

Ottoman wrecks of the Black Sea

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Abstract: The Black Sea Maritime Archaeology Project documented at least 36 shipwrecks dating to the period of Ottoman dominance. About half the vessels were of one- and two-masted sailing merchant ships. Though broadly similar, there are significant variations between them within the common shipbuilding tradition. The sites provide us with unique view of rigs and rigging in the Ottoman Black Sea.

Keywords: Black Sea, Ottoman, rigging, shipwrecks, seafaring

Introduction

The publicity of the Black Sea Maritime Archaeology Project makes introduction unnecessary. It is enough to say that in the process of gathering data, 65 wrecks were encountered and documented to different levels of detail. A group of 36 wrecks were of local origin, from the Ottoman period (15th–19th centuries). Of these, 17 ships were identified as sailing vessels, 16 were open rowing and sailing boats. Three wrecks remain uncertain (Adams *et al.* 2018).

Though in different states of exposure and preservation, most wrecks are able to provide some information on Ottoman naval architecture in the Black Sea. The size of the sample of shipping permits to see patterns and variation within the patterns. This paper will look at a few examples from this group.

Ottoman Period Wrecks

Shipping was a secondary aim of the project and therefore limited resources were available for the study of individual shipwrecks and sampling for dating, particularly for those of the Ottoman period (Ruiz *et al.* 2019). Despite the restrictions, the information obtained is unique and extends our hitherto limited knowledge on the technical aspects of Ottoman shipbuilding in the Black Sea region. The current paper offers preliminary descriptions of a sample of the sailing ships found by the expedition.

Many of the vessels were found in less complete condition than the ancient or medieval ships. Furthermore, vessels in depths of up to about 100 m, were generally less well preserved than wrecks in deeper waters. Two explanations can be hypothesized: first, the anaerobic conditions in waters deeper than 150 m decrease the presence of the wood-eating critters. Second, in deeper waters no bottom trawling is practiced. In shallower waters a number of wrecks were found dispersed to the point of losing coherence. Also, on the later period vessels, the iron fastenings corroded and failed in a way that did not happen with the mortice-and-tenon joinery of ancient ships.

Some wrecks, though apparently well preserved, are so deeply buried in the bottom sediment that little data could be extracted from them. Examples of such wrecks would be BSMAP_2017_002 and BSMAP_2017_003. In both cases little more can be established than that the ships were double-enders.

BSMAP_2016_WRK_004

It was initially misidentified as a rowing vessel. Upon further study, it proved to be a sailing ship, though differing significantly in proportions from the rest of the vessels of the Ottoman group (Fig. 1). It is much narrower in beam, similar in proportion to the rowing boats, with a beam to length ratio of 4.6 to 1. The bow of the ship is tentatively

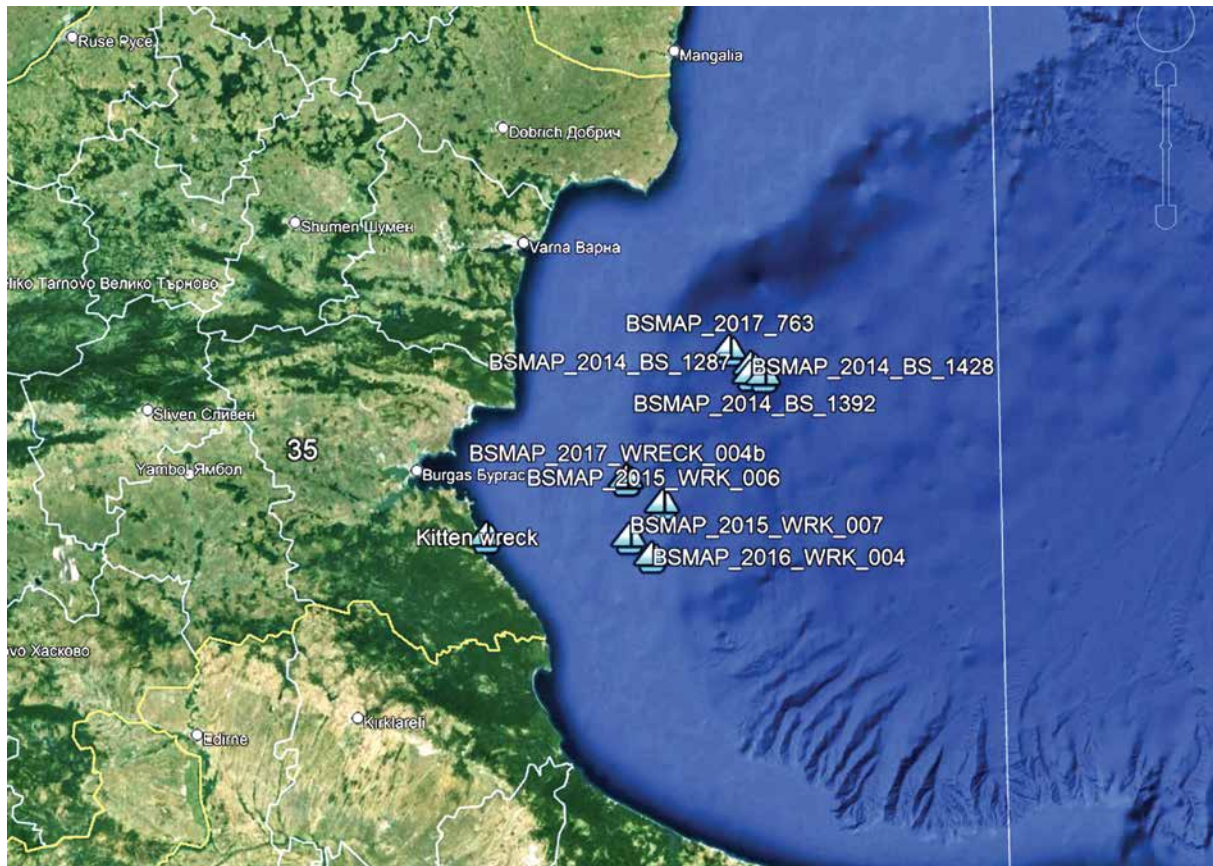


Fig. 1 Ottoman Wrecks off the Bulgarian Coast (author: K. Batchvarov)

identified by the presence of a single grapnel-type anchor in the ENE end of the ship. The bow is fuller than the stern and the vessel achieves its maximum beam in the first third of the overall surviving length aft of the visible stem. Initially the beams were assumed to be rowing benches. A more detailed observation of the model, video footage and still photography of the site, however, demonstrated the presence of lodging knees. Additionally, some of the beam ends seem to have mortices cut into them that may have held standard knees. The bow is obscured by a jumble of substantial timbers that may contain catheads, bitts and deck structure.

At about one-quarter of the overall length aft of the stem begins a large area devoid of beams, likely the main cargo hatch. Through the opening is visible a large quantity of squared timber, oriented fore and aft, lying under the beams. It appears that the ship carried a cargo of lumber. The hatch ends at about mid-length of the hull with a beam that is *in situ* and has a lodging knee in place on the starboard end. This knee's long arm points towards the bow, while the long arm of the knee at the forward end of the hatch points aft. Therefore, it can be concluded that the midship frame is in the area of the hatch. Eight or nine lodging knees are visible, with the majority in the aft section of the ship still *in situ*, even if the beams themselves have been dislodged. No direct evidence of the deck survives beyond the beams and knees. The stern post is present, protruding from the bottom. It appears to have been higher than the stem. On top of the site, parallel to the centerline, lies a long round spar. It likely is a sprit, as no tapering is observable and because it is shorter than the length of the vessel on deck, but a lateen yard cannot be excluded. Considering the overall shape and how much it differs from the other vessels discovered, as well as the still-present cargo, it is possible that the vessel was a specialized timber carrier.

BSMAP_2015_WRK_007 and BSMAP_2017_WRECK_005

These vessels are of approximately the same size and proportions, 18 m length by about 5 to 6 m beam, and share the same main hatch cover arrangement. It consists of a curving, vault-like frame. A central piece, like a keel, is supported by series of frames, the whole resembling the skeleton of a boat. The framework is well preserved on both ships and is not planked, which suggests that a tarp covered it when the ships were at sea. Both vessels carry their beam far aft,

creating a curved, but full stern without a transom. Despite other similarities, the vessels differ in rig. BSMAP_2015_WRK_007 is a single-masted ship. About 6 m of the lower mast survives, lying across the wreck to port, including the heel. Little of the upper spars is in evidence, but most of the bowsprit is present. The ship has remnants of a deck visible through the overburden, but unfortunately is too deeply buried to yield much more information. There seem to be some evidence that the deck in the stern stepped up to a quarterdeck. BSMAP_2017_WRECK_005 is the more exposed of the two ships (Fig. 2). It has the same main hatch cover as WRK_007, but is distinguished from it in having two masts, both of them broken. The foremast is of smaller diameter than the mainmast and is located very close to the stem, in the extreme bow. The mainmast is about mid-length of the ship, it is broken at deck level and the upper part is lying diagonally aft and to starboard. There is no evidence for a bowsprit. It appears that the vessel had a beakhead bulkhead similar to a *xebeque* (a Mediterranean fast-sailing three-masted vessel with long bow and stern overhangs). A similar structure is clearly visible on an Antoine Roux depiction (Meissonnier 1991: 43). The upper works of the vessel seem to have survived to their original height amidships and indicate low freeboard there. In the bow and stern, frame timbers survive to a greater height, which indicates higher topsides there. Amidships, off the port side lies a single grapnel anchor. Based on the location of the masts and visible spars, a lateen rig seems most likely, though the research is ongoing and this conclusion may change. Two beams seem to demarcate the end of the foredeck and the quarterdeck, but no evidence is visible of raised platforms in these areas.

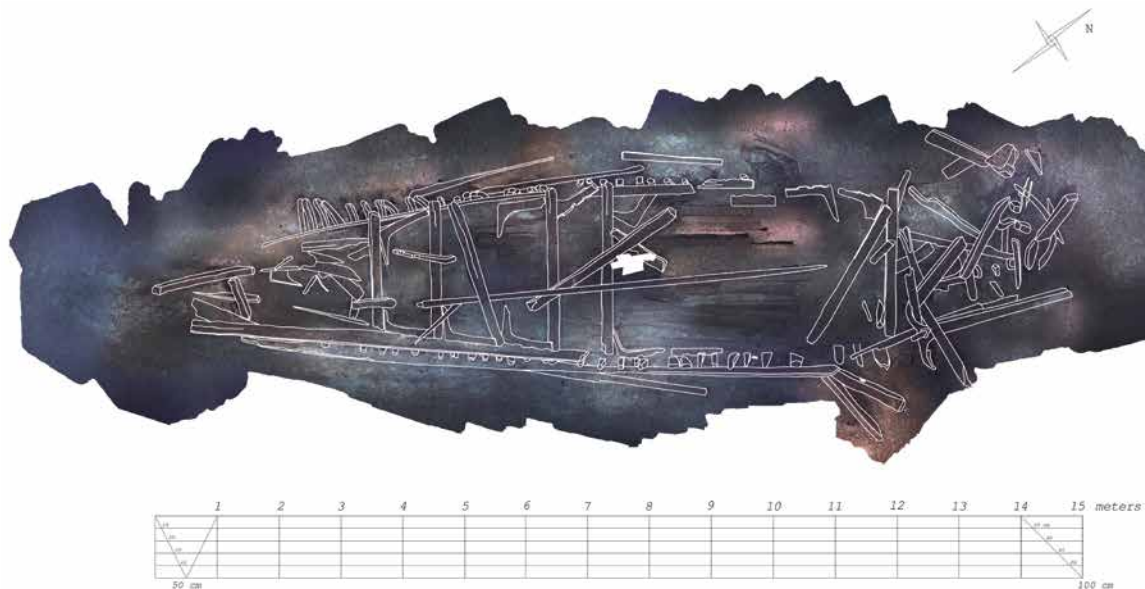


Fig. 2 BSMAP_2016_WRK_004. Ill. (author: D. Garbov)

BSMAP_2015_WRK_006

Arguably this is the most spectacular of the Ottoman wrecks (Fig. 3). The archaeological crew nicknamed it the 'Flower Wreck' as it is heavily decorated in carved floral elements on the bitts, the crutch and the tiller. The vessel is among the larger ships in the group at about 21 m overall length. Beam on deck is about 5 m, giving it a 4 to 1 ratio. The vessel's deck is divided into three parts by massive beams which lie on top of the deck. The bow area is covered with overburden and debris, but it does not appear to have had a raised platform. In contrast, the stern did have a quarterdeck with a low balustrade of turned pillars separating it from the waist of the ship. The waist itself extends over half the length of the wreck and is distinguished by having a very long central hatch, extending practically the entire length of the area. At present no covers are identifiable in the wreckage, but five of the beams of the ship are visible, spanning the hatch clearly visible in Figure 3. At the forward end are visible the mast-partners consisting of two wide planks with half-round cutouts, which once fit around the mast at the deck level. As in the previous example, the frames in the bow and the stern are higher than the frames amidships. In the waist, surviving on the port side only are the remnants of an open two-tier rail that extended between the higher sides of the bow and the stern. Further aft, on the port side of the quarterdeck lies the heavily curved tiller, the rear end of which is richly carved with the known floral decorative elements. Most of the sternpost survives and the rudder is still hanging off of it, protruding above the sternpost. Coils

of rope are hanging off the tops of the frames. Aft of the forecandle terminus, on the larboard side, lies an Admiralty pattern anchor. The stock is on the deck, the arms are mixed in the timbers of the open double rail and are lying on the mud surface. It is visible that the arms are almost straight with sharp angle of the crown, suggesting an earlier rather than later postmedieval date.

The mast itself is broken at the level of the hatch coamings with a chunk of it fallen forward over the starboard forecandle. Forward of the mastpartners, at the front end of the hatch, are located the bitts. They are carved with floral elements, shaped from hemispherical dots. They would have formed the step for the bowsprit, too, though the spar is no longer in place. At the aft end of the hatch opening, a crutch with two hooks is standing. It too is decorated with carved flowers similar to the ones on the bitts. A long thin spar is now supported by the crutch that likely was once a

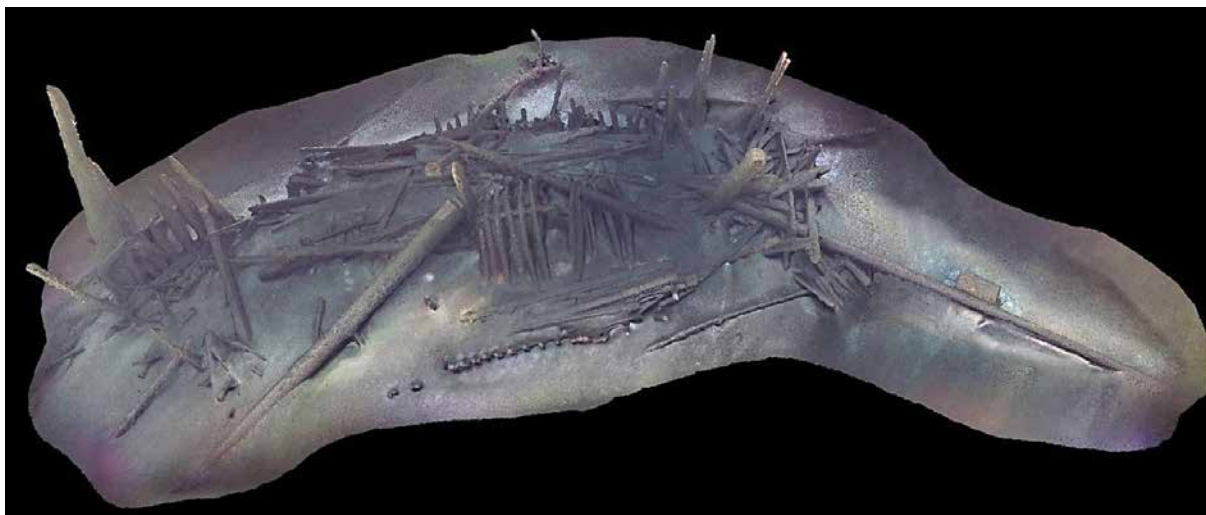


Fig. 3 BSMAP_2017_WRECK_005. Ill. (author: K. Batchvarov after R. Pacheco-Ruiz)



Fig. 4 BSMAP_2015_WRK_006. Ill. (author: R. Pacheco-Ruiz)

topgallant mast, as crossrees and trestletrees are still attached to it. It is now upside down stuck into the mud. On the forecandle lie a few spars that likely are fragments of the topmast and the bowsprit. Off the starboard side of the ship is a long thin spar, which seems to be a sprit, based on a shoulder cut into its forward end, where a strop for a halyard would have stood. On the port side and also leaning from the crutch forward are light round timbers that likely are yards.

BSMAP_2014_BS_763

BSMAP_2014_BS_763 is a small vessel of about 14-15 m, with two masts (Fig. 4). The hull is double-ended, well exposed above the mud line, though as usual for the later wrecks, the planking has mostly fallen off the frames, as the iron corroded. The frames are very nearly straight, flaring, with no tumblehome which is a common characteristic of the Ottoman sailing ships observed so far (Chapelle 1957). As in some of the above cases, the stern and bow platforms are delineated by massive beams running athwartships on top of the planking. The aft mast is split at about deck level, with the upper part lying to starboard. In context with each mast, lie two, overlapping spars. For the foremast the pair of spars lies to starboard and for the mainmast – to port. No other spars are visible. The well-preserved stem has a notch in its upper end that could be faying face for a knee for a beakhead, as seen on lateen-rigged vessels (Delacroix 1997: 9-17; Gueroult de Pas 2004 (1710): pl. 2, 5, 6). Based on the location and description of the spars, it is logical to conclude that this vessel was lateen-rigged and the yards were built up from two scarfed timbers.

BSMAP_2014_BS_1287

BSMAP_2014_BS_1287 is a small ship of about 15 m length. It is notable for having a well-preserved mast with topmast still attached, lying to starboard. It has raised forecandle and quarterdeck with distinguished planking pattern. On the forecandle, the planks are at a diagonal, meeting on the centerline with the narrowing forward, towards the stem. On the stern castle, the pattern reverses. The waist of the ship is planked parallel to the centerline. At least one more wreck has the same pattern of deck planking, BSMAP_2014_BS_1428. A wreck lying about 20 m away from the excavated Kitten shipwreck, had the same pattern of planking on its forecandle when last observed in 2010. BSMAP_2014_BS_1287 has its rudder still attached to the sternpost, though the tiller has fallen. In the bow, powerful bitts, as seen on most Ottoman wrecks that have bowsprits, are fayed to the aft face of the beam separating the forecandle. The bowsprit still butts into them, raises above the foredeck to the point where it crosses the stem through a crutch acting as bollard timbers. Arguably the most interesting feature of this wreck is the topmast doubling. While on most western ships, the topmasts are forward of the lower masts, on this Ottoman ship it is aft of the lower mast. Furthermore, the doubling is strengthened with three brackets that substitute for the western mastcaps. The spars strewn around the wreck demonstrate that the ship was rigged with a spritsail and square sails. Similar rigs are depicted both in contemporary western iconography – particularly by Melling – and by the French naval officer Admiral Edmond Paris (Paris 1999).

BSMAP_2014_BS_1392 and BSMAP_2014_BS_1428

Vessels BSMAP_2014_BS_1392 and BSMAP_2014_BS_1428 are very similar. Unfortunately, the first one is in very bad state of preservation, practically entirely broken up. Nevertheless, enough coherence survives to be worth a description. As with most of the Ottoman wrecks, this vessel, too, has a distinct division between the stern, bow and waist. The stern and forecandle are delineated with the ubiquitous beam on top of the planking. It was a single-masted vessel with the mast lying nearly perpendicular to port. It is clear that the vessel was fully decked, that the bow and stern had the same decking pattern as BSMAP_2014_BS_1287. The difference lies in the decking of the waist, where a wide and thick kingsplank is observable. Just forward of the mast, there is an offset square cutout into the surviving kingsplank. It likely was intended for a hatch, the port side of which is no longer observable. Aft of the mast is seen a small round opening, with the kingsplank around it notched in a square shape. Off to port, and close to this location, lies a very crudely made crab-capstan. It is carved from a single tree, with no whelps, but the lower part of the capstan is shaped into an 8-sided trunk, while the upper part is a hexagonal pyramid. There are three levels of mortices for the capstan bars. The stern has a very narrow – single plank width – transom that tapers to nothing towards the waterline. It also is a feature known from iconography.

BSMAP_2014_BS_1428 is by far the better preserved of the two similar vessels (Fig. 5). The vessel is practically

intact. A notable feature is that the vessel's forecastle does not end aft in a straight line, but in an arc, centred, presumably, on the stem. This may be unique to this specific vessel. Similar to the previously described ship, BSMAP_2014_BS_1428 has a massive kingsplank along the centerline of the deck in the waist. At the forecastle and sterncastle breaks, square scuttles are cut into it. Beginning at the mast and offset to starboard is the main cargo hatch. Between it and the scuttle in the stern, is located a crab-capstan. This example is built up with separate whelps and its square head has its corners so heavily chamfered as to make it practically octagonal in shape.

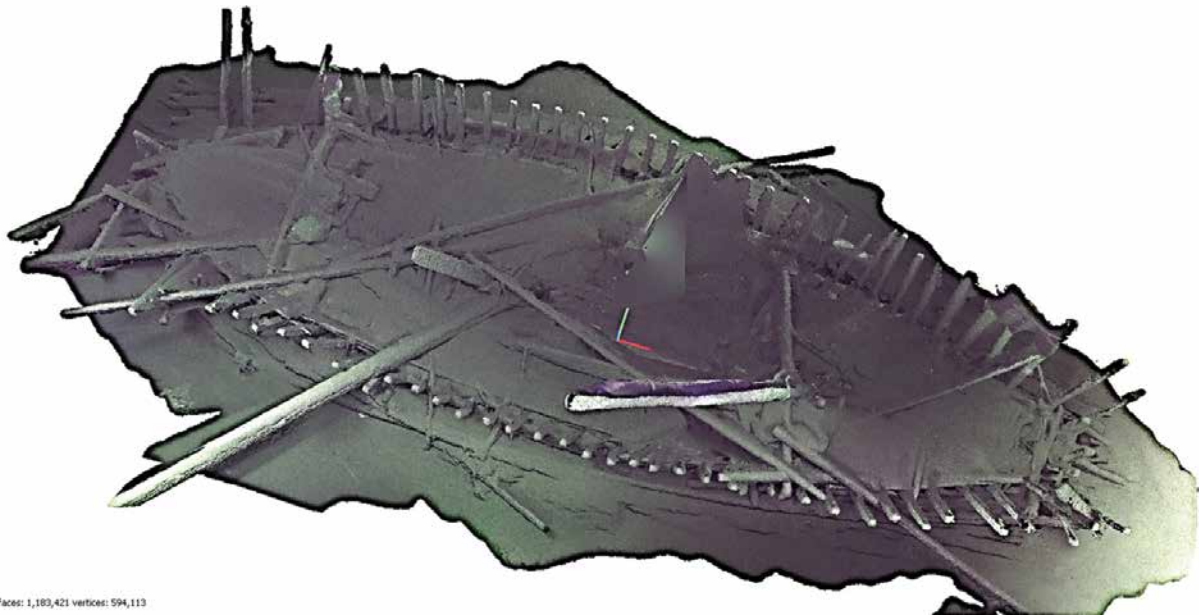


Fig. 5 BSMAP_2014_BS_763. Ill. (author: K. Batchvarov after R. Pacheco-Ruiz)

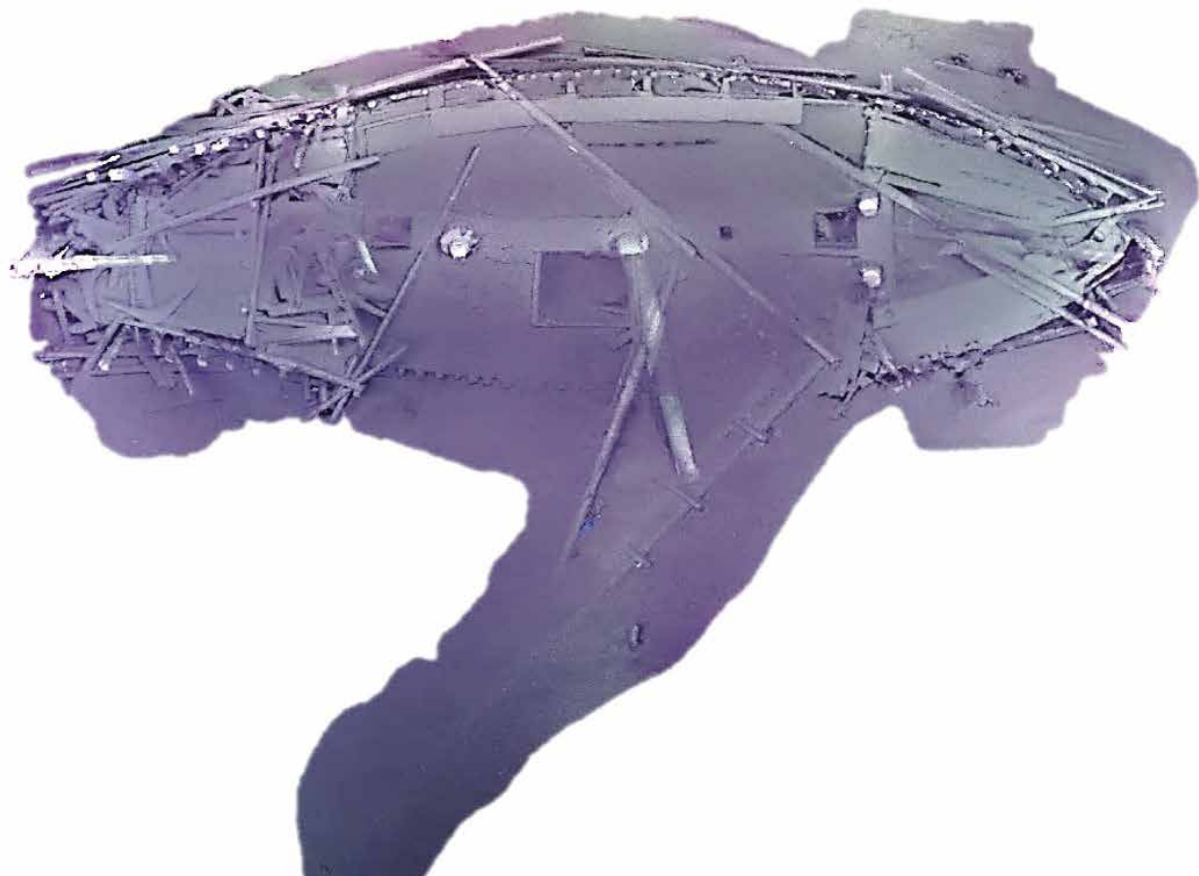


Fig. 6 BSMAP_2014_BS_763. Ill. (author: K. Batchvarov after R. Pacheco-Ruiz)

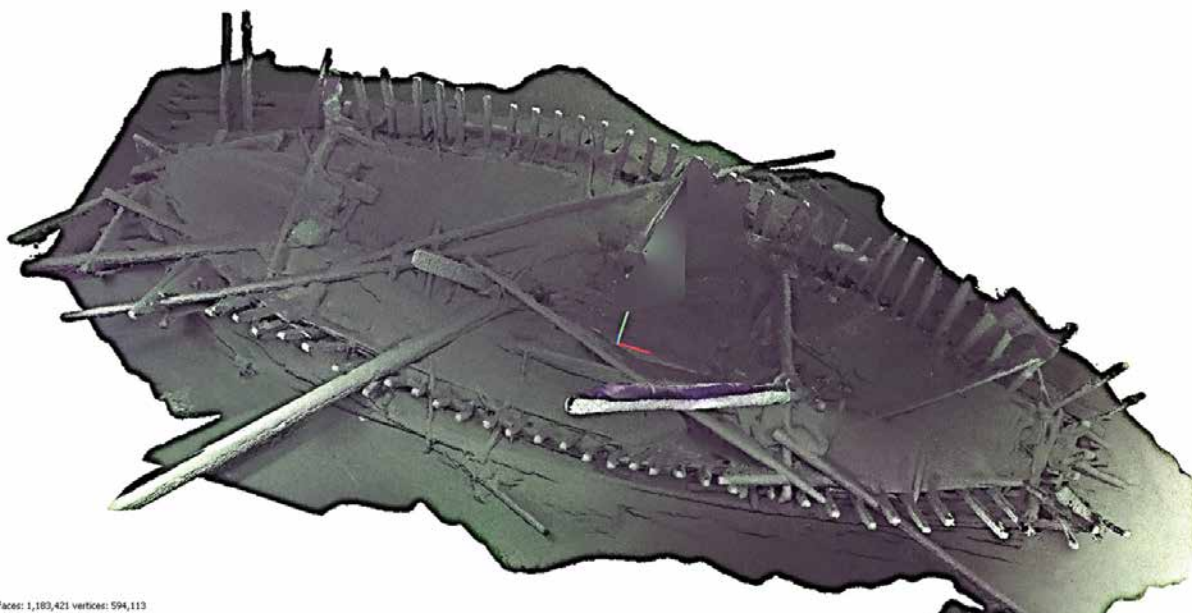
Off the starboard side of the vessel lies most of its tophamper: mast, sprit, topmast. It, too, has the triple brackets at the doubling. Yards are lying on the deck, parallel to each other and in positions appropriate for close reaching. Finally, in the stern, the rudder is still present together with the tiller.

BSMAP_2017_WRECK_004

The only vessel that may have carried guns in this group is BSMAP_2017_WRECK_004 (Fig. 6). The wreck is substantially complete, but much of the starboard side is entirely covered by the overburden. The port bulwarks have peeled off at the level of the deck, though the toptimbers are still held by planks and wales. At least three gunports are clearly visible, though there may have been more. No cannons have been observed so far. The ship has a very short raised quarterdeck, separated by a 4-stanchion rail. There is no raised forecastle and no separation of the bow from the waist; however, there may be a beakhead step-down from the deck. The ship possessed two, widely separated masts. Aft of the mainmast are located two reciprocal pumps with the plungers still in place. Just ahead of the foremast are the bitts into which the bowsprit butts. The vessel possesses a total of four anchors: three Admiralty type and one grapnel. On each side of the bow, hanging off the bulwarks are admiralty anchors. The third admiralty anchor is lying on the starboard side of the bowsprit, while the grapnel is to port. Both are adjacent to the bitts.

Concluding remarks

Though the ships differ in details such as length, proportions, rigs and deck details, all of them share at least some characteristics. These include the shape of the vessels – all of them are double-enders as far as can be established – all are of frame-based construction, with fairly straight toptimbers, with no tumblehome, but flaring out sides. Based on the visible regularity of the frames, it seems reasonable to suggest that the vessels were built with some variant of whole-moulding, as was the case with the Kitten shipwreck (Batchvarov 2011). Probably the most significant contribution to our understanding of Ottoman shipbuilding in these waters is the information derived on the rigs of Black Sea merchantmen. This author is not aware of any Ottoman treatises on masting and rigging; thus, this is the first time that we can glean knowledge of this subject outside of iconography and memoirs because of the survival of the actual spars (Verwey 1932).



faces: 1,180,421 vertices: 594,113

Fig. 7 BSMAP_2017_WRECK_004. Ill. (author: K. Batchvarov from model by R. Pacheco-Ruiz)

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