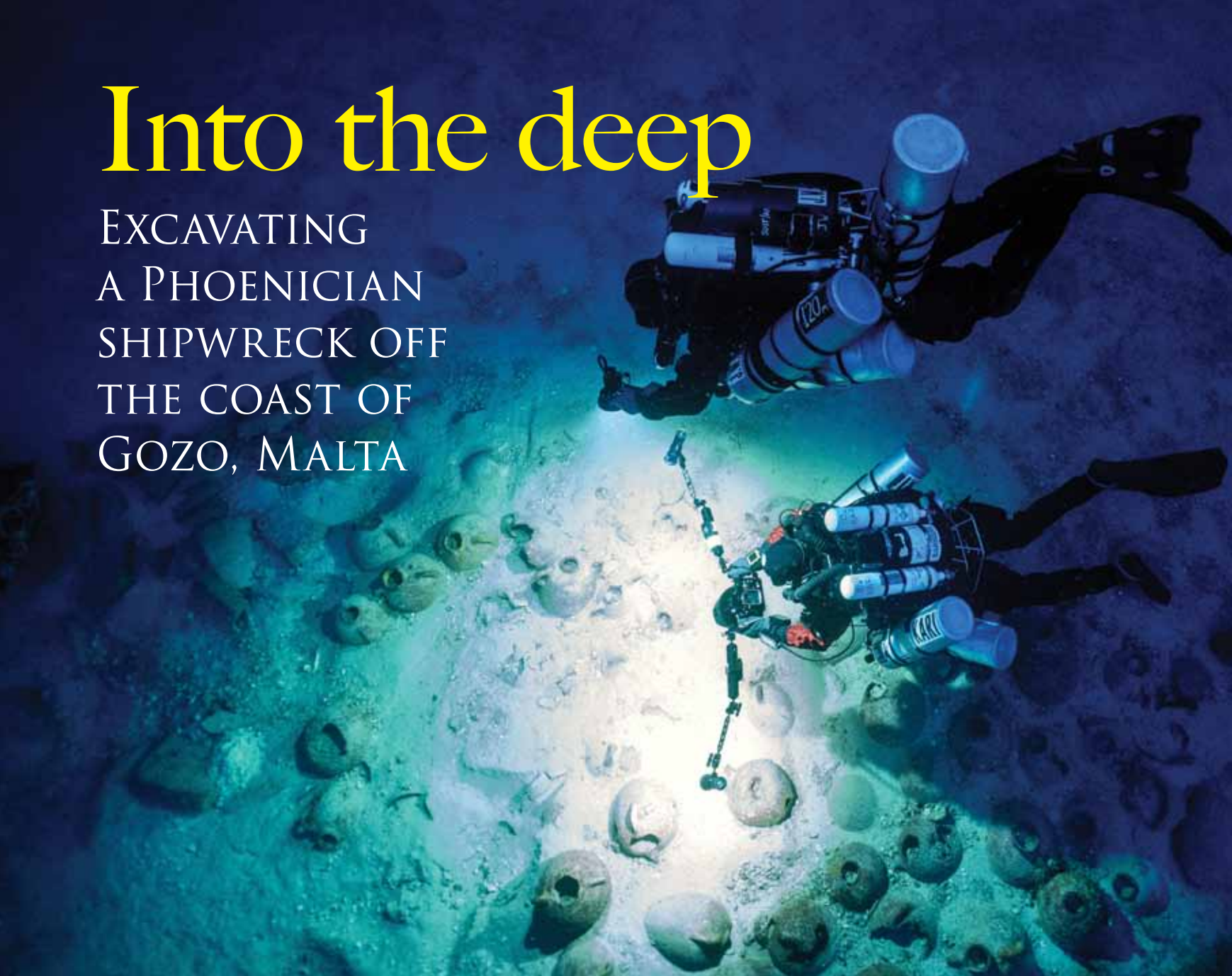


# Into the deep

## EXCAVATING A PHOENICIAN SHIPWRECK OFF THE COAST OF GOZO, MALTA



The Phoenicians occupied the coast of the Levant for over 1,000 years, but knowledge of their trade network and practices remains elusive. In 2007, an ancient wreck containing a large cache of ceramic containers was discovered off Malta. This ship proved to be one of only a handful of known Phoenician vessels. Since 2014, further exploration of the site has yielded some very exciting results. Project Director **Timmy Gambin** and **Lucy Woods** reveal some of its mysteries, and the challenges of excavating a shipwreck 110m below sea level.

**I**n 2007, the French National Science Foundation conducted a systematic survey of the seabed on the fringes of Xlendi Bay in Gozo, and detected an anomaly that required further investigation. Much to their excitement, the anomaly proved to be the remnants of an archaic Phoenician shipwreck dating to the 7th century BC, with the upper layer of cargo lying exposed on the seabed. Dozens of

amphorae were clearly visible and present in various shapes and sizes, but excavation presented a serious challenge: at a depth of 110m, divers could spend just a few minutes at the site before returning to the surface. Most diveable shipwrecks lie at around 50m below sea level or in even shallower waters.

Given the delicate nature of the site, for the first three years after its discovery remote-sensing surveys were employed

in order to map the shipwreck without collecting any physical objects. In 2014, a team from the University of Malta participated in a project to produce a 3D photogrammetric image of the site – a process involving digitally overlapping multiple 2D images and turning them into detailed 3D models of the site (see ‘Further information’ box on p.34). Further work included the use of a manned submersible in order to begin object recovery. However,

PHOTO: D Gration/University of Malta



belongs to the larger or smaller category of trading vessel.

Most recently, a team of highly trained technical divers led by maritime archaeologist, Dr Timmy Gambin, from the Department of Classics and Archaeology at the University of Malta, descended to explore the site first hand. Their aim was to recover some intact artefacts (including examples of amphorae) in the hope of revealing new information about early Phoenician trade practices.

## Skilled maritime traders

Much of what we know about the Phoenicians stems from Greek and Latin authors, Assyrian records, and the Hebrew Bible. In his epic poem *The Odyssey*, Homer talks of the Phoenicians as 'famous sailors, but greedy rogues – with a whole cargo of trinkets in their black ship'. Perhaps there is some artistic licence here, but the Phoenicians were certainly regarded as successful tradespeople who enjoyed economic prosperity for several centuries.

From what we can tell, the Phoenicians were a confederation of maritime traders rather than a defined country. They occupied the mountainous, narrow strip of land that stretched across the coast of the Levant in present-day Lebanon and south-western Syria. Due to the topography of the landscape, economic prosperity was most likely

to be attained through maritime trade. Thus they became some of the greatest sailors in the ancient world – a significant accolade given the challenges of sailing an ancient ship. The Phoenicians used no navigational instruments and so relied on features of the landscape and the stars to lead them to their destination. In fact, the Phoenicians have been credited with inventing the concept of astronomical navigation.

It is highly likely that the Phoenicians ventured beyond the Pillars of Hercules in search of trading partners. Indeed, it has been suggested that they may have sailed as far as ancient Britain seeking tin from the Cornish mines. They were always on the hunt for new products and markets. To date, Phoenician trading patterns remain ▶

**BELOW** The upper layer of cargo is exposed on the seabed. This mostly contains storage vessels, including this western Phoenician amphora that now provides a bijou residence for a rockfish.

**ABOVE** The discovery of a shipwreck off the coast of Gozo in 2007 provided a rare opportunity to study a Phoenician vessel. Its depth means that divers can only operate safely for a few minutes; here team members are filming high-definition footage in order to create a 3D reconstruction of the wreck.

the expedition was cut short due to bad weather, and the challenges involved with securing funding meant it would be two years until further studies could be made and object recovery continue.

The initial phases of the project revealed that the shipwreck dates to the first quarter of the 7th century BC. We know from ancient sources that the Phoenicians used three types of ship: a large warship with a square sail and two banks of oars, and two types of trade vessel. The first type was similar in design to the warship, but with a deep hull that could store up to 450 tonnes of cargo. The other trade ship was much smaller, with only one bank of oars, and was designed for short trips and coastal fishing. We can estimate from the wreck that our vessel was around 15m long. However, as yet, there is no comparable data to verify whether it



PHOTOS: University of Malta/GROPLAN Project



**LEFT** A western Phoenician amphora lying on the seabed.

**BELOW LEFT** Using a manned submersible with its three synchronised cameras helped to create a high-resolution survey of the wreck site.



PHOTOS: University of Malta/GROPLAN Project

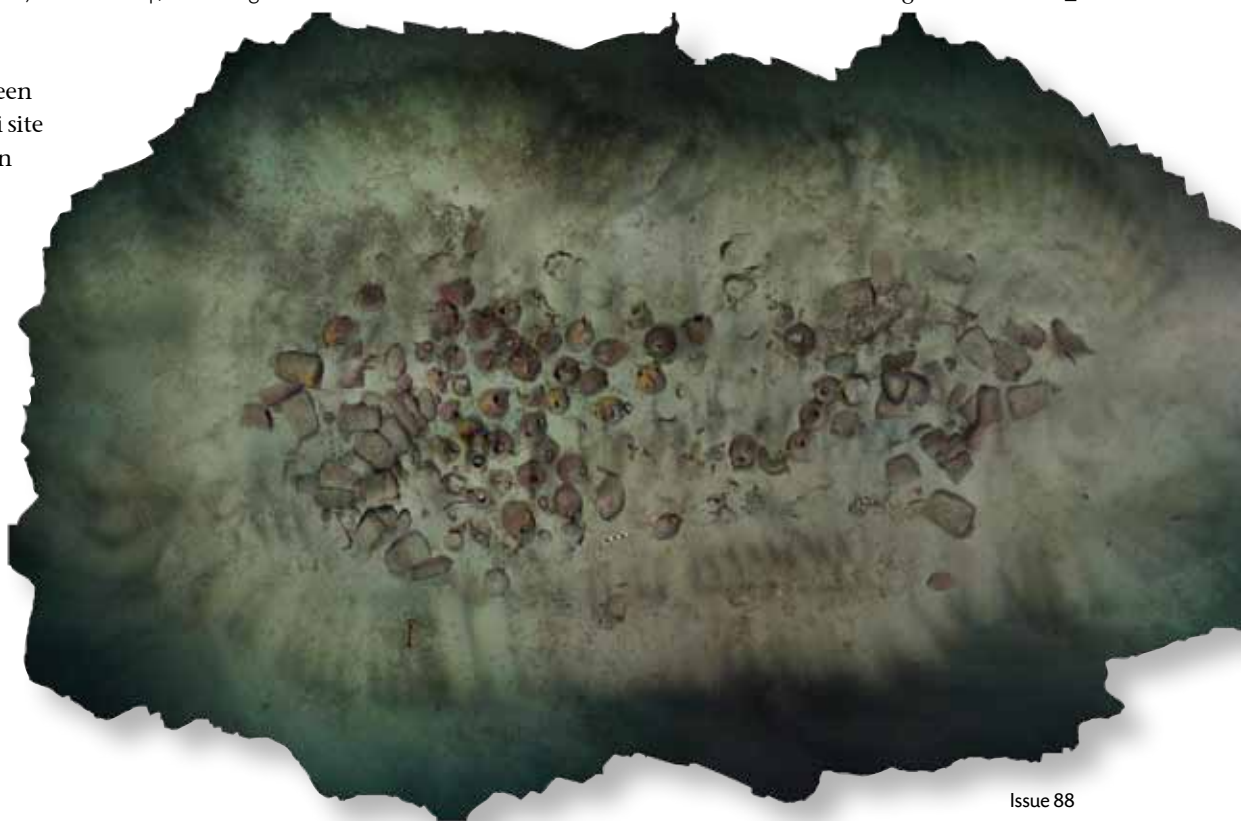
a complex puzzle, as much of what we know (and can guess at) comes to us from the archaeological record on land, and is fragmented at best. As yet, we do not know how exactly the Phoenicians loaded their ships, what cargoes filled their holds, or the routes they sailed.

Although hundreds of Roman shipwrecks are known and have been studied, the discovery of the Xlendi site is just the eighth archaic Phoenician shipwreck to be located. The importance of the Xlendi site is not just in its excellent state of preservation, but also because of its mixed cargo – the first of its kind to be found intact.

## A shipwreck awaits

The deep waters of the Xlendi shipwreck have, on the surface, thrown up many challenges, making progress on the systematic collection of the archaeological data slow. However, it has also presented an opportunity to test various tools

**BELOW** The opportunity to use a manned submersible helped us to build up a 3D model of the shipwreck. Although the timber elements are no longer visible on the surface of the seabed, the cargo gives a sense of the size and shape of the ship, as this image taken from the model shows.



and technologies for deep-sea underwater archaeology, contributing to the practice of maritime archaeology as a whole.

Like many other archaic shipwrecks, the Xlendi wreck is identified by the presence of its cargo rather than the ship itself, which has most likely been partly eroded over time by the marine environment. It is reasonable to assume that, buried beneath the sediment, parts of the ship's structure, such as wooden elements of the hull, still survive intact.

In the 2014 season, the team had the opportunity to use a REMORA 2000 research submarine, owned by the French underwater exploration firm, COMEX. The two-person submarine carries an array of instruments and sensors, including three synchronised cameras that provided the basis for the 3D photogrammetric images.

These images have revealed how well the site is preserved, and also that the bulk of the cargo remains buried in the sediment. It has also allowed archaeologists to create a comprehensive map of this part of the seabed, as part of a wider survey of the area that we hope will lead to further protection of Malta's underwater cultural heritage.

IMAGE: University of Malta/K. Hyttinen



**LEFT** Members of the expedition prepare to recover a freshly excavated group of jars for study on dry land.

to bake bread. Weighing 32kg, this stone is carved from volcanic rock sourced from the Italian island of Pantelleria, which lies within sight of Tunisia to the south of Sicily.

Last year, the team was able to recover six complete ceramic objects, as well as numerous ceramic fragments. These containers included further examples of the Tyrrhenian amphorae, a small urn, and a flat-bottomed amphora that has yet to be identified. The fragments have been studied and, when restored, will form two complete western Phoenician amphorae. After their recovery, photogrammetric models were produced of each object.

Evidence collected so far reveals the Phoenicians were sailing through various parts of the central Mediterranean, picking up goods that they clearly believed stood a good chance of turning a profit once they had been shipped elsewhere. The top layer of cargo consists of ceramic containers that were probably transporting everyday consumables such as wine and olive oil. Moreover, the inclusion of grinding stones – a common domestic appliance in everyday use in the ancient world – confirms the diversity of the cargo.

The presence of what appear to be Gozitan ceramics on board suggests that the ship was leaving the islands when she ▶

In order to get a better understanding of what the shipwreck can tell us about Phoenician trading practices, Dr Gambin needed to get a better look at the objects themselves. The opportunity to recover such objects finally came in 2016.

## Into the deep

The culmination of almost a decade of research was realised in the 2016 and 2017 seasons, through exploration of the shipwreck by diving archaeologists and their recovery of 12 objects, some of which were previously unknown in the archaeological record. Of particular interest are a small number of urns that appear to be of local (Gozitan) production. Seemingly a hybrid of local and imported styles, samples from these objects have been sent for various analyses, including DNA, lipid, and thin section. Results from these tests should shed light not only on the provenance of the urns, but also on what they contained.

In order to recover the samples, it was essential that the dive time be maximised. With a direct route to the shipwreck, expert divers could descend in 8 minutes and spend 12 minutes at the site. It would then take a further 2 hours and 30 minutes to transport the findings back to the surface.

To create a direct route, a one-tonne mooring block was sourced and rigged as close to the site as was practical, so as to anchor the dive ship. This was then secured using a mooring line, chain, and shackles. Due to the dangerous nature of the dive, only a few highly disciplined

experts had access to the site. Hyperbaric doctors specialising in the sorts of disorders that can afflict divers were on board the dive vessel, and there was always an emergency fast RIB (Rigid Inflatable Boat) on standby.

Given the limited diving time, it was not possible to record the site manually. Instead, a number of experimental techniques were deployed – all visible objects were digitally labelled during the 2014 photogrammetric survey. The survey had already revealed that the ship was carrying at least seven types of ceramic container, including amphorae from the Tyrrhenian region of Italy and others from western Sicily.

A saddle quern, one of at least 30 present at the shipwreck site, was also recovered. Such devices were used for processing food, particularly grinding grain into flour

**BELOW** A rare urn, which may have been produced locally, seen just before it was recovered by the team. Careful study of such pots should help reveal where they were produced and what they contained.



# 66 THE XLENDI WRECK IS ONLY THE EIGHTH ARCHAIC PHOENICIAN SHIP TO BE LOCATED.

sank. This substantiates the argument that the Maltese islands were part of the Phoenician maritime milieu and trading network, a theory that was previously backed solely by terrestrial evidence.

Whether the ship coasted from port to port, picking up its varied cargo along the way, or whether it stopped at one or more transshipment centres is as yet impossible to prove. However, we can state with certainty that the cargo of this fully laden ship was varied not only in content but

**BELOW** Looking down over the wreck, as the dive team excavate a corner of the former Phoenician vessel.

also in provenance. It is also clear that the ship was leaving Gozo on its way to its next trading destination. At present, our working hypothesis is that the ship was heading towards the North African coast.

## Future research

Dr Gambin and his team have now systematically recorded all of the objects that remain visible on the seabed, but we can only guess at what other secrets could be hidden beneath the layers of sediment. Only excavation of the ship's

lower levels will reveal the full extent of this ship's mysteries. It is expected that the systematic excavation of the site will take at least a further five seasons to complete, and various funding avenues are currently being explored.

Some of the recovered artefacts have already featured as part of an exhibition of the shipwreck at the European Parliament in Brussels. Later in 2018, an exhibition will be held in Gozo while a home is sought for a permanent display dedicated to this truly unique shipwreck. ■

### FURTHER INFORMATION

Since 2007, this project has been directed and supported by the University of Malta. The 2007-2010 seasons were supported by Heritage Malta and the AURORA Trust Foundation. The 2014 season was supported by the National Science Foundation of France. In 2016, support was provided by the Malta Tourism Authority, whereas in 2017 support was forthcoming from the Ministry of Gozo, the Malta Tourism Authority, and the Honor Frost Foundation. Sincere thanks go to the divers and all the support team who make this project possible. We are also grateful to the doctors and staff at the Gozo and Malta hyperbaric chambers.

The GROPLAN Project was funded by the French National Science Foundation. More information about this project can be found here: [www.lsis.org/groplan/](http://www.lsis.org/groplan/).

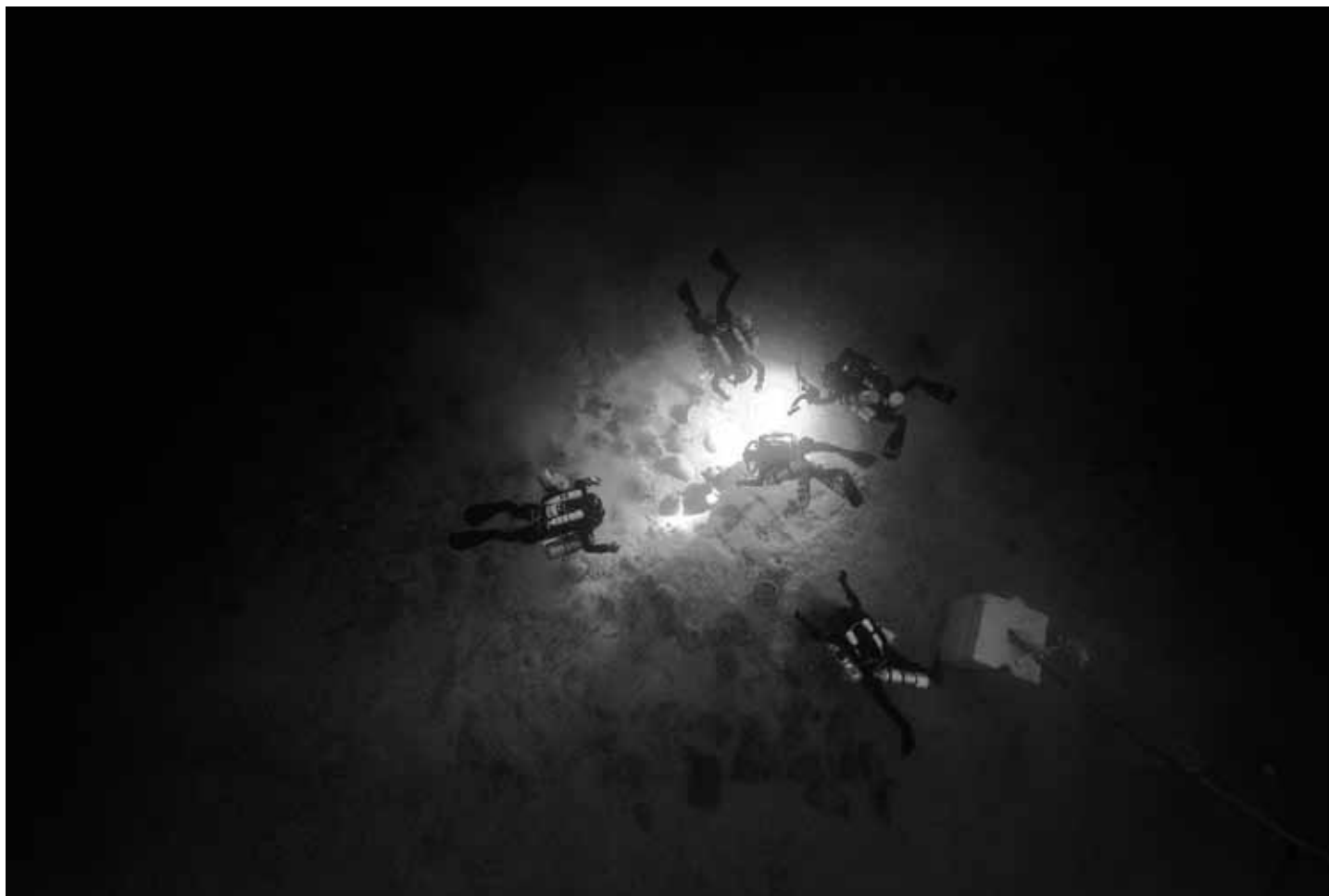


PHOTO: J Wood / University of Malta