

Description and Analysis of the Finds from the 2006 Turkish Coastal Survey: Marmaris and Bodrum

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In the summer of 2006, RPM Nautical Foundation continued its survey along the south-western Turkish coast. After completing the verification of anomalies along the south-east Bozburun peninsula close to Marmaris, a new survey was conducted along the coast near Bodrum. Additional shipwrecks were discovered, those of historic interest ranging in date from Roman Republican to Ottoman. This report describes the shipwreck sites and some of the random finds along the Bozburun coast, as well as the depositional characteristics in the Bodrum approaches.

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In August 2006 two areas along the south-west Turkish coast were surveyed: the south-east Bozburun peninsula and the Bodrum approaches. The initial phase of the project was to complete the ROV verification of anomalies discovered along the Bozburun coast during multibeam surveys in 2005 (Fig. 1). Operations were initially based in Turunc, just south-west of Marmaris. Once the work in this area was completed, the base was moved to Turgutreis

from where the first part of a multibeam survey of the Bodrum approaches was carried out, covering the western section of the approaches, where several anomalies were checked to determine its potential for wreck-sites.

South-eastern Bozburun peninsula

Survey work along the south-east portion of the Bozburun Peninsula consisted of anomaly

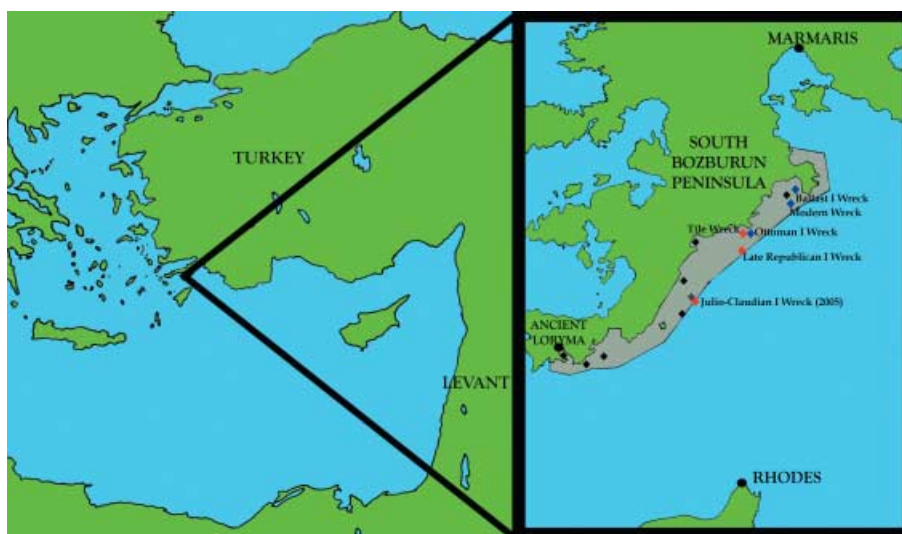


Figure 1. Survey Area: SE Bozburun Peninsula.

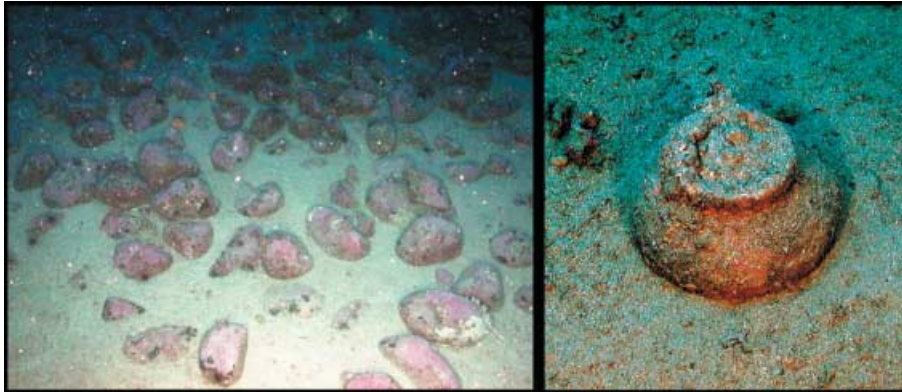


Figure 2. Ballast-stones and small bowl from Ballast 1 wreck-site.

verification with the ROV; no multibeam survey was conducted this season. Multibeam survey in 2005 covered a majority of the 37-km² area of coastline from near shore to the 100-m contour, and produced 68 anomalies of which 32 were checked during that season. Two were intentionally unverified as they were obvious modern wrecks. An upgraded programme for the visualization of multibeam data, obtained after the 2005 season, provided an improved review of the 2005 data. This re-analysis produced 37 additional anomalies, making a total of 105. As 34 anomalies were accounted for in 2005, 71 remained for verification in 2006. ROV verification of the 32 anomalies in 2005 led to the identification of five historic-period and two modern wreck-sites. Verification operations in 2006 resulted in the discovery of three historic-period wrecks, one modern wreck, and one site of undetermined date, making the total number of wreck-sites found on this section of coast, within the 100-m contour, eight from the historic-period, five modern, and one undated. Such a high wreck-site to anomaly coefficient, in this case 13:105, illustrates one of the advantages that multibeam survey has over other methods in that the number of false anomalies is reduced.

Each of the wreck-sites discovered in the 2006 season was recorded with still and video photography. Although permission was granted for the raising of diagnostic artefacts, none was raised in either season as the local museums could not decide which should receive them. The following is a description of the wreck-sites and an analysis of the visible material, placing the sites in their historical context when applicable. One of the sites, the Ottoman I wreck, will be only briefly discussed as it remains under analysis.

Site TK06-AA: Ballast I Wreck

A shallow deposit of ballast-stones was located while manoeuvring the ROV between anomalies. The site is mostly buried and on review of the multibeam data it is barely discernable. The majority of the stones are smooth and rounded, from fist- to head-size, and a consistent type of light-coloured rock (Fig. 2). They are in two discrete concentrations, the larger of which formed an ovoid deposit approximately 5 m in diameter and 20 cm high. No artefacts are situated between the stones or protruding from the sand forming the mound. A smaller deposit of stones, roughly 2 m in diameter, is located c.5 m away. In this smaller deposit an apparently ceramic bowl was located lying atop the stones. This was removed in order to photograph it on clear sand, as it was the sole diagnostic artefact with the potential to identify the site (Fig. 2). The bowl is c.8 cm in diameter, stands nearly 5 cm high, and has a base c.5 cm in diameter. Its sides flare from the base to a vertical, rounded rim. Its ring-shaped base is squared in cross-section and forms a circular concavity at its centre. There are no markings, decorations, or distinctive features to indicate a cultural affiliation or date. Furthermore, it is not clear whether this bowl was deposited with the ballast-stones, or later. The overall remains indicate a small- to medium-sized sailing vessel which carried either no cargo, or a cargo leaving no remains. With only the bowl as evidence, and that not definitely related to the site, the date is presently unknowable.

Site TK06-AB

This site, 92 m deep, is the remains of a small pleasure craft of a local hotel resort, the Hanna Beach Club, which apparently no longer exists. It



Figure 3. Portion of amphora deposit from Late-Republican wreck-site.

appears to be a ski boat or tourist rental speed-boat. The outboard motor remained attached, but few other associated items were noted. Considering the type of engine, the growth on the wreck, and that there are no recent records of a club of this name in Marmaris, this boat probably sank sometime in the 1990s.

Site TK06-AC: Late-Republican Wreck

Lying near a rock outcrop in 91 m of water, this wreck-site has suffered significant damage from dragging operations. The mound is ovoid, approximately 10 × 8 m, and rises to 0.5–0.75 m off the sea-floor. Subsequent to deposition, loose rocks have been pulled onto the site and are sitting on top of the mound and on amphora fragments. Although many of the amphoras on the surface of the site are broken, the overwhelming majority are recognizable as of Rhodian type (Fig. 3). There are also numerous Rhodian amphoras situated upright with their upper portions protruding from the sand. Several examples of other amphora types are also present.

Many of these Rhodian amphoras have handles that rise to a more rounded apex than truly a peaked one that forms the classic ‘horn’ profile associated with this type in its later stages of development. This rounded apex is a precursor to the peaked form. From the apex these handles drop roughly straight to just above a rounded shoulder as opposed to bowing outwards as in later varieties (Fig. 4.1). However, there are

occasional examples with handles that slightly bow as they drop from their apex, but not to the degree noted in the later peaked-handle examples. All handles are round in cross-section. These handle shapes are characteristic of morphological changes that took place in Rhodian amphoras after the mid-2nd century BC (Monachov, 2005, figs 6.1, 7.2, and 8.2; pers. comm. Lawall, 13/11/2006). Parallels include amphoras from a grave at the Tanais, on the Sea of Azov, the necropolis at the Lenin khutor in the Kuban area of south Russia, and the necropolis at Starokorsunskaja in south Russia, all dating the second half of the 2nd century BC (Monachov, 2005), as well as those on the 2nd-century-BC Grand Congloué 1 wreck-site (Lamboglia, 1961) and late-2nd-century examples in the Bodrum Museum. The long, straight, cylindrical necks of these amphoras terminate in a simple beaded rim. Each of the amphora’s rounded shoulders are clearly present and do not form the ‘bullet’ shape of later examples. It is clear by the predominance of Rhodian amphoras on the site, and the site’s proximity to Rhodes, that Rhodes was the vessel’s last port of call.

Other amphora examples on this site include the upper portion of an apparent Forlìmpololi form C/D example, typically dated between the 1st century BC and the 3rd century AD (Fig. 4.2). The number of examples on the site and their context suggest they are most probably part of this vessel’s cargo. Hence, this form’s date range

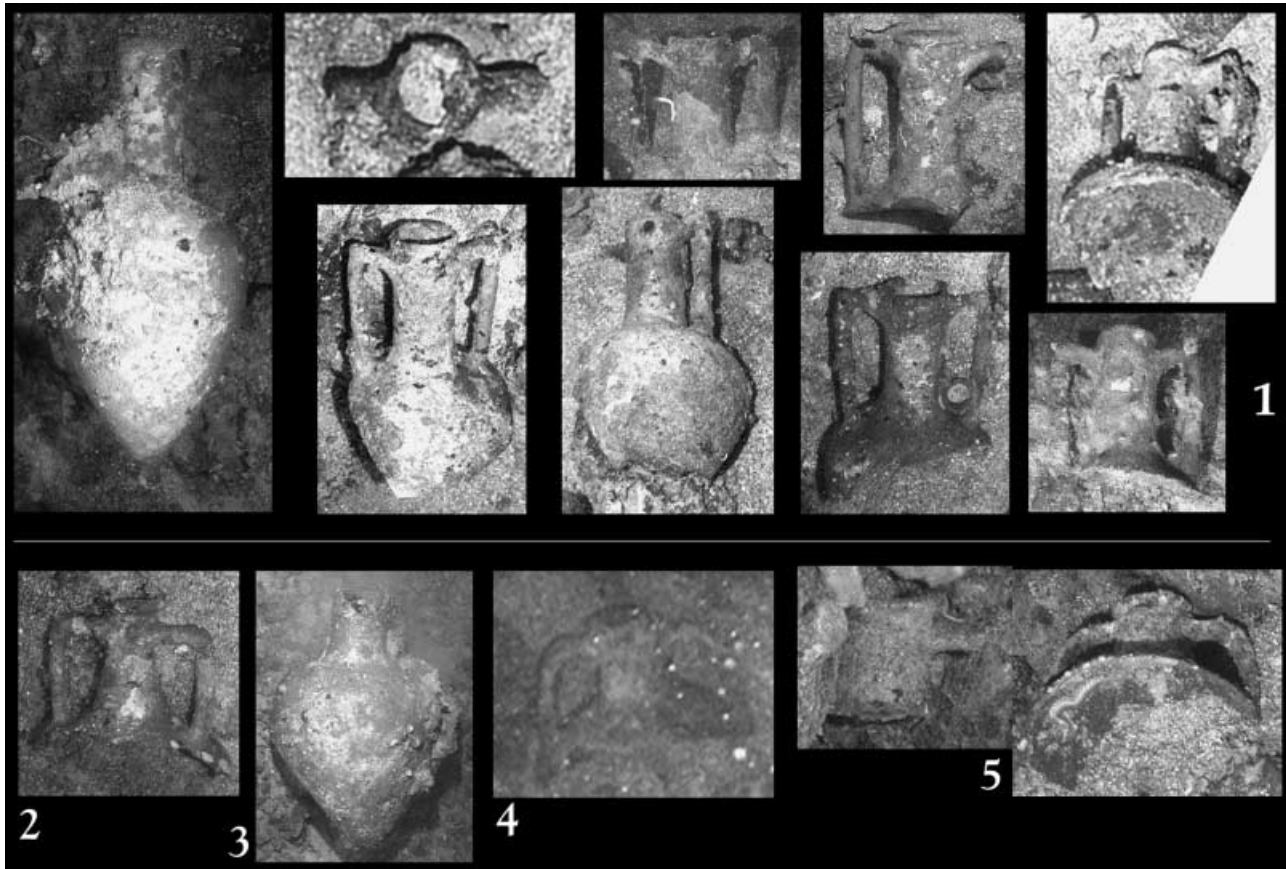


Figure 4. Amphora examples from Late-Republican wreck.

may be extended earlier to the end of the 2nd century BC. Another amphora is nearly intact, save for the rim, one handle, and the tip of the base. Short and pyriform, it is possibly a Koan variety dating to the 4th to 3rd century BC, similar to one found approximately 1 km due west of the wreck-site, and is probably intrusive (Fig. 4.3). There is also the top portion of a possible Late Roman 1 variant that is also probably intrusive (Fig. 4.4). Two other unidentified examples have beaded rims, flat ovoid handles that bow slightly, and one has a rounded shoulder (Fig. 4.5). As it is common to find a mix of individual amphorae with divergent dates at rock outcrops where drag nets drop collected debris, it is expected that such intrusive material should be present on this site. Similarly, there are stray Roman-Republican Rhodian amphorae over 1 km to the north-west and the north-east of the wreck-site, the latter adjacent to the Ottoman I wreck, which were probably dragged from this site. As there are numerous buried Rhodian amphorae in an upright position with their

exposed top portions intact, there appears to be at least one layer of the jars preserved *in situ* on a portion of the wreck-site (Fig. 5). If these amphorae are undisturbed, it suggests hull timbers could be preserved below them.

Historical context

The areas of Lycia and Caria on the Anatolian mainland were awarded to Rhodes by Rome in the treaty of Apamea in 188 BC, along with stipulations of duty-free import status on trade goods and that debts owed to Rhodes by west-Anatolian kingdoms be paid. The territorial possessions gained in the treaty included the south-west portion of Asia up to Smyrna, a small area just north of Smyrna, and the southern portion of Lycia. Specific coastal settlements near Rhodes included, in Asia: Amos, Physkos (modern Marmaris), Purnos, and Caunus; while those along the Lycian coast were Telmessos, Xanthus, Sidyma, Pydnai, Palara, Apollonia, and Myra. Although it was not always clear that these cities in Lycia and Caria actually recognized



Figure 5. Note the buried, and relatively upright, amphorae emerging from the mound.

Rhodian rule, the interconnection between them and Rhodes was strengthened. Rhodes prospered greatly during this period as a result of this treaty, and was able to take the lead in the Aegean where it commanded a regional navy.

Economic conditions in the Aegean and eastern Mediterranean worsened during the Third Macedonian War and the wars between Egypt and Syria. At the end of the Third Macedonian War in 168 BC, a diplomatic blunder by the Rhodians resulted in the Roman removal of these lands from Rhodian possession. Additionally, Rome set up the port on Delos as a duty-free entrepôt, which greatly damaged Rhodian maritime trade and thus its economy, which collapsed, and may have been saved only by the declaration in 164 by the Senate giving Rhodes the status of *foedus*. As a result of Rhodian economic and political disintegration, their fleets could no longer effectively patrol the eastern Mediterranean for pirates and slavers, who then proliferated and plagued the eastern Aegean and Mediterranean.

By 159 BC pirates began to take control of the coastal areas west of Lycia, in Pamphylia and Cilicia, where they formed bases to prey on merchant ships. The increasing demand in Rome for slaves gave the pirate 'state' a ready market for their supply, and resulted in tacit support by Rome itself (Strabo, XIV.5.2). Important cities in the region, such as Side and Phaselis in Pamphylia, also formed alliances with the pirates, who provided markets and maritime infrastructure. Pamphylia and Cilicia quickly became a cohesive

political structure under pirate hegemony, and any merchantmen sailing near the coast from Asia Minor to Crete were in peril. Pirates would infiltrate the regional harbours to gain information on shipments and destinations, then send word to their ships at sea to intercept them (Strabo, XIV.1.32–34). Rhodes particularly suffered under these conditions to the end of the century; the first Roman action against the Cilician pirates did not occur until c.102 BC. The subsequent establishment of a Roman fleet in the region to check the pirates eventually forced them to ally with Mithradates.

The Late-Republican wreck occurred during a historical low-point in Rhodian socio-economic fortunes, during the second half of the 2nd century BC when Roman political actions, combined with a thriving pirate state in close proximity, had crippled its maritime trade. However, although Rhodes formally lost the settlements along the Asian and Lycian coasts when Rome revoked its mainland territories, it is unlikely that trade relations with the coastal cities here ceased, despite the additional risk of pirate attacks. By its very nature, the Cilician-Pamphylian pirate state could only flourish if there was active trade to prey upon and sufficient populations from which to garner slaves. The Late-Republican wreck is located almost due north of Rhodes; a position that indicates it was heading towards the settlements along the southern Asian coast, possibly Physkos or Purnos. We therefore have evidence, albeit a small piece, that Rhodian maritime trade

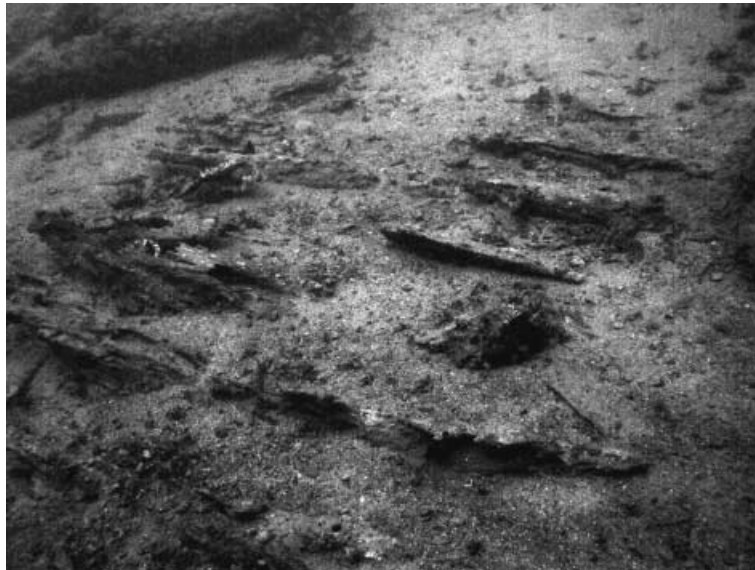


Figure 6. Frame remains from the Ottoman I wreck-site; a cannon can be seen in the upper left.

continued with its former possessions on the Asia Minor mainland in this period; as well as a century later, as evidenced by the Julio-Claudian I wreck (Royal, 2006: 214–16). A study of amphora distributions and frequencies at coastal sites along the Asian and Lycian coasts, combined with further survey along these coasts, could provide a clearer understanding of the impact the Cilician-Pamphylian pirates had on overseas trade in the region.

Site TK06-AD: Ottoman I Wreck

A large wreck-site, approximately 20–25 m by 8–9 m, is located 87 m deep and possessed a wide variety of artefacts and extensive hull remains (Fig. 6). The overall assemblage of artefacts indicates most likely an Ottoman sailing vessel that dates to around the late-16th to 17th century AD. A composite rudder is located on one end of the site, presumably the stern. The shape of the three gudgeons located with the rudder indicates it was attached to a flat stern transom.

Moving forwards from the stern, there are large exposed masses of eroded wood which are probably part of the stern structure. Numerous framing timbers cross this central mass of timbers, and are probably the remains of tail-frames or portions of overlying timbers, as well as deadwood below the stern transom. Exposed frames continue along the centreline of the site along with remains of planking timbers to either side. A similar area of central framing timbers is located at the forward portion of the wreck-site. At the

port section of the stern, where ship's galleys were often located, are numerous plates and bowls along with large body sherds of ceramic containers. Interestingly, no such artefacts are located in the starboard portion of the stern.

The central section of the site has fewer exposed frames at the centreline; there are, however, many small wood fragments and frame-ends at the port and starboard edges of the mound, suggesting that the frames are buried deeper in this section of the wreck-site. Artefacts found in this central portion include at least four crossbows on the port side, and eight cannon located along both outer edges of the mound, four each on the starboard and port sides. The four starboard cannon are aligned generally transverse to the wreck's long axis, while three of the port-side cannon are aligned parallel to it. All are extremely corroded, consistent with being made of iron (Fig. 7). They are approximately 2 m long and there is evidence of reinforcement bands along the length of several cannon, while others appear to be mostly smooth. They have a cascabel and trunnions, although corrosion makes identification on each cannon difficult. Where visible, the trunnions are set one-third from their underside. Each of the cannons is tapered, as their diameters decrease from *c.* 60 cm at their breeches to *c.* 40 cm at their muzzles. The configuration is clearly at least four cannon a side, although other cannon lost before sinking is certainly possible. No cannon were located in a search around the immediate area surrounding the wreck-site, nor were any



Figure 7. Cannon and plate located in the central port area of the Ottoman I wreck-site.



Figure 8. A large pot near the centre of the Ottoman I wreck-site, possibly copper.

probable anomalies detected in sweeps of the forward-scanning sonar. Considering the extent of the hull remains, additional cannons per side could have been accommodated and it is likely that swivel-guns were originally present high in the bow and stern. The cannon and crossbows represent the transitional period of armament aboard ships in the eastern Mediterranean; the crossbows are consistent with armament up to the 16th-century, and more likely the early portion of the century, whereas the some of the cannon have characteristics that could easily place them over a century later (Guilmartin, 2003, and pers. comm. 12/1/2006; Glete, 2000; Ágoston, 2005; pers. comm. G. Grieco, 4/4/2007).

Other artefacts in this central section include a large anchor lying with its crown adjacent to the cascabel of the aft-most starboard cannon and extending into the centre of the wreck-site. This anchor has a large ring at the top of its long shaft that appears round in cross-section, V-shaped arms, and large flukes that form a rounded 'leaf' shape. Another anchor ring may be located just astern of this exposed anchor, but this is yet undetermined. The anchor is generally consistent in date with the crossbows and ceramics and has a general date range similar to that of the [cannon].

Numerous non-armament artefacts are also found in the central section. On the starboard side is a brazier, possibly in three pieces, lying aft of the aft-most cannon. Just forward of this is a platter or tray; it is unclear if it is metal or

ceramic. A group of stacked bowls, or shallow plates, made of copper or other metal, is located between the anchor and the second starboard cannon. On the port side is a small pot, 4–5 plates or stacks of plates, a small pitcher, and a larger pitcher with its lid intact, possibly made of copper. Two large masses, apparently of wood, are also located near the port-side cannons.

The forward portion of the wreck-site begins just forward of the cannons and extends several metres beyond the mound itself. Numerous hull timbers are located here, including frames along the centreline and at the starboard edge of the mound. Additionally, there are extensive planking runs on both sides, extending beyond the raised portion of the mound and lying relatively flat on the sea-floor with a light covering of sand. The planking runs at the edges converge towards the centreline of the site. Several loose artefacts lie among the timbers, such as a large, probably copper, pot on the port side (Fig. 8). Additionally there are several tableware items similar to others found on the site.

Intrusive artefacts include amphora sherds and a nearly-complete amphora lying at the centre towards the end of the mound. There are also nearly-intact examples of Agora G199 and Agora 254 types, which date to the Roman Imperial period. Other intrusive amphoras are located off the starboard portion of the wreck-site around



Figure 9. Several stacked tiles exposed on the surface of the Tile Wreck's mound.

midships; these include the bottom portions of Rhodian amphoras from the Roman period. The large number and variety of artefacts on this wreck-site, along with extensive hull remains, will require further analysis before more precise conclusions can be drawn about its date and nature. However, the mixture of armament, tableware, ship timbers and various metal objects already presents a very intriguing wreck.

Site TK06-AE: Tile Wreck

This site is a sand mound, approximately 21 × 10 m and 0.5 m high, lying at a depth of 83 m. Along one side of the mound is a hole, about 75 cm deep, apparently excavated by an octopus. At least eight ceramic tiles are protruding from the sand atop the mound, five of which are stacked one upon another and lying on their sides (Fig. 9). Excavation of the hole exposed at least 10 additional tiles, some of which appear to be protruding from the side of the mound and others have clearly fallen into the hole. All of the tiles have a reddish fabric with white inclusions. Initial observations indicate they are of a consistent shape, which does not conform to typical Greek or Roman cover (*imbrex*) or pan (*tegula*) tiles used for roofing. A complete tile lying free atop the mound is approximately 1 m long and 0.3–0.4 m wide (Fig. 9, top). This tile is rounded in a gentle arc that is nearly flat along its longitudinal apex and increases in degree of curvature as it approaches the edges, which thicken to form a small flange that runs the length of the tile (Fig. 9). These tiles therefore do not have the extreme

curvature of typical Greek and Roman cover tiles, nor do they have the squared profile of pan tiles. It is possible that they are not roof tiles, but tiles used in drain construction.

Although no large pottery fragments were observed, there is a trail of amphora fragments stretching from within 10 m of this wreck-site, for 600 m towards site TK06-AD. Along this trail are at least three concentrated deposits of large body sherds and upper portions. Some examples are identifiable as Rhodian amphoras of Roman Imperial date, as are the examples of the Agora G199 and Agora M254 types found on site TK06-AD. Other examples have handle and rim forms suggesting a Late-Roman and Byzantine date. It is possible that extensive dragging of this site has removed exposed amphoras and scattered them in a trail to the east-north-east, with several amphoras deposited on the wreck-site TK06-AD. With only circumstantial amphora associations, and no ready parallels, a useful estimated date for this site is not possible at this time. Taking into account the condition of, and marine growth on, the tiles, their obvious mould manufacture and crude fabric, the amount of sand cover, and the surrounding concentrations of amphoras, they are probably Byzantine at the latest. Analysis will continue to find parallels for their shapes and narrow the site's date range.

Random finds

During the verification operations in 2006, attention was given to the location and recording of random artefacts. Subsequent analysis provided a



Figure 10. Survey Area: Bodrum approaches.

type and date for each find, and although this material is not *in situ*, it was hoped that the distribution of artefacts might assist in the analysis of the wreck-sites. For example, on site TK06-AE where little datable material remains, the distribution of amphoras around the site provides clues to its identification. Analysis showed a spread of Roman-Imperial Rhodian amphoras around the Julio-Claudian I wreck found in 2005. Also, as the Çomlek Burun wreck has not been subjected to dragging, the random amphora finds matching those in its cargo assemblage may indicate its general route from the south-south-west as it approached the cliffs. It is also tantalizing to note an apparent trail of 6th–5th century BC amphoras at the deepest edge of the survey area.

Bodrum approaches

Several days were dedicated to the multibeam survey of the approaches to Bodrum (ancient Halicarnassus), on the western portion of the large bay to its south (Fig. 10). Analysis of the data revealed 57 anomalies with potential for shipwrecks; however, ROV verification of 14 of

these consistently revealed sand mounds. Specifically, each is a large sand mound, ovoid in shape, approximately 7–10 m long, and up to 1 m high off the sea-floor. The commandant of the Bodrum Coast Guard told us that these were formed by the emptying of drag gear once it had accumulated large amounts of sand. It was also noted while manoeuvring the ROV significant distances between anomalies that there are no rock formations or random cultural debris deposits in this area, as there were in Bozburun; rather there are vast plains of sand. Furthermore, the forward-scanning sonar on the ROV did not detect significant raised features on the sea-floor. It is clear that the western portion of the bay has a heavy sediment cover that has buried any cultural material deposited on the sea-floor. As our commissioner was called away after the initial anomalies were investigated, and it was apparent the bay is too heavily silted to detect shipwreck sites, no further work took place during the 2006 season. Future work in the Bodrum approaches will be reassessed based on this season's findings, and would probably proceed in the eastern portion of the bay to ascertain the amount of sediment cover.

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