



NASTAVAK PODMORSKOG ARHEOLOŠKOG ISTRAŽIVANJA U UVALI CASKI NA OTOKU PAGU

Continuation of underwater
archaeological research
in the bay of Caska on the
island of Pag

UVOD

Uvala Caska nalazi se na sjeveroistočnom dijelu otoka Paga, na samo 3 kilometra zračne udaljenosti od grada Novalje. U uvali se nalaze ostatci antičkog naselja smještenog uz sam rub plodnog Novaljskog i Caskog polja, u kojem su se intenzivnije aktivnosti odvijale u razdoblju od 1. st. pr. Kr. do 3. st. po Kr. Zahvaljujući rezultatima dosadašnjih arheoloških istraživanja, obalni objekti interpretirani su kao gospodarsko-ladanjsko zdanje koje je u vrijeme kasne Rimske Republike i ranog Carstva vje-

INTRODUCTION

The bay of Caska is located on the northeastern part of the island of Pag, only 3 kilometers from Novalja in a straight line. The remains of an ancient settlement were found in the bay, at the very edge of the fertile fields of Novalja and Caska, where more intensive activities took place in the period from the 1st century BC to the 3rd century AD. Owing to the results of the archaeological research so far, the coastal structures have been interpreted as a farming and residential complex that probably



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rojatno pripadalo rimskoj senatorskoj obitelji *Calpurni Pisones*. Nakon što se obitelj povukla s otoka veliko se imanje vjerojatno razdijelilo na nekoliko manjih. Dosadašnji arheološki nalazi upućuju na intenzivne gospodarske aktivnosti, koje još treba detaljnije definirati.

DOSADAŠNJA ISTRAŽIVANJA

Istraživanja lokaliteta započela su 2003. godine, a od 2009. do 2017. godine sustavno su se provodila u okviru projekta *CissAntiqua*, pod vodstvom Sveučilišta u Zadru i instituta *Centre Camille Jullian* (Aix-en-Provence, Francuska) (Radić Rossi, Boetto 2020). Od 2018. godine istraživanja se, s kraćim prekidima, nastavljaju pod vodstvom Sveučilišta u Zadru i Instituta za pomorsku baštinu ARS NAUTICA, uz logističku podršku Ronilačkog centra *Foka* iz Šimuna na Pagu. Pri pokretanju projekta *CissAntiqua* izrađena je topografska karta u koju su unesene sve površinski vidljive strukture i objekti. Površinskim pregledom terena postalo je jasno da prostor zahvaćen sektorima 1 – 5 sadrži izniman arheološki potencijal. Projekt je dobio ime po toponimu *Cissa*, tj. *oppidum Cissa*, koji

belonged to the Roman senatorial family *Calpurni Pisones* during the Late Roman Republic and the Early Empire. After the family left the island, the large estate was probably divided into several smaller ones. The archaeological finds so far point to intensive economic activities, which need to be defined in more detail.

PREVIOUS RESEARCH

Investigations of the site began in 2003, and were systematically carried out from 2009 to 2017 within the *CissAntiqua* project, under the leadership of the University of Zadar and the *Center Camille Jullian Institute* (Aix-en-Provence, France) (Radić Rossi, Boetto 2020). Since 2018, research has continued, with short interruptions, under the leadership of the University of Zadar and the Institute for Maritime Heritage ARS NAUTICA, with the logistical support of the *Foka* Diving Center from Šimuni on Pag. When the *CissAntiqua* project commenced, a topographical map was made, on which all structures and buildings visible on the surface were marked. A surface survey of the terrain made it clear that the area covered by sec-



Pogled na sjeveroistočni dio uvale i usidrenu splav nad nalazištem (foto: I. Radić Rossi)
View of the northeastern part of the bay and the anchored raft above the site (photo: I. Radić Rossi)

Pogled iz zraka na Casko i Novaljsko polje, i uvale Caska, Novalja i Stara Novalja (foto: V. Glavaš)
Aerial view of the fields of Caska and Novalja, and the bays of Caska, Novalja and Stara Novalja (photo: V. Glavaš)

Stara
Novalja

Novalja

Caska





spominje Plinije Stariji u kapitalnom djelu *Naturalis Historia*. Smatra se da je liburnsko naselje na brdu Košljunu u Plinijevo vrijeme nosilo ime *Cissa*, a zatim se tijekom sljedećih stoljeća primjenjivalo za sjeverni dio otoka, koncentriran oko Novaljskog polja, te do danas preživjelo u toponimu Caska.

Godine 2005. iz podmorja Caske izvađen je u cijelosti očuvan drveni dio antičkog olovno-drvenog sidra. Godine 2007. ušlo se u trag ostacima broda izrađenog tehnikom šivanja (Caska 1), a četiri godine poslije otkriveni su i odlično očuvani ostatci broda izrađenog klasičnom rimskom tehnikom spajanja platica sistemom utora i jezičaca (Caska 2). Tijekom istraživanja broda Caska 2 u njegovoj unutrašnjosti otkriven komad još jednog šivanog broda (Caska 3).

Godine 2007. otkriveni su i drveni sanduci izrađeni od međusobno spojenih trupaca, ispunjeni kamenjem, koji su se nalazili pred današnjom Tunerom u funkciji operativne obale. Istraživanje koje je provedeno 2016. i 2017. godine rezultiralo je otkrićem ostataka još jednog šivanog broda (Caska 4), koji je također u cijelosti istražen. Svi brodovi pronađeni u uvali bili su namjerno potopljeni i iskorišteni za izgradnju priobalnih lučkih uređaja.

tors 1-5 holds exceptional archaeological potential. The project was named after the toponym *Cissa*, i.e. *oppidum Cissa*, mentioned by Pliny the Elder in his major work *Naturalis Historia*. It is believed that the Liburnian settlement on Košljun hill bore the name *Cissa* in Pliny's time, and then in the following centuries it was used for the northern part of the island, around the field of Novalja. It survived to this day in the toponym Caska.

In 2005, a completely preserved wooden part of an ancient lead-wooden anchor was raised from the Caska seabed. In 2007, the remains of a ship made using the sewing technique (Caska 1) were found, and four years later, well-preserved remains of a ship characterized by a tenon-and-mortise assembly of the planking were discovered (Caska 2). During the investigation of the ship Caska 2, a piece of another sewn ship (Caska 3) was found in its interior.

In 2007, wooden caissons made of logs joined together, filled with stones, were also discovered, which were located in front of today's Tunera as an operational waterfront. Research conducted in 2016 and 2017 resulted in the discovery of the remains of another sewn ship (Caska 4), which was also fully explored. All the ships found in the bay were scuttled and used to build coastal harbor



Iskop drvenih elemenata konstrukcije velikog mola (foto: I. Radić Rossi)
Excavation of the wooden elements of the large pier construction (photo: I. Radić Rossi)

Tijekom podmorskog istraživanja provedeno je i dokumentiranje arheoloških ostataka u priobalnom pojasu. Tom je prilikom utvrđeno kako ostatci velikog zida, mjestimično očuvanog do visine od oko 5 m, nisu tragovi gradskog bedema nego velikog potpornog zida koji je od erozije štutio plodnu zemljanu terasu. Osim toga, istražen je i prohodni dio velikog odvodnog kanala koji se pretvara u podzemni tunel visine preko 2 m i širine nešto više od 1 m, koji vodi u smjeru unutrašnjosti uvala. Izlazni dio tunela/kanala nalazi se u uvali zvanj Mala Pošta, jugoistočno od Tunere.

structures.

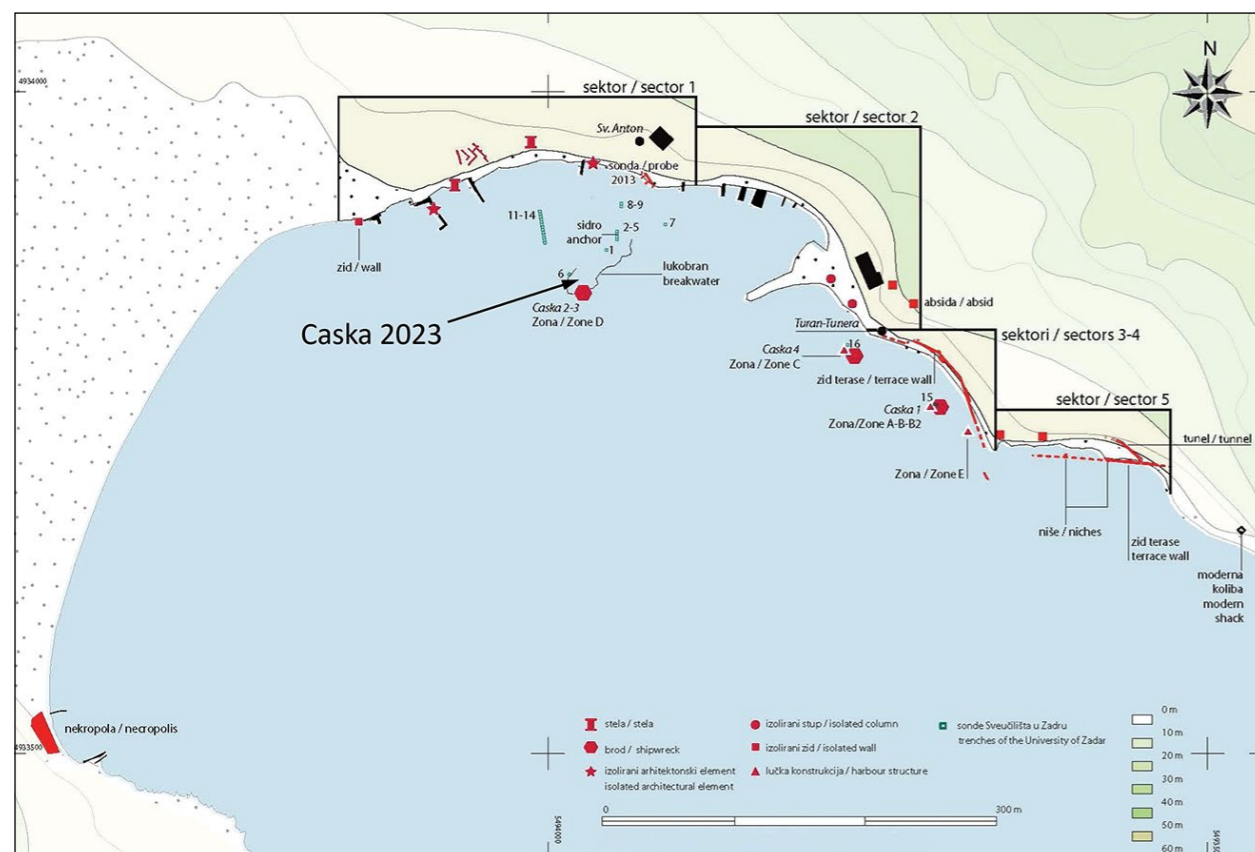
During the underwater research, the documentation of archaeological remains in the coastal zone was also carried out. On that occasion, it was determined that the remains of the large wall, partially preserved up to a height of about 5 m, are not traces of the city wall, but of a large retaining wall that protected the fertile earthen terrace from erosion. Another segment that was also investigated was the passable part of the large drainage channel, which turns into an underground tunnel with a height of over 2 m and a width of slightly more than 1 m, leading in the direction of the interior of the bay. The final part of the tunnel/channel is located in the bay called Mala Pošta, southeast of Tunera.

TIJEK I REZULTATI ISTRAŽIVANJA 2023.

Istraživanje u uvali Caski provedeno je u drugoj polovici mjeseca svibnja. Kao i tijekom prethodnih godina, financijsku podršku za njegov nastavak pružili su Ministarstvo kulture i medija RH i Grad Novalja. Ovogodišnje istraživanje odvijalo se na istočnom kraju sektora 1, u zoni D, u kojoj je tijekom prijašnjih godina istražen brod Caska 2 iz 1. st. po Kr. Tom prilikom u blizini broda uočeni su drveni piloni koji su nekada bili okomito zabi-

THE COURSE AND RESULTS OF THE 2023 RESEARCH

The research in the bay of Caska was conducted in the second half of May. As in previous years, financial support for its continuation was provided by the Ministry of Culture and Media of the Republic of Croatia and the Town of Novalja. This year's research took place at the eastern end of sector



Glavni arheološki nalazi u uvali, s označenom zonom istraživanja 2023 (crtež: V. Dumas, CNRS, Aix-Marseille University)
The main archaeological finds in the bay, with the 2023 research zone marked (drawing: V. Dumas, CNRS, Aix-Marseille University)





jeni u morski sediment te horizontalno položeni drveni elementi, koji su zajedno tvorili učvršćenje antičkog lukobrana, za što je iskorišten i brod Caska 2. Tijekom istraživanja 2012. i 2013. godine otkriveno ih je desetak, a njihov položaj upućivao je na potpornu strukturu koja se urušila prema zapadu. Ove godine odlučeno je da se istraživanje nastavi u toj zoni kako bi se utvrdile granice njezina prostiranja. Prije svega, utvrđen je položaj prije otkrivene drvene građe sa zapadne strane broda Caska 2. Kako je brod bio prekriven geotekstilom i kamenjem koje je ocrtavalo njegov oblik, pokazalo se relativno jednostavnim otkriti originalan položaj spomenute strukture te nad nju postaviti pomoćno metalno mrežište. Početna tri kvadrata, dimenzija 2 x 2 m svaki, uskoro su proširena za još sedam, a do kraja istraživanja njihov je sveukupni broj narastao na osamnaest.

Podmorski iskop započeo je uz sjeverozapadni dio broda Caska 2, u kojem su se nalazili ostatci ranije uočenog dijela strukture, tj. u kvadratima C10 i C11. Nakon uklanjanja geotekstila i čišćenja prostora s arheološkim nalazima, iskop je proširen u smjeru sjevera i juga. U sjevernom dijelu, pred pramcem broda Caska 2, u kvadratu B9 otkriven je u veliki komad drveta, najvećeg promjera oko 1 m i dužine oko 2 m. Njegova funkcija za sada je nepoznata, ali se pretpostavlja da je i on iskorišten za učvršćenje lukobrana. S njegove istočne strane potvrđeno je postojanje još jednog velikog komada drveta koji za sada nije istražen u cijelosti pa se nastavak iskopa na tom prostoru očekuje tijekom sljedeće godine. Iskop je tekao paralelno u obama smjerovima. U smjeru sjevera otkriven je niz ho-

1, in zone D, where the ship Caska 2 from the 1st century AD was explored during previous years. On that occasion, wooden poles were observed near the ship that were once driven vertically into the sea sediment as well as horizontally laid wooden elements, which together formed the reinforcement of the ancient breakwater, for which the ship Caska 2 was also used. During research in 2012 and 2013, about ten of these poles were found, and their position indicated a support structure that collapsed towards the west. This year, it was decided to continue the research in that zone in order to determine the limits of its spreading. First of all, the position of the previously discovered wooden structure on the western side of the ship Caska 2 was determined. As the ship was covered with geotextiles and stones that outlined its shape, it was relatively simple to discover the original position of the mentioned structure and place an auxiliary metal grid over it. The initial three squares, measuring 2 x 2 m each, were soon expanded by seven more, and by the end of the research, their total number had grown to eighteen.

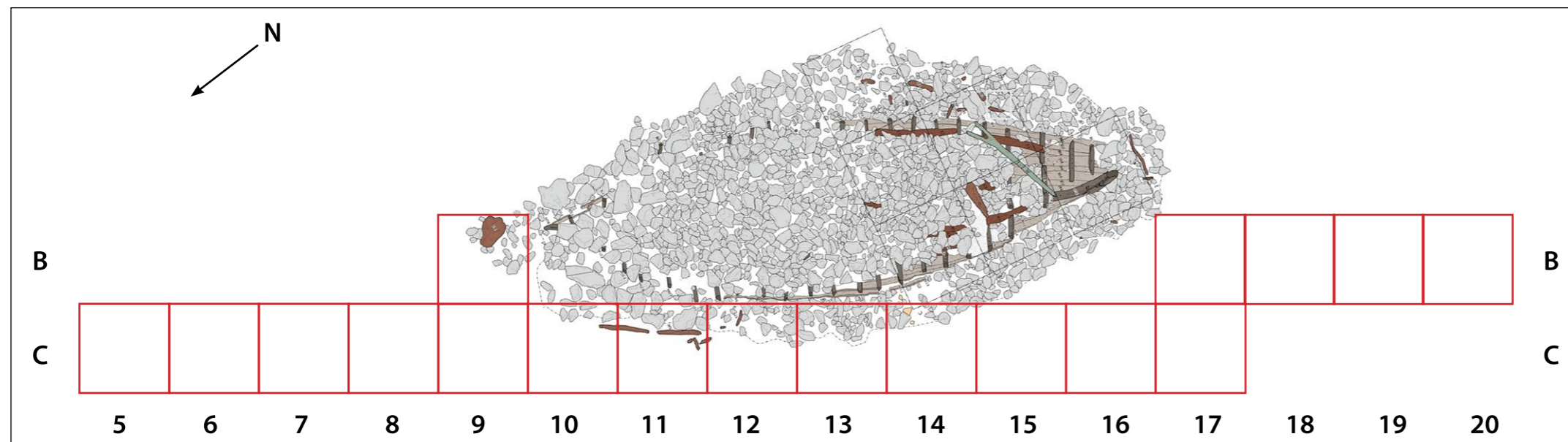
The underwater excavation began next to the northwestern part of the ship Caska 2, which contained the remains of the previously noticed part of the structure, i.e. in squares C10 and C11. After removing the geotextile and cleaning the area that yielded archaeological finds, the excavation was expanded in the northern and southern direction. In the northern part, in front of the bow of the ship Caska 2, in square B9, a large piece of wood was found, with the largest diameter of about 1 m and a length of about 2 m. Its function is currently un-

horizontalno položenih komada drveta, koji su činili istočni rub potporne strukture. S njihove zapadne strane nalaze se okomito zabijeni kolci i nešto deblji piloni. Duljina najdužeg horizontalnog elementa iznosi 276 cm. Uz lijevi bok broda nalazi se veća koncentracija okomito zabijenih kolaca i pilona, dok se u južnom dijelu oni prorjeđuju, ali im se povećava promjer. Južni dio konstrukcije izgleda poput ograde koja se sastoji od okomito zabijenih pilona i horizontalnih greda, nagnutih u smjeru sjevera. Čitav je prostor zasut kamenjem izrazito velikih dimenzija, za razliku od preostalog dijela iskopa, u kojem je kamenje daleko manje. Po površini tog dijela nalazišta, na prostoru promjera dvadesetak metara, pronalazi se velika količina ulomaka tegula, što upućuje na postojanje građevine natkrivene krovom, koja se nalazila na samom kraju lukobrana. Drugo moguće objašnjenje jest pokrov za hrpe soli izrađen od tegula, što je i danas slučaj u tradicionalnim solanama na Siciliji. Druga pretpostavka manje je vjerojatna s obzirom na položaj otkrivenih nalaza, ali je ne treba u potpunosti odbaciti.

Tijekom istraživanja dokumentirano je sveukupno 274 elementa koji su činili učvršćenje lukobrana, a sastoje se, kao što je već prije spomenuto, od vertikalno zabijenih kolaca i pilona te horizontalno položenih elemenata, promjera od 2 do 12,5 cm. Iako u iskopu nije pronađeno mnogo pokretnih arheoloških nalaza, nekoliko ručki amfora tipa Dressel 2-4 upućuje na kulturni sloj nastao krajem 1. st. pr. Kr. ili tijekom 1. st. po Kr. U kvadratu B20 pronađena je nešto veća koncentracija keramičkog materijala, među kojim se ističu jedno rav-

known, but it is assumed that it was also used to reinforce the breakwater. On its eastern side, the existence of another large piece of wood has been confirmed, which has not been explored in its entirety so far, so the continuation of excavations in that area is expected during the next year. The excavation proceeded parallel in both directions. To the north, a row of horizontally laid pieces of wood was discovered, which formed the eastern edge of the support structure. On their western side are vertically driven sticks and somewhat thicker poles. The length of the longest horizontal element is 276 cm. Along the port side of the ship there is a greater concentration of vertically driven sticks and poles, while in the southern part they are not as densely distributed, but their diameter is bigger. The southern part of the structure looks like a fence consisting of vertically driven poles and horizontal beams, sloping in the northern direction. The entire area is covered with extremely large stones, unlike the rest of the excavation area, where the stones are much smaller. On the surface of that part of the site, in an area with a diameter of about twenty meters, a number of fragments of tegulae were found, which suggests the presence of a roofed building, located at the very end of the breakwater. Another possible explanation might be the cover for the piles of salt made of tegulae, which is still the case in traditional salt pans in Sicily. The second assumption is less probable considering the position of the discovered findings, but it should not be completely rejected.

During the research, a total of 274 elements were documented that constituted the reinforcement of the breakwater, and they consist, as already mentioned, of vertically driven poles and pylons and horizontally laid elements, with a diameter of 2 to 12.5 cm. Although not many small archaeological finds were recovered in the excavation, several handles of Dressel type 2-4 amphorae suggest a cultural layer created at the end of the 1st century BC or during the 1st century AD. A slightly larger concentration of ceramic material was found in square B20, including a flat bottom of a large vessel or amphora, a fragment of the neck and a large piece of the belly, and a small discoid stopper of an amphora. All the elements of the wooden struc-



Položaj arheološke sonde 2023. (podloga: V. Dumas; crtež: I. Radić Rossi)
Location of the 2023 archaeological trench (background: V. Dumas; drawing: I. Radić Rossi)





no dno velike posude ili amfore, ulomak grla i veliki komad trbuha te mali diskoidni čep amfore. Svi elementi drvene strukture fotografski su i nacrtano dokumentirani, izmjereni te uneseni u inventarnu tablicu. Po završetku posla, istraženi dio nalazišta prekriven je geotekstilom i zasut sedimentom i kamenjem, ali je geotekstil ostao mjestimično vidljiv, kako bi se lakše uočile granice sonde i nastavilo istraživanje tijekom sljedeće godine.

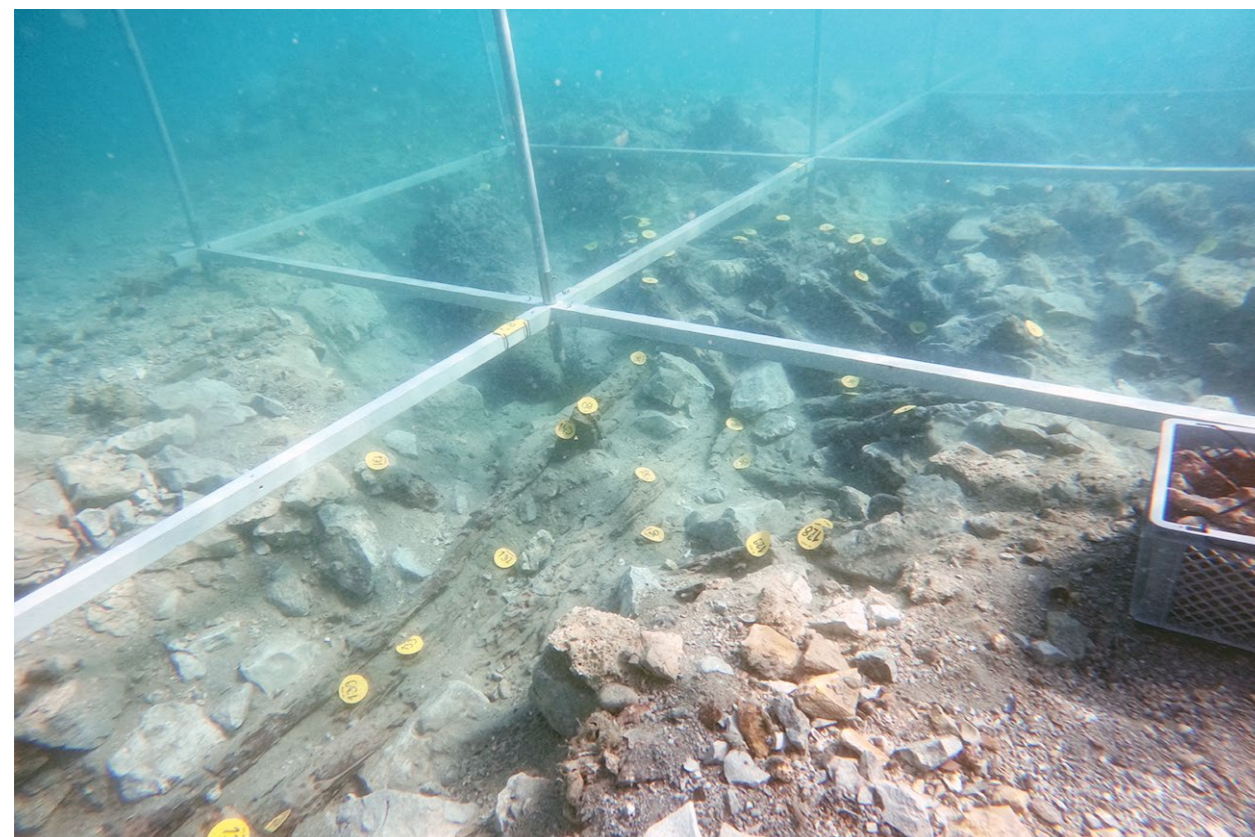
ZAKLJUČAK

Na čitavoj iskopnoj površini, sveukupne dužine 32 m, otkriveni su ostatci drvenih kolaca i pilona, okomito zabijenih u morsko dno te horizontalno postavljenih drvenih trupaca koji su, kao i brod Caska 2, iskorišteni za učvršćivanje antičkog lukobrana. Slične strukture učvršćene drvenom građom uočene su na nalazištu Trstenik u Kaštel-Sućurcu (Radić Rossi, Šuta 2023), u Resniku kod Trogira (Kamenjarin 2022) i u Sukošanu nedaleko od Zadra (Pešić 2019), na istraživanim nalazištima iz rimskog doba, koja leže na pjeskovito-muljevitim terenima. Takvih struktura bilo je vjerojatno i daleko više, ali one za sada nisu istražene. S obzirom na to da su

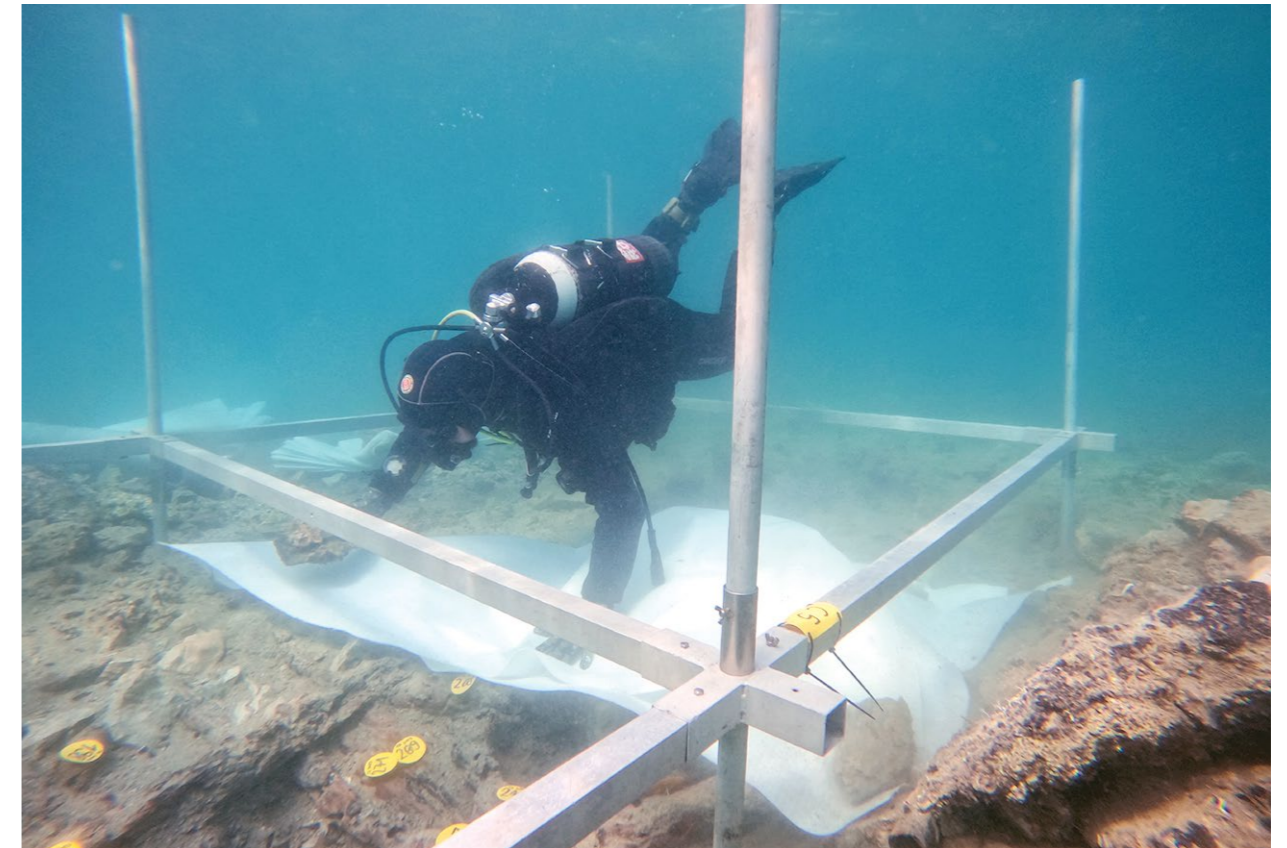
structure are photographically and schematically documented, measured and entered in the inventory table. At the end of the work, the investigated part of the site was covered with geotextile and filled with sediment and stones, but the geotextile remained visible in places, in order to make it easier to see the boundaries of the trench and to continue the research in the next year.

CONCLUSION

The remains of wooden sticks and poles, driven vertically into the seabed and horizontally placed wooden logs, which, like the ship Caska 2, were used to reinforce the ancient breakwater, were discovered in the entire excavation area, with a total length of 32 m. Similar structures reinforced with timber were observed at the site of Trstenik in Kaštel Sućurac (Radić Rossi, Šuta 2023), in Resnik near Trogir (Kamenjarin 2022) and in Sukošan in the vicinity of Zadar (Pešić 2019), on investigated sites from the Roman era, which lie on sandy-muddy terrains. There were probably far more such structures, but they have not been investigated so far. Given that the structures are well preserved be-



... Pogled sa sjevera u arheološku sondu (foto: I. Radić Rossi)
... View of the archaeological trench from the north (photo: I. Radić Rossi)



... Privremena zaštita nalaza geotekstilom (foto: I. Radić Rossi)
... Temporary protection of finds with geotextile (photo: I. Radić Rossi)

strukture odlično očuvane jer se nalaze udaljene od obale pa nisu izravno ugrožene građevinskim radovima, podmorski dio nalazišta u Caski prikladan je za arheološko istraživanje. Stoga je radove na lukobranu u Caski potrebno nastaviti tijekom narednih godina kako bi se proučio sistem slaganja drvene građe, korišten za učvršćivanje priobalnih struktura u vrijeme Rimskog Carstva.

cause they are located far from the coast and are not directly threatened by construction works, the underwater part of the site in Caska is suitable for archaeological research. Therefore, the work on the breakwater in Caska should continue in the coming years in order to study the system of stacking timber, used to reinforce coastal structures during the Roman Empire.

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