Post medieval wreck in the bay of Sv. Nikola, island of Pag

Dino Taras – Ines Šelendić Taras

Abstract: The poster shows the results of a short investigation of a modern shipwreck in the bay of Sv. Nikola on the island of Pag. During the research the entire ship structure was excavated and subsequently documented, and a 3D model was created with the corresponding ortho image and drawing. The article provides basic data for the ship's construction and descriptions of relevant parts of its structure. Radiocarbon analysis of wood fragments was also carried out dating the sampled element of the hull most probably to 18th century. Furthermore, an overview of possible modern types of ships to which the ship structure from the site would belong is presented.

Keywords: Pag, Trabacollo, shipwreck, postmedieval

Geographical and historical context

The island of Pag is situated on the eastern Adriatic coast, between the Velebit channel and Kvarnerić (part of the Kvarner bay). It is surrounded by Vir, Olib, and Rab islands, and stretches parallel to the Velebit mountain range sitting across the channel. The surface area of 284.56 km^2 and length of 58.25 km makes it one of the largest Croatian islands (Faričić 2003: 47). The shipwreck was discovered in the bay of Sv. Nikola (Mikula – local name) situated on the eastern end of the gulf of Pag, near the strait of Paška vrata, as the last bay still inside gulf of Pag (Fig. 1, left side).

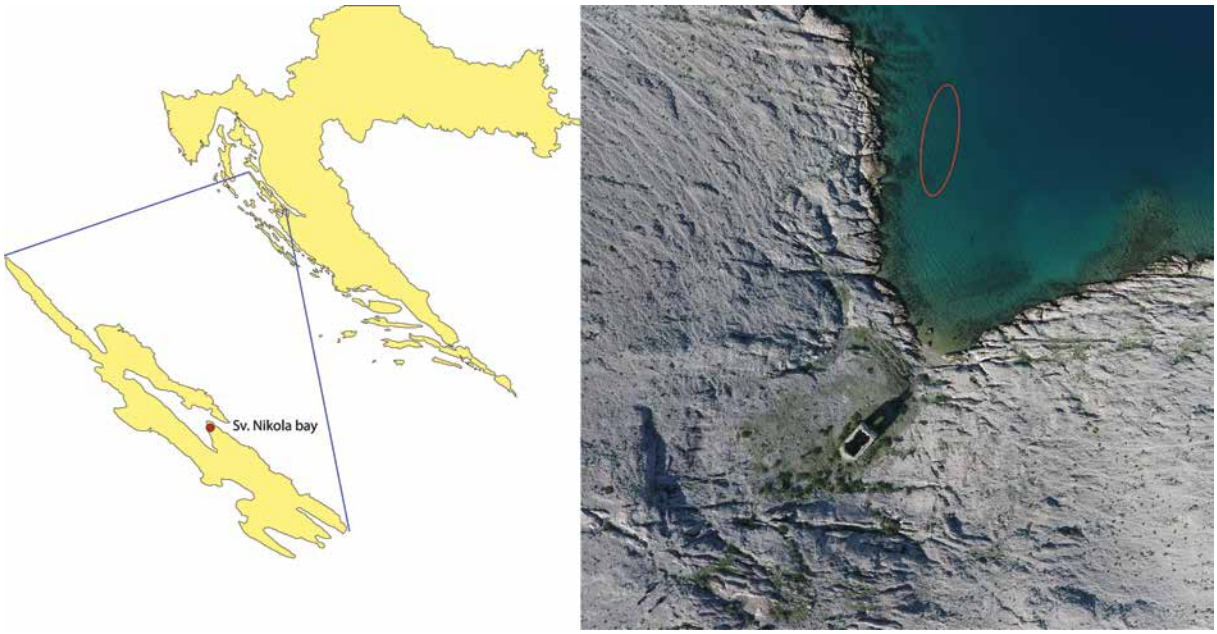

Fig. 1 Location of Pag island and the bay of Sv. Nikola with marked position of the wreck in the bay, with visible submerged remains of a jetty (drawing: D. Taras; photo: R. Maršić)

The bay shares its name with the remains of a small church – Sv. Nikola *in scalniza* – that is sitting on the slope above the beach. The church dates to the middle of 14th century, and can be compared to similar churches on Pag. The earliest mention of this building dates back to 1433 in connection with the communal allocation of lamp oil, and as a place where some type of tax (possibly customs duty?) was paid on the import of wine. Last mention of the church dates

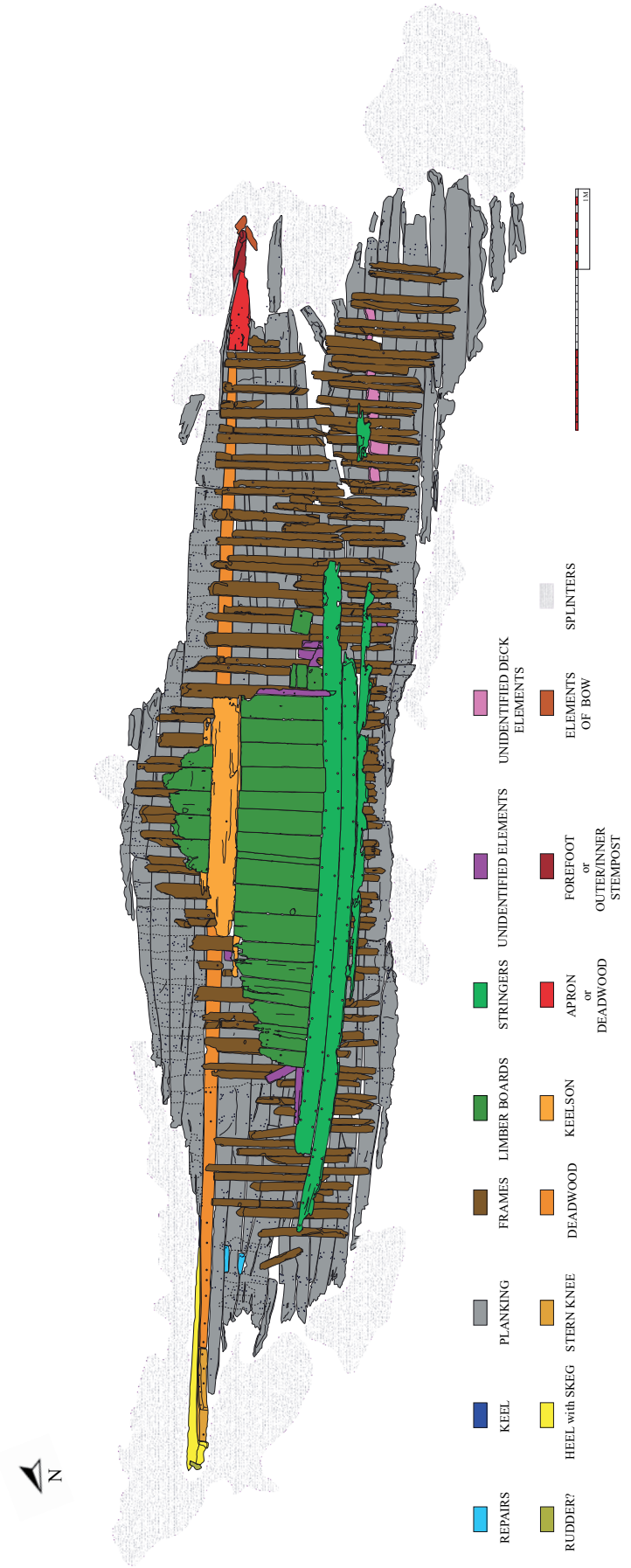

Fig. 2 Drawing of the site (drawing: D. Taras, I. Šelendić)

back to 1823, when it was referenced as *dirocata* (dilapidated) (Hilje 2011: 155). Some interventions in the landscape are visible on the southern slope of the bay, facilitating easier access to the sea. The remains of a large jetty are visible beneath the surface of the sea on the northern side of the bay. This jetty protected the vessels in the small bay from north tramontane winds. A bit deeper towards the southwest at a depth of 4-5 m are the remains of the shipwreck that is discussed in this article. (Fig. 1, right side) The surrounding seabed is littered with post medieval ceramic finds dating to 17th century and beyond, ranging from luxury ceramic vessels made for serving a certain kind of food, ceramic forms which were involved in sugar production, even finds like *piedo di gallo*, which were used for separation of clay vessels in the furnace, in ceramics production.

2020 excavation

Almost parallel to the southern slope of the bay, at a depth between 4 and 5 m lie the remains of a ship discovered at the end of the 2019 research campaign. The objective of the 2020 excavation was, if circumstances allowed, to uncover the entire ship's construction. A grid comprising 17 quadrants was set following the grid established during the 2019 campaign. After cleaning the construction, a 3D model was processed and an orthoimage of the site was extracted. Only the basic measurements and descriptions of construction elements were recorded due to a relatively short research campaign, also taking into consideration the ship's dimensions. A small number of finds were recovered from the site: a few ceramic fragments and metal concretions, mostly nails. Following the end of the excavation, the entire site was covered, and the seabed was returned to its original state.

Ships' construction (Fig. 2)

The remains in the bay Sv. Nikola on the island of Pag span the length of 16 m, while the breadth measures 3.6 m amidships. The shipwreck rests on its keel, inclined to the better-preserved starboard side. The sided dimension of the upper surface of the keel measures from 4 cm to 19.5 cm, while its moulded dimension measures from 4 cm to 28 cm, where it was possible to measure. The outer planking consists of at least 54 strakes on both the port side (almost completely destroyed) and starboard side (partially destroyed). The planking width varies between 10 cm and 40 cm depending on the position of the plank. Some of the planks show butt scarfs. Two repairs have been identified in the planking system – RP1 and RP2. RP1 is an almost rectangular piece of planking, while RP2 is a triangular piece of planking. Both repairs are adjacent to the imprint of the frame F162, in the stern part of the ship (Fig. 3).

The transverse section includes a frame construction pattern which varies throughout the wreck, alternating between double floor timbers and a wider (double-sided) floor timber. The framing is comprised of 164 elements *in situ* and one displaced element, while the imprints of eight other missing frame elements are visible on the planking. At this stage of the research 32 groups were distinguished within the framing elements. In the keel area (amidships), the pattern is noticed in two narrow frames and one wider frame alternating. In fore and aft part of the ship, the framing elements patterns are less discernible. More research campaigns are required to take place in order to fully define the framing system. Furthermore, ceiling planks and the keelson need to be removed in order to fully study and comprehend the framing system (Fig. 2).

It is possible to establish the position of the stem and stern, as the wreck is oriented in the northeast – southwest direction with its stern on the northeastern side. The sternpost (Fig. 3) consists of the heel (K1) with triangle extension (skeg) which protected the rudder (Fig. 3). Upward from the skeg along the heel, a possible piece of rudder with a circular perforation is preserved (K3). Above the heel lies a piece of wood which might be characterized as a stern knee or deadwood (K4). Sitting atop the aft end of the keel and fore part of the heel is a longitudinal element which corresponds to deadwood (K5).

Due to a short research campaign, the bow (Fig. 4) was not completely excavated and defined. It consists of three elements: a triangular element, level with the frames, which might be considered as an apron or deadwood (K6), and two wooden elements which can currently be defined as parts of the stem (K7, K9). Disconnected from the bow end are two damaged wooden elements, which may belong to the bow construction.

The amidships area contains several longitudinal and transverse elements (Fig. 5). A longitudinal element that resembles a maststep (KS1) measuring 3.04 m in length (6.15 cm molded, 34-36 cm sided), sits above the keel line. Longitudinal timbers (KS2, KS3) were recorded next to the maststep, sitting on top of the frames, supporting the limber

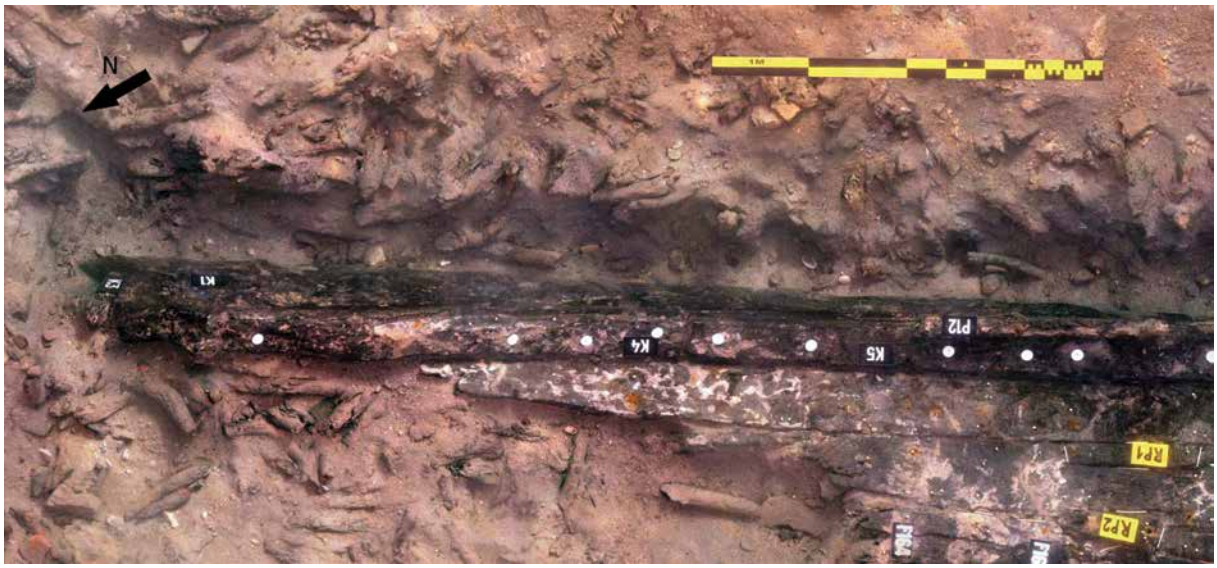

Fig. 3 Stern area with remains of sternpost and repairs (photo: D. Taras)

Fig. 4 Bow area (photo: D. Taras)

boards. Perpendicular to the keelson are limber boards extending to the port and starboard side (C1–C22, C28–C32) with keelson ends sitting on elements KS2 and KS3. These limber boards are not fastened to the construction. The width of the boards measures from 22.4 cm (C13) to 36 cm (C2). Their thickness ranges from 2.5 cm to 5 cm. Length of these limber boards measures from 102 cm to 113 cm. Furthermore, in the forward part of the amidships area three limber boards are visible, which are parallel to the keelson, on the starboard part of amidships (C26, C27 and a probably dislocated C25). These are much smaller than the aforementioned limber boards, and are divided from them by an unidentified transverse element (UM1).

Longitudinal elements adjoining the limber boards on the starboard side represent the remains of three stringers boards (C23–C24, C33). These measure 750 cm and 755 cm in length and 22.5 cm and 18 cm in width, respectively. Their thickness measures from 3.7 cm to 4.04 cm. An unidentified longitudinal element next to the stringer C23 sits atop the frames and beneath the limber boards, resembling (in function) the KS2 and KS3 elements adjoining the keelson. In the forward part of the amidships area a small, fourth piece of ceiling board (C34) is preserved with several unidentified constructive elements (UM5–UM11) (Fig. 6). These obliquely positioned boards were found wedged between the frames F4 and F20 on the starboard side. Some of these elements need to be excavated completely and document in detail in order to define them properly.

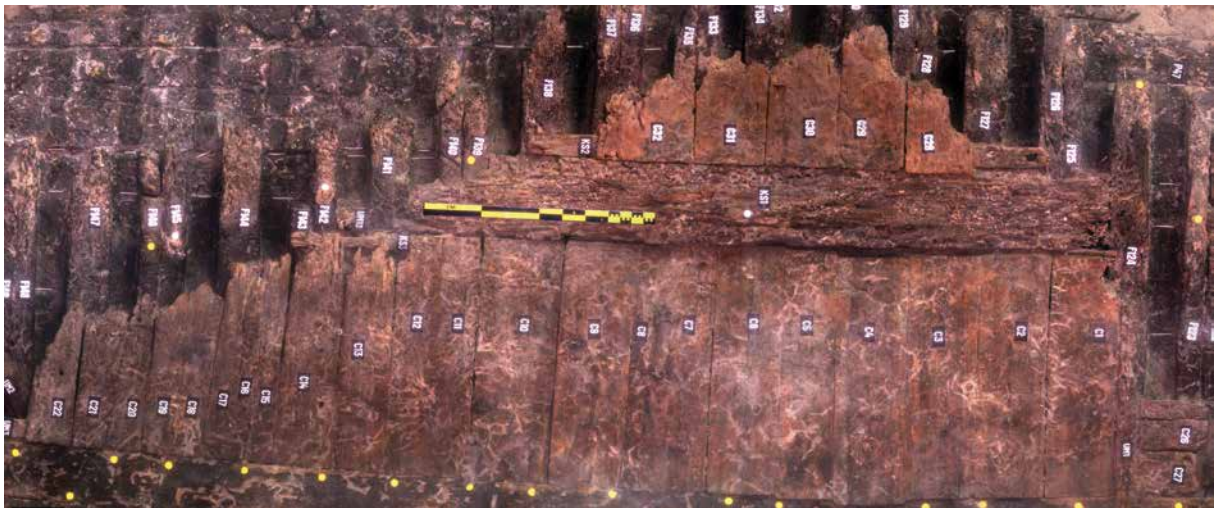

Fig. 5 Amidships area (photo: D. Taras)

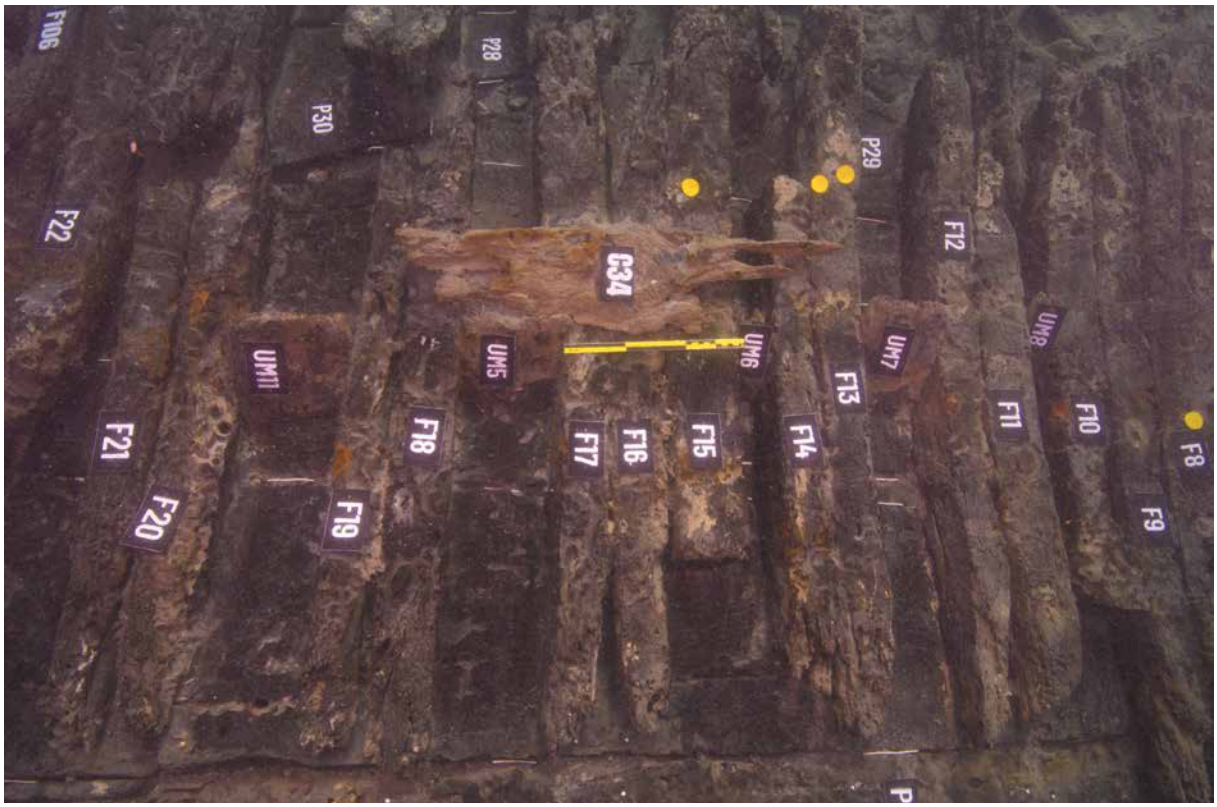

Fig. 6 Unidentified constructive elements (UM5-UM11) (photo: D. Taras)

An area filled with large wooden splinters (most dense in the bow and stern area) surrounds the shipwreck. Those wooden splinters were also recovered during the removal of sediment from the ship's constructive elements. They may have been the cargo left on board as the ship sank or was scuttled. Also, it could have served as a sort of dunnage for the actual cargo (Figs 2–4).

Fastenings were noted and marked on the site. They were grouped in three categories: smaller fastenings connecting planking to the framing system (noted on both systems), larger fastenings detected on the keel, and larger fastenings detected on the ceiling boards. Due to the short campaign, a lot of data is missing, which will be recorded in possible subsequent campaigns.

Radiocarbon dating

One frame and one round wooden splinter were lifted from the site and sent to Radiochronology laboratory of Centre de'etudes Nordiques, Université Laval. In summary, the dates calibrated with IntCal20:

Round wooden splinter fragment is dated to 125 +/- 15 BP, with the following intervals: 1686–1733 (23%); 1805–1928 (72.5%) cal. AD;

Frame from the ship's construction is dated to 175 +/- 15 BP with the following intervals: 1665–1690 (18.1%); 1728–1785 (48,1%); 1794–1809 (8.8%); 1922–present (20.4%) cal. AD.

Combined dates (an average weight) are within following intervals: 150 +/- 11 = 1673–1697 (16.3%); 1723–1778 (28.8%); 1797–1814 (12.1%); 1837–1880 (14.3%); 1913–1944 (24%) cal. AD. These results point to the fact that the wood used to form the ship's frames could most likely be dated to the middle of 18th century, while the round wooden splinter is from a later date, that of 19th century.

Possible ship typology

Although the excavation was not finished, and not all the constructive details have been noted and documented, some of the characteristics of the sunk or scuttled boat in the bay of Sv. Nikola can be extracted from the available data. This was a vessel of at least 16 m long, with breadth of at least 7 m. In the analysis of first volume of Croatian Maritime Regesta there is a list of different types of ships and boats that sailed the Adriatic in the 18th century (Z. Podhraški Čižmek, N-M Brandl 2021). Out of 6479 vessels divided into 55 types, only few of them match the basic dimensions of our wreck: Checcia (length: 12–20 m, breadth: 4–7 m), Nava (length: 16–18 m, breadth: 6–8 m), Pielego / Pieleghetto (length: 11–28 m, breadth: up to 6 m), Tartana (length: 13–18 m, breadth: 5–7.5 m) and Trabaccolo (length: 12–30 m, breadth: 3–8m). According to the representation most common type in the first volume of the Regesta is Trabaccolo (1472 vessels, 22.72%), then the Pielego (1360 vessels, 20.99%), Tartana (870 vessels, 13.43%), while Nava (249 kom, 3.84%) i Checcia (55 kom, 0.85%) are rare occurrences (Z. Podhraški Čižmek, N-M Brandl 2021: 96, Table 1).

Trabaccolo (Trabakul, cro) is most common type of vessel in the first volume of the Regesta, and was built in a variety of sizes. Its' deadweight tonnage (DWT) ranges from 14 T to 200 T, height was up to 1.5 m, with a crew of 3–8 seamen. Common version had two masts with lugsails, was powered up to four oars and had a ships' boat in tow. Due to its characteristic Trabaccolo was used for trade and fishing purposes, and was a favourite trading ship in the Adriatic in the 18th century (Z. Podhraški Čižmek, N-M Brandl 2021: 105).

Pielego (Pelig, cro) is the second most common type of trading vessel in the first volume of the Regesta. Its DWT ranges from 15 T to 100T, height was up to 2.5 m with a crew of 3–6 seamen. Common version had two or three masts with lugsails and gaffs and was powered by up to four oars. Due to its characteristics, it had a lot in common with Trabaccolo, which was visible in its construction. Alongside trading it was also used for fishing, like the Trabaccolo (Z. Podhraški Čižmek, N-M Brandl 2021: 106).

Tartana is the third most common type of vessel in the first volume of the Regesta. It was also built in different dimensions, so the DWT ranged from 10T to 300 T with a crew of 4–20 seamen. Common version had 1–3 masts with lateen, square or lugsails, depending on the wind. This kind of versatility in the choice of sails deending on the wind mad this type of ship very agile. It was used for cargo and passengers transport, but also for fishing. It had the option of mounting 6–14 cannons, as a warship (Z. Podhraški Čižmek, N-M Brandl 2021: 107).

Nava is one of the largest sailing ships of its time, with a DWT that ranges from 130 T to 800 T (for Naves from Pelješac DWT was 130–330 T) with a crew of over 20 seamen. It had 2–4 masts with square and lateen sail. This type of ship sailed and traded on the Mediterranean, even up to the northern seas. Aside from its role as a trading ship, Nava was also known as a warship (Z. Podhraški Čižmek, N-M Brandl 2021: 110).

Cecchia (Ćeća cro.) was a large sailing ship with a DWT ranging from 60 T to 230 T, and a crew of up to 16 seamen. It had 2–3 masts with a square, lateen or gaff sail, and was used as a trading vessel on the Adriatic, and Mediterranean also. In the registers it was often also identified as a Brigantine, due to its construction (Z. Podhraški Čižmek, N-M Brandl 2021: 114).

Concluding remarks

Although it is too early for definitive conclusions about the sunken or scuttled ship in the bay of Sv. Nikola, it could very well belong to a Trabaccolo, Pielego or a Tartan type of ship, with regards to its dimensions and the percentage of occurrences of aforementioned vessels in the first volume of the Registry. The short excavation campaign just uncovered the ships construction, and barely allowed a time to do the basic documentation and photogrammetry. It would seem that the cargo ha**s** been recovered after the wrecking, if the ship indeed was wrecked. Remains of possible cargo, or some sort of dunnage littered the shipwreck site around the ships construction. Nevertheless, the ship most probably belonged to the trabacollo class of vessel, as it was most common and favoured type of ship in 18th century, as mentioned above. It was a ship built for fishing and trade purposes. For the complete analysis of this site and the ship that sunk or was scuttled there a longer and more extensive archaeological research campaign is needed, as well as research in the state archives and historical sources concerning the Pag island.

References

Faričić, J. 2003. Otok Pag na starim kartografskim prikazima. *Geoadria* 8/1: 47–126.

Hilje, E. 2011. Spomenici povijesnog graditeljstva na otoku Pagu. In V. Skračić (ed.), *Toponimija otoka Paga*. Zadar, Sveučilište u Zadru – Centar za onomastička istraživanja: 105–192.

Podharški Čižmek, Z., Brandl, N.-M. 2021. Names and characteristics of 18th century Croatian ships in the Adriatic Sea from the Croatian Maritime Regesta v. I. *Kroatologija* 12: 91–145.