

# Archeofish project. Fishing, food processing, and commerce in Greek and Roman Sicily

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## ABSTRACT

This paper is complementary to the [video](#) presented at Blue Planet Economy (BPE) European Maritime Forum 2021. The study of ancient sites, related to fishing and its related production activities, is of great importance in order to achieve a full understanding of the social, cultural, and economic values of the Greek and Roman worlds. In this perspective, the Archeofish project plans to operate by bringing together the interdisciplinary and complementary skills of two different Italian-Spanish research groups, in order to define a protocol, based on a common methodology, that can be successfully applied to the study of different production sites related to fishing and fish processing, which have operated in the Mediterranean area. The concrete experience in the archaeological site of Baelo Claudia is certainly among the best known. This site has been selected as one of the most representative cases of this type of production sites operating in the Roman age in the Mediterranean. In addition, the transposition of the experience acquired in the Sicilian site of Portopalo di Capo Passero (SR), selected for its informative potential, has offered the basis for the improvement of our knowledge, and for the definition and verification of the adopted methodology.

**KEYWORDS:** Greek and Roman fish-salting plants, Portopalo di Capo Passero (Sr), Vendicari (Sr), ancient fishing activities.

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## 1 INTRODUCTION

Among the many specialisations that characterise contemporary archaeology, the one that deals with the study and reconstruction of production processes is certainly the most interesting, because of the original perspectives that allow us to investigate history and ancient civilisations (Mannoni & Giannichedda, 1996).

When we think of production in the ancient world, what comes to mind is the creation of objects through which man modified his environment and provided himself with whatever he needed. However, man also produces through cultivation, hunting or fishing, when he gets the food he needs to survive. The centre of Archeofish project is this particular aspect of production, linked to fishing activities and the production of its products in the classical and ancient world.

## 2 ARCHEOFISH PROJECT

Fishing has been one of the livelihood activities that have accompanied man since prehistoric times. The fishing activities and all the techniques associated with the particular natural environment and the type of fish caught have united, and strongly characterised, all the peoples who have lived along the Mediterranean coasts from historical times until today, with different traditions and customs.

Within this framework made of ancient traditions and local variations, the fishing of particular marine species has had the merit of unifying the destiny of the distant coastal communities. This has been the case of the tuna, for example, and of the consecutive phases of the production of *garum*, or salty fish, which ensured its preservation and transport over long distances. This is due to the peculiar life habits of the tuna, characterised by long and repetitive journeys from the Atlantic coast to the Mediterranean Sea through the Straits of Gibraltar, during the seasonal cycles associated with the time of reproduction and spawning. This activity has cyclically determined the fortunes of different communities in the long-lasting history of the Mediterranean. As for the classical age, we have both direct and indirect evidences.

From the lack of information, the importance of some coastal areas of the Mediterranean clearly emerges. This is the case of the South-Western and Southern coasts of the Iberian Peninsula, the North-Western coasts of the African continent. It is also the case of the Sicilian ones, which have covered a fundamental role in these productive activities, at least starting from the Hellenistic age and until the Late Antiquity. Its results in terms of product quality were remembered by ancient writers (Felici, 2018, pp. 221-249).

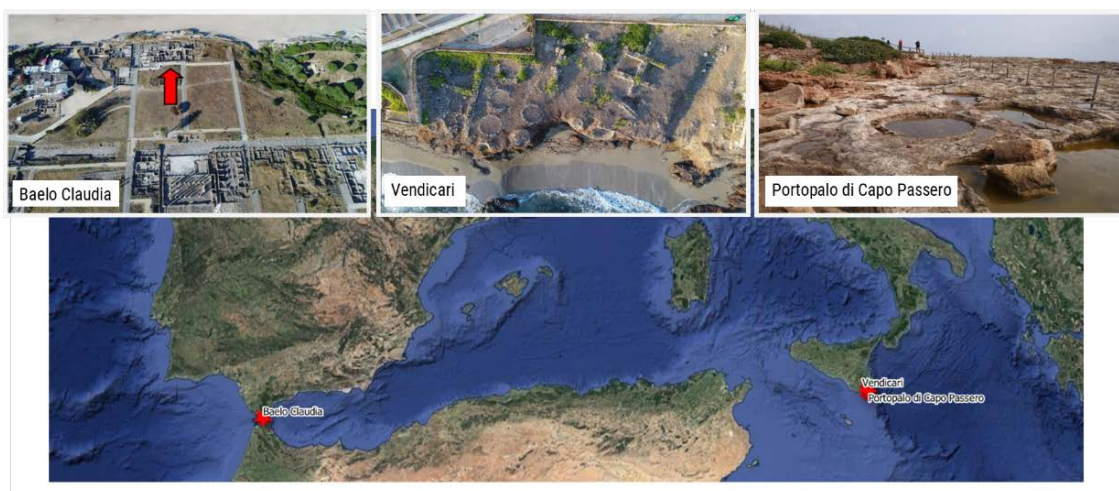
Notwithstanding the importance of this activity, until today, no adequate knowledge of the material related to fishing and processing activities has been provided, which shows considerable differences in terms of quality and quantity of knowledge available today in the various Mediterranean regions.

Thus, for example, if the characteristics assumed by these activities in the Spanish area are sufficiently known, this hasn't happened in the Sicilian area, to the exclusion of the importance that the island assumed in the memory of the ancients. Nevertheless, since the Seventies of the last century, the discovery of several production sites distributed in various coastal territories confirms the potential that this area can offer, whose preservation and study raises important issues today (Botte, 2009; Felici, 2018).

Acquiring new knowledge about the history of ancient fishing productive sites in Sicily is the main purpose of the joint laboratory Archeofish. This is an international joint lab for archaeological research that involves two groups of scholars: one of these includes researchers from the CNR Institute of Sciences for Cultural Heritage, which are expert in the study of material remains of the classical world and in the application of new technologies to the management, analysis and interpretation of archaeological data. A second group, HUM 440,

involves researchers from the University of Cadiz with twenty years of experience in the study of marine resources of the ancient world and in the excavation of fishing sites along the shores of the western Mediterranean.

Archeofish project is based on the study of two different production areas. The first one is the site of the ancient city of Baelo Claudia, in Spain, which for years has been the object of excavations and studies by the research group of the University of Cadiz (UCA) (Arévalo González & Bernal-Casasola, 2007; Bernal-Casasola, 2009; Bernal-Casasola & Díaz, 2018). The second one concerns two adjacent and closely related areas of Porto Palo and Vendicari, located along the South-Eastern coasts of the island, partially excavated and published only through preliminary information. Therefore, the joint Archeofish workshop has its strength in the integration of the methodologies, tools and experiences acquired by the two research groups, and expressly aimed at the creation of an operational study protocol applicable to the same types of sites in the Mediterranean.



**Figure 1.** Archaeological sites investigated in the Archeofish project.

In particular, the aim is to reconstruct the production cycle of the two Sicilian sites, by identifying and determining:

- I. the fish species (fish and malacofauna) subject to fishing and commercial exploitation, linked to the production of canned food and fish derivatives in the different historical phases in which it is possible to articulate the life of the investigated production plants;
- II. techniques and tools used for fishing in their historical evolution and in relation to the different species fished;
- III. the various activities and phases of craftsmanship, determined on the basis of their historical evolution and the economic, social and cultural implications of the communities that gravitated around them or through them, finding their sustenance.
- IV. the final products that were made and any raw materials needed to obtain them (salt, fresh water, firewood, etc.);
- V. tools and instruments necessary for carrying out the various stages of processing, storage and transport, in the medium and long term, of the products made;
- VI. rules of access, management and exploitation of coastal areas in their historical evolution and in relation to parameters such as: purpose of use (economic-productive, defensive, housing-residential, ...); subjects (public/private); forms of management (private property, state property, ...);

- VII. the relations between the various production sites, between these and the neighbouring settlements, or between these and the maritime or land transport systems;
- VIII. the reasons and the motivations underlying the occurrence of long-lasting phenomena, which may entail the continuation over time of the same functions and vocations of the territory and of the human groups that carried out their existence in them, as in the case of the presence of fish establishments datable in the modern and/or in the contemporary age, in continuity and spatial contiguity with the ancient ones;
- IX. similarities and differences in geographically distant sites, but united by belonging to the same chronological, cultural and/or functional horizon;
- X. historical, economic and political dynamics that influenced the fate of each production site under study.

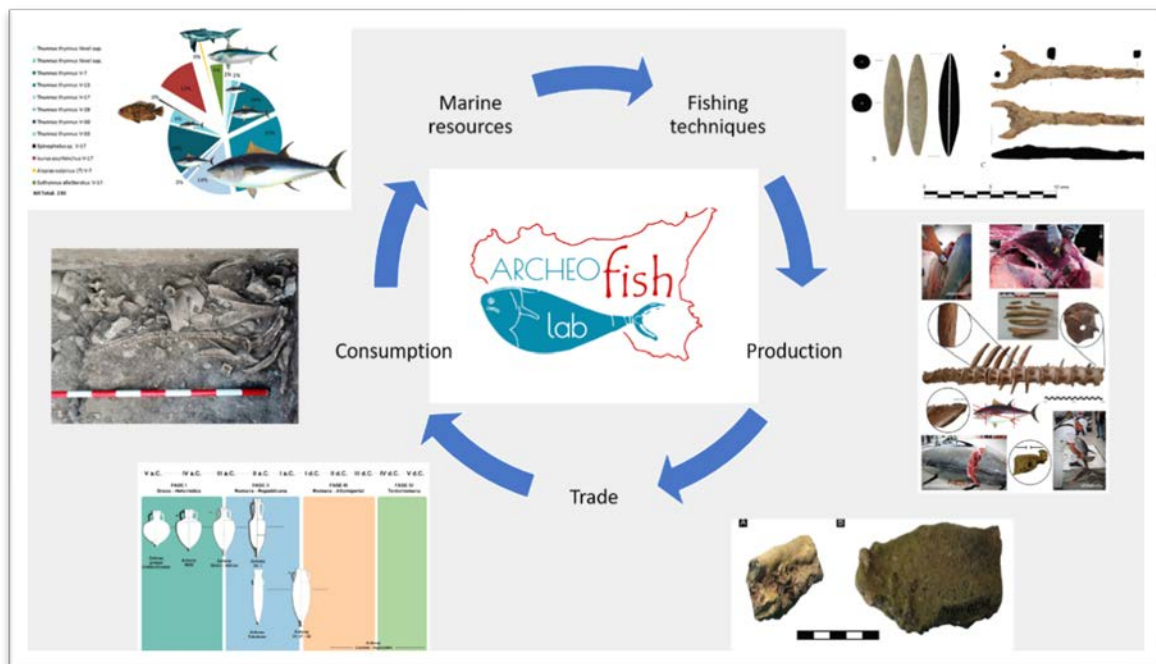


Figure 2. The five components of the “fishing cycle” object of research in Archeofish.

### 3 ANCIENT FISHING ACTIVITIES IN THE SOUTH-WEST OF SICILY

The decision to examine the two Sicilian sites of Portopalo di Capo Passero and Vendicari, both located in the South-Eastern part of the island, is not a coincidence. The significant evidences that the previous excavations have brought to light leave no doubts about the importance and the role that the two sites assumed and maintained for several centuries. This has reassured us of the high information potential that a restart of methodologically advanced investigations would ensure, with direct repercussions on our knowledge of the island’s economy and its social and cultural aspects.

However, these are the issues related to some peculiarities of the production facilities at both Sicilian sites that have stimulated a restart of the investigations. Portopalo di Capo Passero and Vendicari are the only sites for the production of canned fish in the Mediterranean in the ancient period that, together with the Spanish site of Baelo Claudia, have tanks with a circular structure and a sub-cylindrical profile.

The different levels of our historical knowledge for the two sites, the Spanish and the Sicilian one, has forced the Archeofish project to implement different research strategies.

The two Sicilian sites of Portopalo di Capo Passero and Vendicari were investigated with a program of activities specifically designed in the context of the results of previous investigations.

The productive area of Portopalo di Capo Passero was only partially investigated, both in extension and detail, during the research carried out between the 1980s and 1990s, first by the Soprintendenza ai BB.CC.AA.<sup>1</sup> of Eastern Sicily, and then of Syracuse (Bacci, 1983; Basile 1992, pp. 73-77; Felici 2018, pp. 119-122; Guzzardi & Basile, 1992). From this came the decision to undertake new excavations starting from the levels revealed by the previous investigations. These would have made it possible to complete the exploration of some of the tanks.

The exploration of the production of the Vendicari archaeological site was carried out until the complete removal of the fill of the numerous fish-processing tanks, obtained by excavating the low rocky ridge (Basile 1992, pp. 55-73; Felici 2018, pp. 116-119; Guzzardi & Basile, 1992). Although the ongoing investigations in the neighbouring areas, located in the immediate hinterland and only partially explored during the previous investigations, will certainly lead to new results, it has been suggested that for the time being investigations should be limited to only updating the existing documentation, by carrying out accurate surveys of the visible structures.

To the Spanish site of Baelo Claudia it has been reserved the role of an element of comparison for a better contextualization and interpretation of the archaeological evidence present in the two Sicilian contexts.

### 3.1 Portopalo di Capo Passero (Archeological excavation 2019-2021)

Portopalo di Capo Passero lies in the South-Eastern part of the island and dominates the strait in front of the inlet between Capo Passero and Isola delle Correnti. It is a place that combines the beauty of the landscape with numerous environmental resources and a strategic position for the development of an economy. This is based on tuna fishing and fish processing, since this area is located along the return itinerary that these species make, heading towards the Strait of Gibraltar and the Atlantic Ocean, after spending the breeding period in the Mediterranean. This explains the presence of fishing communities in this part of the island since very ancient times and the millennial existence of an economy based on the exploitation of these species of fish, as can be seen in the close proximity of modern tuna fisheries, active until recent years not only in Portopalo di Capo Passero, but also in Marzamemi, Vendicari and Siracusa.

The first discoveries in the area were made in the 1950s, when a landmine explosion brought to light a small Christian catacomb, that was built partly by exploiting a natural cavity a few metres from the coast (Agnello, 1953), which joins the ruins of some buildings identified by Paolo Orsi in a nearby area under the current Piazza dei Due Mari (Orsi, 1898). This is evidence datable to late antiquity: it represents one of the last chapters of a settlement that can be traced back, on the basis of the information gathered so far, to the 5th century B.C., and is essentially represented by the remains of fish processing plants. These were discovered accidentally at the beginning of the 1980s and partially investigated between 1983 and 1986 and then between 1989 and 1990. The excavations, carried out by the Soprintendenza ai BB.CC.AA. of Eastern Sicily (and later of Syracuse), led to the discovery of extremely interesting structures, whose quality and quantity place Portopalo di Capo Passero among the most important sites in the Mediterranean (Bacci, 1983, Basile, 1992, pp. 73-73; Guzzardi & Basile 1996, pp. 201-203).

The excavations at the end of the last century brought to light more than fifty tanks used for salting fish, as well as for the production of *garum* and other *salsamenta*. These structures, which were built at a short distance from the coastline, had to be combined with other support activities not only for carrying out certain phases of fish processing, but also for finding raw materials, such as salt, or containers and utensils for storing, transporting and commercialising the final products. Thus, an artisanal area located just a few metres away from the plants installed along the coastline was interpreted as being intended for cleaning fish, for disposing of

<sup>1</sup> Ministero dei Beni e delle Attività Culturali e del Turismo.

fish bones, for burning other processing waste, and for collecting the blood of the fish, a fundamental ingredient for making a variety of *garum*, which the ancients called *animation*.

The existence of production plants in the salt pans in Morghella of Portopalo di Capo Passero, just over 2.5 km to the North, active until a few decades ago, allow us to assume that the same function has continued over the centuries since ancient times. The discovery of some remains of kilns suggests the existence on site of amphorae production, designed for the trade in preserved fish, although these kilns have never been systematically investigated and in some cases even destroyed during building activities connected with the development of the present settlement.

This was the picture that emerged from the investigations carried out before the start of the Archeofish project. This concerns, on the one hand, the information that has shown the extreme importance of the site and, on the other hand, this has left some fundamental issues unresolved.

Did the long period of existence of the settlement from the 5<sup>th</sup> century BC to the 5<sup>th</sup> century AD see phases of interruption and revival, as evidenced by the remains that were found? What contribution did the Greek influence give to the development and spread of fishing techniques and to the production of conserves in this area? What species were fished? What fishing techniques were used? What products were produced and with what ingredients? Is the existence of kilns (of which only few evidence remains at the moment, but their presence was confirmed by the local inhabitants) compatible with the activity phases of the plants? If so, what products did they make? Did salt, a resource of primary importance for preserving fish, also come from the Morghella area in ancient times?

These are some of the unsolved questions that the work carried out within the Archeofish project aimed to answer.



**Figure 3.** Portopalo di Capo Passero (Area 3). The industrial area explored during the archaeological campaign of 2021.

#### 4 RESULTS ACHIEVED

The two excavation campaigns carried out between 2019 and 2021 at the archaeological site of Portopalo di Capo Passero have allowed to acquire important results (Bernal-Casasola, Malfitana, Mazzaglia & Díaz, 2021). Firstly, on the basis of the information recovered, it has been possible to isolate exactly five chronological phases of activity at the site which comprise, in addition to Phase 0, or geological phase:

- I an initial phase of activity in the Greek-Hellenistic period (Phase I, ss. V - beginning of the 3rd century BC);
- II a moment apparently of maximum apogee in the Roman-Republican period (Phase II, mid-3rd century - 1st century BC);
- III a third phase dating from the early imperial period (Phase III, ff. I - III A.D.);
- IV a final phase in the late Roman period (Phase IV, ff. IV-V AD), for which the continuity of fishing and canning activities in the area is not confirmed, although there are some clues (evidence of fishing tools and marine fauna in the late ancient layers);
- V and finally, the current or contemporary phase (Phase V).

For each phase it was possible, on the basis of the data collected, to define the chronology and identify the archaeological structures in use, also putting forward hypotheses on the probable functional use of each of them.

This provided the basis for a general understanding of the functions and structures of the site in its historical evolution, acquiring important information on the reconstruction of the fishing cycle that marked its production activities. The integrated reading of the structures, carried out through a stratigraphic analysis, of the construction techniques, and of the materials which were found made it possible to isolate six workshops, named Cetaria I, II, III, IV, V and VI, within the archaeological site of Portopalo di Capo Passero.

The analysis of the ichthyofauna remains (fish and malacofauna), found during the excavation, allowed to determine the marine resources used for exploitation. Among the species attested by the bone remains, tuna predominates, which confirms the evidence found in the classical sources in relation to the scombrids present in the Pachino area. Other species have also been documented (in particular some sharks), and it has been possible to verify the existence of marine molluscs and crustaceans in certainly productive contexts (crabs, limpets, bargellos and various types of clams, as well as some inedible species that must have been accidentally left in the nets). This is an extremely large amount of data that will have to be increased over the next few years.

As for fishing tools, the finds made during the excavation activities have provided an opportunity to propose a synthesis of the knowledge of fishing techniques in Sicily, where some evidence has been found in Portopalo di Capo Passero, both fish hooks and net weights, which attest the use of hand nets (throwing nets) and other larger nets.

The results of the analysis of the samples taken at Morghella confirmed the use of the area as a salt pan in medieval and modern times, a use that is extremely probable to date back to Greek, Hellenistic and Roman times. Therefore, the *campus salinarum* that supplied Portopalo di Capo Passero could be located in this area, if the analyses of the samples taken during the last excavation campaign in 2021 prove positive results.

Important information has also been acquired in relation to the craft activities that provided the production of canned food. In particular, the manufacture of amphora containers used throughout the chronological period in the Syracuse context, which was potentially employed for salting activities (Greek, MGS, Greek-Italian amphorae, Dressel 1, Dressel 21/22). Two types of amphorae (forked and almond-shaped amphorae), possibly of local or regional production, must be added to the typological framework known so far for the regional context, on the basis of some archaeological and archeometric evidence.

Finally, for the reconstruction of activities related to consumption, the data collected have allowed to review the circulation of *garum* and Sicilian salted fish in the Mediterranean area, confirming for the area of Portopalo di Capo Passero the Portus Pachyni of the sources and the

function of a redistribution trade centre. This hypothesis seems to be confirmed by the various relicts known in its vicinity.

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