

## The Swash Channel Wreck





# **The Swash Channel Wreck**

## An Archaeological Investigation of a 17th-Century Armed Dutch Merchantman

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# Chapter 1

## Introduction and project background

### Summary description

The site is that of a wrecked, early 17th-century armed Dutch merchant ship. It is located on the edge of Hook Sand, a large sandbank known historically as an area of shipping loss, in the Swash Channel in the approaches to Poole Harbour, Dorset on the south coast of the United Kingdom (Figure 1.1).

The wreck site is formed by a spread of archaeological material covering approximately 40m by 50m. This consists primarily of the port side remains of a heavily framed carvel-constructed wooden ship of c 40m in length, with associated debris spreading up to 30m to the north-west of the site. Site investigations have focused on four main areas (Figure 1.2):

**Area One** consisted of the first 18m of the wreck from the approximate bow to midships, covering an area of structure from the turn of the bilge to the start of the forecastle;

**Area Two** comprised frames from the start of the tumblehome to the top rails and the internal and external planking of the main deck up to the top rails;

**Area Three** contained the stern from the turn of the bilge to the top rail of the stern castle;

**Area Four** remained unexcavated but contained the rudder and articulated hull remains which separated Areas One and Three. The structure in Areas One and Three is split approximately 60% of the way along its length from the bow, forming two distinct elements that lie on slightly different orientations.

### Designation

The site was designated as a Historic Wreck under the Protection of Wrecks Act 1973, Order 2004/No. 3243 (DCMS 2004). This was made and laid before Parliament on 9 December 2004 and came into force on

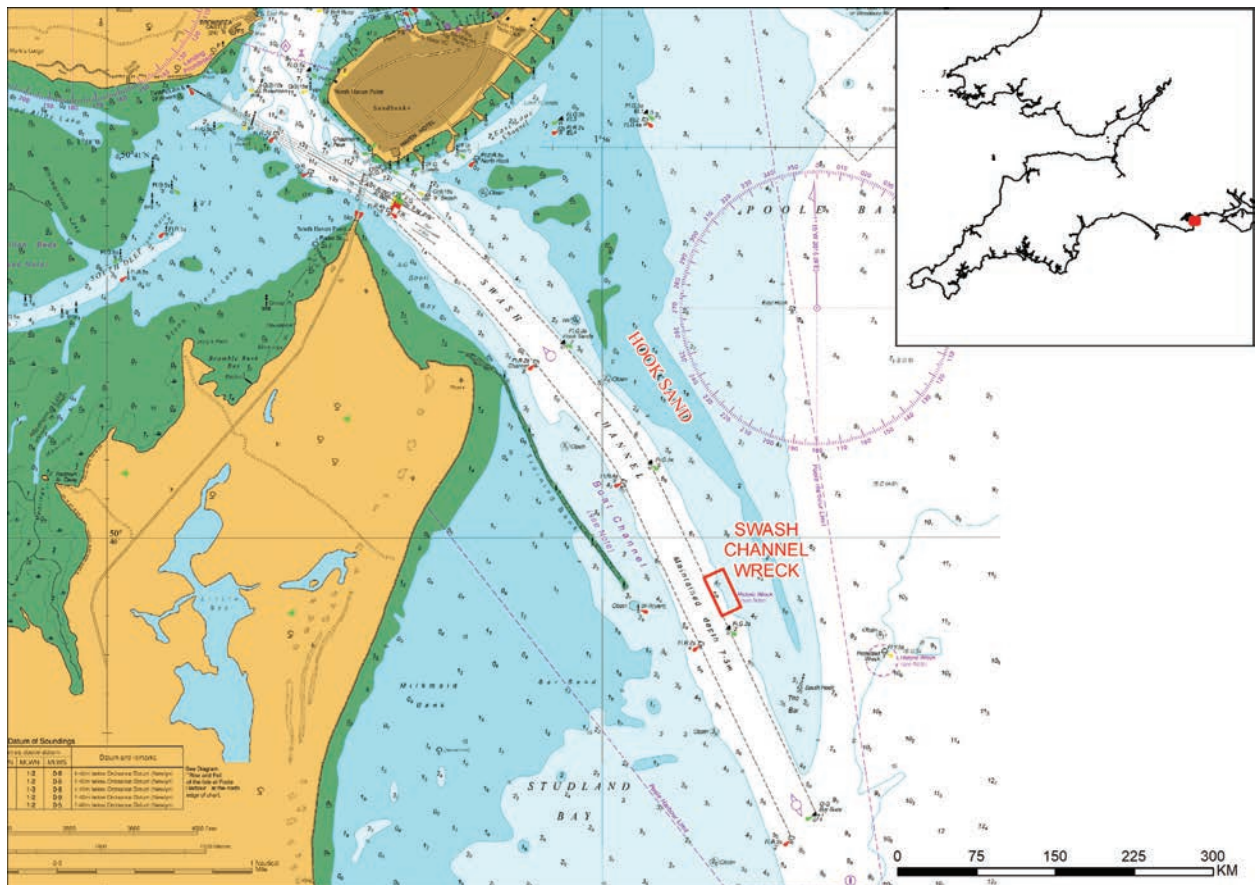


Figure 1.1. Location of the Swash Channel Wreck © British Crown and OceanWise, 2019. All rights reserved. Licence No. EK001-20180802. Not to be used for navigation

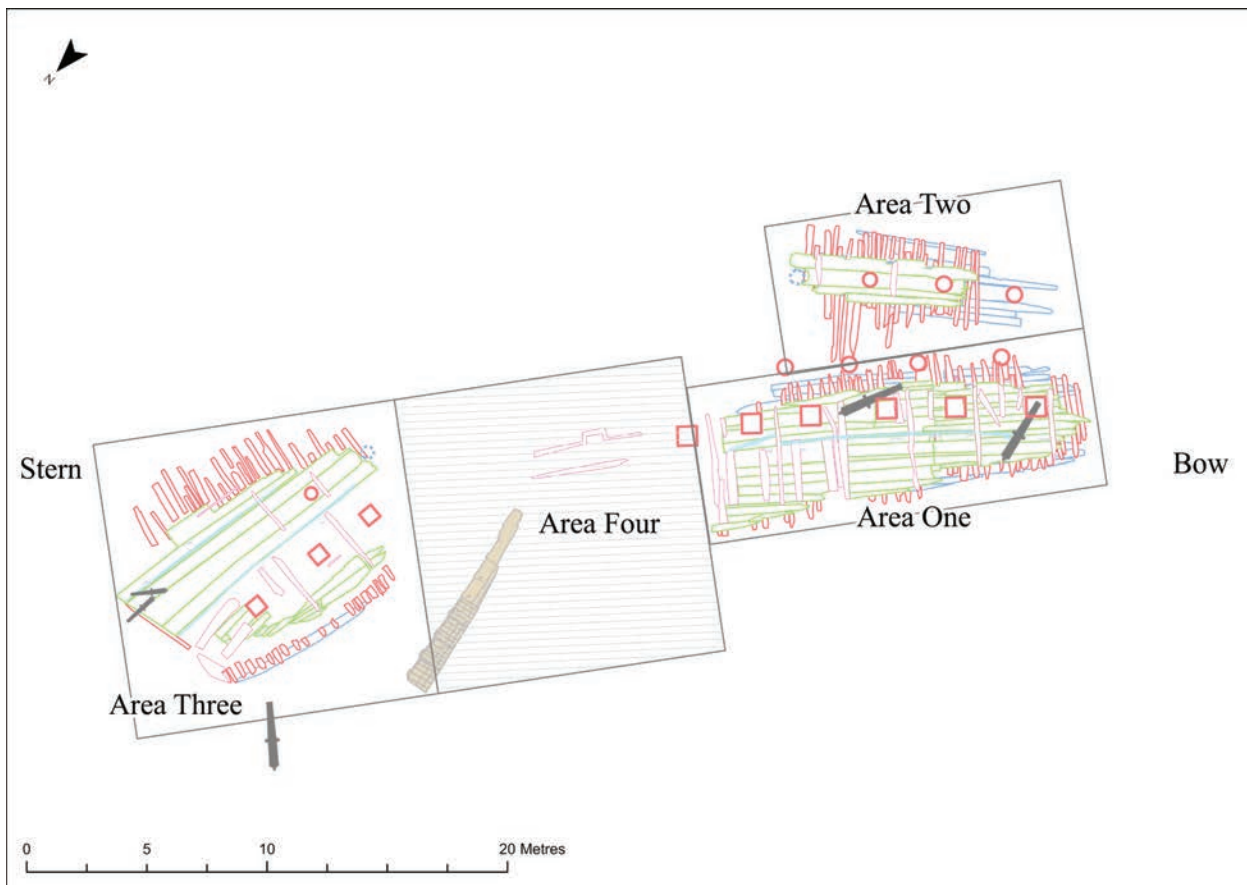


Figure 1.2. Site plan of the wreck

10 December 2004. At the time of designation, the then Heritage Minister, Andrew McIntosh, said:

This is an important wreck both in historical and archaeological terms. It is likely to be well preserved and rare in terms of its quality and the quantity of the surviving structure and is already yielding invaluable information about ships of this period. This Order is particularly timely as the location of the wreck has been publicised and we need to protect it from potential damage by divers visiting the site.

The Swash Channel Wreck was attributed the National Monuments Record (NMR) number 1408546 and the List Entry Number 1000082. The current designation is a rectangular area running parallel to the main shipping channel.

Since the site's designation, Poole Harbour Commissioners (PHC) have held the licence: initially Harbour Engineers Richard Appleton, then Andrew Ramsbottom and currently, as of 2020, Port Hydrographer Steve Pearce. In 2005, the archaeological advisors for the site were Wessex Archaeology. Since

2006 that position has been held by David Parham of Bournemouth University (BU).

#### Site formation

As early as 1843 it was noted that silting of the access to Poole Harbour was becoming detrimental to the opportunities for trade at the port (Cullen 2017). In 1865, construction began on what became known as the 'Training Bank', a stone embankment running south-west from near South Haven point at the entrance to the harbour. This was designed to train water along its length and speed up the flow in order to improve the scouring effect of the ebb tides, thus increasing the depth of the harbour entrance. Whilst partially successful, the length was increased in 1876 and further work was undertaken between 1923 and 1926. With its final length being 1433m, it increased the channel to approximately 4.2m below Chart Datum (CD).

The first capital dredge of the channel was undertaken in two stages: to 5.2m below CD in 1988/89 and 6.0m below CD in 1989/90. Further work was undertaken in 2004/05 to increase this to 7.5m below CD.

## Sediment transport

Unless otherwise referenced, the text below is précised from the SCOPAC (Standing Conference on Problems Associated with the Coastline) Sediment Transport Study. The study relates to the coastline of central-southern England between Lyme Regis (Dorset) and Shoreham-by-Sea (West Sussex) and was conducted by the University of Portsmouth in 1990 and updated in 2004 (Carter *et al* 2004). The ebb-dominant tidal regime in Poole Harbour results in a net south-east (offshore) directed transport of sand delivered to and within the Swash Channel. Conditions in the Swash Channel suggest that sediment transport is strongly dependent upon combined wave and tidal-current action and is most intense under the combination of high-energy wave action and spring tides. During calm conditions (70% of the time), the mean transport rate is limited, with 50–100 times more movement under typical waves (30% of the time) and 500–1000 times more during the operation of storm waves (once per year). Easterly and south-easterly waves can transport sediment westwards from Sandbanks Beach to Hook Sand, where it may become entrained by tidal currents operating within the Swash Channel until swept past the 1500m-long Training Bank; wave modelling suggests that sediment then accretes in inner Studland Bay, having been moved from the Swash Channel and Poole Bar.

Part of the crest of Hook Sand lies above -1m CD, causing refracted waves to break and sand to be driven onshore from the crest. Sand supplied by this pathway may periodically partially infill the Swash Channel (and hence the site) during northerly wind conditions.

Results on sediment transport within the Swash Channel are limited and thus cannot be extrapolated as long-term trends without more detailed knowledge of the interaction of variables. However, chart comparisons covering the period between Mackenzie's 1785 survey and immediately prior to the first capital dredge of the Swash Channel in 1990 revealed that the Swash Channel and Hook Sand were subject to some fluctuation, but were relatively stable in position and platform. This implies a long-term equilibrium between sediment supply and loss.

Studies of the more detailed area around the site were made at the time of its discovery. Comparisons of surveys undertaken between 1910 and 2003 show, as part of the larger changes in Hook Sand noted, a net change in seabed over the site of c -1.5m. Studies by HR Wallingford considered that the process which resulted in the uncovering of the site are complex, being linked to the detail of localised scouring around any exposed part of the wreck and large-scale ongoing morphological change in the area of Hook Sand (HR

Wallingford 2003). Hydrodynamic modelling conducted by them suggested that whilst sand would erode from the site at periods of significant waves (a once per year event), sand transport patterns indicated that changes in the channel caused by its deepening would result in a slight increase in the potential for accretion. It is suggested therefore that the area in which the site lies is an area of general stability which is fed with sediment predominantly originating from Poole Harbour and occasionally from Hook Sand. Periods of strong tide or wind are known to cause a short-term net sediment loss that moves either to the south-east along the channel to the west or south-west into Studland Bay, which has historically been replenished with sediment from Poole Harbour. The more detailed location of the site, on the edge of the Swash Channel, is one of historic erosion (since 1910) that has resulted in the loss of sediment levels over the site of almost 2m over the last 100 years. The excellent condition of wreck material when originally uncovered indicates that the material was relatively quickly buried when originally lost and has remained buried in the intervening period until an event occurred that began the exposure of the site. This suggests that in the c 400 years between the wreck event and the known erosion that has been ongoing since 1910, the seabed around the site must have been stable. Since 1910, the detailed area around the site has been subject to erosion that has ultimately resulted in the exposure of the wreck site in the last decade of the 20th century. (The poor condition of some of the timbers when the site was located indicates that this event occurred several years before 2004.) The erosion has been exacerbated by scour caused by the exposed wreck structure. Studies by HR Wallingford suggested that deepening of the channel would cause a potential for sediment accretion in the area of the site. This has been supported post-dredge by Poole Harbour Commissioners' surveys that show no change in the level of sediment in the general area of the site. The above is at odds with Bournemouth University's sediment monitoring of the actual site, which suggests significant sediment loss. It would be reasonable to suggest therefore that the site is causing its own demise as a result of localised scouring around any exposed part of the wreck.

## Nature of the remains

When first found the site consisted of a confusing jumble of ship's structure with a small number of large finds such as cannon and relatively few small finds. Although the detail and understanding of this did increase during the excavation, the general impression of a confused site did not change.

Amongst the oddities of the site were the apparent absence of any cargo, the relatively small number of

guns, and a general lack of finds all together. The ship's structure did not follow the usual layout of a shipwreck site. A typical wreck site consists of the lower hull up to around the turn of the bilge surviving by a combination of ballast / cargo / armament both pinning to the seabed and covering / protecting it. But the site consisted of the port side of the ship surviving from around the turn of the bilge to the top rail of the ship's superstructure – typically those parts of the hull that do not survive.

This structure consists almost entirely of the ship's side lying internal side uppermost on the seabed. It is not intact but broken just astern of the main mast step, pulled part and out by of alignment by *c* 20° above the horizontal. Such a survival is very unusual as the lighter upperworks of a ship are often swept away during or immediately after the initial wreck, while the upper part of the hull, sitting unprotected in the water column, exposed to decaying physical and biological processes, decays over a period of decades, leaving the lower hull buried in the seabed. Whilst the knees that would have supported the ship's transverse beams survive, no trace of any internal structure either *in situ* or as scattered wreckage was observed. A number of disarticulated floor timbers were observed on site and one (SCW1316) was washed ashore at a local beach in 2001. These suggest that the lower hull had been present on the site at one point and had subsequently been broken up.

When found in 2005, a number of the timbers had clearly been exposed for a while and showed extensive degradation, with some elements sufficiently degraded for the calcareous lining of large (*c* 500mm) shipworm tunnels to be visible, whilst other timber surfaces appeared undamaged and freshly exposed. The initial years of work on the site (2004–09) were conducted against a backdrop of the continuing exposure of the site. When timbers were newly exposed their surface was fresh, showing no, or very limited signs of damage and with the presence of builder's marks and carved elements clearly visible which rapidly degraded. Whilst the site was typified by increasing exposure of timbers, small finds were limited to only a handful of objects.

Both the layout of the site and the condition and survival of the timbers suggested a site that had been subject to processes of significant damage either as part of its initial wrecking or very soon after this. Contemporary salvage techniques involved the tearing apart of the ship's hull to gain access to the cargo. These techniques are illustrated in Jacob Rowe's *c* 1730 publication *A Demonstration of the Diving Engine* (Rowe 1730). The process involved the removal of the ship's masts by cutting the supporting rigging, then the positioning of a boat or raft of considerable buoyancy above the wreck and the lowering of grappling hooks

into the wreck to catch the deck beam. The tide would be allowed to ebb whilst the ropes to the boat would be gradually tightened. At low water the rope would be 'bar tight' (when a line is pulled up tight to the point where it has no deflection, like a bar). The flooding tide would lift the boat, thus pulling the deck out of the ship. At this point anything that was buoyant, such as barrels and loose timbers, would float up to be collected on the surface. Anything that was not buoyant would now be accessible for dragging from the surface. As the deck formed a key structural component in the ship's hull it would vastly increase the chance of the hull failing at its weakest points, the bow and the stern, allowing the sides to fall to the seabed. This could account for the present on the seabed of the port side and upperworks of the ship. A noticeable feature of the wreck when first found was the presence of a large (*c* 200mm diameter) cable on the seabed that passed under the remains of the wreck's bow (Figure 1.3). This did not survive to the excavation stage of the project but the fact it ran beneath the hull may indicate that it was involved in salvage activity.

Evidence from the excavation indicated that elements of the surviving structure may have remained above the seabed surface for some time prior to burial. When excavated, areas of the hull were covered in the attached remains of European Flat (or Native) Oysters *Ostrea edulis*, many of which had reached in excess of 100mm in size. This oyster reaches sexual maturity at 3–4 years old when it is *c* 38mm in size and has a typical life span of 5–10 years, 15 years in some circumstances when it can achieve up to *c* 110mm in size (Jackson 2008). The extensive presence of oysters in the *c* 100mm size range would suggest that some of the hull had survived above the surface prior to burial for at least ten years.

The sample of rock ballast recovered from the wreck consisted of 122 individual boulders. This suite of metamorphic rocks included granites, diorites, basalts and welded tuffs that originate from outside the Dorset area, while within the collection was a small subset of local stone, including possibly tertiary ironstone from the Agglestone Grit, Portland Cherty series, chert and limestone as well as a few other flints and cherts. All the latter are found in the Dorset area, but not in the immediate area of the wreck (R Edmonds, pers comm 2012). The presence of the non-local Dorset stones may suggest that fishing activity occurred over the site post-wrecking, utilising stone net weights.

The archaeological picture therefore suggests a ship of *c* 4m draught, wrecked in relatively shallow water, which is perhaps approaching from the west. Following the loss, it is then rapidly and thoroughly broken-up through an extensive and thorough campaign of salvage. Elements of the hull are left to eroded rapidly



Figure 1.3. Cable potentially relating to the salvage

on the seabed and become buried whilst some parts survive above the seabed long enough to be colonised by marine life prior to burial. The excellent preservation of the material on the site would indicate that the submerged site has remained buried for most of its c 380 years. The exact reason for its initial exposure is currently unknown: perhaps the original 1990 dredging impact or perhaps a result of natural coastal processes. The process was already underway by 2001 when timbers from the wreck were found on local beaches.

### Studland Bay in the 17th century

Poole Harbour is located on the south coast of England and is a shallow ria, with an irregular coastline of c 160km. The navigational entrance to Poole Harbour is via the Swash Channel. To the east of the channel there is a large sand bar known as Hook Sand.

Many archaeological sites are located in and around the harbour, studies of which have provided evidence for the manufacture, trade and exchange of artefacts and produce from prehistoric times through to the present day (Pitman *et al* 2020). Whilst there is evidence of activity throughout prehistory and the Roman period, the harbour's real rise to prominence began when Poole was made Dorset's 'Port of the Staple' for the export of wool in 1433; from this point onwards it grew in importance as a port. During the 17th century the town began trading with Newfoundland, which resulted in Poole becoming very wealthy and by the 18th century it was the principal British port trading with North America, but it experienced a shift in prosperity as the harbour became less accessible due

to the Swash Channel silting up. In the 17th century, the main channel into Poole Harbour featured a bar with depths between 10ft (c 3m) and 16ft (c 4.8m) (Seller 1671, 7), preventing large ships from going into Poole. Studland Bay, however, was a known as a safe anchorage providing good shelter from the prevailing south-westerly winds (Seller 1671). The bay itself is very shallow, with the depths recorded in 1785 being less than 4m at the bar and even shallower within the bay; larger ships were therefore warned not to anchor further in than the point where Durlston Point can be seen from Old Harry (Figure 1.4) (McKenzie 1785).

### England, the Netherlands and the wider world in the 17th century

*Ian Friel*

If well-informed Europeans in the 17th century had speculated as to which nation might succeed Spain as *the* global maritime superpower, they could well have chosen the United Provinces of the Netherlands. England would have come a poor second in the estimation of any geopolitical sage – at least, in the opinion of one who lived outside England.

The Netherlands was a republic, an alliance of sovereign provinces with the States-General at The Hague as its only national body and a war fleet provided by five provincial admiralties. The Swash Channel Wreck was lost towards the end of the 'Eighty Years War' (1568–1648) in which the largely Protestant Netherlands struggled against the Catholic Spanish Empire in an ultimately successful bid for independence. Despite a truce between 1609 and 1621, the war had resumed.

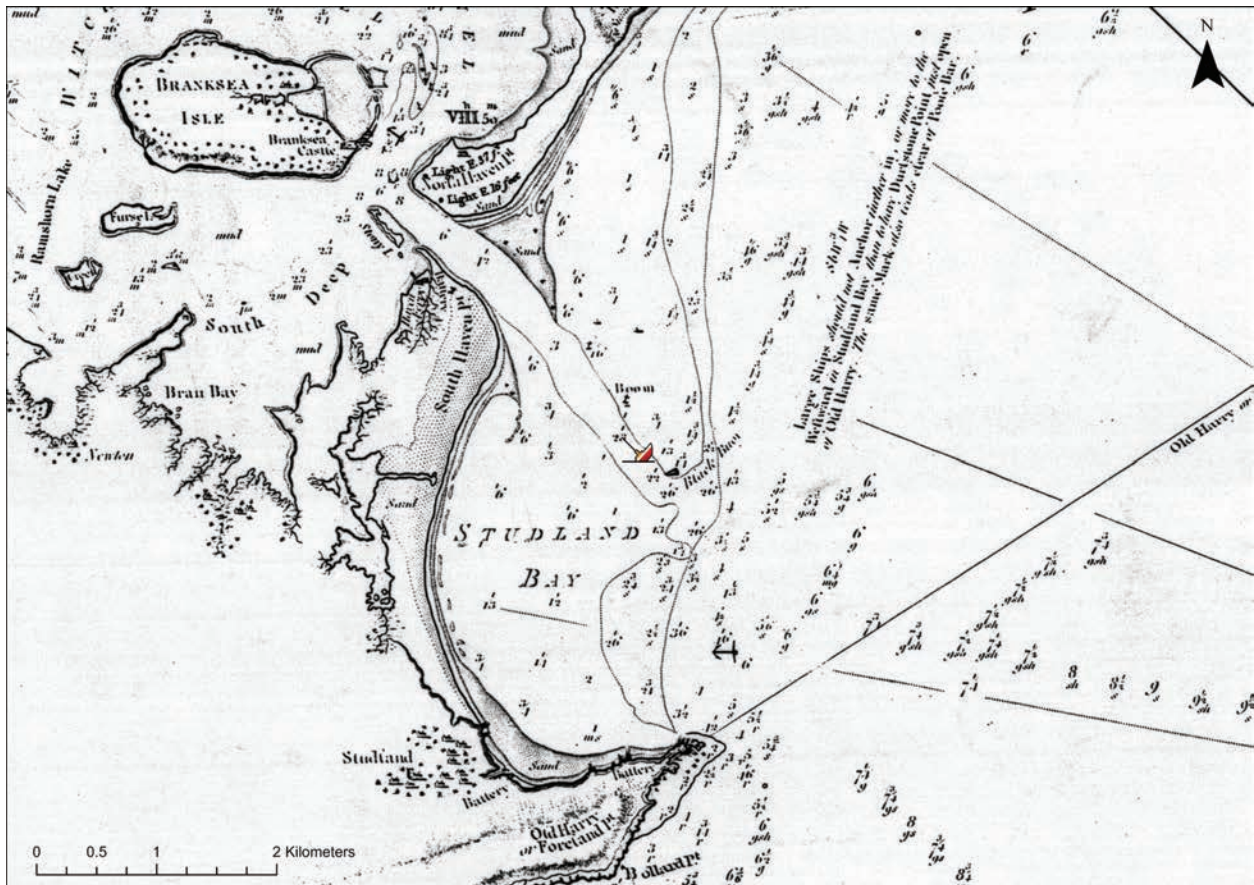


Figure 1.4. McKenzie (1785) Admiralty Chart of Studland Bay from 1785 showing the anchorage and approximate position of the wreck (note the depths are in feet)

It was remarkable that in such conditions the Dutch Republic not only survived, but prospered, though the seafaring towns and cities did better than those inland.

The contemporary English state consisted of England, Wales and their outlying islands. Scotland, though linked to England by a shared 'British' Stuart monarchy, was effectively a separate nation. The Stuart kings James I (1603–25) and Charles I (1625–49) ruled an England that had survived a long maritime war with Spain between 1585 and 1604. Charles I, in particular, had pretensions to make England into a greater international player, but he had neither the finances nor the military and naval power to do so. The royal navy had suffered from the results of incompetence, corruption and lack of funding in the years after 1604. Fortunately for England, these proved to be years of peace. Though the management of the fleet was subsequently improved, it lacked the leadership, manpower and money to conduct effective major operations. These weaknesses contributed to England's humiliating failure in wars against both Spain and France between 1625 and 1630.

Despite their many differences, there were some resemblances between England and the Netherlands as maritime nations. Each had a sea-trading network that reached out across northern and southern European waters, the Atlantic and Asia, and both were prepared to use force to back up their mercantile operations if they felt the need. The two countries also planted small settlements in North America between the early 1600s and 1630, but the survival of these was precarious and it would be many years before any of them amounted to much. Colonies aside, however, the Dutch had the upper hand in matters of sea trade and naval war.

Dutch trade was diverse in nature, whereas much of English overseas commerce still relied on the export of cloth. England did have two successful long-distance overseas trading ventures – the Levant Company, and the East India Company (EIC) – but their contribution to the nation's wealth was limited. Added to this, the EIC's Dutch competitor, the *Vereenigde Oostindische Compagnie* (VOC), was much more securely established in Asia than its English challenger.

The VOC's Atlantic counterpart was the Dutch West India Company (WIC), founded in 1621. The Company had a monopoly on Dutch trade with the Americas and Africa and was empowered to wage war in those continents. The WIC was not always successful, but in 1628 one of its squadrons captured the Spanish treasure fleet – a massive coup. Two years later, the Company began the conquest of Pernambuco in Brazil, a valuable sugar-producing region in the Portuguese portion of the Spanish Empire.

England and the Netherlands were both overwhelmingly Protestant nations, at a time when parts of Europe were embroiled in bitter and brutal religious conflicts between Protestant and Catholic. The two countries had been allies in the long Anglo-Spanish War, and the

EIC and VOC did co-operate in fighting the Portuguese in Asia in the 1620s. However, there was also real friction between the two states. In theory, the Dutch believed that the seas should be open to all traders and fishermen, but, amongst other things, the English resented the way that Dutch herring fleets exploited English waters in the North Sea. Conversely, and rather hypocritically, the Dutch often did their best to exclude the EIC from trade in Asia.

Some 21 years after the Swash Channel Wreck was lost, Anglo-Dutch hostility would erupt into the first of three wars between the two countries. A time would come when England was a rising sea power, and the Netherlands would be in decline as a maritime nation, but in 1631 that was still a long way off.