pipeline Desktop & Magnetometer Survey
- Cape Recife, Port Elizabeth WWTW Desktop, Magnetometer Survey & diver searches
- Cape Recife, Port Elizabeth Wreck Mapping
- False Bay, Cape Town Desalination Desktop, Magnetometer Survey & diver searches
- Hermanus, Western Cape; Magnetometer Survey and diver searches for Neptune Divers
- Port of Ngqura, Port Elizabeth; Magnetometer Survey
- Algoa Bay, Lost Anchor Survey
- Port of Saldanha, Western Cape Magnetometer Survey and diver searches
- Port of Richards Bay, Magnetometer Survey
- Port of Dar es Salaam, Tanzania, Magnetometer Survey
- Table Bay Lost Anchor Survey
- East London, Lost Dredger Head Survey
- Algoa Bay, Lost Anchor Survey

ARCHAEOLOGICAL WORK EXPERIENCE

2004	Subtech Diving & Marine <i>Admin Assistant & Archaeological Advisor</i>	Port Elizabeth
■	Research on unknown wreck site	
■	Compiling interim reports on <i>County of Pembroke</i> wreck site	
2007-2008	Site Archaeologist	Port Elizabeth
■	Diving and collecting data on <i>County of Pembroke</i> wreck site	
■	Liaising with Bayworld re curation of artefacts	

- Research
- Archaeological reports
- 2009** Independent Contractor Durban
 - Diving and collecting data on "Anomaly 27" wreck site
 - Liaising with SAHRA regarding site
- 2010** Independent Contractor Durban
 - Fieldwork and research on the *Karin* ("Anomaly 27") wreck
 - Archaeological report on the *Karin*
 - NAS (Nautical Archaeology Society) I course on Robben Island
 - NAS II course on Robben Island
 - NAS III (1st & 2nd Module) course on Robben Island
 - Editing and co-authoring NAS II group report
 - Organising and training at NAS I (Durban) Course
- 2011** Independent Contractor Durban
 - Fieldwork and tutor on NAS II Robben Island Course
 - Fieldwork and tutor on NAS II Durban Course
 - Heritage Scoping Report for the Proposed Developments at the Container Terminal at the Port of Durban for CSIR
- 2012** Independent Contractor Durban
 - Fieldwork and tutor on NAS II Robben Island Course
 - Fieldwork on "The Barrel Wreck" for Masters degree
 - Underwater HIA for Berth 203-5 & Sand Winning Areas at Durban Harbour for Nemai Consulting
- 2013** Independent Contractor/ACHA Durban
 - Underwater HIA and Land HIA, Pier 1, Durban Harbour
 - Registered for Masters at UNISA
 - Fieldwork at Bulhoek – Free State
- 2014** ACHA Durban
 - Fieldwork at Platberg Mission Station – Free State
 - Inhambane (Mozambique) Slave Wreck Project Magnetometer Survey
 - Underwater HIA for Pier 1 at Durban Harbour for Jeffares & Green
- 2015** ACHA Durban
 - Bloubergstrand, Cape Town Slave Wreck Project Magnetometer Survey
 - HIA for Pier 1 at Durban Harbour for Jeffares & Green
 - Tutor WITS MUCH Field School - Durban
 - Fieldwork at Platberg Mission Station – Free State
 - Site Archaeologist at KZN Children's Hospital – Durban
 - Project Director Transnet MUCH Project
- 2016** ACHA Durban
 - Senegal, African Slave Wreck Project Magnetometer Survey and Training
 - Ilha de Mozambique, African Slave Wreck Project Magnetometer Survey and Training
 - Fieldwork at Platberg Mission Station – Free State
 - Saldanha Bay shipwreck research for Dr Jonathan Sharfman
 - Site Archaeologist at KZN Children's Hospital – Durban
 - Maritime Heritage Desktop Survey for Umgeni Water Amanzi's proposed construction of desalination plants at: Lovu River & Tongaat – KZN
 - Maritime Heritage Desktop Survey for Ibhubesi Gas Project
 - MUCH Heritage Display for Transnet's Maritime School of Excellence Graduation
 - Project Director Transnet MUCH Project
- 2017** ACHA/Independent Consultant Cape Town
 - Project Director Transnet MUCH Project
 - Ilha de Mozambique, African Slave Wreck Project Magnetometer Survey
 - UHIA and Magnetometer Survey, Richard's Bay Floating Dock
 - UHIA and Magnetometer Survey, Hitachi Water Remix Project
 - Statement on Maritime Structures, Gansbaai and Still Bay
 - SAPREF UHIA and Assessment of ROV Survey
 - UHIA, De Beers, West Coast Concessions
- 2018** ACHA/Independent Consultant Cape Town
 - SAPREF Magnetometer Survey, Durban
 - Magnetometer and Diver Survey for CoCT on Monwabisi and Strandfontein Desalination Sites, Cape Town
 - UHIA, Magnetometer and Diver Survey for NMBM Outfall Pipes, Cape Recife, Algoa Bay
 - UHIA, Alexkor, West Coast Concessions
 - Wreck Mapping for for NMBM Outfall Pipes, Cape Recife, Algoa Bay
 - Ilha de Mozambique, African Slave Wreck Project Magnetometer Survey
- 2019** ACHA/Independent Consultant Knysna
 - SAPREF Magnetometer Survey, Durban
 - Wreck Mapping for NMBM Outfall Pipes, Cape Recife, Algoa Bay
 - HIA for Buccara-Africa's Noetzie Helipad and Walkway Development
- 2020** ACHA/Independent Consultant Knysna
 - Hermanus, Western Cape Magnetometer Survey and Diver Searches for local dive company, Neptune Divers
 - Port of Ngqura Desktop Assessment, Magnetometer Survey and Diver Searches
- 2021** ACHA/Independent Consultant Knysna
 - Mossel Bay. WC, Desktop Assessment for the Proposed Undersea Gas Pipeline, ASHA Consulting
 - Port of Saldanha, Desktop Assessment, Magnetometer Survey and Diver Searches for Gas to Power Powership, Triplo4 Sustainable Solutions
 - Port of Dar es Salaam, Tanzania, Magnetometer Survey with Tritan Survey for CHC
 - Port of Richards Bay Magnetometer Survey with Tritan Survey for Gas to Power Powership Project
 - Table Bay Lost Anchor Magnetometer Survey

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- 2022** ACHA/Independent Consultant Knysna
- Mossel Bay. WC, Desktop Assessment for the PetroSA
 - East London, Lost Dredger Head Magnetometer Survey
 - Algoa Bay Lost Anchor Magnetometer Survey
 - UHIA, West Coast Concessions

OTHER QUALIFICATIONS & INFORMATION

- NAUI Dive Master
- Commercial Diver Class IV
- CRM Field Director – ASAPA
- CRM Accreditation – Amafa
- South African and British Passports
- Fully Vaccinated with Pfizer for Covid-19

APPENDIX IV: DECLARATION OF INDEPENDENCE

UNDERWATER HERITAGE IMPACT ASSESSMENT – DESKTOP STUDY PROSPECTING AND BULK SAMPLING RIGHT APPLICATION FOR WC 50/1/1/2/10454/ PR WITHIN CONCESSION 11A NEAR SOUT RIVER, WESTERN CAPE

Terms of Reference

This assessment is the Underwater Heritage Impact Assessment, and it assesses the overall cultural heritage potential within area in terms of the proposed development.

Declaration

I ...**Vanessa Maitland**....., as the appointed independent specialist hereby declare that I:

- act/ed as the independent specialist in the compilation of the above report;
- regard the information contained in this report as it relates to my specialist input/study to be true and correct, and
- do not have and will not have any financial interest in the undertaking of the activity, other than remuneration for work performed in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management Act;
- have and will not have any vested interest in the proposed activity proceeding;
- have disclosed to the EAP any material information that has or may have the potential to influence the decision of the competent authority or the objectivity of any report, plan or document required in terms of the NEMA, the Environmental Impact Assessment Regulations, 2014 and any specific environmental management act;
- have provided the EAP with access to all information at my disposal regarding the application, whether such information is favourable to the applicant or not; and
- am aware that a false declaration is an offence in terms of regulation 48 of the 2014 NEMA EIA Regulations.



Signature of the specialist
- Maritime Archaeologist

Date: 10 June 2024