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Submerged Heritage Potopljena baština

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1. Research ship Hercules in Croatian waters / Istraživački brod Hercules u hrvatskim vodama (photo: L. Bekić)

DEEP-SEA SURVEY OFF KONAVLE, CROATIA

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In July and August of 2012 the International Centre for Underwater Archaeology and the RPM Nautical Foundation conducted a two-week survey of the seabed off the Konavle coast. This research campaign was conducted with funds from RPMN and the Ministry of Culture of the Republic of Croatia. The co-directors of the research campaign were Dr Luka Bekić and Dr Jeffrey Royal, with an expert team consisting of Mladen

DUBINSKO PRETRAŽI- VANJE PODMORJA UZ KONAVLE, HRVATSKA

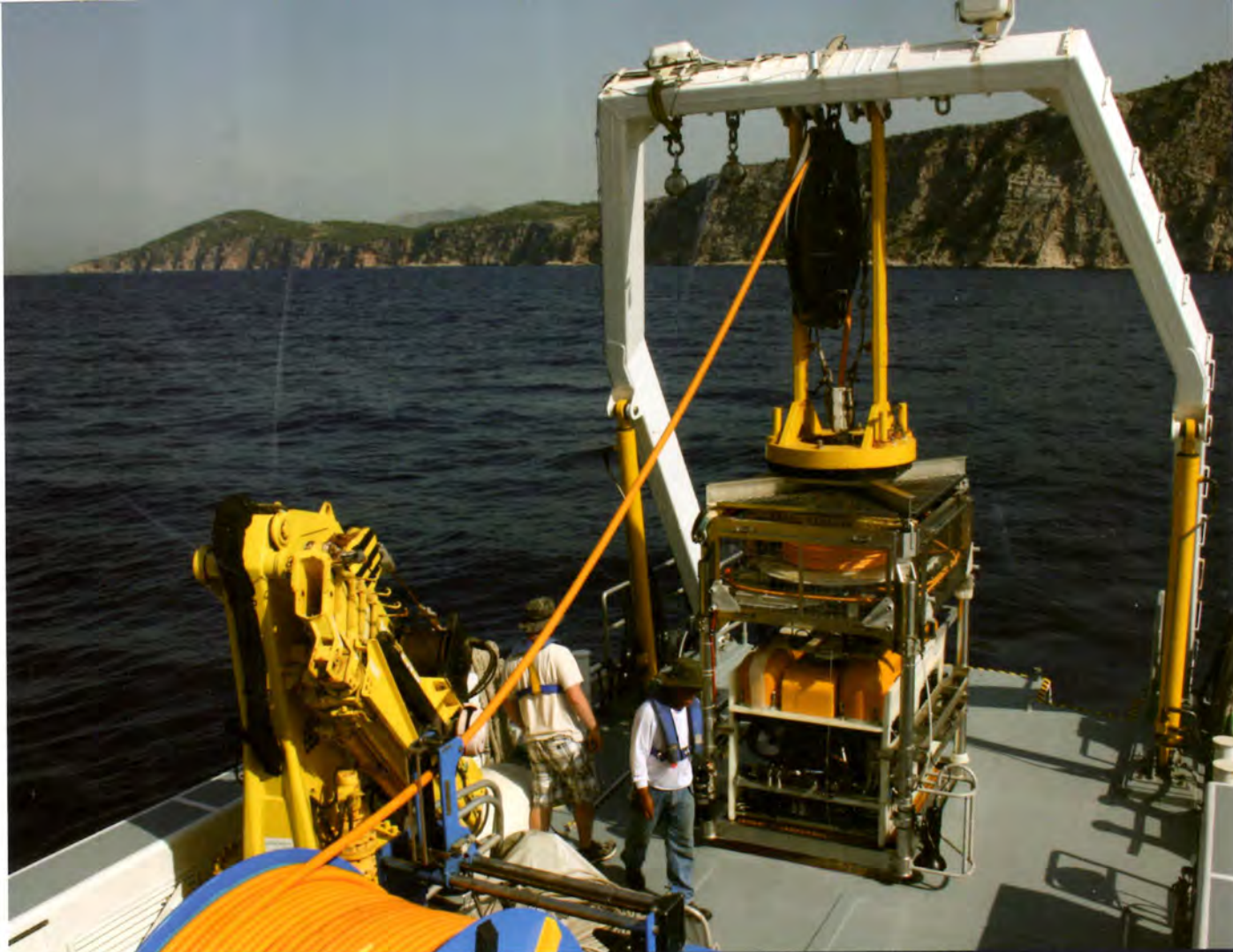
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Međunarodni centar za podvodnu arheologiju i RPM Nautical fundacija proveli su tijekom srpnja i kolovoza 2012.g. dvotjedno pretraživanje podmorja uz obalu Konavala. Ova istraživačka akcija provedena je sredstvima RPMN-a i Ministarstva kulture RH. Voditelji istraživanja bili su dr. Luka Bekić i dr. Jeffrey Royal, a u stručnoj ekipi su bili Mladen Pešić, Domagoj Perkić i George Robb. Uz njih su u projektu sudjelovali studenti arheologije iz Caroline, te posada i tehničko osoblje broda.

Istraživački brod (R/V) Hercules proveo je operaciju višesnimnim sonarom (multibeam sonar) tijekom srpnja. Cilj programa istraživanja bio je provesti istraživanje višesnimnim sonarom uzduž hrvatske obale do granice od 100 metara dubine u blizini Prevlake na jugu do rta Velikog Pača na sjeveru. Budući da je ovo bila prva sezona, određeno je jednostavno područje za istraživanje koje se moglo dovršiti tijekom dva tjedna.

2. Područje pregleda podmorja s nekim metama / The seabed area surveyed with some of the targets





Pešić, Domagoj Perkić and George Robb. Also participating in the project were archaeology students from Carolina, and the ship's crew and technical personnel.

Multibeam operations were undertaken during July by the R/V Hercules. The survey program aims to conduct multibeam survey along the coast of Croatia out to the 100-m depth contour from near Prevlaka in the south to Rt Veliki Pač in the north. As this was the inaugural season, the area designated for survey was kept manageable and easily completed in the two-week time frame.

The principal methods for this program of work were remote sensing with a multibeam echosounder and verification of anomalies with a Remote Operated Vehicle (ROV). Both survey and verification was carried out with RPMNF's research vessel Hercules, which is equipped with a hull-mounted multibeam echosounder sonar system¹ and can deploy its ROV. The R/V Hercules runs overlapping survey lanes along the contours of the seafloor to reach 200% coverage of the bottom. Data from the multibeam operations was processed during, and directly after, the collection phase to produce three-dimensional models of the seafloor, which was then analyzed for anomalies.² Anomalies were examined for association with either geologic formations or deposits consistent with shipwreck sites, the latter were plotted for verification. Once plotted in navigation and spatial recording software, the R/V Hercules was navigated and positioned over anomaly positions and the ROV equipped with a transponder was deployed.³ It was then possible to track both the R/V Hercules and the ROV within the three-dimensional seafloor models and obtain precise locations for sites and random finds. During verification operations, the locating of each

3. Pripreme za spuštanje ROV-a / Preparations for a ROV descent (photo: D. Perkić)

Glavne su metode ovog programa rada bile daljinski pregled višesopnim sonarom i provjera anomalija daljinski upravljanom robot ronilicom (ROV - Remotely Operated Vehicle). Istraživanje i provjere obavljani su RPMNF-ovim istraživačkim brodom Hercules, koji je opremljenim višesopnim sonarom postavljenim na trup¹ i može otpuštati svoj ROV. Brod Hercules prolazi područja dvostrukim putanjama kako bi se pregledana područja na morskom dnu preklopila i tako postigla

4. George Robb upravlja rukama robota / George Robb controls the robot hands (foto: L. Bekić + ROV kamera)





facilitated by a sonar affixed to the ROV. Once cultural material was located and positions recorded, a visual investigation ensued through the use of still and video cameras. Whenever deemed necessary, representative material was collected from the surface of the site in order to ascertain provenience.

Sites discovered during the survey of the seabed

A sonar (multibeam) survey established 17 potential positions (targets), for verification. During the last week of the campaign a ROV was deployed to survey 12 of these sites, including one site at around 30 meters depth, that was also checked by divers. Out of these 12 sites, several are of interest both from the archaeological and historical aspect.

CR12-AA - Konavoske stijene

This disorganized site lying approximately 1.3 km offshore is a mound comprised of mud-sand, and from its surface appearance has been disturbed. Overall, the disturbance pattern appears

5. Domagoj Perkić sondira potencijalno nalaziste / Domagoj Perkić sounds a potential site (photo: L. Bekić)

200-postotna pokrivenost dna. Podaci dobiveni istraživanjem višesnopnim sonarom obrađivani su tijekom i neposredno poslije faze prikupljanja kako bi se izradili trodimenzionalni modeli podmorja koji su se zatim analizirali s obzirom na anomalije.² Anomalije su se testirale kako bi se odredilo odnose li se na geološke formacije ili ostatke potonulih brodova, koji se potom označavaju za provjeru. Nakon označavanja u softveru za navigaciju i prostorno snimanje, Hercules bi doplovio do mjesta anomalije i spustio ROV opremljen transponderom.³ To je omogućilo praćenje broda Hercules i ROV-a unutar trodimenzionalnih modela podmorja kako bi se ustanovile precizne lokacije nalazišta i slučajnih pronalazaka. Tijekom operacije provjeravanja, lociranje svih anomalija, kao i rasutog materijala u blizini anomalija i nalazišta, obavljeno je sonarom pričvršćenim na ROV. Poslije lociranja kulturnog materijala i bilježenja pozicija obavljen je vizualni pregled fotoaparatom i videokamerom. Kad je bilo potrebno, s površine nalazišta prikupio se uzorak materijala kako bi se utvrdilo podrijetlo.

¹ Model tip EM3002D proizvođača Kongsberg Maritime; emitira više od 500 zasebnih sonarnih snopova maksimalnom brzinom od 40 puta u sekundi. Navedeni se snopovi emitiraju na dvije frekvencije, s odašiljačima u dvije glave, od 297 i 303 MHz. Sustav ima razlučivost dubine od 1 cm. / Model type EM3002D from Kongsberg Maritime division; emits in excess of 500 individual sonar beams at a maximum rate of 40 times per second; these beams are emitted on the two frequencies, differentiated by head, of 297 and 303 MHz. The system has a depth resolution rating of 1 cm.

² Podaci dobiveni višesnopnim sonarom prikupljeni su Kongsbergovim softverom SIS, obrađeni CARIS HIPS/SIPS-om i modelirani softverom IVS Fledermaus za analizu anomalija. Istraživači angažirani od strane Highland Geo Solutions Inc. iz Frederictona, NB, Kanada, obavili su prikupljanje i obradu svih podataka. / Multibeam data was acquired through Kongsberg's SIS software, processed in CARIS HIPS/SIPS, and modeled in IVS Fledermaus software for anomaly analysis. All acquisition and processing of data was performed by surveyors contracted from Highland Geo Solutions Inc. of Fredericton, NB, Canada.

³ IVS je ljubazno ustupio modul prototipa softvera za praćenje svih brodova unutar 3D modela podmorja u Fledermausu. / IVS kindly provided a prototype software module that allowed the tracking of all vessels within the 3-D models of the seafloor in Fledermaus

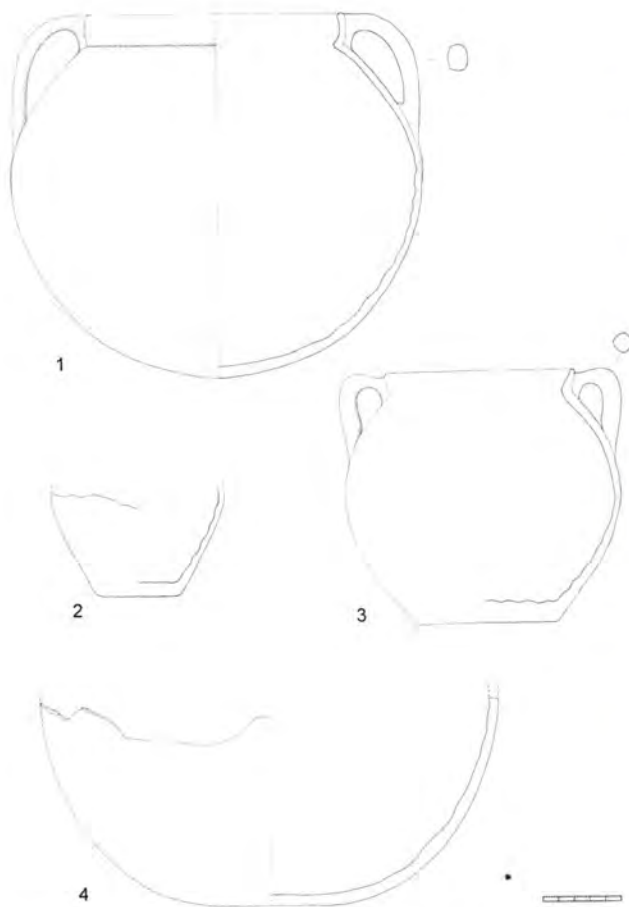


Tabla 1 - Crteži nalaza s Konavoskih stijena / Table 1 - Drawings of the finds at Konavoske stijene (author: L. Bekić)

to be caused from fishing dragnets. Most of the artifacts are ceramics, many are broken and scattered around the site. Material on the surface of the Konavoske stijene wreck has the shape forms of plates, bowls, and cups. One area has an approximately 1 x 1 meter concentration of what appears to be tableware. Several examples were collected from this concentration: a bottom of a bowl (T.1-2), a concretion that was partially buried (figure), and a portion of an amphora that had a small portion break off during recovery (T.1-4), a portion of an amphora full of mud (T.1-1), and a smaller bowl that had a portion of the rim break away during recovery (T.1-3). There were also indications that more pottery were buried in the mound.

The globular forms from this shipwreck are made of what appears to be the same, red not fully refined clay, and we can postulate that they were produced by a workshop for sale, i.e. part of the ship's cargo. We have not yet found any direct analogies for these pottery types, however they are, by all accounts, most closely related to Byzantine type ware. The bottom of the largest vessel (T.1-4) is very similar to the well-known LRA 13 type amphora, i.e. the Yassiada type I which are dated by the eponymous shipwreck to the first half of the 7th century.

Two other globular vessels with small handles alongside the rim (T.1-1,3) are similar to cooking pots that can be dated from the 5th to 8th centuries. These are, for example, a pot from Tarragona from the late 5th century (Macias Sole 1998, fig. 2), pots from the 7th century from the well-known Crypta Balbi site (Ricci 1998, fig. 3,4), pots of the 71/72 forms from the 7th to 8th century found at Crecchio (Staffa 1998, fig. 20) and a 7th to 8th century pot from Otranto (Arthur, Patterson 1998, fig. 9-4). The

Nalazišta otkrivena prilikom pregleda podmorja

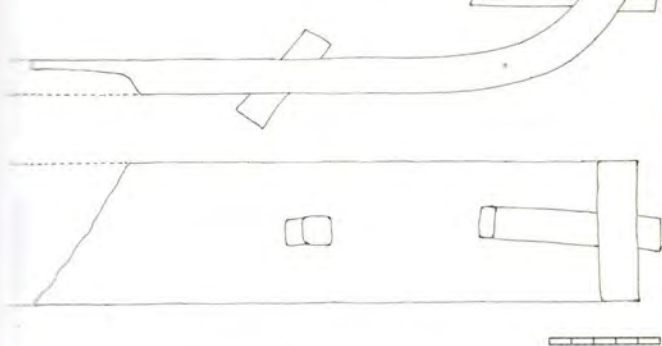
Pregledom višesopnim sonarom, određeno je 17 potencijalnih pozicija - meta, koje je valjalo provjeriti. Tijekom zadnjeg tjedna ROV-om ih je pregledano sveukupno 12, a jedna pozicija na tridesetak metara dubine i uz pomoć ronilaca. Od ovih 12 pozicija nekoliko je arheološki i povijesno zanimljivih.

CR12-AA - Konavoske stijene

Ovo neorganizirano nalazište oko 1,3 km od obale je nakupina mulja i pijeska i čini se narušeno prema izgledu njegove površine. Uopće, obrazac narušavanja čini se da je uzrokovan ribarskim mrežama potegačama. Većina je predmeta keramička, a mnogi su razbijeni i razbacani oko nalazišta. U materijalu na površini olupine Konavoske stijene prepoznaju se oblici tanjura, posuda i šalice. Jedno područje ima koncentraciju od 1x1 m nečega što se čini kao posuđe. Nekoliko je primjeraka prikupljeno iz navedene koncentracije: dno posude (T.1-2), neprepoznatljiv zahrdali željezni predmet koji je bio djelomice zakopan (slika) dio amfore koji je zadobio manje oštećenje pri vađenju (T.1-4), dio amfore pune mulja (T.1-1) te manja posuda čiji se dio ruba slomio prilikom vađenja (T.1-3). Postoje naznake da je u nakupini zakopano još keramike.

Globularni oblici s ovog brodoloma izrađeni su iz naizgled iste, crvene nepotpuno pročišćene gline, pa možemo pretpostaviti kako su proizvod neke radionice namijenjeni prodaji, odnosno dio tereta broda. Izravne usporedbe za ove keramičke tipove zasada nismo pronašli, međutim, prema svemu sudeći najrodniji su bizantskim tipovima posuđa. Dno najveće posude, amfore (T.1-4) vrlo nalikuje poznatom tipu LRA 13 amfore odnosno Yassiada tip I koji se prema istoimenom brodolomu datira u prvu polovinu 7.st.

Druge dvije globularne posude s malim ručicama uz obod (T.1-1,3), nalikuju oblicima lonaca za kuhanje koji se mogu datirati od 5. do 8.st. To su na primjer lonac iz Tarragone s kraja 5.st. (Macias Sole 1998, sl. 2), lonci 7.st. iz poznatog nalazišta Crypta Balbi (Ricci 1998, sl. 3,4), zatim lonaca forme 71/72 iz 7/8.st. pronađenih u Crecchio (Staffa 1998, sl. 20) te lonac 7/8.st. iz Otranta (Arthur, Patterson 1998, sl. 9-4). Također, oblici ovog posuđa podsjećaju i na nalaze s već spomenutog brodoloma Yassiada. Sudeći prema tome, ovaj brodolom može se datirati u razdoblje od kraja 5. do 8.st.,



8. Rendgenske snimke i moguć izgled željeznog predmeta u skici
/ X-ray images and possible appearance of iron object
(author: L. Bekić)

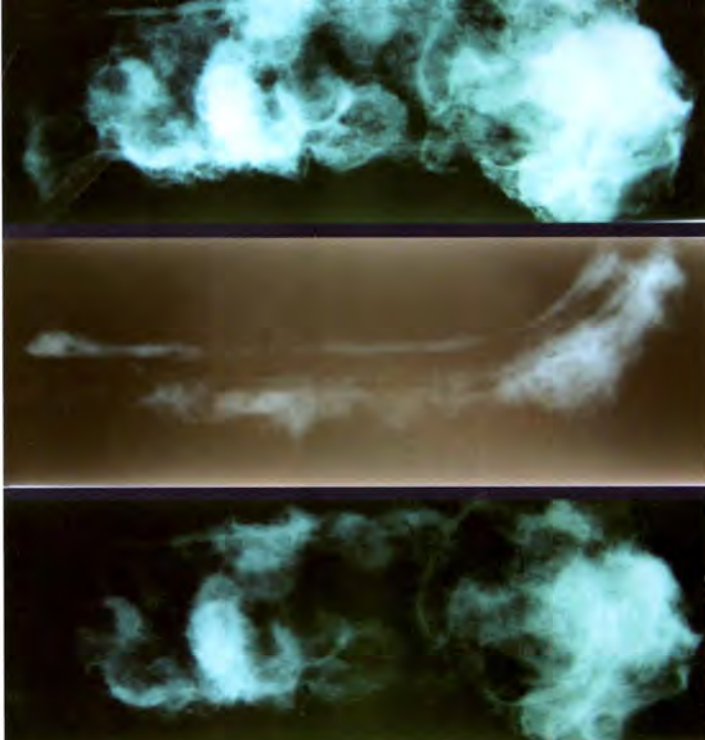
previously cited Yassiada shipwreck. Based on this the shipwreck can be dated to the period from the end of the 5th to the 8th century, but it should be noted that similar globular amphorae and pots remained in use, at least during the 9th century if not later.

The purpose of the massive corroded iron object found among the rubble on the shipwreck is still unclear. According to X-ray images, the elongated flat iron bar is gently curved on one side and at least two iron pegs of rectangular cross-section are noticeable in the concretion. At the moment it seems the object could have served as a sort of reinforcement.

CR12-AB - Rt Lokvica

A mound of mud-sand lying approximately 1.6 km offshore is oriented on a distinctly SE-NW axis; material extends from one end of the site to the other. At the SE end of the site there are at least three large iron anchors that lie in opposite directions next to one another. The pattern has the appearance of anchors stowed on deck. Each of the anchors has rings at the top of their shafts. One of the visible anchor shafts has a square in section and the arms form a slight 'V'. Another anchor has a more lunette overall shape to the arms along with a small peak at the crown; the flukes are clearly triangular. It is possible that wood remains are located beneath the anchors.

On the NW end of the site formation another two anchors are partially buried in the mound. One anchor has a ring at the top of its shaft and an apparently square shaft in section. The second anchor lies approximately 2 m from the first and has discernible triangular flukes. At the center of the site is a possible cast-iron *verso* (falconetti) that is highly concreted based on what appear

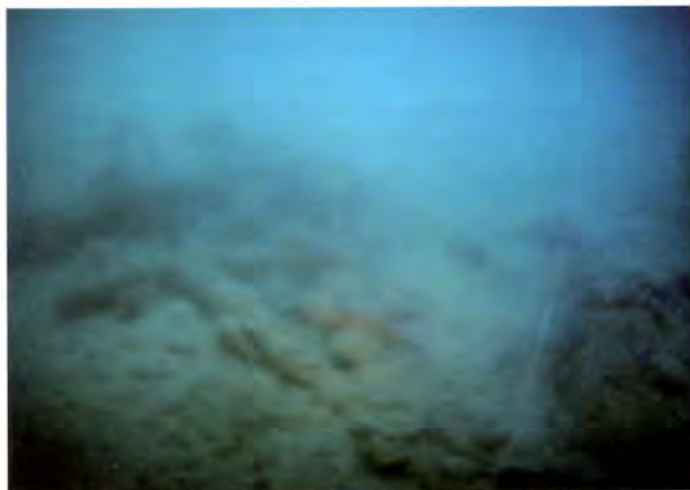


ali valja napomenuti kako se slične globularne amfore i lonci koriste i nadalje, barem još i tijekom 9.st. ako ne i kasnije. Zasadu nije jasna namjena masivnog korodiranog željeznog predmeta, koji je pronađen među kršem brodoloma. Prema rendgenskim slikama, izdužena plosnata željezna pologa je blago povijena na jednoj strani i vidljiva su barem dva željezna klina kvadratnog presjeka u sraslini. Zasadu je moguće da je predmet služio kao neko ojačanje.

CR12-AB - Rt Lokvica

Nakupina mulja i pijeska oko 1,6 km od obale jasno je orijentirana na os JI-SZ. Materijal se prostire od jednog do drugog kraja nalazišta. Na SI dijelu nalazišta najmanje su tri velika željezna sidra koja u suprotnim smjerovima leže blizu jedno drugoga. Položaj ukazuje na sidra držana na palubi. Sva sidra imaju prstene na vrhu. Struk jednog od vidljivih sidra djelomice je kvadratnog oblika, a krakovi pomalo tvore slovo 'V'. Drugo sidro je više u obliku lunete do krakova, s malim šiljkom na kruni, a lopate su jasno trokutaste. Moguće je da se ispod sidara nalaze ostaci drva.

9. Sidra sa olupine broda kod Rta Lokvica / Anchors from the cape Lokvica wreck (ROV camera)





10. Jeffrey Royal proučava nalaze / Jeffrey Royal studies the finds (photo: D. Perkić)

to be regularly-spaced reinforcement hoops. Additionally, there are four large (0.5-1.0 m) stones in this central area; these stones appear smooth and are aligned in two parallel rows.

Considering the material observed on the surface of the site, some preliminary hypotheses are possible for the provenience of the wrecksite. The presence of the small wrought-iron swivel guns places the wreck likely in the 16th century or later. By the late-15th century merchantmen in the Mediterranean were arming their vessels with wrought-iron swivel guns; this trend continued to become a common practice in the 16th century in light of the increased dangers of operating on a competitive and hostile sea (Royal, McManamon 2009, 110, 111). For example, the early 16th-century Cattewater wreck was an armed merchantman that carried three wrought-iron swivel guns mounted in wooden stocks; the most complete example was 1.25 m long and had an outside diameter at the muzzle of ca. 7 cm (Redknap 1984, 39, 1997 49-63). These are dimensions similar to the gun on the Rt Lokvica wrecksite. Likewise, there is some information provided by the anchors. During the 14th and 15th centuries English anchors developed from curved to straight arms that initially had an angle of approximately 40° to the shaft, and by 1600 the arms had widened to c.60° (Curryer 1999, 41). Unlike the palm-shaped flukes characteristic of English anchors, most known Iberian anchors had triangular-shaped flukes (Smith 1993, 122). Typically, Venetian anchors also had triangular-shaped flukes. Anchor arms forming a more slightly bent form are typical of Spanish anchors, such as the two possibly-Spanish anchors found on the wreck of La Trinidad Valencera (1588) that have triangular flukes (Martin 1979, 31, 32; Curryer 1999, 38-40). Taken as a whole, this vessel probably operated in the 16th century. At this time the Republic of Ragusa (Dubrovnik) was a vibrant maritime trading center, which conducted trade throughout the Mediterranean and flourished particularly in the 16th century. Hence, a cultural association for the Rt Lokvica wreck of Venetian (or another Italian maritime city) or possibly

Na SZ strani nalazišta druga su dva sidra djelomice zakopana u nakupini. Jedno sidro ima prsten na vrhu struka i očit pravokutni presjek struka. Drugo je sidro oko 2 m od prvog i ima jasno vidljive trokutaste lopate. U središtu nalazišta vjerojatno se nalazi top od kovanog željeza *verso* (falconetti) gotovo srašten s nečime što se čini poput obruča za ojačanje postavljenim u pravilnim razmacima. Nadalje, tu su 4 velika kamena veličine 0,5 do 1 m u tom središnjem dijelu, koji se čine glatkima i koji su poredani u dva paralelna reda.

Razmatrajući materijal promatran na površini nalazišta, moguće su neke preliminarne hipoteze o podrijetlu olupine. Prisutnost malog obrtnog oružja od kovanog željeza smješta olupinu u 16. stoljeće ili kasnije. Od kraja 15. stoljeća trgovci na Mediteranu opremali su svoje brodove obrtnim oružjem od kovanog željeza. Taj se trend nastavio i postao uobičajena praksa u 16. stoljeću u svjetlu rastuće opasnosti poslovanja na kompetitivnom i neprijateljskom moru (Royal, McManamon 2009, 110, 111). Primjerice, olupina Cattewater iz ranog 16. stoljeća bio je naoružani trgovački brod s tri topa od kovanog željeza postavljena na drvenim postoljima. Najcjelovitiji je primjer dio dugačak 1,25 m i imao je vanjski promjer cijevi oko 7 cm (Redknap 1984, 39; 1997. 49-63). Navedene su dimenzije slične dimenzijama topa olupine kod rta Lokvice. Također, i sidra nude neke informacije. Tijekom 14. i 15. st. engleska su se sidra razvijala od zaobljenih do ravnih krakova koji su u početku imali kut od oko 40° u odnosu na struk, a do 1600.g. krakovi su se proširili na oko 60° (Curryer 1999, 41). Za razliku od lopata u obliku dlana karakterističnih za engleska sidra, najpoznatija su iberska sidra imala lopate u obliku trokuta (Smith 1993, 122). I venecijanska su sidra obično imala lopate u obliku trokuta. Krakovi sidra manje savinutog oblika tipični su za španjolska sidra, poput onih mogućih španjolskih sidara nađenih na olupini La Trinidad Valencera (1588.g.) s trokutastim lopatama (Martin 1979, 31, 32; Curryer 1999, 38-40). Gledajući u cjelini, ovaj je brod vjerojatno plovio u 16. stoljeću. U to je doba Dubrovačka Republika bila živo središte pomorske trgovine koje je trgovalo na cijelom Sredozemlju i posebno procvjetalo u 16. st. Stoga je moguća kulturna povezanost olupine kod rta Lokvice s Venecijom, nekim drugim tali-

These two sites are considered part of a single event due to their both being formed by the deposition of specific and identical landing craft. A distance of 400 m separated the two sites. The landing craft are rectangular in shape due to their flat-bottom construction, vertical sides and stern, and vertical door at their bow. Both had tracked wheels and a small bridge at their stern. Each was intact and did not exhibit any significant damage; however, there were no vehicles in their bays. Some debris was found around each landing craft, along with some material between them that could be associated with the vehicles they carried or other material from the operation. CR12-AC also had a larger amount of debris about 40 m to the E; this debris was linear I-beam structures lying side-by-side and smaller metal objects scattered around it.



12. Desantni brod na morskom dnu / Landing craft on the sea bottom (ROV camera)

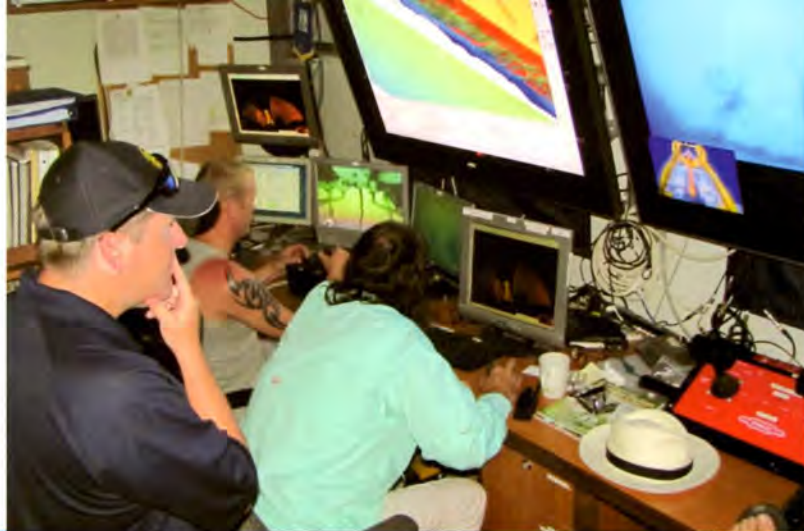


13. Američki desantni brod LCM-Mk2 sličan onima pronađenima na morskom dnu (izvor: <http://www.ibiblio.org/hyperwar/USN/ships/ships-lcm2.html>) / US Landing craft LCM-Mk2 similar to the ones discovered on sea bottom (source: <http://www.ibiblio.org/hyperwar/USN/ships/ships-lcm2.html>)

CR12-AE - Fishing vessel

This pile of modern debris lies approximately 1.1 km off-shore. Most of what is noted on the surface is metal debris and fishing gear: nets, cables, and possibly a winch. However, there was also an anchor noted on the site. It had a lunette shape with flukes that appear triangular. It appears from initial inspection that this is the remains of a modern fishing vessel.

14. Pogled višesnopnim sonarom na olupinu podmornice južno od Molunta / Multibeam view of Submarine wreck south of Molunat



11. Kontrolna soba Herculesa, Robert Woods proučava nalaz desantnog broda na zaslonu / The control room on the Hercules: Robert Woods studies the find of a landing craft on screen (photo: L. Bekić)

CR12-AC i CR12-AD - Desantni brodovi

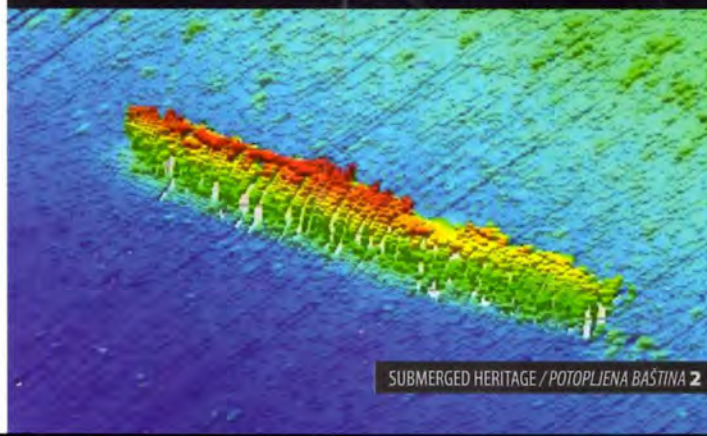
Navedena se dva nalazišta smatraju dijelom jednog događaja s obzirom na to da su oba nastala potapanjem specifičnih i identičnih desantnih brodova. Udaljenost od 400 m razdvaja dva nalazišta. Desantni su brodovi pravokutnog oblika zbog konstrukcije ravnog dna, okomitih stranica i krme te okomitih vrata na pramcu. Oba broda imaju gusjeničarske kotače i mali most na krmi. Oba su nedirnuta i nema znatnijih oštećenja. Međutim, u njima nije bilo vozila. Nešto je ostataka pronađeno oko svakog desantnog broda, kao i nešto materijala između njih koji se može povezati s vozilima koje su nosili i ostalim materijalom iz operacije. Oko 40 m istočno od CR12-AC također je pronađena veća količina ostataka ravnih greda položenih jedna uz drugu i manjih metalnih predmeta rasutih oko njih.

CR12-AE - Ribarica

Ova nakupina modernih ostataka nalazi se oko 1,1 km od obale. Većina onoga što se vidi na površini metalni su ostaci i ribarska oprema - mreže, užad i možda čekrk. Međutim, na nalazištu je također pronađeno i jedno sidro oblika lunete s lopatama koje se čine trokutastima. Nakon prvog pregleda čini se da je riječ o modernom ribarskom brodu.

CR12-AF - Podmornica

Ovo je otprije poznata olupina podmornice. Na temelju podataka dobivenih višesnopnim sonarom, njezine su dimenzije 54,7 x 8,8 m, a podmornica se uzdiže 5,2 m iznad morskog dna.



CR12-AF - Submarine

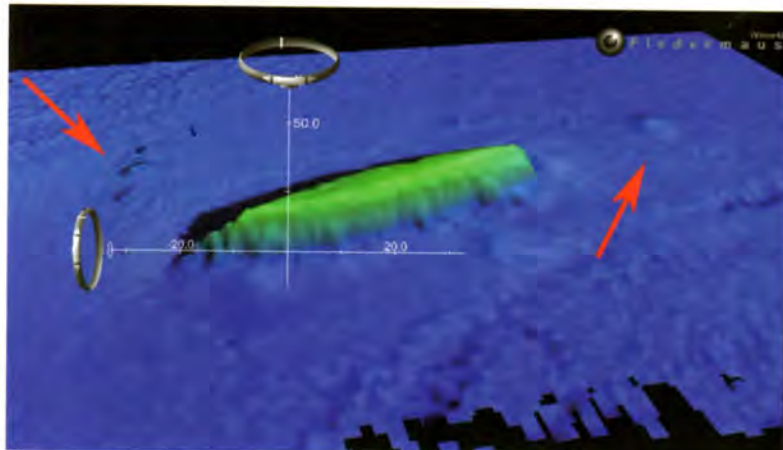
This is a known submarine wreck. Based on the multibeam data, its dimensions are 54.7 x 8.8 m, and it extends 5.2 m above the seafloor.

CR12-AG - Giuseppe Garibaldi

Although not in the survey area, this modern wrecksite of the Garibaldi was surveyed in order to calibrate the multibeam system. According to the multibeam data the main section of the Garibaldi is 87.0 x 18.3 m, and extends 14.8 m above the seafloor, lying inverted. Another section 47 m to the WSW measures 20 x 13 m; it is not clear, but seems that this is part of the Garibaldi.



15. *Giuseppe Garibaldi* u plovodbi tijekom I Svjetskog rata (izvor: www.divestar.eu) / *Giuseppe Garibaldi* sailing during WWI (source: www.divestar.eu)



16. *Strelice označuju anomalije koje predstavljaju otpale dijelove broda* / *Arrows are marking anomalies which represent ship parts*

The armoured cruiser Giuseppe Garibaldi was built in 1901 at the Italian shipyard in Genoa. She had a length of 111.6 and a breadth of 18.2 metres. The Garibaldi sailed into the waters of Konavle on 18 August 1915 with a mission to shell the railway near Cavtat. She sank upon being hit by a torpedo launched by the Austro-Hungarian Navy submarine U-4. Garibaldi had a crew of 578 at the time, fifty-three of who perished when she sunk (Frka, Mesić, 2012, 368-375). The first dives to this ship were made in 2009 by technical divers.

We can conclude that off the coast of Konavle we have discovered several interesting sites, and some of them are worth further investigation, despite the fact that they are at great depths. We hope that this project will continue in the years ahead, and it is planned to gradually expand the

CR12-AG - Giuseppe Garibaldi

Iako nije obuhvaćeno područjem istraživanja, ova moderna olupina Garibaldija pregledana je u svrhu kalibriranja višesnog sustava. Na temelju podataka dobivenih višesnog sonarom, glavni je dio Garibaldija veličine 87,0 x 18,3 m, uzdiže se 14,8 m iznad morskog dna i leži u okrenutom položaju. Na udaljenosti od 47 m prema ZJZ još je jedan dio dimenzija 20 x 13 m; nije posve jasno, ali čini se da je i to dio Garibaldija.

Oklopna krstarica Giuseppe Garibaldi izgrađena je 1901.g. u talijanskom brodogradilištu u Genovi. Bila je duga 111,6 a široka 18,2 metara. Garibaldi je pred obale Konavala doplovio u cilju napada na željezničku prugu kod Cavtata 18. kolovoza 1915.g. Potonuo je uslijed torpeda ispaljenih sa austrougarske podmornice U-4. U trenutku potapanja, na brodu je bilo 578 članova posade, od kojih su 53 poginula (Frka, Mesić, 2012, 368-375). Na ovaj brod su prvi zaronili tehnički ronionci 2009.g.

Na kraju možemo zaključiti kako se ispred obale Konavala pronašlo više zanimljivih nalazišta, a poneka od njih bi vrijedilo dalje istraživati, usprkos činjenici da se nalaze na velikim dubinama. Nadamo se kako će se ovaj projekt nastaviti i u godinama koje slijede, i planirano je područje pretraživanja postupno širiti prema sjeveru.

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