

Yearbook of the International centre for underwater archaeology in Zadar
Godišnjak Međunarodnog centra za podvodnu arheologiju u Zadru

Submerged Heritage Potopljena baština

Number 1 / Broj 1 Zadar, September 2011 / Rujan 2011.

In this issue / U ovom broju:

Mladen Pešić

Suleiman's Bridge at Darda / Sulejmanov most u Dardi

Luka Bekić

Multiannual Research at Veštar Harbour near Rovinj / Višegodišnja istraživanja luke Veštar kod Rovinja

Luka Bekić, Mato Ilkić, Zdenko Brusić, Marko Meštrov, Mate Parica, Mladen Pešić, Roman Scholz

New Underwater Archaeological Research in Pakoštane near Zadar /
Nova podvodna arheološka istraživanja u Pakoštanima kod Zadra

Igor Mihajlović

Roman Shipwreck with Sarcophagi near Sutivan on the Island of Brač /
Antički brodolom sa sarkofazima kod Sutivana na otoku Braču

Luka Bekić

Underwater Archaeological Reconnaissance of Istrian Maritime Waters /
Podvodna arheološka rekognosciranja podmorja Istre

Mladen Mustaček

Four Years of the Specialised Department for the Conservation of Underwater Archaeological Finds in Zadar /
Četiri godine djelovanja specijaliziranog Odjela za restauriranje podvodnih arheoloških nalaza u Zadru

Mladen Kolarek

Developing the MACHU.HR System / Razvoj MACHU.HR sustava

Barbara Egger

Celebrating 10 years of the UNESCO 2001 Convention on the Protection of Underwater Cultural Heritage /
Slaveći deset godina UNESCOve Konvencije o zaštiti podvodne kulturne baštine iz 2001.g.

glass rods—raw material for the fabrication of glassware and pieces of melted glass have also been discovered (Figure 4). These finds bear witness to the fact that the cove was once the site of pottery and glass workshops.

Based on current indicators we can say that the researched pier was built on a silty bottom with two to three rows of rough stone blocks as its foundation. It is possible that the upper, visible blocks were better worked. It is evident that the pier was laid with edge blocks that encased stone rubble, which included some elements of stone architecture. However, a precise technical description of the pier structure and the possible existence of a partition along the width of the pier separating the central area into several separate sections can as yet neither be confirmed nor rejected. This will be researched in the coming years, when we plan to clean the entire pier area and plot precise drawings (Figure 7,8).

Surveys of the cove have revealed a further two potential previously unknown piers (Figure 1). One is situated on the southern shore, somewhat deeper in the cove. All of the indicators point to this pier being from the post medieval period, as its top is preserved at the level of high and low tides. Another pier is situated on the northern side, also somewhat deeper into the cove. This one may be from the late Roman and early medieval periods. These two locations have priority for research in the coming years.

An exhibition was staged at the Rovinj Heritage Museum to wrap up the first three years of research and showcase all of the finds that have been restored so far. A comprehensive colour publication was printed for the occasion summing up the results of the research at Veštar Cove from 2008 to 2010. The 2011 finds have been received into the process of restoration treatment and cannot yet be presented to the public. There are, therefore, plans for a new exhibition accompanied by a publication that will sum up the final results of the research at this fascinating site.



10. The international Veštar Cove research team in 2011 / Međunarodna ekipa s istraživanja u uvali Veštar 2011.g.

malo dublje u uvali. Ovaj bi mogao potjecati iz doba kasne antike i ranog srednjeg vijeka. Ove dvije lokacije prioritet su za istraživanje u narednim godinama.

Nakon prve tri godine istraživanja pripremljena je izložba u Zavičajnom muzeju u Rovinju na kojoj su izloženi svi dotada restaurirani nalazi. Tom prigodom je tiskana opširna kolor publikacija u kojoj su sumirani rezultati istraživanja uvale Veštar od 2008. do 2010.g. Nalazi iz kampanje 2011. tek su zaprimljeni u proces restauratorske obrade pa u ovom trenutku ne mogu biti predloženi javnosti. Zato se planira nova izložba nakon tri godine kao i prateća publikacija u kojoj će biti sumirani konačni rezultati istraživanja ovog zanimljivog nalazišta.

Biography / Literatura:

Bekić L. 2001 - Rimski i bizantski novac iz Veštra, Summary: Roman and byzantine coins from Veštar, Vjesnik Arheološkog muzeja u Zagrebu, XXXIV, 2001. 169-180.

Bekić, L. UTISKUa - Veštar, Kukuletočina, Rovinj. Hrvatski arheološki godišnjak 6, 2009. U TISKU.

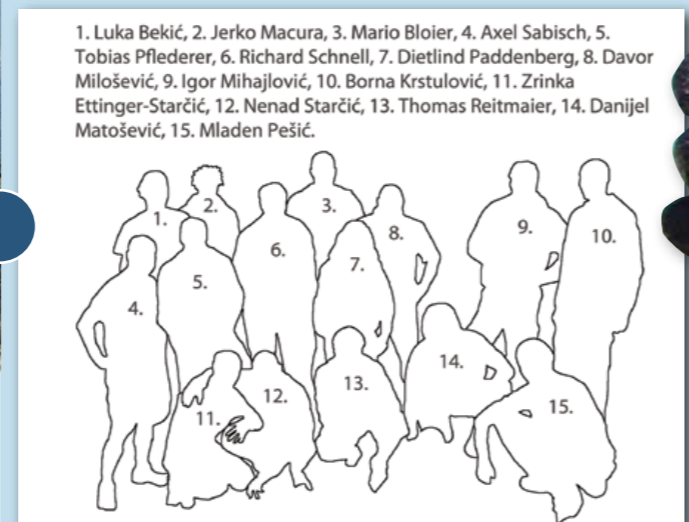
Bekić, L. UTISKUb - Veštar, Kukuletočina, Rovinj. Hrvatski arheološki godišnjak 7, 2010. U TISKU.

Bekić, L., Višnjić, J., Pešić, M., Bloier, M. 2011 - Podvodna arheološka istraživanja uvale Veštar 2008. - 2010. / Ricerche archeologiche subacquee nella baia di Vestre 2008 - 2010, Rovinj 2011.

Benjamin, J., Bekić, L., Komšo, D., Koncani-Uhač, I., Bonsall, C. 2011 - Investigating the submerged prehistory of the eastern Adriatic: progress and prospects. U: Underwater archaeology and the submerged prehistory of Europe, Oxford, 2011. 193-206.

Bloier, M. 2011 - Römer am Meeresgrund - Ein Tauchgang in Kroatien. Denkmalpflege Informationen, 148, 2011. 73-74.

Starac A. 1995 - Antička grobnica u Veštru. Rovinj 1995.



1. Luka Bekić, 2. Jerko Macura, 3. Mario Bloier, 4. Axel Sabisch, 5. Tobias Pflederer, 6. Richard Schnell, 7. Dietlind Paddenberg, 8. Davor Milošević, 9. Igor Mihajlović, 10. Borna Krstulović, 11. Zrinka Ettinger-Starčić, 12. Nenad Starčić, 13. Thomas Reitmaier, 14. Danijel Matošević, 15. Mladen Pešić.

New Underwater Archaeological Research in Pakoštane near Zadar

Luka Bekić, Mato Ilkić, Zdenko Brusić, Marko Meštrov, Mate Parica, Mladen Pešić, Roman Scholz

lbekic@icua.hr, milkic@unizd.hr, zbrusic@unizd.hr, markomestrov@gmail.com, mparica@unizd.hr, mpesic@icua.hr, scholz@rgk.dainst.de

A wealth of diverse archaeological material lies at the bottom of the expansive cove off Pakoštane. As far back as the late 19th century there has been speculation of the possible existence of a Roman period harbour along the coast of this northern Dalmatian town. Its existence was confirmed in 2004, leading to the launch of systematic underwater research of the large cove off Pakoštane. Thanks to financial assistance from, above all, the local government, a Roman harbour was located in the sea not far from the section of shoreline known as Janice (Brusić 2005: 191-192; Brusić 2006: 306-307; Ilkić, Meštrov, 2007, 339-346; Ilkić, Meštrov, Parica 2008, 212-221; Parica 2008). Participating in these first underwater archaeological research efforts were Zdenko Brusić (research leader), Mato Ilkić, Mate Parica and Marko Meštrov. Several further campaigns followed before the exploration work ceased. Research at the site was, however, revived recently. A decision was made, namely, to continue exploration of the Roman harbour at the this year, where two new



1. Luka Bekić with a Sarius type cup find / Luka Bekić s nalazom Sarius čaše (photo: Mato Ilkić)

Nova podvodna arheološka istraživanja u Pakoštanima kod Zadra

Luka Bekić, Mato Ilkić, Zdenko Brusić, Marko Meštrov, Mate Parica, Mladen Pešić, Roman Scholz

lbekic@icua.hr, milkic@unizd.hr, zbrusic@unizd.hr, markomestrov@gmail.com, mparica@unizd.hr, mpesic@icua.hr, scholz@rgk.dainst.de

Na dnu prostrane uvale uz Pakoštane leže bogati i raznovrsni arheološki ostatci. Još potkraj 19. st. iznesena je pretpostavka o tome da je u priobalju toga sjevernodalmatinskoga mjesta postojala antička luka. Ona je tu i potvrđena 2004., kada se započelo sa sustavnijim podvodnim istraživanjima prostrane uvale uz Pakoštane. Zahvaljujući novčanoj potpori ponajviše lokalne samouprave tada je u podmorju nedaleko od obale pod imenom Janice locirano rimsko pristanište (Brusić 2005: 191-192; Brusić 2006: 306-307; Ilkić, Meštrov, 2007., 339-346; Ilkić, Meštrov, Parica 2008., 212-221; Parica 2008). U tim prvim podvodnim arheološkim istraživanjima sudjelovali su Zdenko Brusić (voditelj istraživanja), Mato Ilkić, Mate Parica i Marko Meštrov. Uslijedilo je još nekoliko kampanja, nakon kojih su istraživanja zamrla. No, ona su nedavno ponovno pokrenuta. Naime, ove godini odlučilo se nastaviti s istraživanjima rimske luke na položaju Janice, gdje su otvorene dvije nove arheološke sonde. Također, započelo se sa sustavnim dokumentiranjem prapovijesnog nalazišta, nedavno lociranog podvodnog lokaliteta koji se rasprostire nekoliko desetaka metara zapadno od rimskog pristaništa.

Prioritet ovih istraživanja je dokumentiranje rimskog pristaništa, određivanje vremenskog raspona njena korištenja kao i dodatne spoznaje o veličini i rasprostranjenosti samog nalazišta. Posebice je bilo bitno dokumentirati ostatke prapovijesnih - neolitičkih nalaza na ovom položaju, kako bi se mogao pripremiti opširni projekt sustavnih istraživanja.



Ta podvodna istraživanja su provedena od 30. svibnja do 11. lipnja 2011. Ovogodišnju arheološku

2. Find of a Roman period oil lamp with an image in relief / Nalaz antičke uljanice s reljefnim prikazom (photo: Mladen Pešić)

locality—a recently located underwater site stretching a few dozen metres to the west of the Roman harbour landing.

The priority of these research efforts was to document the Roman pier, to determine the span of time it was in use and to gain additional insight into the size and distribution of the site itself. It was particularly important to document the remains of prehistoric (Neolithic) finds at this site with the aim of preparing a comprehensive and systematic research project.

This underwater research was conducted from 30 May to 11 June of 2011. This year's archaeological campaign was undertaken by the International Centre for Underwater Archaeology in Zadar in collaboration with the University of Zadar's archaeology department, the Han-Vrana public institution and the Römisch-Germanische Kommission of Frankfurt. The research leader is Luka Bekić MSc (International Centre for Underwater Archaeology), with Mato Ilkić DSc, a senior lecturer with the University of Zadar, serving as deputy leader. Also participating in the research effort in an expert capacity are Professor Zdenko Brusić DSc and Mate Parica (University of Zadar), Marko Meštrović (Han-Vrana), Mladen Pešić (International Centre for Underwater Archaeology) and Roman Scholz (Römisch-Germanisch Kommission Frankfurt). Also taking part in the archaeological research were young underwater archaeologists and conservators from seven Southeastern European countries, participating in a diving and archaeology instruction course organised by ICUA Zadar and UNESCO. These were Mariglen Meshini of Albania, Anton Donev of Bulgaria, Nemanja Čavlović of Montenegro, Valentina Todoroska of Macedonia, Catalin Dobrinescu of Romania, David Badovinac of Slovenia and Anita Jelić of Croatia. Joining the effort as outside associates were divers Nenad Starčić and Borna Krstulović and surveyor Ružica Sambunjak (Figure 7). This year's research campaign

kampanju obavio je Međunarodni centar za podvodnu arheologiju u Zadru u suradnji s Odjelom za arheologiju Sveučilištem u Zadru, javnom ustanovom Han-Vrana te institutom Römisch-Germanische Kommission iz Frankfurta. Voditelj istraživanja je mr. sc. Luka Bekić (Međunarodni centar za podvodnu arheologiju), a zamjenik voditelja doc. dr. sc. Mato Ilkić (Sveučilište u Zadru). S njima kao stručnjaci u istraživanju sudjeluju prof. dr. sc. Zdenko Brusić i Mate Parica (Sveučilište u Zadru), Marko Meštrović (Han-Vrana), Mladen Pešić (Međunarodni centar za podvodnu arheologiju) te Roman Scholz (Römisch-Germanisch Kommission Frankfurt). U arheološkim istraživanjima sudjelovali su i mladi podvodni arheolozi i konzervatori iz sedam zemalja jugoistočne Europe, koji su u organizaciji MCPA Zadar i UNESCO-a sudjelovali u ronilačkoj i arheološkoj izobrazbi. To su Mariglen Meshini iz Albanije, Anton Donev iz Bugarske, Nemanja Čavlović iz Crne Gore, Valentina Todoroska iz Makedonije, Catalin Dobrinescu iz Rumunjske, David Badovinac iz Slovenije, te Anita Jelić iz Hrvatske. Također su u radu sudjelovali vanjski suradnici - ronionci Nenad Starčić i Borna Krstulović te mjestnik Ružica Sambunjak (Slika 7). Ovogodišnja istraživanja je financirala Turistička zajednica općine Pakoštane.

Na području rimskoga pristaništa su otvorene dvije nove arheološke sonde koje su postavljene u relativnoj blizini starijih iz prijašnjih kampanja. Jedna od ovogodišnjih je u potpunosti istražena, a drugu je potrebno dovršiti sljedeće godine. Na prapovijesnom nalazištu, od planirane četiri pozicije, dokumentirane su tri, dok za dokumentiranje četvrte nije bilo vremena. Ipak, s obzirom na količinu prikupljenih površinskih nalaza, ovaj rezultat je više nego zadovoljavajući.

Dakle, tijekom prvih kampanja na položaju rimske luke bile su istražene dvije arheološke sonde (sonde 1 i 2). Nedaleko njih otvorene su ovogodišnje (sonde 3 i 4), čije je položaje odredio Marko Meštrović (Slika 6). Bliže obali postavljena je sonda 3. Ona sadrži već u prvih 10-ak centimetara raznovrsnu arheološku građu. U tom početnom sloju nalazi se mnoštvo ulomaka keramike tankih stijenci, grube svakodnevne kuhinjske keramike, ali i mnogobrojne dijelova tegula i amfora. U toj sondi su pronađeni i dijelovi staklenih posuda. Slijede ostatci organskoga podrijetla, poput češera, ljuski badema i oraha,



3. Mato Ilkić with the find of a glass drinking vessel / Mato Ilkić s nalazom staklene čaše (photo: Mate Parica)



4. Small flint knife at the Janice underwater prehistoric site / Rožnjački nožić na podvodnom prapovijesnom nalazištu Janice (photo: Luka Bekić)

was financed by the Municipality of Pakoštane Tourism Board.

Two new archaeological trenches were opened in the area of the Roman pier, placed in relative proximity to trenches from previous campaigns. One of this year's trenches has been fully explored, and the other needs to be completed in the coming year. Of the planned four positions at the prehistoric site, three have been documented, while there was insufficient time to document the fourth position. Nevertheless, given the quantity of collected surface finds, this outcome is more than satisfactory.

Two archaeological trenches (1 and 2) were, then, explored during the initial campaigns at the Roman harbour position. This year's trenches (3 and 4) were opened not far from them, their positions being determined by Marko Meštrović (Figure 6). Trench 3 was set closer to the shore. Even its first ten centimetres yielded a diversity of archaeological material. There were a large number of sherds of thin-walled pottery in this initial layer, as well as crude everyday cooking ware and numerous fragments of tegula and amphorae. This trench also yielded parts of glass vessels. These are followed by remains of organic origin, such as pine cones, almond and walnut shells, pine nuts, peach and olive pits, mussels, branches and the like. The lower extent of the excavated archaeological layer is at about 55 cm. The next trench was positioned a few metres to the west of trench 3. Trench 4 also contained numerous and diverse artefacts, again even in the upper, initial layer. A complete, albeit not intact, amphora was found at the bottom of this trench near the end of this research campaign. Both of this year's trenches were geodetically surveyed post-excavation, as were the approximate positions of the older trenches 1 and 2 (Figure 11).

Diving between Janice beach and the island of Sveti Justin, Marko Meštrović found a number of prehistoric potsherds and



5. Divers Sholz and Meštrović heading back to land after a dive / Nakon obavljenog zarona, ronionci Sholz i Meštrović se vraćaju na kopno (photo: Luka Bekić)

pinjola, koštica breskvi i maslina, školjaka, grana itd. Krajnja dubina iskopanog arheološkog sloja je oko 55 cm. Par metara zapadno od sonde 3 postavljena je sljedeća. I sonda 4 sadržavala je mnogobrojne i raznovrsne artefakte, i to već u početnom gornjem sloju. Potkraj istraživačke kampanje u dnu te sonde pronađena je i cjelovita amfora, doduše razbijena. Obje ovogodišnje sonde su nakon istraživanja geodetski snimljene, kao i okvirni položaji starih sondi 1 i 2 (Slika 11).

Roneći između plaže Janice i otočića Sv. Justina Marko Meštrović je na šljunčanom dnu pronalazio poneki prapovijesni keramički ulomak i mnoštvo kremenih alatki. Odlučili smo napraviti površinski pregled cijele lokacije i odrediti četiri pozicije na kojima je najveća gustoća površinskih nalaza. Te smo pozicije označili, te u radijusu od 10 metara oko središta pozicije kružnim pregledom terena prikupili sve površinske nalaze. Numerirali smo ih, te odredili njihove udaljenost i položaje u odnosu na središta. Točna pozicija svakog središta određena je geodetskim GPS-om. Na taj način svaki ulomak je dobio položaj koji se može smjestiti u prostoru, pa i u apsolutnoj geodetskoj mreži.

Na poziciji 1 skupili smo preko 270 artefakata, i to rožnjačkih alatki, ulomaka keramike, ulomaka drva i kostiju. U središtu je ukopano povećano deblo. Nalazi se na oko 4,5 metra dubine. Pozicija 2 smještena je također na oko 4,5 metra dubine. Tu je prikupljeno preko 130 ulomaka keramike i rožnjačkih alatki. Na poziciji 4 skupljeno je više od 100 kremenih alatki i ulomaka keramike. Nalazi se na oko 4,3 metra dubine.

Dakle, prilikom ovogodišnje podvodne arheološke kampanje u pakoštanskoj vali prikupljeno je vrlo mnogo arheoloških nalaza. Bogatstvo tog nalazišta postavilo je probleme po pitanju konzervatorsko-restauratorske obrade. Svi ovi arheološki nalazi trenutačno su u Odjelu za restauriranje podvodnih arheoloških nalaza, Hrvatskog restauratorskog zavoda u Zadru, našoj najstručnijoj i opremljenijoj radionici. Nalazima predstoji dugotrajna



6. Trench excavation using an airlift dredger / Iskop sonde pomoću mamut sisaljke (photo: Mladen Pešić)

a large number of flint tools on the pebbly seabed. We decided to undertake a surface inspection of the entire location and to determine four positions with the greatest density of surface finds. We marked these positions, and collected all surface finds in a ten-metre radius from the centre points of these positions by a circular inspection of the area. These finds were numbered, and their distance and position in relation to the centre points were established. The exact position of each centre point was determined using geodetic GPS. Every fragment was thus positioned and can be spatially situated, including in an absolute geodetic network.

We collected over 270 artefacts at position 1, including flint tools, potsherds, fragments of wood and bone. A large tree trunk is buried at the centre. It is situated at a depth of about 4.5 metres. Position 2 is also situated at a depth of about 4.5 metres. Over 130 potsherds and flint tools were collected here. Over 100 flint tools and potsherds were collected at position 4. It is situated at a depth of about 4.3 metres.

A very large number of archaeological finds were collected during this year's underwater archaeological campaign in the Pakoštane bay area. The wealth of this site has opened problems pertaining to conservation-restoration treatment. All of these archaeological finds are currently at the Croatian Conservation Institute's underwater archaeological finds restoration department in Zadar, our most competent and best equipped workshop. The finds will undergo a lengthy process of desalination followed by conservation-restoration treatment.

The most frequent finds in the Roman harbour area are sherds from various ceramic bowls, pots, cups and the like. A part of the smaller vessels are of the thin-walled ceramics type, while another part consists of terra sigillata (Figure 1). A large quantity of crude cooking ware was also discovered. We discovered the majority of fragments from many broken vessels. After



8. Geodetic GPS point surveying on the seabed / Geodetsko GPS snimanje točaka pod morem (photo: Luka Bekić)

desalinizacija i potom konzervatorsko-restauratorska obrada.

Na području rimske luke uglavnom su zastupljeni ulomci raznih keramičkih zdjela, lonaca, čaša itd. Dio manjih posuda pripada keramici tankih stijenki, a dio tera sigilati (Slika 1). Pronađeno je i mnoštvo grubog kuhinjskog posuđa. Otkrili smo većinu ulomaka od mnogih razbijenih posuda. One će se nakon desalinizacije moći u cijelosti restaurirati. U sondi 3 pronađena je jedna cijela uljanica s reljefnim prikazom ženske glave koja na kosi nosi polumjesec, što upućuje na prikaz boginje Lune (Slika 2). Prikupljeno je i mnoštvo dijelova amfora, posebice tiploški odredivih ulomaka, odnosno oboda i grla. Pred kraj istraživanja u dnu sonde 4 pronađena je i već spomenuta razbijena amfora. Prema svemu sudeći riječ je o vrsti Forlimpopoli, ili možda varijanti do sad neobjavljenog novog tipa Crikvenica (Slika 9). Svi njezini ulomci su prikupljeni pa se nadamo da će se i taj zanimljiv nalaz uspješno restaurirati nakon desalinizacije. Među nalazima izdvajamo i oveći ulomak uljanice knidske produkcije s grčkim natpisom i reljefnim ukrasom. Pronađeni su i ulomci



9. Amphorae sherds in situ in trench 4 / Ulomci amfore in situ u sondi 4 (photo: Luka Bekić)

desalination these can be fully restored. An intact oil lamp bearing a relief image of a woman's head wearing a crescent moon in her hair, likely a depiction of the goddess Luna was found in trench 3 (Figure 2). A great many amphorae fragments were also collected, in particular sherds that can be typologically classified, i.e. rims and necks. The already cited broken amphora was found near the end of the research campaign at the bottom of trench 4. It is by all accounts of the Forlimpopoli type, or perhaps a variant of a currently unpublished new Crikvenica type (Figure 9). All of its sherds have been collected and we hope that this fascinating find will also be successfully restored after desalination. Noteworthy among the finds is a large fragment of an oil lamp of Knidian production with a Greek inscription and decoration in relief. Unstamped tegula and imbrex sherds were also found. Next are a large number of glass vessel fragments. Noteworthy among these is a rare type of glass stemware—a goblet (Figure 3). It has been preserved in its full height, with only a small section of the rim missing. It is characterised by a plastic decoration of several perpendicular fields on its outer wall. Also very interesting is a find of a wooden ship's pulley, the likes of which have previously been found in the sea off Pakoštane. There are also worked wooden objects of currently undetermined purpose.

tegula i imbreksa bez pečata. Slijedi veći broj ulomaka staklenih posudica. Među njima izdvajamo rijetku vrstu staklene čaša na nozi – pehar (Slika 3). Sačuvana je u punoj visini. Nedostaje joj samo manji dio oboda. Odlikuje se plastičnim ukrasom nekoliko okomitih polja na vanjskoj stijenci. Vrlo zanimljiv je i nalaz drvenog broskog koloturnika, kakvi su se već i prije pronađeni u podmorju Pakoštana. Tu su i drveni obrađeni predmeti za sada neutvrđene namjene. Datacijski gledano, većina nalaza pripada razdoblju od 1. do 3. st. To potpuno korespondira s nalazima iz sonde 1 i 2 koje su istraživane prije nekoliko godina.

Među prapovijesnim nalazima najbrojnije su različite rožnjačke alatke. Uglavnom se pronalaze noževi i nožići, ali i grebala te šila. Kamena rožnjaka ima različitog, lokalnog slabije tvrdoće te kvalitetnijeg, žučkastog do crvenkastog te bijelog i sivog s crnim proslojima. Zasigurno su najkvalitetniji komadi kamenog materijala dopremani iz daljih područja. Prikupljeno je malo odbitaka i rožnjačkih jezgri koje svjedoče o izradi in situ. Uz kamene alatke pronađeni su i ulomci keramike, uglavnom crno pečene s primjesama kamenčića. Ovi ulomci su dosta izlizani od duge izloženosti na morskom dnu. Jedino nekoliko keramičkih ulomaka s pozicije 1 nije izlizano, jer su iskopani plitko iz morskog dna. Prikupljeno je i par vjerojatno životinjskih kostiju, koji su možda iz prapovijesnog sloja.



1. David Badovinac, 2. Mato Ilkić, 3. Borna Krstulović, 4. Nenad Starčić, 5. Meriglen Meshini, 6. Catalin Dobrinescu, 7. Mladen Pešić, 8. Valentina Todoroska, 9. Luka Bekić, 10. Anton Donev, 11. Anita Jelić, 12. Nemanja Čavlović, 13. Zdenko Brusić, 14. Marko Meštrov. Not present: Mate Parica, Roman Scholz.



7. Pakoštane 2011 team members / Članovi ekipe iz Pakoštana 2011.g.



10. Covering trench 4 with geotextile after research has been completed / Prekrivanje sonde 4 geotekstilom nakon završenog istraživanja (photo: Mladen Pešić)

In terms of dating, most of the finds are from the period from the 1st to 3rd century. This corresponds entirely with the finds excavated a few years ago from trenches 1 and 2.

The most numerous among the prehistoric finds are various flint tools. For the most part these are knives and blades, but there are also scrapers and awls. There are various types of flint stone—local of lesser hardness, and those of better quality—yellowish to reddish, white and grey with black veins. The highest quality fragments of stone material were certainly brought in from distant areas. Few flakes and flint cores were collected as evidence of fabrication in situ. Potsherds, for the most part black-fired with a temper of pebbles, were found along with the stone tools. These sherds are quite worn by long exposure on the seabed. Only a few ceramic fragments from position 1 are not worn, having been recovered from shallow excavation of the seabed. A pair of what are likely animal bones was collected, perhaps from the prehistoric layer.

Prema C-14 analizi uzorka drva pronađenog na jednoj od ovih pozicija, koju je Meštrov napravio prije nekoliko godina, nalazište se može datirati oko 6 000 godina BP odnosno oko četiri tisuće godine prije Krista. To je datacija kamenog doba (neolitika), a prikupljeni nalazi zasada ne poriču ovu dataciju nalazišta.

Što se tiče antičkog mola, svakako je prioritet nekako odrediti njegov točan položaj i dimenzije. Njegov okvirni položaj se zasada prepoznaje samo kao nakupina razbacanog neobrađenog kamena na području veličine oko 50 x 100 metara. Nisu vidljivi nikakvi očiti tragovi rubova mola. Pronaći njegov točan položaj je svakako teško s obzirom da se smatra kako je njegovu konstrukciju držalo drvo a ne kameni blokovi. Stoga je jedan od mogućih pristupa čišćenje površinskog sloja kamena na većem području i dokumentiranje svakog potencijalnog zabiljenog ili ležećeg drvenog stupa. Taj pristup dosada nije primijenjen na ovom nalazištu, te ovu mogućnost ostavljamo za iduću kampanju.

According to the C-14 analysis of a sample of wood found at one of these positions done by Meštrov a few years ago, the site can be dated to about 6,000 years BP, i.e. about four thousand years before Christ. This is a dating in the Stone Age (Neolithic), and the collected finds for now do not contradict this dating of the site.

As far as the Roman period pier is concerned, the priority is certainly to somehow determine its exact position and dimensions. Its approximate position is currently evident only as a cluster of dispersed unworked stone over an area of about 50 by 100 metres. There are no evident traces of the edges of the pier. Locating its precise position is certainly difficult given the fact that it is considered that its structure was supported by wood and not by stone blocks. One of the possible approaches is, therefore, to clear the surface layer of stone over a larger area and to document every potential rammed or lain wooden post. This approach has not yet been applied to this site, and we leave this possibility for the next campaign.

Concerning the prehistoric site, we have determined the area over which the site stretches by the distribution of surface finds and now have a basis upon which we can launch a thorough research campaign. Whether the research will be conducted via trenching—by smaller or exploratory trenches—or whether work will immediately include the systematic opening of a larger area remains to be decided by an expert team next year. In any event, it would be interesting to establish the character of the site and resolve the question of whether this was in fact a pile dwelling on the shoreline or only raised houses on the coast. We are also interested in ascertaining the exact period this site was in use and its character. We plan to organise an even larger international team of experts for the coming year that will organise its work precisely and dedicate its efforts to this important dual site.



8. Measuring and recording finds at a prehistoric site / Mjerenje i bilježenje nalaza na prapovijesnom nalazištu (foto Luka Bekić)

Što se tiče prapovijesnog nalazišta, rasporedom površinskih nalaza odredili smo područja rasprostiranja nalazišta te dobili podlogu na osnovu koje možemo započeti s pravim istraživanjem. Da li će se istraživanje provoditi putem sondiranja bilo manjim sondama ili probnim rovovima ili će se odmah započeti s sustavnim otvaranjem veće površine ostaje za odluku stručnoj ekipi iduće godine. U svakom slučaju, zanimljivo bi bilo ustanoviti karakter nalazišta i odgovoriti na pitanja da li se uistinu radilo o sojeničkom naselju na obali mora ili samo o nadzemnim kućama na obali. Također nas zanima točno razdoblje korištenja ovog nalazišta kao i njegov karakter. Za slijedeću godinu planiramo organizirati još veću međunarodnu stručnu ekipu, koja će se precizno organizirati i posvetiti ovom važnom dvojnog nalazištu.

Bibliography / Literatura:

Brusić, Z., 2005. Luka Pakoštane – Jamice i položaj između otočića Sv. Justine i Velog Školja, Hrvatski arheološki godišnjak, 1/2004, Zagreb, 191-192.

Brusić, Z., 2006., Luka Pakoštane – Jamica, Hrvatski arheološki godišnjak, 2/2005, Zagreb, 306-307.

Ilkić, M., M. Meštrov, 2007., - Nalazi rimskog novca iz Pakoštana, Vjesnik Arheološkog muzeja u Zagrebu, 3. s., XL, Zagreb, 339-346.

Ilkić, M., M. Parica, M. Meštrov, 2007., - Ancient port complex in Pakoštane near Zadar, Proceedings of the 13th Annual Meeting of the European Association of Archaeologists (Zadar, Croatia, 18-23 September 2007). Session: Underwater Archaeology, Zagreb, 2008., str. 212-221.

Parica, M., 2008. - Istočnomediteranska keramika iz antičke luke u Pakoštanima, Prilozi Instituta za arheologiju u Zagrebu, 25, Zagreb, 81-96.