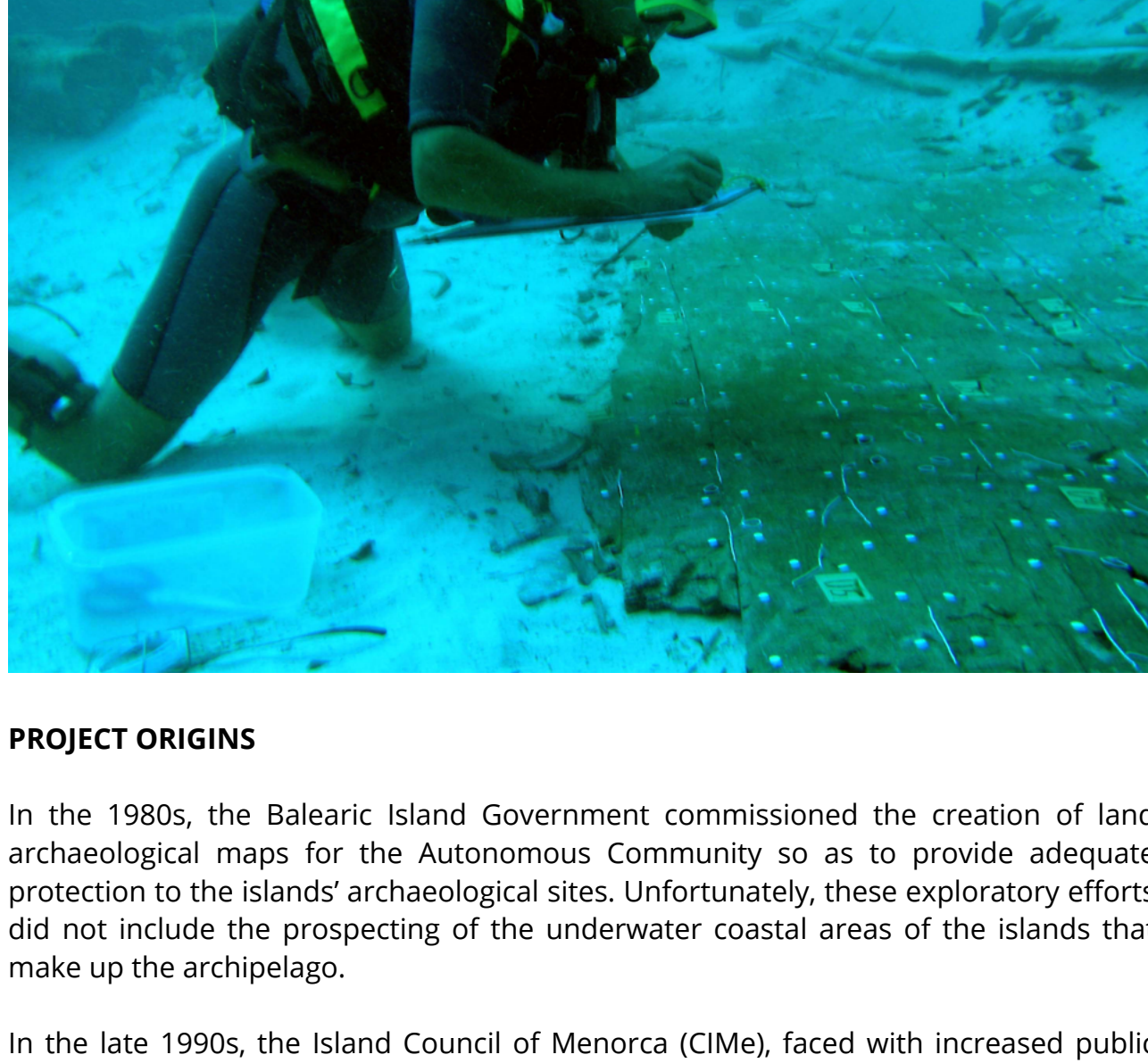


UNDERWATER ARCHAEOLOGICAL MAPS OF MENORCA

In 1996, the Amics del Museu de Menorca (Friends of the Museu de Menorca) Association initiated a research project aimed at the study and conservation of underwater cultural heritage of Menorca's coast.



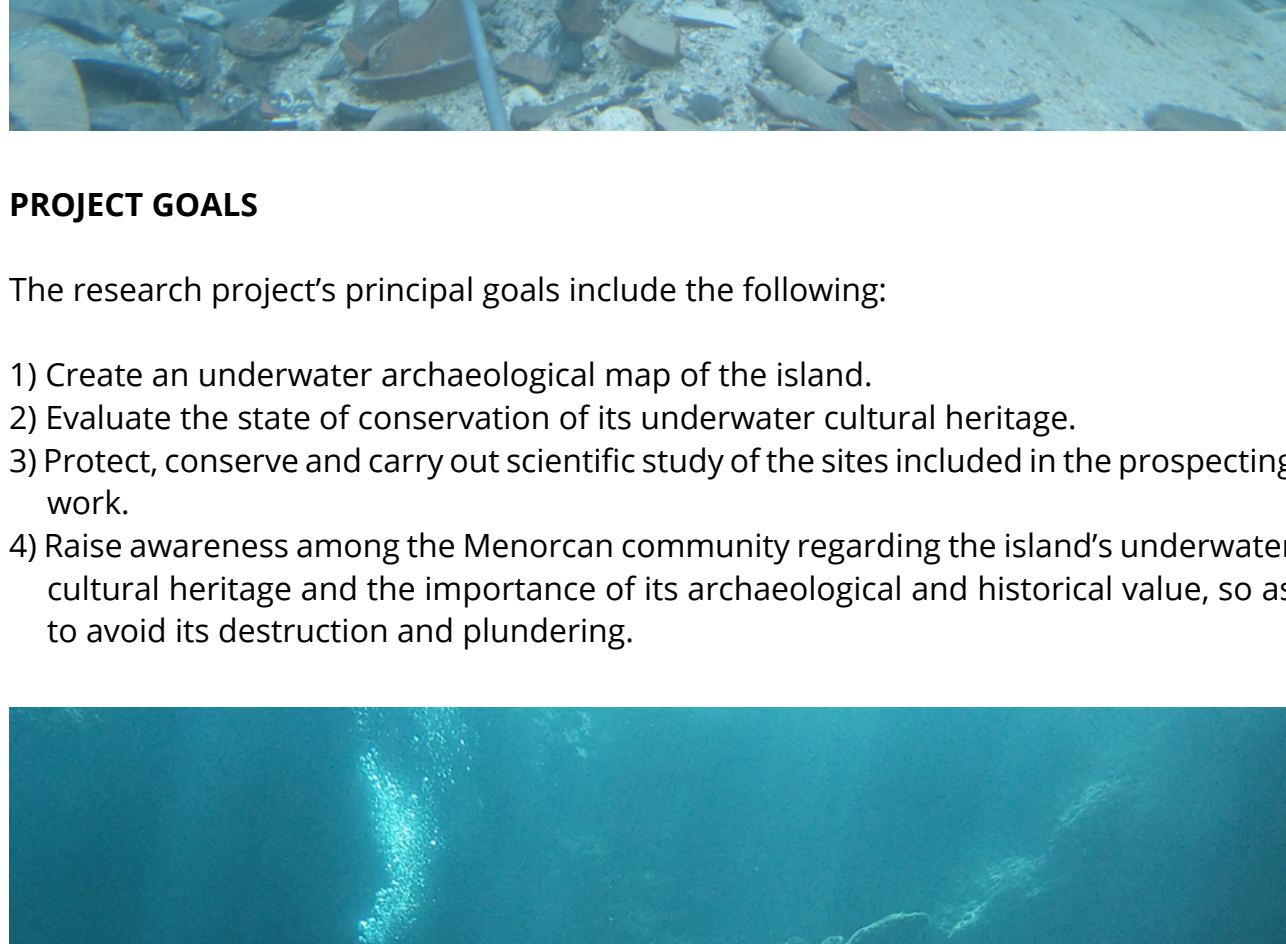
PROJECT ORIGINS

In the 1980s, the Balearic Island Government commissioned the creation of land archaeological maps for the Autonomous Community so as to provide adequate protection to the islands' archaeological sites. Unfortunately, these exploratory efforts did not include the prospecting of the underwater coastal areas of the islands that make up the archipelago.

In the late 1990s, the Island Council of Menorca (CI Me), faced with increased public and private construction projects affecting the coastline, alarming news regarding the continuous plundering of underwater heritage, and the lack of trustworthy information on the state of conservation of the relatively few known submerged archaeological and historical sites around the island's coastline, opted to initiate the creation of these underwater archaeological maps.

It was then that this Menorcan institution posed the Friends of the Museu de Menorca the need to execute a long-term scientific project designed to compile a catalogue of underwater sites around the Menorcan coastline.

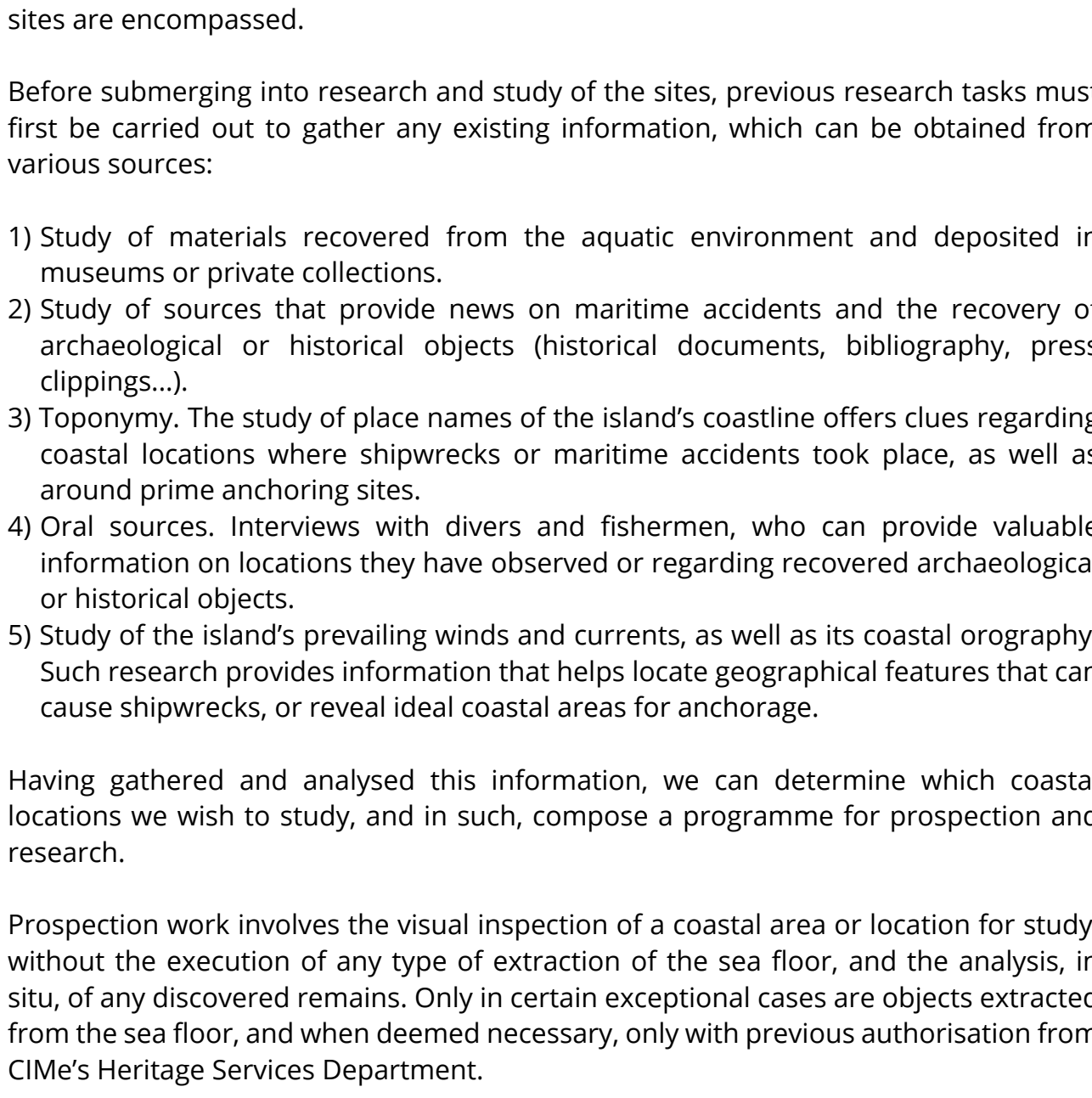
The project's stakeholders include the Island Council of Menorca's (CI Me) Department of Culture, through its Heritage Services Department, which provides economic support to the project, the Museu de Menorca, offering its facilities and scientific expertise for the project, and Amics del Museu de Menorca, which coordinates underwater research tasks.



PROJECT GOALS

The research project's principal goals include the following:

- 1) Create an underwater archaeological map of the island.
- 2) Evaluate the state of conservation of its underwater cultural heritage.
- 3) Protect, conserve and carry out scientific study of the sites included in the prospecting work.
- 4) Raise awareness among the Menorcan community regarding the island's underwater cultural heritage and the importance of its archaeological and historical value, so as to avoid its destruction and plundering.



HOW UNDERWATER ARCHAEOLOGICAL MAPS ARE MADE

First, it is important to clarify why the term "underwater" archaeology is used, instead of "submarine" archaeology. The term "submarine", implies sites found only beneath the sea, and hence excludes any that may be found submerged in rivers, lakes, or caves flooded by the water table. In using the terms "underwater" or "subaquatic", all such sites are encompassed.

Before submerging into research and study of the sites, previous research tasks must first be carried out to gather any existing information, which can be obtained from various sources:

- 1) Study of materials recovered from the aquatic environment and deposited in museums or private collections.
- 2) Study of sources that provide news on maritime accidents and the recovery of archaeological or historical objects (historical documents, bibliography, press clippings...).
- 3) Toponymy. The study of place names of the island's coastline offers clues regarding coastal locations where shipwrecks or maritime accidents took place, as well as around prime anchoring sites.
- 4) Oral sources. Interviews with divers and fishermen, who can provide valuable information on locations they have observed or regarding recovered archaeological or historical objects.
- 5) Study of the island's prevailing winds and currents, as well as its coastal orography. Such research provides information that helps locate geographical features that can cause shipwrecks, or reveal ideal coastal areas for anchorage.

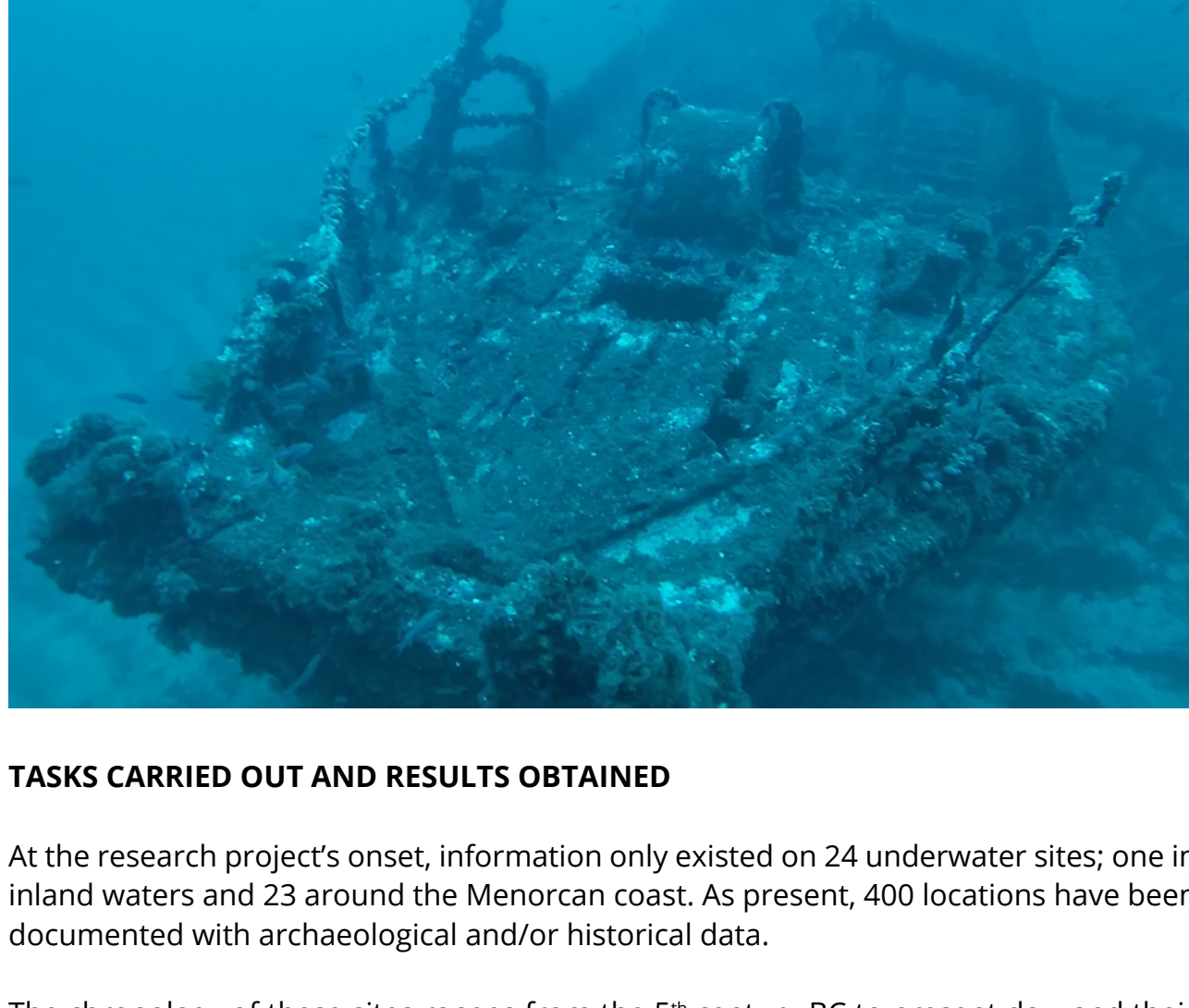
Having gathered and analysed this information, we can determine which coastal locations we wish to study, and in such, compose a programme for prospecting and research.

Prospection work involves the visual inspection of a coastal area or location for study, without the execution of any type of extraction of the sea floor, and the analysis, in situ, of any discovered remains. Only in certain exceptional cases are objects extracted from the sea floor, and when deemed necessary, only with previous authorisation from CI Me's Heritage Services Department.

During dives, photos and video recordings are taken of the sites and their remains. The information gathered is utilised to determine the type of site discovered and its chronology, while also serving to compare with data that will be obtained on future dives to help assess their state of conservation. Sites are located by means of a global positioning device (GPS).

The third step involves recording all the data obtained in the previous two steps in an archaeological file. These files, together with the annual report on completed tasks, are sent to CI Me's Heritage Services Department for inclusion in the catalogue of archaeological and historical sites of the island of Menorca for their protection.

The final phase, and one of the most important, involves the dissemination of the results obtained throughout the project. This dissemination is carried out on two different levels; through participation in archaeological conferences, where our results are presented to the scientific community, and through informative and educational materials intended to inform the Menorcan community regarding the island's underwater heritage.



TASKS CARRIED OUT AND RESULTS OBTAINED

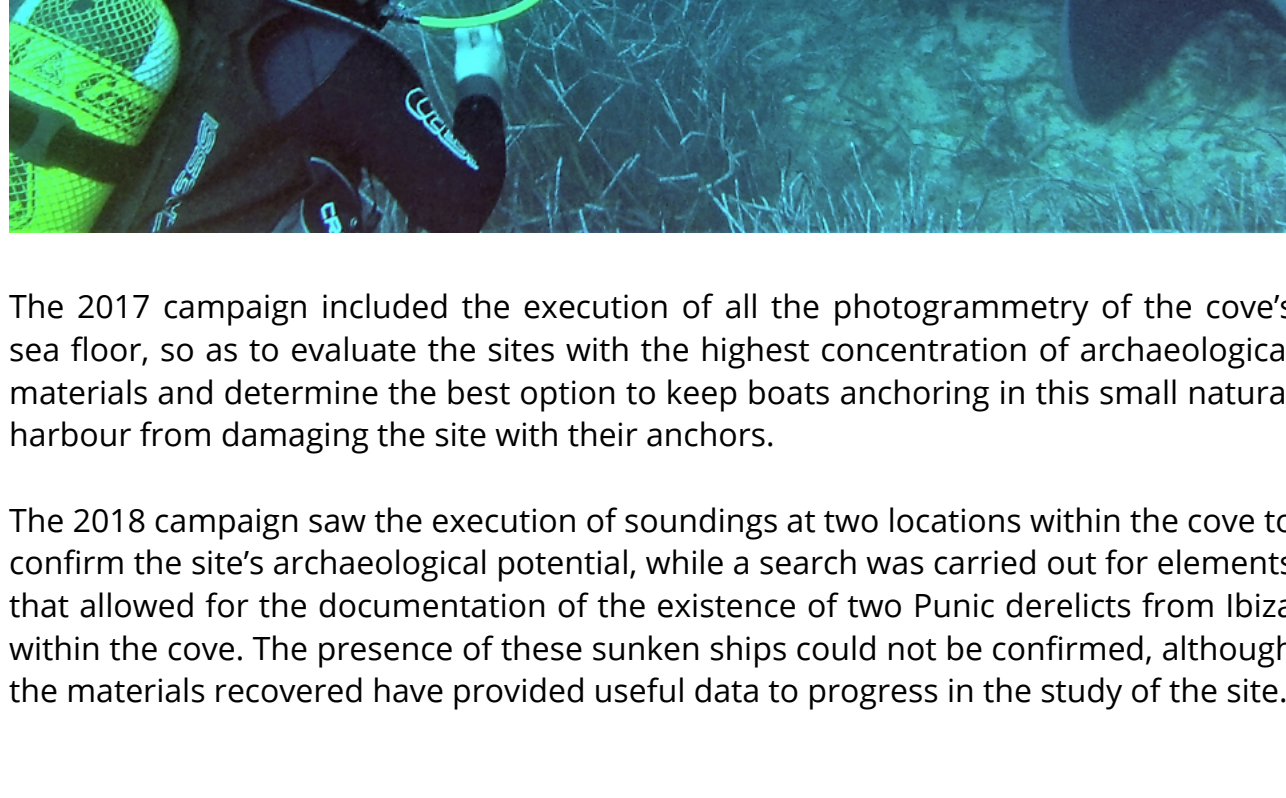
At the research project's onset, information only existed on 24 underwater sites; one in inland waters and 23 around the Menorcan coast. As present, 400 locations have been documented with archaeological and/or historical data.

The chronology of these sites ranges from the 5th century BC to present day, and their typology corresponds essentially to:

- 1) Derelicts, any sunken ship or aircraft. All the derelicts we have been able to document correspond to boats shipwrecked near our coast, although at the Illa de l'Aire islet there is a sunken German World War II bomber.
- 2) Docks, moorings and anchorages. Sites used as ports or for shelter during periods of extreme weather.
- 3) Isolated finds. Objects are often discovered, primarily anchors, that are not associated with other archaeological and historical remains. They are simply materials that are occasionally lost by ships.

In addition to these prospecting, underwater archaeological excavation has been carried out at two sites:

- 1) The Binissafüller derelict, in Sant Lluís. This site was excavated in the 1970s and subsequently inspected and re-excavated between 2006 and 2016. The more recent archaeological efforts allowed for the dating of the site to between 375 and 350 BC, involving a vessel transporting between 400 and 450 wine-filled amphorae. Numerous grape seeds were recovered from inside these amphorae. With regard to naval architecture, it is neither Greek nor Roman, but instead shows Punic construction techniques. It utilised the shell-first shipbuilding technique, in which the frame, or ribs, are not the basis of the ship's structure and are attached to the strakes, and serve as the body of the vessel. It was a Punic merchant ship that carried out wine trade expeditions from port to port. It was not a ship that sailed smaller coastal trade routes, but instead sailed trade routes organised by commercial agents.
- 2) The Calcesoves mooring. These efforts were carried out between 2017 and 2018 at the request of CI Me's Heritage Services Department. The 2018 campaign received collaboration from the Underwater Archaeology Centre of Catalonia (CASC).



The 2017 campaign included the execution of all the photogrammetry of the cove's sea floor, so as to evaluate the sites with the highest concentration of archaeological materials and determine the best option to keep boats anchoring in this small natural harbour from damaging the site with their anchors.

The 2018 campaign saw the execution of soundings at two locations within the cove to confirm the site's archaeological potential, while a search was carried out for elements that allowed for the documentation of the existence of two Punic derelicts from Ibiza within the cove. The presence of these sunken ships could not be confirmed, although the materials recovered have provided useful data to progress in the study of the site.