PUGLIA: A SEA OF RESOURCES FROM THE UNDERWATERMUSE PROJECT TO THE ESAC - EUROMEDITERRANEAN SEASCAPES ARCHEOLOGY CENTER

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ABSTRACT

Half a century of uninterrupted underwater research, a continuous and passionate commitment is the record that Puglia can boast, which has culminated in national and international projects conducted by the Region's universities; the coastal and underwater sites have been catalogued in the Regional Cultural Heritage GIS (SIRPaC, now *CartApulia*), an indispensable tool for the protection, planning and development of Puglia landscapes. The Puglia Region - Department of Tourism, Culture Economy and Community Development, in collaboration with the Universities and other local actors, has collected this precious legacy and in recent years has organised and promoted actions aimed at the knowledge, enhancement and accessibility of the underwater heritage, between wich exhibitions as well as regional and international projects, such as FISH.&C.H.I.P.S (*Fisheries, Cultural Heritage, Identity and Participatory Societies*, Interreg Italy-Greece Programme) e UnderwaterMuse (*Immersive Underwater Museum Experience for a wider inclusion*, Interreg Italy-Croatia Programme). The integration of all the initiatives and projects carried out has led to the creation of the Euro-Mediterranean Seascapes Archaeology Center - ESAC, whose areas of interest are research and cataloguing, conservation and restoration, training, dissemination and communication, international planning, promotion and use and, in general, the use of incentives in order to promote cultural policies for the underwater heritage and the blue economy. The governance process of the Centre is the fruit of an agreement between the Regional Department, the three Universities and the National Superintendency for the Underwater Cultural Heritage on a participatory process of knowledge and heritage enhancement through specific projects and concrete measures.

Keywords: seascapes, underwater cultural heritage enhancement, FISH.&C.H.I.P.S., UnderwaterMuse, Euro-Mediterranean Seascapes Archaeology Center - ESAC.

1. From the perspective of the sea

The history of Puglia can be told from the point of view of its geography. But it is not just a matter of its real position in the south-eastern area of the Mediterranean Basin. It is rather a question of a change of perspective, of looking at this land from the perspective of the sea.

There are more ships on the sea bottom than ships sailing on it: this is what Predrag Matvejević wrote about the Mediterranean and this is even more true for the seas of Puglia. The seabed of the region is dotted with wrecks and cargos of ships of all ages, silent witnesses of those routes that forked off close to the *Akra Iapygia*, the desired and feared Capo Iapigio, today Capo di Leuca, to reach, going up the Adriatic, the heart of Europe or to sail westwards and cross the Ionian Sea. Also the coasts bear the signs, partly submerged, of the eternal maritime vocation of this area: fortified settlements of the 2nd millennium BC, piers, docks, lighthouse foundations of the Roman and medieval ages and also canals, quarries, coastal necropolises, mooring and landing places and coastal caves that in all ages have been sacred places for sailors and soldiers, merchants and travellers. A heritage of this kind, which accounts for and recounts thousands of years of history, must be accessible to everyone.

Looking at the History of Puglia from the perspective of the sea sometimes means recounting another History: from the perspective of the other, observing with other eyes, eyes that are not one's own eyes.

It is with this vision that the Region of Puglia has launched a wide-ranging programme to enhance its underwater heritage. A vision that combines scientific research, both archaeological and environmental, with the issue of accessibility and enjoyment, as well as with the challenges emerging from community enhancement and sustainable development efforts in the field of cultural tourism.

An articulated vision that relies on a dialogue with the universities of Puglia, with the network of museums and places of culture scattered throughout Puglia, and with the sensitive and very rich environments of its marine protected areas and coastal parks.

2. The premises. Research, protection, enhancement: the commitment of the three Universities of Puglia (and not only)

Sixty years of uninterrupted underwater research, this is the primacy that Puglia boasts over other regions: since the first interventions of the Experimental Centre of Underwater Archaeology of Albenga at the end of Fifties and during the Sixties of last century and the publication of the first Underwater Archaeological Map of Salento in 1964, until today, thanks to the continuous and passionate commitment, which has resulted in regional, national and international projects conducted by the Universities of the Region in collaboration with the Ministry of Culture and Puglia Region [1].

2.1. *The premises: previous research projects*

Going back only at the end of the last century, systemic research efforts were launched in 1990 as part of a CNR-University of Lecce Strategic Project "*Methodologies for Cataloguing Southern Italy Artistic and Cultural Heritage*", in particular with the Operative Unit "*Ports and landing places*", directed by Cosimo Pagliara. One of the results of that project and of the virtuous process that it brought about were the volumes devoted to the coastal landscape and to the *Forma Maris* of Salento, i.e. the GIS of the Underwater Archaeological Map, in 2004 [2].

Since 2004, the workgroup of the UniSalento Cultural Heritage Department of has been actively involved in the continuous updating of the system, carrying out a uninterrupted, extensive or targeted surveying efforts, as well as wide-ranging monitoring processes and accurate inspections of new potential findings also through to degree theses, PhD dissertations, national and international projects, and preventive archaeology activities [3].

Furthermore, specific projects carried out in Salento by the same Department during the last decades (and some still ongoing) were regarding various coastal districts: along the Adriatic, the enchanting and at the same time dangerous Torre S. Sabina bay, with a systematic project since 2007 (*Torre S. Sabina: the revealed landing place*) and the Torre Guaceto Regional Reserve and Marine Protected Area; on the Ionian sea, the coastal Park of Porto Selvaggio-Palude del Capitano (*The landscape like Museum. Archaeology of Nardò coast*) and the MPA Porto Cesareo (*A 3000-year dive: underwater archeology in Porto Cesareo*).

A research project concerned and concerns the coastal landscapes of central Puglia, notably between Bari and Bisceglie, as part of the action co-financed by the Development and Cohesion Fund 2007-2013, APQ Ricerca Regione Puglia "Regional Programme supporting smart specialization and social and environmental sustainability, Future in Research" [4].

Systematic surveying activities have been carried out in the Marine Protected Area of Tremiti Islands, to complement the private research of the Marlin Tremiti Association – Laboratory of the Sea. The Gargano Park Autorithy, aiming at knowing the UCH and promoting the diversification of the underwater tourist offer, in 2018 entrusted the task of its cataloging and mapping; in this way the number of the archaeological contexts already known and signaled to the responsible Superintendence has been increased: now they are comprehensively 14, from the Republican Roman age to the Second World War, located near the three islands of the archipelago [5].

2.2. *The premises. Previous protection interventions*

The aspects of research and training have joined the priority ones of protection in the systematic surveys of the seabed of the Port of Brindisi, conducted with several interventions between 2005 and 2008 at Capo Bianco, Punta Le Terrare and Isole Pedagne; the first - both direct and instrumental survey, making use of the multibeam echo sounder and sub bottom profiler - took place between November 2005 and January 2006 in the area under concession to Brindisi LNG, between the Polimeri wharf to the west and Capo Bianco to the east, for the construction of an extensive embankment useful for a regasification terminal, which was never built.

Activities in support of protection interventions conducted by the Superintendency concerned the wrecks of Torre Sinfonò, subject to targeted inspections with the help of the Carabinieri Underwater Unit of Taranto, and Punta del Serrone [6], but also the Porto Cesareo area, even in recent periods. Finally, a specific thesis work [7], concerned the construction of large off-shore works (in particular the TAP gas pipeline, which crosses the Adriatic and reaches the Salento coast between Torre Specchia and San Foca, in the municipality of Melendugno); in the absence of targeted guidelines in this regard, an attempt has been made to draw up a list of good practices to be followed in order to carry out a correct evaluation and to propose possible solutions to deal with the inadequate situation of preventive archaeology in submerged environments.

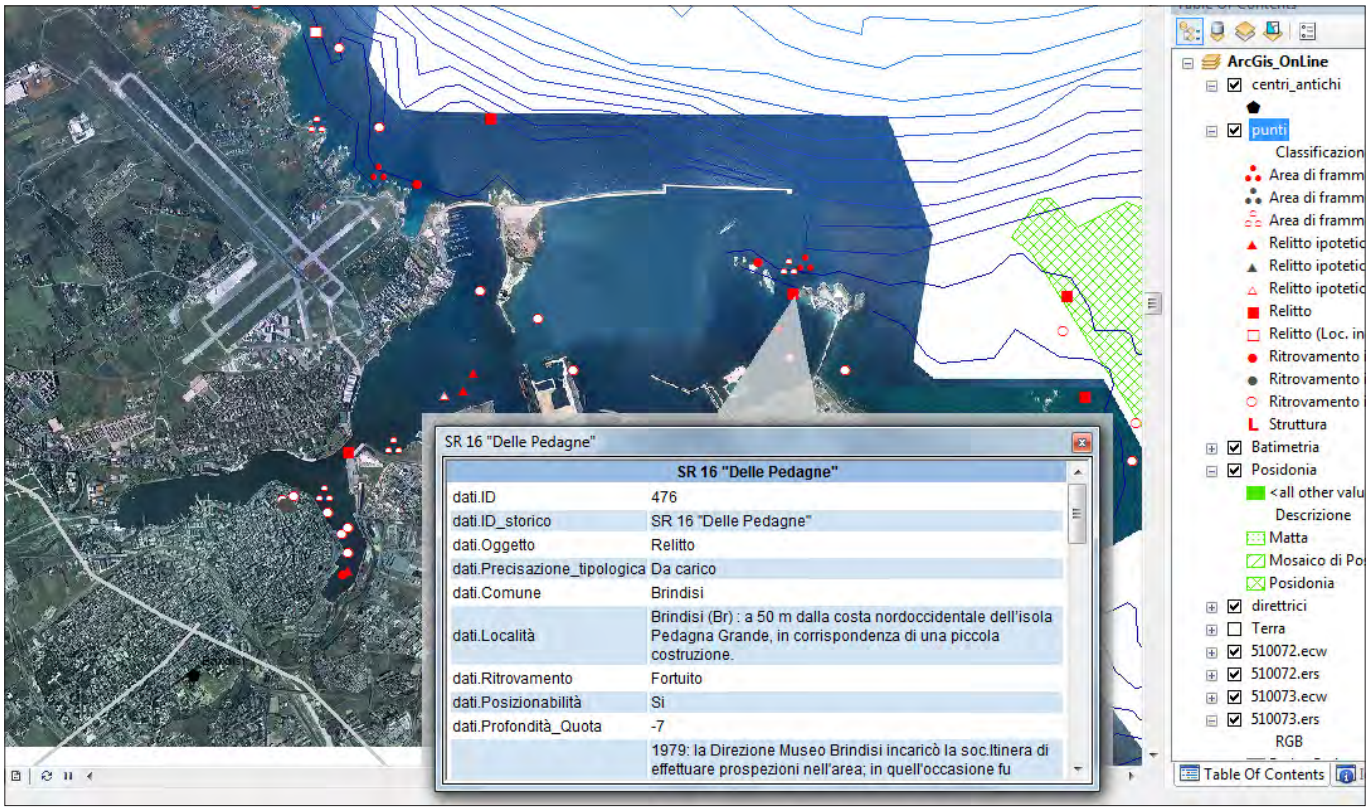

Fig. 1 - ***Salento Underwater Archaeological Map [www.arcgis.com].***

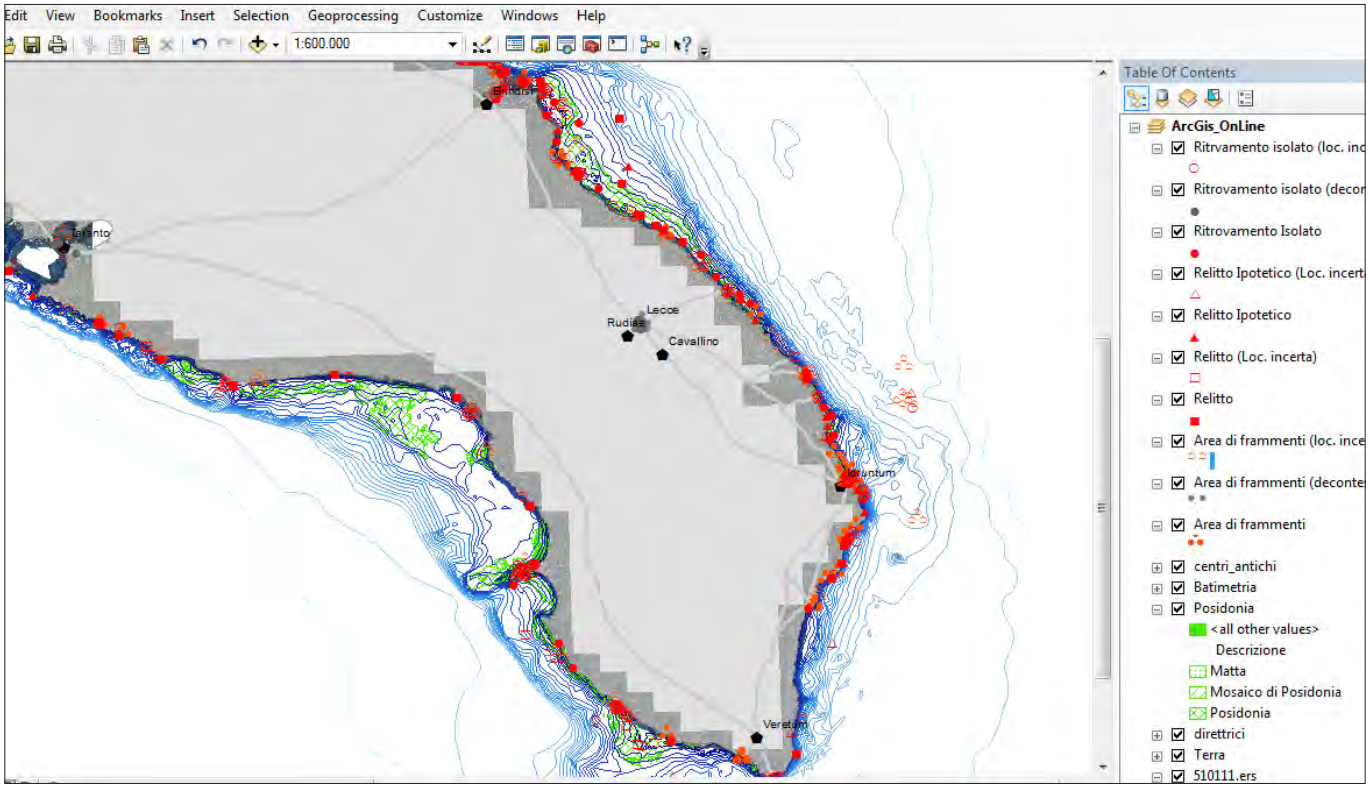

Fig. 2 - ***Salento Underwater Archaeological Map [www.arcgis.com].***

2.3. *The premises: the tools. UCH cataloguing and mapping*

The first information system containing, in MapInfo format, georeferenced cartographic and documentary data, between 2010 and 2011 has been turned into a WebGIS, developed on the ArcGIS online platform (www.arcgis.com; http://www.arcgis.com/apps/OnePane/storytelling_basic/index.html?appid=edb2b5022b3a4d4abb1b6f4abc95a2c7) as a kind of "geographical Facebook" available, at different degrees and levels of access, to the general public, professionals and protection and control authorities [8].

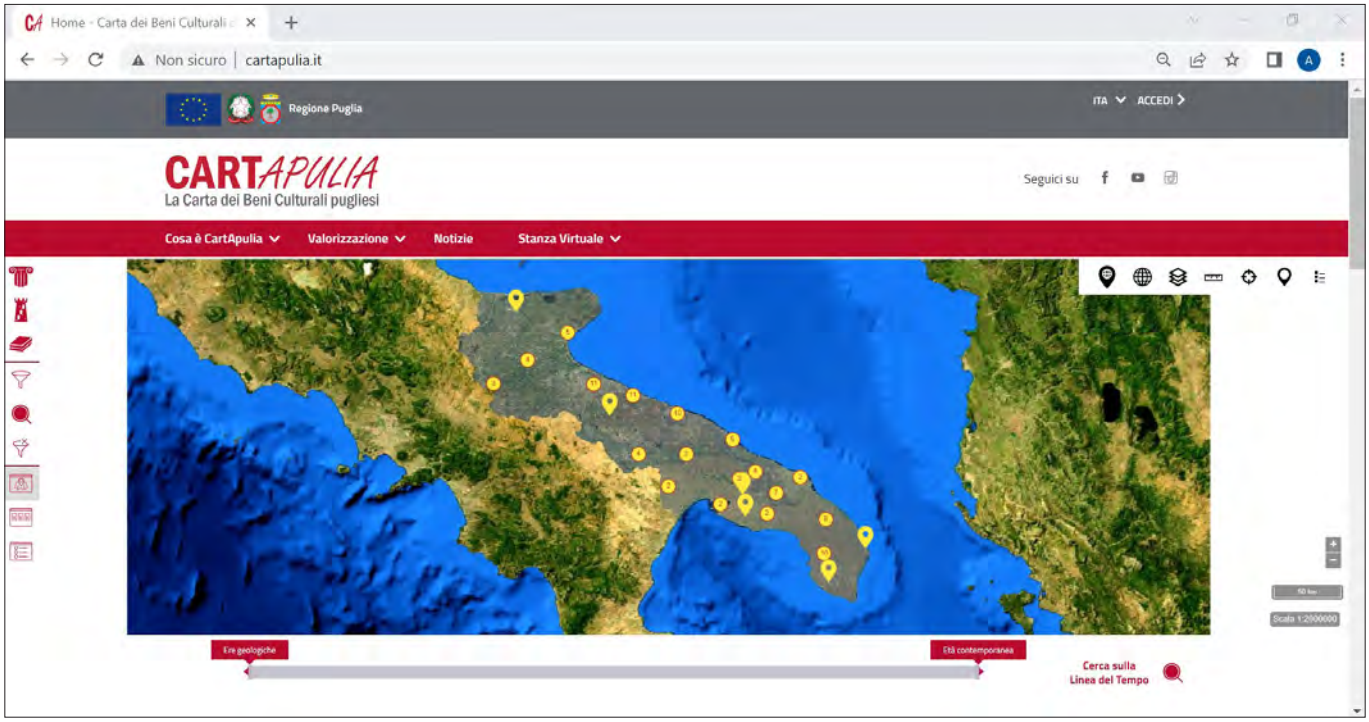

Fig. 3 - *CartApulia: home page [www.cartapulia.it].*

The Salento Underwater Archaeological Map has been progressively implemented and now includes about 700 recors, as wrecks, (hulls and/or cargos), ascertained or hypotetical (around 100), scattered shards'areas, harbour dumps and isolated finds, recovered or still laying on the sea bottom (figs. 1-2).

The last step has seen the transfer of the data base into the wider information system of the *Map of Cultural Heritage of Puglia* attached to the Regional Landscape Plan (www.cartapulia.it), an indispensable tool for the protection, planning and enhancement of the cultural heritage of the territory, within which they have been registered thousands of sites of cultural interest, including coastal and underwater ones [9]. In *CartApulia* the issue of the cultural heritage has been faced with a holistic approach, aimed to represent the cultural goods in a complex system of connections and stratifications (fig. 3) [10].

The implementation of *CartApulia* in terms of the coastal area of Taranto, including the Mar Piccolo, has been carried out within the FISH.&C.H.I.P.S. project (see below) [11].

3. State of art. Overview of the Apulian underwater archaeological heritage

In Puglia, due to the commitment of the three Universities, wide coastal stretches and facing sea bottom have been interested by systematic research carried out by means the holistic, contextual, diachronical, multi and interdisciplinary approach of the global landscape archaeology, in this case coastal and underwater or, better, "seascapes". Following, going from north to south in an ideal *periplus*, a concise review of carried out activities and acquisitions is presented with a special focus on the latest ones.

3.1. *Seascapes archaeology*

In ancient times, Apulia has always been characterized by a complex port system, consisting in particular of the main ports of Taranto and Brindisi, a series of ports of considerable importance, such as Vieste, Siponto, Salapia, Bari, Egnazia (fig. 4), Otranto, Leuca, and Gallipoli, as well as other numerous ports of lesser importance, some of which, however, such as Barletta and Trani, developed in medieval and modern times, plus small landings [12].

The Tremiti Islands, the Gargano coastline and the sandy coastline of northern Apulia, although not fully investigated, have returned a wealth of information thanks to some extensive research.

An excavation in the Tremiti waters in the early 1980s led to the discovery of the wreck of the Tre Senghe, which unfortunately was not followed by further research, nor the recovered amphoras were exposed in the long awaited local Sea Museum.

Fig. 4 - ***Egnazia (BR): submerged Roman pier (ph. Dept. of Cultural Heritage - UniSalento - F. Zongolo).***

Fig. 5 - ***S. Cataldo (LE): Roman pier (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

Other investigations in the 1980s concerned the coastal area of Salapia. They were intended mainly for protection purposes, with respect to damage caused by fishing and clam harvesting, and resulted in the identification of numerous areas with amphoras and other materials related to both wrecks and port discharges [13]. Moreover, along the coastline of Barletta, the ancient *Barduli* known from the *Tabula Peutingeriana*, unsystematic research has led to the recovery of considerable quantities of Roman amphoras.

Along the shoreline of central Puglia, between Bari and Bisceglie, new and detailed investigations have been conducted by the University of Bari Aldo Moro. These investigations have also relied on the training activities part of the Underwater Archaeology Laboratory of the Taranto campus of the University of Bari; underwater surveys and didactic archeological worksites have taken place in the urban area of Bari, at Cala S. Giorgio and in Molfetta. Through these investigations it has been possible to reconstruct the trade routes and figure out what maritime traffic was like in the ports of S. Giorgio and Bari from the Archaic and Hellenistic Ages up to the Mediaeval and Modern Ages [14].

As part of the research on the Salento coastal landscapes carried out by the University of Salento (see above), it is worth to recall the sites of Egnazia [15], Torre S. Sabina [16] and Torre Guaceto [17], north of Brindisi. Furthermore, Torre S. Sabina was the target of a pilot intervention in the framework of the UnderwaterMuse project (see below) due to the quality and variety of the archaeological remains in the bay. The last investigations, aimed at enhancement and public use, have opened a new important chapter for this site.

An important addition concerned the site of S. Cataldo, and in particular its Roman pier (in "caisson work",

Fig. 6 - ***S. Cataldo (LE): submerged blocks of the Roman pier (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

permanent stone work with large boxes or cells made of ashlar blocks, then filled with concrete) that Pausanias attributes to the Emperor Hadrian (figs. 5-6) [18].

In 2014, based on a targeted excavation, archival documentation and radiocarbon dating, a subsequent XV century phase of construction of the pier was identified - commissioned by the Angevin Queen Maria d'Enghjen - which is believed to have exploited, at least in part, the Hadrian pier as a foundation. This new construction phase of the pier was probably destined to favour the flourishing Venetian settlement of Lecce and to make S. Cataldo one of the twenty-six marine strongholds which garrisoned the Kingdom of Naples [19].

Two kilometers south, at the level of northern border of "Le Cesine" Natural Reserve, the surveys carried out during *UnderwaterMuse* project led to the identification of a large port complex probably from the Augustan or Early-Imperial period (see below), which features similarity with the S. Cataldo Hadrian pier. Furthermore, at the shoulders of the coastal dune of Le Cesine, on a light

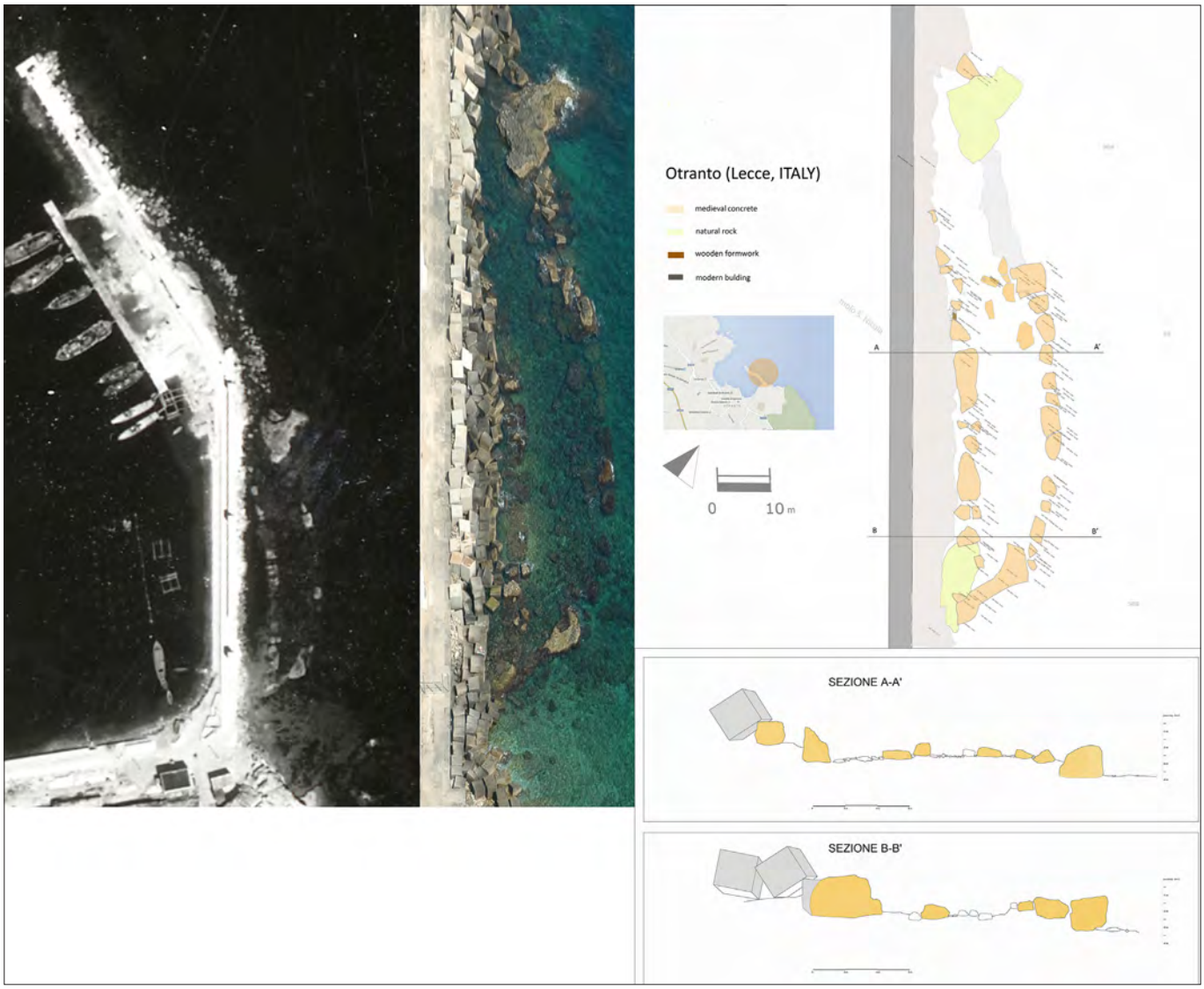

Fig. 7 - ***Otranto (LE): Angevin pier (aerial photo, general plan and cross-section).***

ridge between the today marshes (the "speaking" toponym is "Specchiuddhri"), remains of a protohistorical settlement suggest a landscape completely different between the Bronze and Iron age [20].

A targeted intervention concerned also Otranto, where a massive port infrastructure - which was partly covered by the modern pier of S. Nicola - has been identified, thanks to a surprising overlap of historical and archaeometric data, with the *opus portus Ydronti* commissioned by Charles I of Anjou, *rex utriusque Siciliae*, in his ambitious program of defense and strengthening of the Puglia coastline, which also involved the restructuring of the port of Otranto, probably brought to completion by 1282 (figs. 7-8) [21].

Moreover, recent underwater reconnaissance and surveys carried out in the port area of Otranto have allowed to detect parts of the Hellenistic city walls, used as foundations of the Aragonese fortifications [22].

Over the last decade a systematic study of the Ionian belt has been conducted on the coastal stretches belonging to the towns of Nardò (between S. Maria al Bagno and

Fig. 8 - ***Otranto (LE): concrete structure of the Angevin pier (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

Punta Prosciutto), Gallipoli, Ugento, Patù, also in connection with degree theses and PhD dissertations [23].

A recent in-depth study has concerned the Gallipoli coastline and above all the isola di S. Andrea, both on land, where accurate archaeological reconnaissance had already been carried out in 2003 [24], and at sea: significant

Fig. 9 - ***Island of S. Andrea (Gallipoli, LE): amphorae sherds on the seabed (ph. Dept. of Cultural Heritage - UniSalento - L. Coluccia).***

Fig. 10 - ***Frascone (Nardò, LE): hypothetical reconstruction of the Late - Imperial fishermen village (M. Alberti).***

Fig. 11 - ***Frascone (Nardò, LE): finds from the layers of the fishermen village (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

frequentations have been found during the Middle and Final Bronze Age, as well as during the Late Imperial and Late Antiquity ages, and even during the Middle Ages (fig. 9).

The coastal landscapes of Late Antiquity Salento seem to have been strongly characterized by productive settlements, (e.g. for S. Foca, along the Adriatic coast, we have used the "*vicus industrial*" typology [25]), perhaps of a seasonal nature, certainly linked to the exploitation of the resources of the sea at natural landing sites equipped with facilities for mooring and/or towing small fishing boats.

In addition to the above mentioned evidences of the S. Andrea Island (Gallipoli), settlements of this kind have also been found at Punta Pizzo (Gallipoli) [26], S. Pietro, Cheradi Islands (Taranto) [27], probably at S. Maria al Bagno (Nardò) and certainly at the site of Frascone, near Torre S. Isidoro, still in the territory of Nardò, inside the Natural Park of Porto Selvaggio-Palude del Capitano.

In the latter site, the excavations and surveys of the project *The Landscape as a Museum. Archaeology of the coast of Nardò* [28], have brought to light stratigraphic sequences, as well as other evidence, that allow us to hypothesize the existence of a building (*villa*?) belonging to a land estate (*fundus*) of the Republican age and of a village relying on fishing and sea-related activities (figs. 10-12), since the 3rd century A.D. For its location and its obvious maritime "vocation", this site could correspond to the fascinating and quite vague description of the *emporium Nauna* contained in a famous inscription found in Nardò and dated to 341 A.D., which has now been lost.

Also the nearby site of S. Caterina could correspond to this suggestive description: on the beach and on the

Fig. 12 - ***Frascone (Nardò, LE): finds from the layers of the fishermen village (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

sea bottom of the small inlet there are several elements that can be easily identified as infrastructural facilities of an equipped landing place serving the needs of the entire area: slipways presumably used for towing and sheltering boats, a breakwater and a port dumping site (fig. 13) [29].

Regarding the coastal area of Porto Cesareo, which coincides with the homonymous Marine Protected Area, new acquisitions and geomorphological studies have resulted in a better knowledge of the area: the Bronze Age village found on a promontory at Scalo di Furnu, which has unveiled phases of frequentation up to the Archaic Age, revealed a large submerged area with wall alignments and paved areas, which is between the promontory where the remains of the settlement are located and the small island in front of it, at depths varying between 2. 20 and 3.55 m.

Fig. 13 - ***S. Caterina (Nardò, LE): archaeological evidence in the inlet (elab. C. Alfonso Dept. of Cultural Heritage - UniSalento).***

Frequentation layers, remains of wall structures and artifacts of the Roman age on the promontory of the Torre Chianca and on the one just to the west, indicate the presence of an important productive settlement of the Roman age, as well as burial areas, partly semi-submerged and submerged. Other contexts – settlements and quarries from the Bronze to Roman age – were individuated on the island of the Porto Cesareo Archipelago (Isola dei Conigli, Isola della Malva) and in other points of the coast (Torre Castiglione, Mass. Belvedere, etc.). Even the settlement discovered on the peninsula of Strea – most probably the enigmatic Cesarea Augusta, commissioned by Frederick II (1194-1250) for fortification purposes along the coastline, like Rocavecchia on the Adriatic – exhibits wall portions which disappear below sea level [30].

In addition to the Ionian area, the research was extended to the coastal area south-east of Bari, with the inclusion of Central Puglia in the Map; the investigations conducted in the various inlets of Mola (Cala Padovano), Polignano (Cala S. Vito), Monopoli (Cala Incina, Cala Marzano, Porto Diavolo at Cala S. Stefano) have outlined the presence and function of various landing sites, such as the one connected to the *villa maritima* of Cala Padovano [31], or that of S. Vito di Polignano, with a fishpond, canals and quarries below sea level, connected to the Abbey compound [32].

All these research and submerged or semi-submerged markers allowed us to evaluate in the different coastal stretches the relative sea level changes and re-draw the ancient shoreline and the palaeo-landscape, in order to define modes, forms and phases of the ancient human settlement [33].

3.2. *Sanctuaries and places of worship*

A distinctive feature of the coastal geography of Apulia and in general of the Adriatic Sea and the entire Mediterranean is maritime cult sites. The 'sacred' dimension of seafaring has developed over the centuries, as evidenced also by the number of cults and deities linked to sea travel, from Poseidon to Aphrodite to the Dioscuri, later to be replaced by Christ, Mary and Christian saints.

The coastal landscape of the lower Adriatic is marked by the presence of landings sometimes connected to coastal maritime shrines. They are attested in large number along the Otranto Channel, which was also associated to a sinister reputation for danger that has been translated into a literary topos, offering an interesting insight into the 'religious life' of sailors and other travelers.

The research project "The Sea and the Sacred. Landings of Men and Gods" is part of a broader project on the Archaeology of the Adriatic Coastal and Underwater Landscapes, conducted both on the Apulian side and on the opposite shore of the Adriatic [34].

Fig. 14 - ***Islet of Sant'Eufemia (Vieste, FG): aerial photo (ph. Dept. of Humanities- UniFg).***

The first phase of investigations focused on the so-called *Venus Sosandra* cave, in the Islet of Sant'Eufemia, characterized by the presence of an imposing Lighthouse, built around the middle of the 19th century in front of the port of Vieste (Figs. 14-15) [35].

The interest in investigating the Viestan cave arises from the evaluation of the limited information currently available, even though it is a context of extraordinary importance for reconstructing the 'sacred geography' of a strategic stretch of the Adriatic Sea. In fact, the cave offers an interesting insight into the 'religious life' of sailors and travelers engaged in the navigation of the lower Adriatic Sea, which is characterized by the presence of numerous maritime shrines.

Some of the latter have been well researched: for example, along the Salento coast, the sanctuary of Grotta Poesia in Roca, the cave of San Cristoforo in Punta Matarico, Grotta Zinzulusa (and the Athenaion on the promontory) in Castro, Grotta Porcinara in Punta Ristola, near the Leuca landing [36]. On the opposite Albanian shore is the sanctuary in the Grammata Bay on the Karaburun peninsula, recently investigated by the University of Foggia team as part of the *Liburna* research project (see below) [37].

In the Viestan cave, the rock walls preserve an extensive epigraphic repertoire with dozens of inscriptions, engraved by sailors and travelers who wished to leave traces of their passage, from the 2nd-1st centuries BC to our contemporary times (fig. 16a-b). The most recent

Fig. 15 - ***Islet of Sant'Eufemia (Vieste, FG): entrance of the cave-sanctuary and modern lighthouse (ph. Dept. of Humanistic Research and Innovation - UniBa - G. Volpe).***

Fig. 16a - ***Islet of Sant'Eufemia (Vieste, FG): 3D survey of the cave (ph. Dept. of Humanistic Research and Innovation - UniBa - G. Volpe).***

Fig. 16b - ***Islet of Sant'Eufemia (Vieste, FG): inscriptions with dedications to*** **Venus Sosandra.**

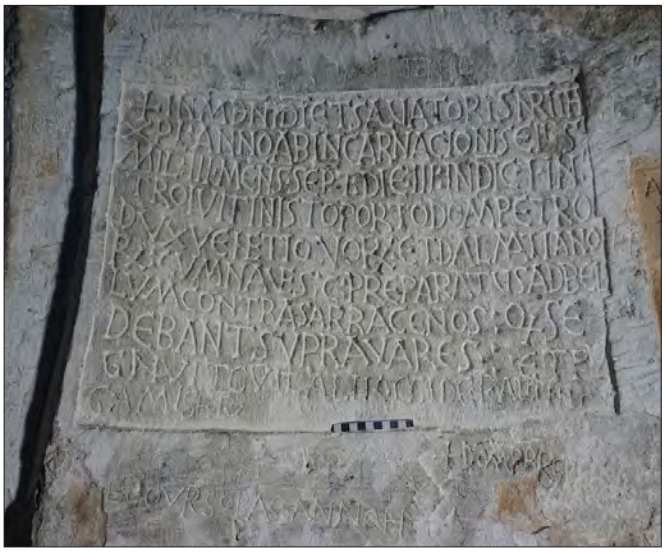

Fig. 17 - ***Islet of Sant'Eufemia (Vieste, FG): inscription of Doge Pietro II Orseolo (ph. Dept. of Humanistic Research and Innovation - UniBa - G. Volpe).***

testimonies are those left by the lantern-makers, which reused the cave as a stable/depot. It cannot be ruled out that in ancient times the hypogeic complex was larger and more articulated, as the presence of a small cave next to the larger cavity suggests.

About two hundred and fifty inscriptions, many of them unreadable, and signs of various types, ranging from Roman to contemporary times, have been found. Crosses predominate among the symbols. The dedications to *Venus Sosandra*, one of the deities connected with the sphere of the sea and especially with maritime travel, suggest the presence of a sacred place for the worship of the deity, to which Catullus perhaps alluded in his Carmen 36 (Cat. *Carm.* 36, 11-13) where, among the localities connected with the veneration of the goddess, the poet mentions *Uriosque apertos* – if the assumption of the identification of Vieste with ancient Uria is correct.

Aphrodite-Venus shrines punctuated the Mediterranean coastlines at strategic points. Consider, for example, the shrines of Aphrodite Erycina in Sicily, St. Venera in Paestum, St. John in Venus at the mouths of the Sangro River, or Populonia. These shrines symbolize the interaction between navigation, beliefs, devotion and economic practices.

The Viestan hypogeum was used as a place of Christian worship and played a prominent role in later centuries as

Fig. 18 - ***Islet of Sant'Eufemia (Vieste, FG): fresh water tanks (ph. Dept. of Humanities- UniFg – D. Leone).***

well. On September 3, 1002, Doge Peter II Orseolo had an inscription engraved to commemorate his passage during the expedition to rescue Bari besieged by the Saracens (fig. 17).

Archaeological excavations, moreover, are documenting the presence of a necropolis, dating back from the 5th century to the 10th-12th centuries, and cisterns for the supply of fresh water, which was indispensabile for boats, as confirmed, moreover, by the presence of a freshwater spring, inspected in the course of our recent research (fig. 18).

Between the next activities of ESAC, other investigations are planning in Grotta Zinzulusa (Castro, Lecce), in particular in the waters of internal Laghetto della Conca and in the facing seabeds, carried out by University of Salento in collaboration with University Politecnico of Turin.

3.3. *Cargos, ships and routes*

An equally rich panorama is the one offered by the trade flows and routes, also due to the most recent documentation of loads and ships, landmarks of sea routes.

The most ancient shipwreck, dated back to the Archaic age (first half of 7th cent. BC), has been recently discovered in the Otranto Canal at a depth of 780 m, during the construction of the TAP (Trans Adriatic Pipeline) [38]: with its Corinthian cargo, it is a precious testimony of the relationship between the two shores, which continues also in the following centuries (late-Archaic cargo of Torre S. Sabina 3, beginning of 5th cent. BC or the one of Savelletri (Fasano, Brindisi), 3rd cent. BC) [39].

New findings confirm the vibrant economy of Southern Italy and of the Lower Adriatic area in terms of wine production and export in the Hellenistic and Late Republican age. In this regard it is worth mentioning the cargos at S. Caterina-Scogli delle tre Sorelle (Nardò, LE; fig. 19) and that near the peninsula of the Strea, at Porto Cesareo,

Fig. 19 - ***Scogli delle tre Sorelle (S. Caterina, Nardò, LE): scattered remains of Hellenistic cargo (ph. Dept. of Cultural Heritage - UniSalento - G. Piccioli Resta).***

along the Ionian coast of Salento, which add to those already detected in Gallipoli, Madonnina A (TA), Savelletri (BR), and La Palombara, Otranto [40].

The wreck of Torre Sinfonò (fig. 20), off the coast of the Municipality of Alliste, Lecce, with its "twin" load of the well-known one of S. Caterina [41] (fig. 21), now adds to the large number of isolated findings and to the recently discovered deposits of Greek-Italian amphorae which

Fig. 20 - ***Torre Sinfonò (Alliste, LE): cargo of Greco-Italic amphorae (courtesy Nucleo Carabinieri Sub - Bari).***

Fig. 21 - ***S. Caterina (Nardò, LE): cargo of Greco-Italic amphorae (ph. Archivio Aquarius - F. Zongolo).***

are certainly also of local production. Several are the cargos that testify the continuity of Salento rich agricultural production and the large export of oil and wine in containers made in the kilns of Brindisi and Lecce territories but probably also elsewhere, at the end of the Republican age: Torre S. Sabina 4, Pedagne, Porto Badisco, Tre Senghe (Tremiti), etc. But there also exist some categories of goods with an ancillary function of "saleable ballast". Various loads attest to trade flows of building materials, stones and above all bricks (*tegulae* and *embrices*) [42]. In this respect of great interest is the Saturo's cargo (Leporano, Taranto) of tiles probably from Metaponto, which accounts for an important point of reference in terms of sea level changes [43], as well as the one of Baia di Campi near Vieste [44].

Furthermore, in Salento the coast was affected by a rich quarrying activity, as attested by the very frequent

Fig. 22 - ***National Archaeological Museum of Taranto - MarTA: cadi from Torre S. Giovanni (Ugento, LE) (ph. Dept. of Cultural Heritage - UniSalento - R. Auriemma).***

traces of ancient quarries still visible. These probably used barges to transport the local calcarenite blocks and slabs, such as the wreck B identified in the bay of Saturo [45] and the cargo near Punta Penne (Brindisi), recently surveyed and still unpublished.

But also other loads, including loads of of basins and *mortaria* as the one from the early Imperial Age detected in the waters off Gallipoli, can be added the shipwrecks with loads. This load was probably coming from the central Italic area and was heading towards the Adriatic or the eastern Mediterranean [46].

As far as the *dolia wrecks* are concerned, various findings - at Gallipoli, Ugento, in the Strait of Otranto, offshore Monopoli and probably in other localities of the Salento coast - have enriched the records already available while also completing the picture of the merchant routes linked to the great flow of exports of Italic and provincial low-quality wine destined to large consumption [47].

The *dolia* are often associated with smaller egg-shaped containers, the so-called *cadi*, or pitch containers (fig. 22) [48].

Imports from North African provinces in middle and late Imperial age are testified by the cargos of the Torre S. Sabina 1 beached wreck (see below), Torre Chianca di Lecce and Scogli di Apani [49], and by the one in Porto Cesareo, between Torre Chianca and Torre Lapillo, made up of Tripolitanian amphorae (see below).

Various wrecks of *naves lapidariae* scattered along the Ionian coast of Salento mark, along with those on the Calabria coasts, that "marble way" coming from the eastern Mediterranean: they are detected at S. Pietro in Bevagna, Torre Sgarrata (both cargos of sarcophagi od Aegean marble), Porto Cesareo (column of cipollino marble from Evia Island) [50].

Fig. 23 - ***Bacino Grande (Porto Cesareo, LE): remains of the hull of the Byzantine wreck (ph. Dept. of Cultural Heritage - UniSalento - G. Piccioli Resta).***

Recent significant reconnaissance efforts have been carried out on wrecks from the medieval and modern ages, many of them beached; of particular importance are those in Bacino Grande (fig. 23), of Byzantine age (860-940 radiocarbon dating), and La Strea, both in Porto Cesareo (LE), and the Venetian one - *Galea Magna* - (see below), wrecked in 1598 at the entrance of the "trap bay" of Torre S. Sabina, whose only scattered fragments and onboard equipment still remain, brought back from the sea on various occasions (fig. 24). In the last years other wrecks have been found at Taranto (S. Nicolicchio shipwreck) [51], T. Guaceto (BR), Torre Rinalda, Le Cesine [52], Spiaggiabella, Faro di S. Cataldo (4 beached wrecks and now lying between 1.5-3 m deep along the marinas of Lecce), Otranto (figs. 25-27). The most recent intervention, carried out by ESAC (see below), concerned a beached wreck dated back to 16th-17th century near Punta Penne, Brindisi, a coastal stretch with high density of submerged assets.

The sea of the Tremiti Islands holds two of them: the wreck of the Piastre and the illustrious wreck of the Lombardo steamship, that with Piemonte left from Quarto on 5 May 1860 with Giuseppe Garibaldi and his "Thousands"

Fig. 24 - ***Torre S. Sabina (Carovigno, BR): four helmets stacked and stuck together by concretions, from Galea Magna (ph. Dept. of Cultural Heritage - UniSalento - P. Pulli).***

Fig. 25 - ***Torre Guaceto (Carovigno, BR): wreck of Modern age (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

Fig. 26 - ***Torre Rinalda (Carovigno, BR): wooden barrels full of gunpowder from the wreck of Modern age (ph. Dept. of Cultural Heritage - UniSalento - F. Zongolo).***

heading for Sicily to begin the process of Italian unification. It is now an excellent destination of underwater tourism [53].

It's noteworthy that Puglia shallow waters are dotted of beached wrecks, from Roman, Medieval and Modern age, that are also very useful markers of ancient sea levels and of deep landscape's changes, resulting of past and very recent research; on this topic a specific study is ongoing [54].

Another line of research has had the objective of gaining more detailed knowledge and definition of certain classes of materials which are sometimes "neglected" by the research efforts. These elements and materials include, in particular, the ship equipment and on-board living objects, including fishing gears. One of the studies of this line of research has focused on a large amount of

Fig. 27 - ***Le Cesine (Vernole, LE): cannon from the wreck of Modern age (ph. Dept. of Cultural Heritage - UniSalento - C. Alfonso).***

lead stocks and lead reinforcement collars of wooden anchors, in an attempt to chronologically frame their development and use on the basis of intrinsic factors through techniques such as radiocarbon dating, in order to verify the feasibility of a typology seriation across the two stock types (fixed and mobile) [55].

Finally, it is worth mentioning the research work, still in progress, on naval iconography, which covers both the archaic and the medieval and modern ages [56].

4. Enhance the sea heritage: museums and temporary exhibition projects

Territorial animation, permanent/temporary exhibitions and digital valorisation: a network of projects with which the Puglia Region and the three Apulian Universities have given space to a living story of the sea in all its aspects.

Fig. 28 - ***The 'phygital' exhibition Taras and the gifts of the sea.***

Fig. 29 - ***The Taras Gifts app.***

Fig. 30 - ***National Archaeological Museum of Taranto. Taras and the gifts of the sea exhibition (ph. Dept. of Humanities- UniFg – D. Leone).***

The last one in chronological order is one of the main deliverables of the project *FISH.&C.H.I.P.S.* (see below), *Taras and the gifts of the sea*, at the National Archaeological Museum of Taranto - MArTA (April - December 2022), with a strong innovative features: it combines multimedia and traditional tools, digital and analog, virtual reality, and material objects (figs. 28-30) [57].

The exhibition allows visitors to delve into the historical-social-economic-cultural context of Taranto between Antiquity and the Middle Ages, to illustrate the port system and the fishing communities that have always characterized the life of the Two-Seas City, to follow the trade routes that have fueled Taranto's thriving economy over the centuries, and to carry out 'virtual' dives on the wrecks of ancient, medieval and modern ships. It also proposes a kind of itinerary along the coastline dotted with Roman villas and production facilities, particularly fishponds and fish processing facilities, emphasizing the

role of one of the territory's main resources, the famous Taranto salt extracted from the extensive coastal saltpans.

Much space is devoted to the various sea resources: fishes, oysters and other mollusks, purple extracted from murici, and byssus, another special resource of Taranto, long celebrated from Antiquity to recent centuries. All these topics are approached with a multidisciplinary, historical, archaeological and bioarchaeological, topographical and iconographical approach and with the use of multiple source systems [58].

Fig. 31a - ***Brindisi Airport: Into the Sea of Intimacy. Underwater archaeology tells the story of Salento exhibition (ph. Dept. of Cultural Heritage - UniSalento - A. Antonazzo).***

The exhibition *In the Sea of Intimacy. Underwater archaeology tells the story of Salento* [www.nelmaredellintimita.it; e-mail: info@nelmaredellintimita.it; Facebook: @nelmaredellintimita; Instagram: @nel_mare_dellintimita] was an important and significant initiative, held in Brindisi, at the Airport of Salento (July 5, 2019 - January 10, 2021), organized by Puglia Region-*Assessorato all'Industria turistica e culturale* and *Aeroporti di Puglia* (figs. 31a-b). In more detail, the exhibition is intended to display underwater archaeology finds, unpublished multimedia content, contemporary art in a storytelling format like in an ideal sailing tour along the shores of this land to discover the web of routes and the intense relationships that have made this land part of the Mediterranean *koinè*, and the "gateway to Italy" over the centuries.

But the exhibition is also the "beating heart" of a network of planning and programming relationships, promoted by the Assessorato through the commitment of its Libraries and Museums Hubs with the participation of local museums, which have been called upon not only to lend some precious finds from their respective collections, but also to host a corner dedicated to the exhibition, in one of the museum rooms with dedicated informative materials and multimedia installations on display (figs. 32a-b) [59].

Fig. 31b - ***Brindisi Airport: Into the Sea of Intimacy. Underwater archaeology tells the story of Salento exhibition (ph. Dept. of Cultural Heritage - UniSalento - A. Antonazzo).***

Fig. 32a - ***Into the Sea of Intimacy. Underwater archaeology tells the story of Salento exhibition: the Museums network.***

Fig. 32b - ***Into the Sea of Intimacy. Underwater archaeology tells the story of Salento exhibition: the Museums network.***

Fig. 33 - ***Nardò (LE): Museum of the Ancient Sea (ph. Dept. of Cultural Heritage - UniSalento - R. Auriemma).***

Among the museums that are partners of the exhibition, the recent *Museo del mare antico of Nardò* is entirely devoted to the coastal and underwater landscapes of the area; it is small but full of contents, also educational in nature: archaeological research on land and at sea and new technologies, the coastal site of Frascone, with its different phases, the underwater site of S. Caterina di Nardò and other submerged or semi-submerged findings in the sea of Nardò (fig. 33).

Other museums contain conspicuous sections on seascapes and underwater archaeological research: this is the case of the two former provincial museums of Brindisi and Lecce, now owned by the Puglia Region through its Regional Libraries and Museums Hubs, due to their long

Fig. 34 - *Brindisi: Ribezzo Archaeological Museum (ph. Dept. of Cultural Heritage - UniSalento - R. Auriemma).*

history and the centuries-old role of "stronghold" of the territory.

Furthermore, local departments of the *Centro Sperimentale di Archeologia Sottomarina di Albenga*, instituted by Nino Lamboglia, the founding father of the Italian underwater archaeology, were active in both the museums.

The *Archaeological Museum of Brindisi "F. Ribezzo"*, founded in 1884 and completely renovated in 2009, has various rooms and collections of Underwater Archaeology, coming from the long season of underwater researches carried out by the Museum direction along the whole Brindisi coast. The bronze cargo of Punta del Serrone excels between the other artworks, with the famous statue of Consul Lucius Emilius Paulus, the protagonist of prestigious international exhibitions. The bronze statues' digital "avatar", integrated through a brilliant work of iconographic study and 3D modelling, enriched the Airport exhibition and now the Museums' itineraries (fig. 34) [60].

The rich section of the "Seascapes" opens the freshly restyled exhibition itinerary (2019) of the *Castromediano Museum of Lecce*, a community museum divided into modules dedicated to the "landscapes" of Salento (the "seascapes" are followed by the landscapes of the sacred, the living, the dead and of the performing arts). Among the main exhibits, the reconstruction of one the sides of a Roman ship with its load of wine and oil amphorae (fig. 35), of various anchors and the spectacular representation of a seascape, that of the wreck of Porto Badisco, with the original amphorae of the load as protagonists in a large aquarium populated by marine fauna and flora.

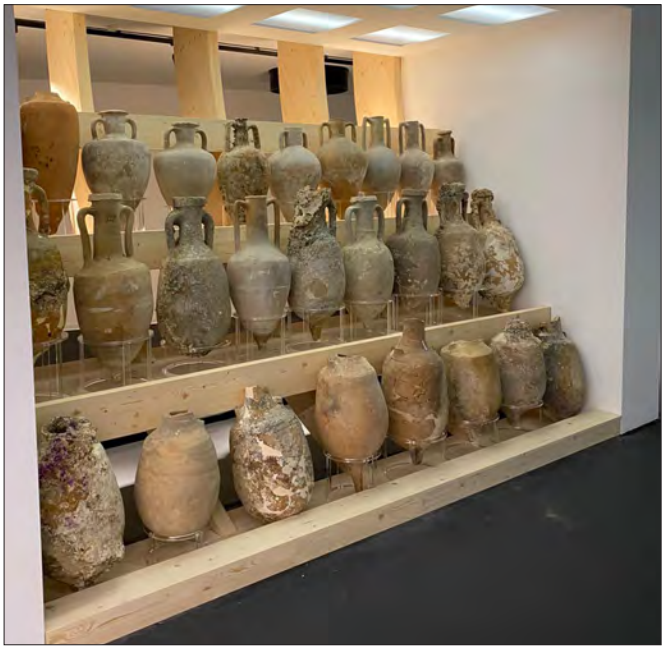

Fig. 35 - *Lecce: Castromediano Museum courtesy Castromediano Museum).*

Also the *"E. Barba" Civic Museum of Gallipoli*, the oldest of the Salento area, a true Wunderkammer for the wealth and variety of its collections, boasts a section dedicated to the sea findings discovered during its long history, which was displayed in a dedicated exhibition, *Stories from the sea of Gallipoli* (July-August 2021).

Fig. 36a - ***Torre Guaceto (Carovigno, LE): National Nature Reserve and Marine Protected Area (courtesy Poli Biblio-Museali - Regione Puglia).***

The *Torre di Santo Stefano or Torre Chianca* in Porto Cesareo, in the homonymous MPA, hosts an archaeological itinerary through the rich coastal landscape of Porto Cesareo and its underwater archaeological sites: the permanent exhibition *Stories from the sea of Porto Cesareo. The statue of the god Thoth and the recent underwater archaeological research*, inaugurated in 2017, with a special focus devoted to the precious statuette of the god Thoth, recovered in the '30 years of 20th century in the waters near the Tower; in 2020 a fruitful collaboration between various actors – Municipality, MPA and Environmentalists Coordination of Porto Cesareo, Superintendence Archaeology, Fine Arts and Landscapes of Brindisi, Lecce and Taranto, Puglia Region and University of Salento – allowed the implementation of another segment of the exhibition: *Routes, goods and ships: the storytelling continues...*, which however will be further increased [61]. The ground floor is entirely devoted to marine biology and environmental awareness activities.

Inside the 16th century watchtower, which is the symbol of the *National Nature Reserve and Marine Protected Area of Torre Guaceto,* a permanent exhibition illustrates the landscape, the places and the trade flows of this stretch of coast in Roman times, also thanks to a full-scale reproduction of a small *coaster* used for transporting locally produced amphorae full of local wines and oil to the large port of Brindisi (fig. 36a-b).

Fig. 36b - ***Torre Guaceto (Carovigno, LE): 16th century watchtower, permanent exhibition (ph. Dept. of Cultural Heritage - UniSalento).***

Fig. 37 - *National Archaeological Museum of Taranto - MarTA: headless statue of Kore di Montegranaro (courtesy MArTA).*

The network of museums of the "sea of intimacy" includes the *National Archaeological Museum of Taranto - MArTA*, which also displays precious sea exhibits, including the headless statue of Kore di Montegranaro (fig. 37).

The town of Nardò, which boasts a number of museum exhibitions, is also home to the *Museum-Aquarium of S. Maria al Bagno*, main deliverable of the Territorial Cooperation Project (Greece-Italy Programme 2007-2013), APrEH, which recounts the story of the seabed of that stretch of coastline from a biological-naturalistic and historical-archaeological point of view, with the presence of wrecks (reconstructed or virtual) in their current relationship with sea waters. The materials and contexts recovered from the seabed are preserved in the *National Museum "Giuseppe Andreassi" and the Archaeological Park of Egnatia*, coming in part from the opposite port basin, equipped with concrete infrastructures dating back to Roman age. In 2022, thanks to a European funding, a new museum section devoted to "*Egnazia e il mare*" and conceived in a more immersive and attractive way, was inaugurated, to enhance the privileged relationship that the site has always had with the sea [62].

The Department of Cultural Heritage of Salento University underwater researches are partially displayed in the *Historical-Archaeological Salento University Museum - MUSA*, aimed at document and valorize the Department research activities and results.The setting up, conceived according the most modern museum standard, shows over the 300 finds coming from the excavations carried out in the Salento area, along with archaeological contexts' replicas and multimedia productions.

In northern Puglia, the *Civic Archaeological Museum "Michele Petrone" of Vieste*, renovated in 2019, boasts a large number of amphorae used for transporting goods and anchors in stone and lead, testifying to the ancient maritime vocation of Vieste during the Roman and Late Antiquity ages. Also the *National Archaeological Museum of Manfredonia*, hosted in the Swabian Castle, under re-setting-up, conserves finds from the sea of Capitanata and Gargano.

Like the previous ones, the *Bisceglie Archaeological City Museum* displays finds recovered from the sea: amphoras from the sea bottom near Salsello; in addition, the *City Maritime Museum* is open since 2002, with sections devoted to ship models, nautical equipment, anchors, fishing, ex-voto, underwater activities and archaeology.

The *Monopoli Maritime Museum*, inside the Castle of Charles the Fifth, was founded in 2010 to valorize the historical evidences of the town and its strongly connection with the sea, from the Bronze age to the beginning of 19th century; it displays various significant items, before preserved inside the Municipality warehouses and therefore not accessible.

The *Permanent Ethnographic Exhibition of the Sea in Molfetta*, operated by the Archeoclub, takes visitors on a journey through the centuries-old know-how of building wooden boats; it was part of the successful *Museo Navigante (Sailing Museum)* initiative, promoted, among others, by the Mu.MA-Galata of Genoa, which brought together 58 public and private museums of the sea and seafaring to enhance Italian maritime cultural heritage [63].

The *Port Museum of Tricase - Ecomuseum of Venus* is located in the centre of the area protected by the Regional Natural Park "Costa Otranto, Santa Maria di Leuca and Bosco di Tricase" and is perhaps the only tangible example of a widespread musealization of a port, its sea, its coastal area and its people. Formally recognized as "Ecomuseum of regional interest" in 2017, it includes the

Museum of Traditional Boats and the School of Lateen Sailing and Ancient Seafaring, the Permanent Cultural Center on Ancient Maritime Traditions with the "Bibliomediateque of the sea", etc.

Finally, it is worth mentioning the large presence in the Puglia Region of museums and exhibitions dedicated to the marine environment and naturalistic heritage.

5. Enhance the sea heritage: the projects

In recent years, Puglia Region, in collaboration with the Universities, has taken part in international projects aimed at enhancing the underwater cultural heritage and the culture of the sea in general.

The first project in chronological order was *Liburna. Underwater Archaeology in Albania*, born out of the need to investigate contexts of extraordinary importance, though almost completely unexplored [64]. The project began in 2006 and developed over the course of four survey campaigns conducted between 2007 and 2010 [65]. The main objectives of the project involved the elaboration of an archaeological map of the Albanian coastline, with the survey of some sites of special interest, and the implementation of activities aimed at vocational training and the protection and enhancement of the underwater heritage.

On the basis of the available information and a number of scientific-technical considerations, and also taking into account the natural features of the sites, a number of large sample areas were investigated: the Bay of Port Palermo, the Bay of Vlora and the Karaburun promontory, and the Bay of Dürres (fig. 38).

Underwater investigations, extended where possible to the pericoastal terrestrial belts, were accompanied by an analytical study of the available documentation and accounts. Among the Modern Age sources useful for understanding a landscape that has changed rapidly over the centuries, travel reports by soldiers, ambassadors, archaeologists or ordinary travelers have been of particular interest, and in many cases have directed insights into certain aspects of the fieldwork.

Like the odeporic literature, in order to reconstruct the routes, itineraries, ports and landings of the eastern section of the southern Adriatic, the consultation of historical cartography and, in particular, of portolani and nautical charts of the Modern Age has been invaluable. These are cartographically imprecise documents of antiquarian nature, often restoring places on the basis of ancient literature or earlier originals, but nonetheless rich in useful information for commercial, military and civilian navigation: in fact, they report the presence of shoals, the

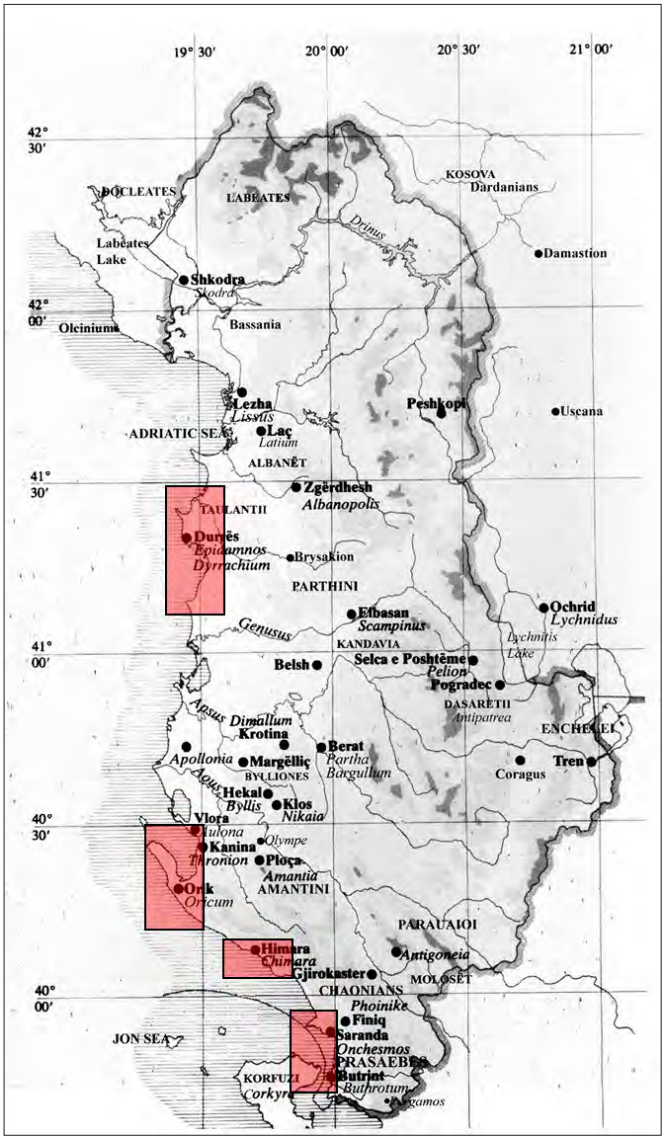

Fig. 38 - *Liburna Project: the surveyed areas.*

quality of landings, the depth of the water, some safe shelters according to the winds, freshwater supply stations, the dangers of piracy.

The collection of all the available and cartographically recorded information made it possible to circumscribe some sites that represented our sample of field surveys. Port calls of commercial and military nature were surveyed (Orikos, Porto Raguseo, Capo Treporti, Porto Palermo), natural bays suitable for anchoring, used as temporary shelters, subsidiary landings and/or as small commercial ports of call (San Giovanni, San Basilio, dell'Orso, Dafine bays), landings connected to cult places (Grammata Bay), and places of stone quarrying and cultivation (Mermer Quarries) (figs. 39-42).

Fig. 39 - ***Port Palermo (Albania): the bay (ph. A.S.S.O. – M. Vitelli).***

Fig. 40 - ***Port Palermo (Albania): amphorae deposits on the seabed (ph. A.S.S.O. – M. Vitelli).***

Fig. 41 - ***Mermer (Albania): quarries (ph. A.S.S.O. – M. Vitelli).***

Fig. 42 - ***Grammata Bay (Albania): some inscriptions engraved on the rocks (ph. Dept. of Humanistic Research and Innovation - Uni-Ba - G. Volpe).***

Special attention has been paid to issues related to the protection and enhancement of the underwater archaeological heritage, in view of a desirable establishment of stable Albanian underwater archaeological research facilities, a police or coast guard unit assigned to coastal surveillance, a Museum of the Sea, and underwater archaeological parks, which would contribute to a cultural, touristic and environmental development related to underwater archaeology and maritime scientific activities (fig. 43).

Closely intertwined with these aims were also the educational objectives. Students from the University of Tirana were involved in the activities of the Materials Laboratory, and their contribution proved fruitful in the operations of preservation, cataloguing and graphic documentation of the finds.

Between the transborder cooperation projects, it is worth mentioning the targeted research on the coastal belt of Taranto, including the Mar Piccolo, carried out in the framework of the *FISH.&C.H.I.P.S.* (Fischeries, Cultural Heritage, Identity and Participated Societies) project, in the framework of the Interreg V/A Greece-Italy Cooperation Programme (EL-IT) 2014-2020 (University of Foggia

Fig. 43 - ***Cape Treporti (Gulf of Vlora, Albania): surveys (ph. A.S.S.O. – M. Vitelli).***

Fig. 44 - ***FISH.&C.H.I.P.S. project: logo and partners.***

Department of Human Sciences lead partner: https://www.studiumanistici.unifg.it/it/ricerca/attivita-di-ricerca/progetto-fishchips) [66], which aims to provide a global and multi-interdisciplinary approach to sea-based and/or sea-related businesses while identifying and enhancing the identity elements related to the "historical memory" of coastal communities (fig. 44) [67].

The project stemmed from the desire to support the Apulian and Greek fishing communities with the aim to acknowledge the historical and cultural importance of a long-lasting practice recently strained by the crisis. By valorizing the coastal and marine cultural heritage of the Apulian and Greek fishing communities, both tangible and intangible, and recognizing their relevance, the project seeks to contribute to a process of sustainable development of both areas.

For this project, two case studies were selected: Taranto and Corfu, both relevant and long-established maritime cities. At the base of the project, there was the idea that another kind of development could be pursued,

Fig. 45 - ***Taranto, Mar Piccolo Ecomuseum: mussel farm itinerary (ph. Dept. of Humanities- UniFg – D. Leone).***

one based on cultural heritage and supported by researchers and cultural heritage professionals in cooperation with fishermen (the main actors) and local tour operators. Through well-structured projects, a series of actions can boost these territories (surveys of local tangible and intangible cultural heritage, Ecomuseums, community maps, educational laboratories, exhibitions on maritime environments, etc.).

We, indeed, believe that any project aiming to enhance these territories, in the setting of an Ecomuseum and through local communities' engagement, always requires a thorough historical and environmental analysis (figs. 45-46). On the one hand, to avoid any distortion of the cultural identity and, on the other, to identify the significant local historical and cultural events that have taken place over the centuries.

Both the Italian and Greek coasts (the coastal Apulia and Taranto, and the archipelago of Corfù) preserve a widespread presence of tangible (archaeological and architectural features, both emerged and submerged) and intangible (crafts, traditions, languages, music, events) cultural heritage (figs. 47-48). They are traces of the intense interactions between man and the coastal environment over time. Since prehistory, Taranto and Corfù have been at the center of Mediterranean maritime traffic because of their strategic position. Cultural exchanges occur along with exchanges of goods, as shown by the complex network of coastal sites, ports, landings, coastal towers, lighthouses, etc.

Stretched out into the Mediterranean, the Apulian peninsula has always been a gateway to the East and a crossing point for all the Adriatic routes. For these reasons, it is a useful case study for the analysis of the commercial, productive and cultural activities in the ancient, medieval, and modern Mediterranean.

Fig. 46 - ***Taranto, Mar Piccolo Ecomuseum: Community Map.***

Fig. 47 - ***Taranto: Cultural Heritage Map of Mar Piccolo.***

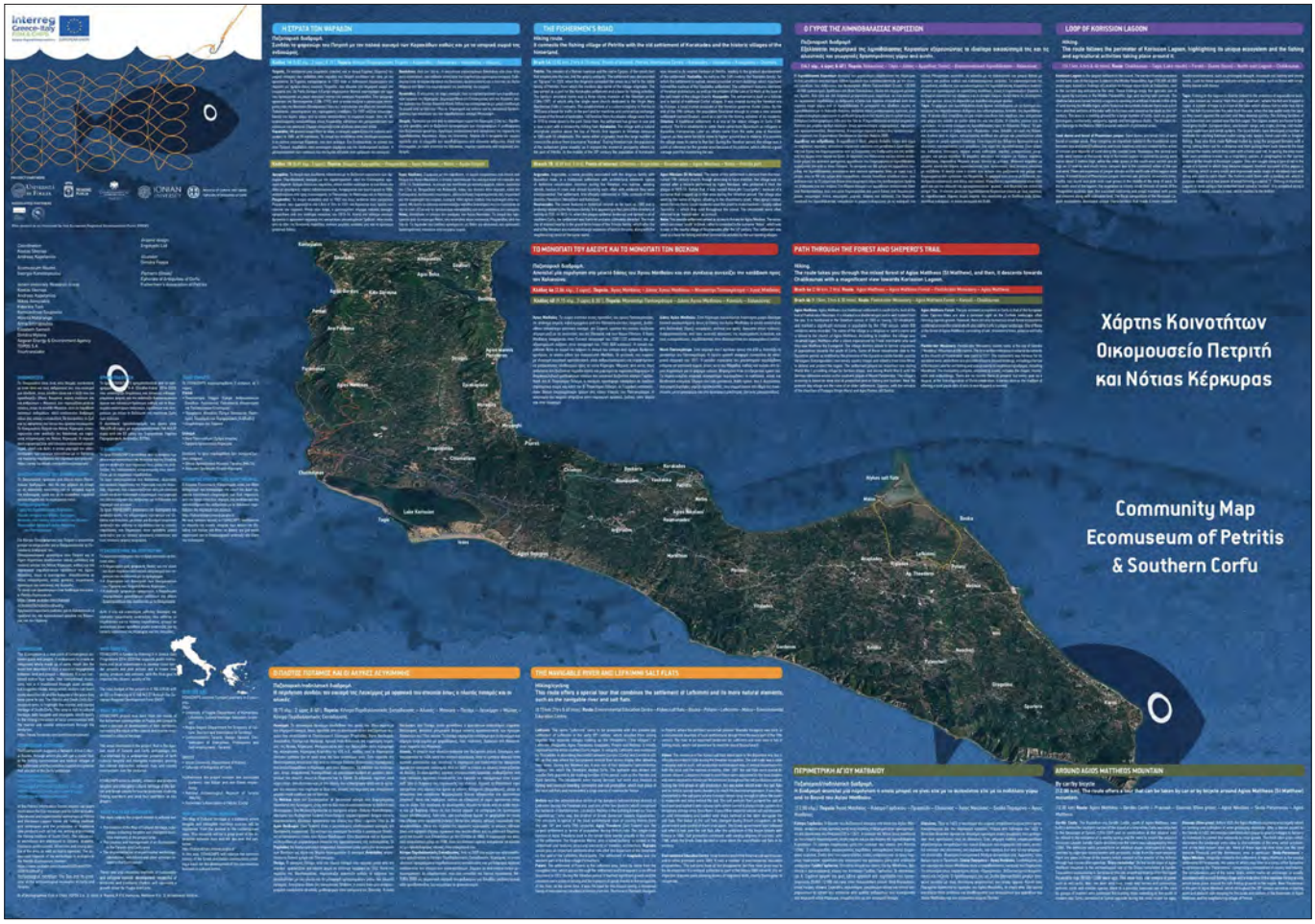

Fig. 48 - ***Corfu. Cultural Heritage Map.***

On the other side of the Mediterranean, the island of Corfù is, due to its environmental features, a perfect comparison for a trans-Adriatic project with a particular focus on the southern Adriatic and the Ionian Seas.

In both contexts, the "Mediterranean" features have strongly characterized the material culture and settlement strategies, and, more generally, the economic, social, and cultural life. For these communities, the exploitation of marine resources has been vital since prehistory (figs. 49-50). It is from the "tale of the sea" and the "harvest of the sea" (meaning, the stories of the sea and all sea-related manufacturing, analyzed with a global, multidisciplinary, and diachronic approach) that the project take inspiration.

As part of the project, a docufilm was created, *Ionio. A dialogue between two seas*, with the aim of bringing about a dialogue between two seas, two cities, Taranto and Corfù, and two mooring points that, for centuries, have seen the comings and goings of seamen, merchants, warriors, philosophers, artists and dreamers [68].

Regione Puglia was also partner in the *Underwater-Muse* project [69]. To take an amazing underwater cultural heritage in the hands of people through "pilot" experiences at sample sites in Friuli Venezia Giulia, Puglia and the region of Split, but also to bring that heritage to people who cannot physically visit these sites through technology. The road to take on this challenge starts from getting to know these cultural assets, through underwater research, and leads to their enhancement, through the participation of the people and communities involved. Regione Puglia shares the objectives of UnderwaterMuse: the *in situ* preservation and enhancement - as under the 2001 UNESCO Convention on the Protection of Underwater Cultural Heritage - through the creation of underwater archaeological parks with solutions that are suitable for the different types of contexts, but also the wider accessibility and the land-based enjoyment [especially *dry/virtual diving*] thanks to innovative and experimental methodologies and technologies. The long-term objective is to stem the loss of important past testimonies and above

Fig. 49 - ***Taranto: shell mosaic and tempera painting, view of the modern city and the Mar Piccolo with fishing scenes for (G. Ceci, late 18th century).***

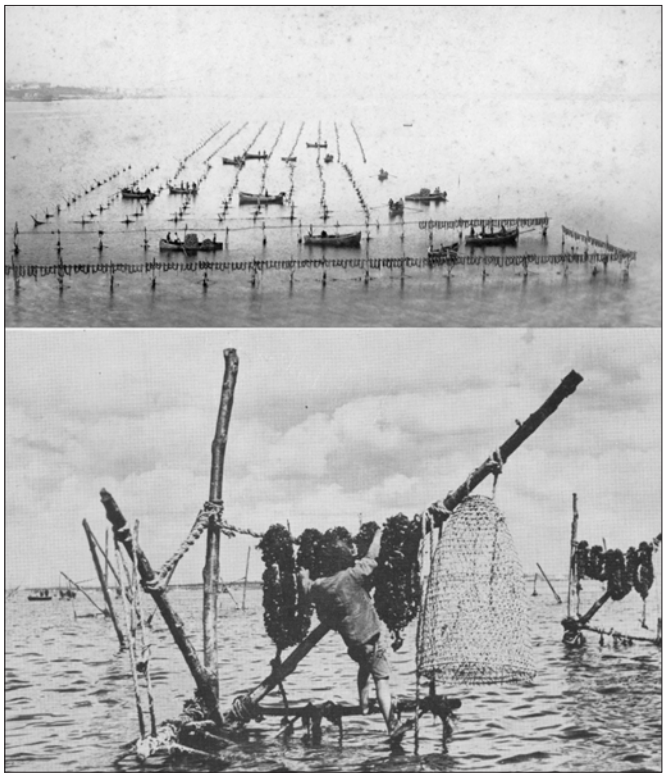

Fig. 50 - ***Taranto: mussel farming in the late 1800s and early 1900s.***

all to guarantee a positive economic impact in terms of sustainable tourist promotion of the cultural heritage as a common good, in line with the principles of the 2005 Faro Convention.

Torre Santa Sabina (Carovigno, Brindisi) in Puglia was chosen for a pilot intervention because of the exceptional potential of this millenary landing place: it is a "super-site", with stratifications of events that are also significant indicators of the coastal landscape evolution: cargos and hulls, but also remains of quarries and settlements (fig. 51).

The 2020-2021 intervention [70] was focused on the wreck of the Roman Imperial Age Torre Santa Sabina 1 (late 3rd to early 4th century AD), beached and abandoned at the ancient shore and now submerged due to the relative rise in sea level, a relevant marker of the seascape evolution (fig. 52-53). This wreck, embedded in the sand and a thick layer (mat) of degraded vegetable materials, is exceptionally well-preserved: it has yielded a few stanchions, deck beams and remains of overdeck beams, as well as presumed remains of the hatch, elements only rarely preserved in wrecks (fig. 54).

Fig. 51 - *Torre S. Sabina (Carovigno, Brindisi): Camerini bay (ph. Dept. of Cultural Heritage - UniSalento - E. Peluso).*

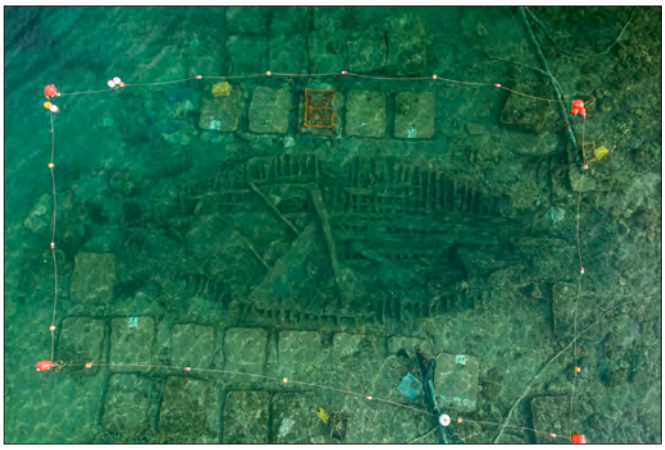

Fig. 52 - *Torre S. Sabina (Carovigno, Brindisi): TSS 1 beached wreck, drone photo (ph. Dept. of Cultural Heritage - UniSalento - E. Peluso).*

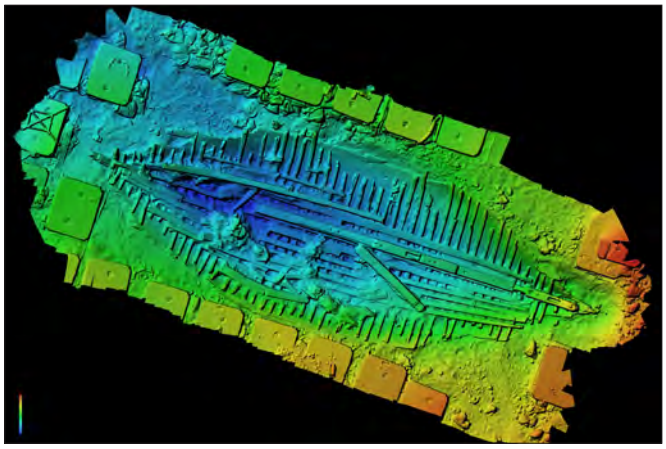

Fig. 53 - *Torre S. Sabina (Carovigno, Brindisi): TSS 1 beached wreck, DEM (elab. A. Calantropio - Politecnico of Turin; L. Coluccia - Dept. of Cultural Heritage - UniSalento).*

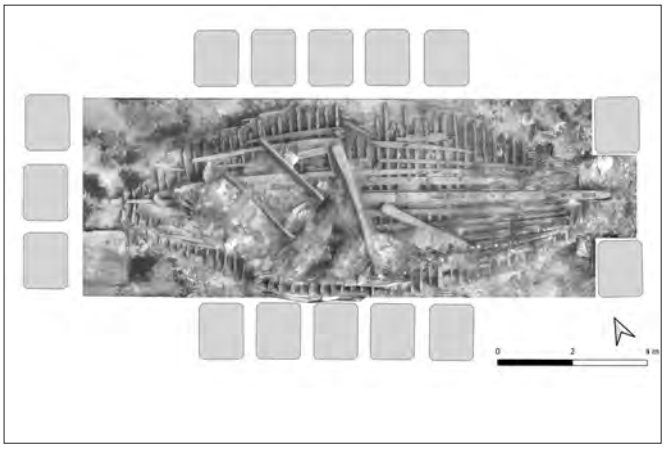

Fig. 54 - *Torre S. Sabina (Carovigno, Brindisi): TSS 1 wreck, ortophoto from photogrammetric survey (elab. L. Coluccia - Dept. of Cultural Heritage - UniSalento).*

Fig. 55a - *Torre S. Sabina (Carovigno, Brindisi): TSS 1 wreck, North-african amphora (ph. Dept. of Cultural Heritage - UniSalento - R. Pertoldi).*

Fig. 55b - *Torre S. Sabina (Carovigno, Brindisi): TSS 1 wreck, Dressel 30 amphora (ph. Dept. of Cultural Heritage - UniSalento - S. Notarangelo).*

The building features suggest that it was a 25-30 m long merchant ship that came from the Tunisian coast and transported wine or fish products from the North African provinces, maybe to Brindisi or another important Adriatic port. Actually, unlike what usually appears in beached wrecks, the excavations brought to light amphorae (fig. 55a-b), both intact and fragmentary, and various items in organic materials – hawsers, ropes, baskets,

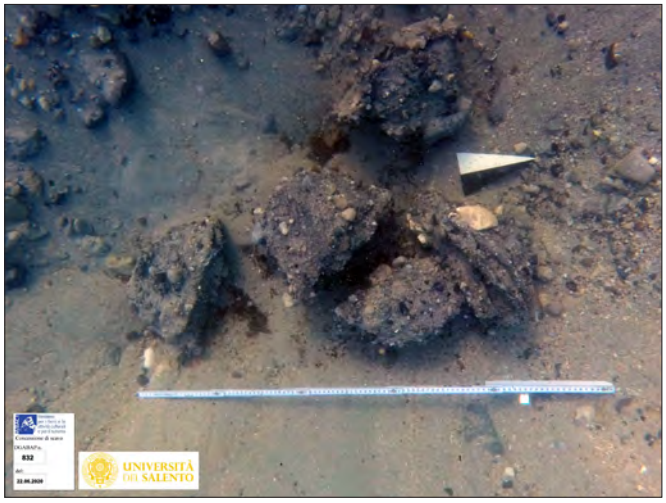

Fig. 56 - *Torre S. Sabina (Carovigno, Brindisi): Galea Magna, concreted helmets on the seabed (ph. Dept. of Cultural Heritage - UniSalento - F. Zongolo).*

Fig. 57 - *Torre S. Sabina (Carovigno, Brindisi): stratigraphic deposit at the foot of the western cliff of the bay (ph. Dept. of Cultural Heritage - UniSalento - M. Buccolieri).*

Fig. 58a - *Le Cesine Nature State Reserve – S. Giovanni: Roman pier (ph. Dept. of Cultural Heritage - UniSalento - E. Peluso).*

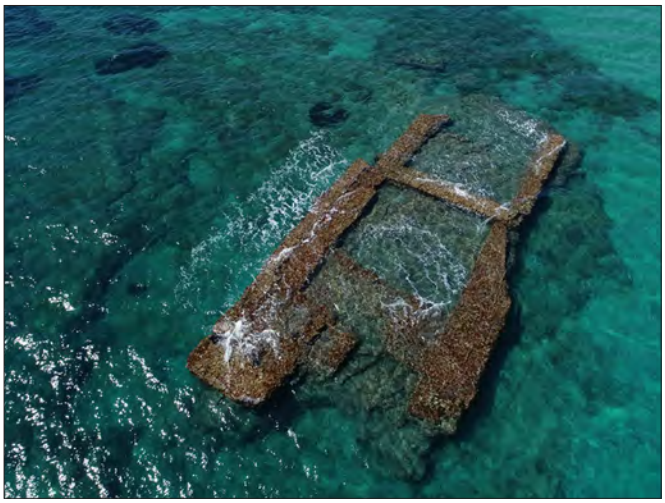

Fig. 58b - *Le Cesine Nature State Reserve - S. Giovanni: lighthouse structure? (ph. Dept. of Cultural Heritage - UniSalento - E. Peluso).*

leather objects – belonging to living on board equipment, as well as food remains, both faunal and botanical, found in the pump well. The entire hull was thoroughly documented by photogrammetric techniques to register the day-by-day results and to obtain a complete 3D model, for creating a virtual "clone" of the wreck and the original ship, with animations and stories capable of allowing the widest use of this precious common good.

Other evidence have been explored and identified, and are further protagonist, "spots" of the underwater trails: the scattered remains of the Galea Magna, a Venetian ship that sank at the entrance of the bay on January 1st, 1598 coming from Crete (figs. 24, 56; see above); other wooden remains of ships, but also a dense stratigraphic deposit at the foot of the western cliff, result of repeated sinking epysodes over the centuries and the subsequent ovelapping of the scattered cargos in this "trap bay" (fig. 57).

The seabed of Torre S. Sabina will be transformed into an archaeological park, through the underwater trails' design for understanding the precious traces of the submerged past: cargos of the ship that over the centuries have come to crash against the 'trap' doors of this bay, but also the remains of settlements and activities [71]. Furthermore, the GIS technology will make available an interactive map for the exhaustive knowledge of the seabed.

Always within the UnderwaterMuse project, surveys have been carried out in several coastal sites of Puglia to implement the *UnderwaterMuseMap* portal. The activity conducted in the *"Le Cesine" Natural Reserve*, on the Adriatic Sea, led to the identification of a large port complex

Fig. 59 - ***Porto Cesareo MPA: cemented sherds of Tripolitanian amphorae (ph. Dept. of Cultural Heritage - UniSalento - M. Buccolieri).***

Fig. 60 - ***Porto Cesareo MPA - T. Chianca: funerary stele from the submerged necropolis (ph. Dept. of Cultural Heritage - UniSalento - M. Buccolieri).***

probably from the Augustan or Early-Imperial period, composed by a big pier, whose foundation is preserved for a lenght of 90 m, a block structure in line with it, 40 m further offshore, apparently detached because of a large amount of sand accumulated in recent years, and another structure, maybe identifiable with a lighthouse (figs. 58a-b)[72]. Some walls and a probable saltpan are along the coast, while an ancient road with stone foundation leads from Lecce directly to the pier area; it is visible in some sections and in an aerial photo.

On the Ionian Sea, furthermore, in Porto Cesareo Marine Protected Area, new evidence has been added to the numerous ones already known, such as spectacular formations composed of cemented sherds of Tripolitanian amphorae (2nd cent. AD; fig. 59) and submerged portions of a settlement and necropolis area of the Roman Imperial Period (fig. 60-61), whose emerged part on the small Belvedere peninsula was already investigated. Already known in the area were the remains of a partially submerged Bronze Age settlement in the locality of Scalo di Furno, as well as the load of marble columns of a *navis lapidaria* that sunk in the locality of Torre Chianca, and two Mediaeval beached wrecks (see above). These findings are also significant markers of sea-level changes and the evolution of the seascapes[73].

The photogrammetric survey, both aerial (by drone) and underwater, carried out on all the submerged and coastal structures (fig. 61), experimented with some innovative practices such as the use of underwater sensors for GPS positioning, which are being developed. Furthermore, the 3D models obtained in this way give life to digital storytelling, that could evolve further[74].

In both cases, Cesine and Porto Cesareo, the UnderwaterMuse research and acquirements, inserted in the *UnderwaterMuseMap* portal and *CartApulia*, will be hopefully object of the same protocol applied on the pilot project sites: the evolution in Underwater Archaeological Park (Porto Cesareo) and Blue Trails (Cesine), through targeted solutions.

It's noteworthy that Porto Cesareo Municipality, on the basis of the previous researches and last *UnderwaterMuse* results, deliberated to start the project of implementation of the coastal and underwater Park of Porto Cesareo.

The regional *Puglia Seascapes* project has undertaken, in collaboration with the three regional Marine Protected Areas, a series of initiatives aimed at promotion: besides the exhibition at the Brindisi Airport 2019-2021, *Into the sea of intimacy*, the virtual visits to the Sea Museums, Ballads of the Mediterranean[75], the organization of local and thematic events (Tourisma Firenze 2021, EUDI Show, Bologna 2022, etc.), extended accessibility (training of underwater archaeologists as guides for people with disabilities, with the Paolo Pinto Association) and tourist enjoyment of the underwater archaeological heritage also for non-divers, with immersive and interactive apps and virtual reality narratives developed for Oculus devices with UniSalento and CETMA, Brindisi[76].

The challenge of making the submerged heritage of Puglia *a heritage of all* went on with the *BlueMed PLUS* project, coordinated by University of Calabria as LP and financed by the Italy-Albania-Montenegro Programme. The latter aimed at transferring the BlueMed's multidisciplinary model for the sustainable management and

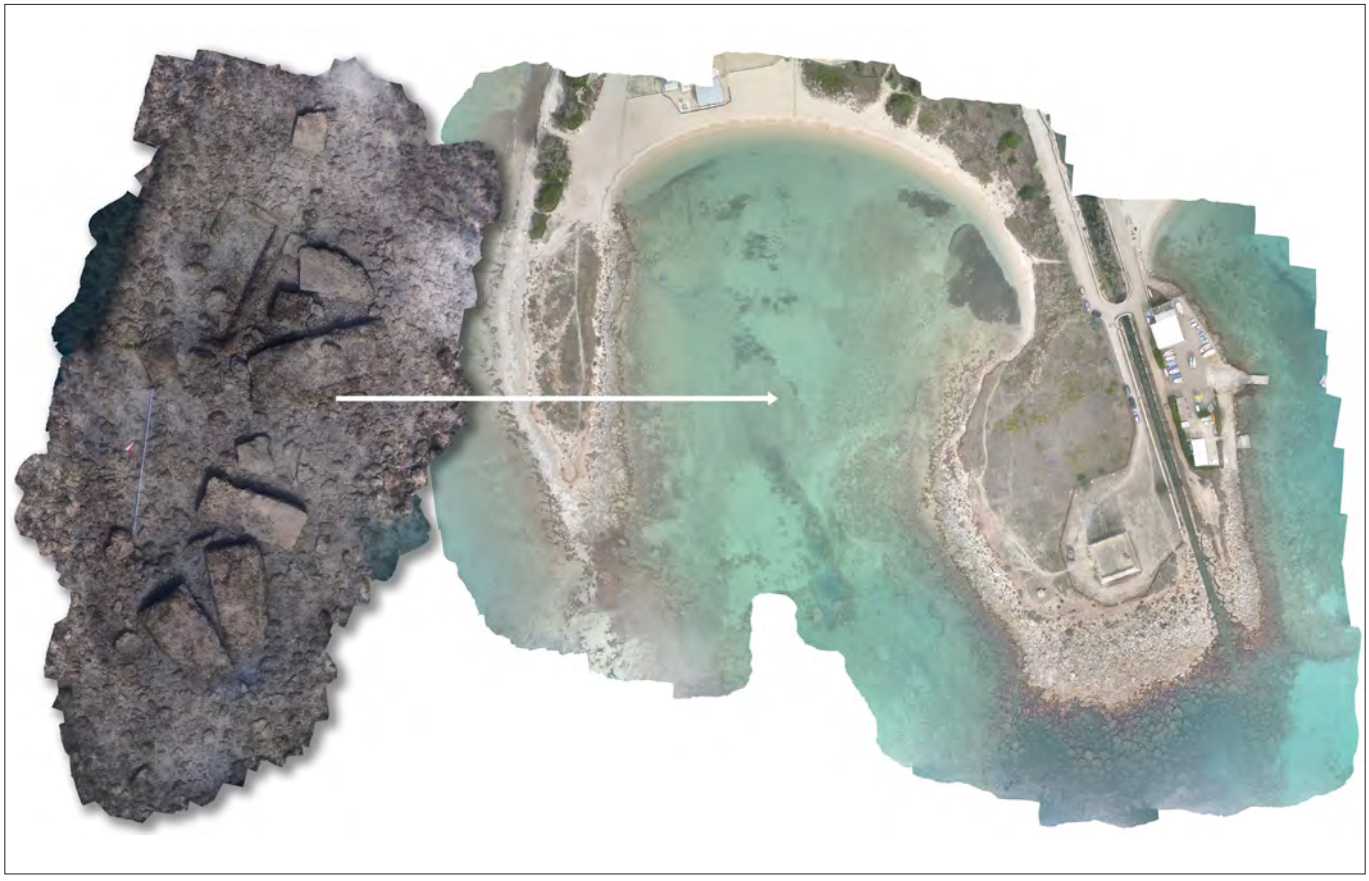

Fig. 61 - ***Porto Cesareo MPA - T. Chianca: photogrammetric survey, by drone (ph. Dept. of Cultural Heritage - UniSalento - E. Peluso; elab. L. Coluccia).***

promotion of the Underwater Cultural Heritage in territories of the Adriatic Sea: Budva in Montenegro, Vlora in Albania and Puglia in Italy. The proposed model is based on the use of new methods and technologies for the safeguarding and the promotion including the augmented reality to improve the divers' experience and the virtual reality to enable non-diver tourists to appreciate the underwater cultural heritage; it provided a roadmap of operational and management model for the case study of Torre S. Sabina.

6. Enhance the sea heritage: the vision

In Puglia there aren't Underwater Archaeological Parks like in Campania (Baia-Bacoli, Gaiola) or Underwater Archaeological Trails like in Sicily, but some regional, interregional and international enhancement and fruition initiatives have been launched.

Many of them are carrying out in the privileged framework of coastal and marine protected areas being in the region: 1 National Park (Parco Nazionale del Gargano), 3 MPAs (Isole Tremiti, Torre Guaceto, Porto Cesareo), 6 Regional Nature Parks (Dune costiere Torre Canne - Torre San Leonardo, Costa Otranto - S. Maria di Leuca e Bosco di Tricase, Porto Selvaggio - Palude Del Capitano, Litorale di Punta Pizzo - Isola di S. Andrea, Litorale di Ugento, Saline di Punta della Contessa), 5 State Reserves (Lago di Lesina,Torre Guaceto, Oasi WWF Le Cesine, Saline di Margherita di Savoia, S. Cataldo), 2 Regional Reserves (Litorale Tarantino orientale, Palude del Conte e Duna Costiera di Porto Cesareo) and the first Marine Ecomuseum, of the Mar Piccolo of Taranto (Eco.Pa.Mar.), recently founded [77].

Specific enhancement activities have been put in place: the Tremiti Islands Municipality in agreement with SABAP Foggia, Barletta Andria Trani and MPA and in collaboration with Albatros Association - Progetto Paolo Pinto Project - Scuba Blind International, has launched the *in situ* preservation and enhancement of the Lombardo shipwreck, that will be accessible also by the visually impaired divers in the summer 2020.

Also the other MPAs have put in place, in an experimental way, naturalistic-cultural itineraries, guided tours

and projects of virtual reconstruction of landscapes and archaeological finds. Moreover, the project "Torre Guaceto Smart Innovations" of the MPA of Torre Guaceto and the project "*Sentieri Blu*" of the MPA of Porto Cesareo share the objective of enhancing the submerged sites and cultural resources, by networking and promoting them through information material, educational panels and by purchasing boats for underwater exploration: two of these trails are devoted to the archaeology. Actually, the Blue Trails have their reception points in the watchtowers of Torre Chianca and Torre Lapillo, managed by the Porto Cesareo Municipality in collaboration with environmentalist associations which, in compliance with the specific management plans, offer to the numerous tourists information services on the environmental and cultural features of the coastal and underwater areas of Porto Cesareo and Salento.

In addition, in the same MPA 4, diving schools and 5 companies specializing in boat excursions are allowed to operate mainly taking tourists to the shipwreck of the Roman columns of Torre Chianca, which, being at a depth of 4.5 meters, is easily accessible with mask and fins. Also in the Torre Guaceto MPA some diving school are allowed to operate but on nature trails.

Furthermore, the Egnazia National Museum and Archaeological Park and the Manfredonia National Museum appear between the places of culture included in the interregional project "MUSAS - MUSei di Archeologia Subacquea" (PON Cultura e Sviluppo 2014/2020), concerning overall 6 cultural attractions (2 for each region) of Calabria, Campania and Puglia. The project aims at implementing through innovative technological solutions an integrated enhancement programme that networks underwater archaeological areas and Museums that conserve artifacts from the sea [http://www.icr.beniculturali.it/documenti/allegati/DAVIDDE%20Abstract.pdf].

Some diving schools and associations, in collaboration with Museums Hub (Polo Museale Regionale - MiC) and SABAP, carry out guided tours of the submerged sites, at Egnazia [78] and S. Caterina di Nardò, in the MPA of P. Cesareo. However, for the time being, the body of experiences presently underway do not seem to be sufficiently well organized to produce an adequately articulated and qualified offer.

6.1. *ESAC: a centre for the underwater heritage chain*

The integration of all the initiatives, projects and policies put in place and an organic vision aimed at closing the existing gap have led to the creation of the Euro-Mediterranean Euro-Mediterranean Seascapes Archaeology Center - ESAC, whose areas of interest are research and cataloguing, conservation and restoration, training, dissemination and communication, international planning, promotion and use and, in general, the use of incentives in order to promote cultural policies for the underwater heritage and the blue economy. The governance of the Center stems from an agreement between the Region, the 3 Universities and the National Superintendency for Underwater Cultural Heritage in a participatory process of knowledge and enhancement of the heritage through concrete projects and measures.

The Center's organic program responds to the four main objectives of the Center itself – research, conservation, enhancement, training – and is divided into a series of thematic projects:

1. Changing landscapes: settlements, ports, landings from the second millennium BC to the modern age
2. Wrecks and cargoes: the milestones of the sea routes
3. The sea and the sacred: the path of the coastal sanctuaries of Puglia
4. High depth: making invisible heritage visible
5. The culture of the sea and the intangible heritage: knowledge, traditions, connections and mobility.

In compliance with this organic vision, the program intends to enhance and present in a structured path – *Puglia coastal and underwater itineraries* – those assets that can be configured as examples of the historical values of the Region and its strong Mediterranean vocation and at the same time particularly significant for a highly profitable tourism like the underwater one. The basis of this selection is the UnderwaterMuse portal, which has surveyed – as part of the cross-border project of the same name – the underwater deposits that present these characteristics. However, the network also includes coastal sites that fulfill the same purposes, and therefore both blue paths / points and green paths are foreseen, ie "terrestrial" or, better, "amphibious" visiting routes. The project of these *Cammini del mare di Puglia*, which will enrich the *Atlante dei Cammini*, an integrated system of trails and cultural itineraries of the Puglia Region, was presented in 2022 BMTA of Paestum; its design and implementation, currently ongoing, foresees the direct involvement of communities and stakeholder and the production of the necessary tools: a user friendly guide, a website/portal provided of an interactive map for knowing and booking services and facilities, as well as some works of light infrastructuring.

Finally, as already said, ESAC deals also with protection and conservation activities. In October 2022, the Center carried out the recovery operation of some metal archaeological finds (including two *petriere da braga*) at high risk of theft, identified on the shallow waters north of Brindisi in the Punta Penne area and relevant to the rigging of a beached wreck of the modern age, presumably from the 16th-17th century. The next step will be the restoration works of the same finds, currently preserved in the Ribezzo Museum, where the ESAC is seated, with the support of the Central Institute for Restoration - MiC.

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Note

[1] For a first review of the research history, particularly in Southern Puglia, see Auriemma 2004, II, 5-6.

[2] Auriemma 2004.

[3] Auriemma forthcoming.

[4] Disantarosa 2019.

[5] Information kindly provided by the Gargano National Park Authority.

[6] Auriemma 2017, 74. See below for Punta del Serrone shipwreck.

[7] Mazzarulli 2016, forthcoming in *Salentum a salo* III.

[8] Auriemma 2004; Auriemma *et al.* 2011; Auriemma, Cossa 2013; Cossa *et al.* 2012, 2016, 2017.

[9] Volpe *et al*. 2009, 75-90; Volpe 2011; Volpe, Goffredo 2017, 173-174. The insertion of the underwater cultural sites are currently ongoing.

[10] Volpe 2016. The *CartApulia* project has been carried out by a multidisciplinary group including, besides the Puglia Region, the four Puglia Universities (Foggia, Bari, Salento, Politecnico of Bari), the peripheral Offices of MiC (Superintendencies and Museums Hub), with the scientific coordination and validation of Giuliano Volpe.

[11] Leone, Turchiano 2020, 247-277.

[12] Volpe, Auriemma 1998.

[13] Volpe 1990; Volpe 2018.

[14] Disantarosa 2017, 2018a, 2018b; Nuzzo *et al.* 2018.

[15] Auriemma 2003a; Auriemma 2004, I, 38-54.

[16] Auriemma 2014, 2015; Antonazzo 2004-2005; Antonazzo 2014; Antonazzo, Zaccaria 2014; Auriemma, Silvestrelli 2013; Auriemma 2014; Auriemma 2017; Auriemma *et al.* 2022a.

[17] Scarano *et al*. 2008; Scarano, Auriemma, Alfonso 2017; Mastronuzzi *et al*. 2017.

[18] Auriemma 2004, I, 155-156; Sammarco, Marchi 2008, 2012; Sammarco, Marchi, Delle Rose 2014. The intervention was carried out in the framework of a research project coordinated by Giuseppe Ceraudo for the overall review of the site, during the area reorganization project executed by the Municipality of Lecce.

[19] Auriemma forthcoming.

[20] Auriemma forthcoming.

[21] Cossa, Auriemma 2016, with references.

[22] Cossa 2018.

[23] Auriemma forthcoming.

[24] De Santis, Congedo 2003, 173-178.

[25] Auriemma 2004, I, 177-189; 292-293.

[26] Coppola 2016; Guilaine, Cremonesi 2003, 28, fig. 1.

[27] D'Andria, Mastronuzzi 1999.

[28] The project was part of a large program of coastal landscapes archaeological research, excavations and prospections on land and sea conducted by the University of Salento between 2008 and 2010, in collaboration with the Superintendency and with the support of the Municipality of Nardò and the Caripuglia Foundation. Some finds from the site of Frascone are exhibited in the Museum of ancient sea of Nardò. Auriemma, Pirelli, Rucco 2016 (preliminary note).

[29] Alfonso 2015; Auriemma forthcoming.

[30] Arthur 2010; Congedo 1984, 60-65; Pasanisi 1997, 16-21; Auriemma *et al.* 2022b. See below.

[31] Nuovo 2014.

[32] Mastronuzzi *et al.* 2017.

[33] Mastronuzzi *et al.* 2017.

[34] Mazzei, Volpe 1997.

[35] The project, coordinated by the Universities of Bari and Foggia, began in November 2019, in collaboration with the Municipality of Vieste, the Soprintendenza Archeologia Belle Arti e Paesaggio of Foggia and BAT, Marina Militare, ArcheoLogica, ASSO Studio Blu Production.

[36] See Pagliara 1991, 503-526, Pagliara 1994; Grotta Poesia, Roca and Grotta S. Cristoforo cfr. Pagliara 1987, 267-328, Pagliara 1988; Grotta Porcinara cfr. Pagliara 1971-1973, 5-67. Cfr. also Auriemma 2004a, 289-291, Auriemma, Frisone 2018. The University of Salento has ongoing surveys in the Zinzulusa Cave in collaboration with the Polytechnic University of Turin and the company Stonex, for the 3D survey of the cave and underwater surveys in the pond.

[37] In Grammata Bay, along the Albanian coast, there are 1,000/1,500 inscriptions on the walls in Greek, Latin and Albanian, engraved by sailors from the 3rd century BC to contemporary times. Numerous are the traces of panels, aedicules, depictions of boats, characters, crosses, etc. Greek inscriptions from the Hellenistic period include prayers to the Dioscuri related to the presence of an open-air coastal sanctuary, possibly equipped with an altar. This inlet was not only a stopover on the cabotage route but also a place of devotion at a 'strategic' passage, also linked to Aeneas' navigation. Leone, Turchiano 2017, 177-193, with references.

[38] [www.patrimoniosubacqueo.it/il-relitto-alto-arcaico-del-canale-di-otranto/]; Davidde Petriaggi c.s.

[39] Auriemma 2014; Auriemma 2017; Auriemma *et al.* 2022a.

[40] Auriemma, Silvestrelli 2013, 440; Auriemma 2004, II, 148-150. Strea's cargo: Alfonso 2015, UT 72. Madonnina A: finds' review and more precise amphorae identification in Disantarosa *et al.* 2018. Savelletri: Auriemma 2004, II, 20-21, SR 12; La Palombara: Auriemma 2004, II, 60, SRI 59; Cossa 2018, 130-131.

[41] Auriemma 2004, II, 14-18, with references; Auriemma 2017, 74.

[42] Auriemma 2004, II, 186.

[43] Colucci 2014.

[44] Mazzei, Volpe 1997.

[45] Auriemma 2004, II, 186.

[46] Dell'Anna, Florido, Iannuzzi 2014.

[47] Auriemma 2002; Auriemma 2004, II, 167-168, with references, integrating the previous census by P. A. Gianfrotta; Auriemma 2017.

[48] Cavassa 2008; Auriemma 2017, 73-74.

[49] Auriemma 2004, II, 38-39, 44, 47, 84-87. Auriemma 2017.

[50] S. Pietro in Bevagna: Auriemma 2004, II, 18-19. Torre Sgarrata: *ibidem*, 41-42. Porto Cesareo: *ibidem*, 13. Auriemma *et al.* forthcoming; Auriemma *et al.* 2022b.

[51] Raguso 2014; Raguso 2022.

[52] Di Bartolo *et al.* 2014.

[53] Corvino, Leone, Scardozzi 2010, 5-6; Antonazzo *et al.* 2020, 82-83, 90-91.

[54] Auriemma forthcoming.

[55] Corvaglia 2015. A methodological protocol and an experimental project have been started with CEDAD.

[56] Auriemma forthcoming; Cossa 2017.

[57] https://apps.apple.com/it/app/tarasgifts/id1616688819; https://apps.apple.com/it/app/azzurre-frontiere/id1568857349.

[58] Degl'Innocenti *et al.* 2022.

[59] Antonazzo *et al.* 2020.

[60] Mannino 2019; Mannino 2020; De Felice, Mannino 2022.

[61] Auriemma, Strafella 2020.

[62] See the contribution of F. Galeandro in these Proceedings.

[63] [www.museonavigante.it].

[64] Volpe, Leone, Turchiano 2011, 251-286; Leone, Turchiano 2017.

[65] The project was supported by the University of Foggia and by numerous Italian and Albanian institutions including the Apulia Region-Mediterranean Department, the Ministry of Foreign Affairs, the Italian Embassy in Tirana and the Albanian Ministry of Culture, the Euro-Mediterranean Cultural Heritage Agency in Lecce and the Guardia di Finanza-Maritime Border Unit in Durres, Association A.S.S.O.

[66] Italian partners: University of Foggia - Department of Human Sciences (lead partner); Regione Puglia - Department for Economy of Culture, Tourism and Valorization of Territory; Italian General Confederation of Enterprises, Professions and Self-employment of Taranto; MArTA - National Archaeological Museum of Taranto (associated partner). Greek partners: Ionian University of Corfù; Ephorate of Antiquities of Corfu; Fisherman's Association of Petritis, Corfu (associated partner).

[67] Leone, Turchiano Volpe 2019; Leone, Turchiano 2020; Leone *et al*. 2020; Degl'Innocenti *et al*. 2021; Leone, Turchiano, Volpe 2021.

[68] The docufilm is directed by Lorenzo Scaraggi and Nicolò Carnimeo.

[69] Auriemma, Del Bianco in these Proceedings. See also Auriemma *et al.* 2022c.

[70] The 2020-2021 coastal and underwater investigations involved the three regional Universities, 'subcontractors' of Puglia Region for the scientific research in the framework of UnderwaterMuse Project, in collaboration with University Politecnico of Turin, A.S.S.O. Association, A. Colucci Company and Central Institute for Restoration (A. Casagrande and S. Sechi - ICR, attended all the excavation period).

[71] Auriemma 2014, 2015, Calantropio *et al.* 2021, Auriemma *et al.* 2022a.

[72] Auriemma *et al.* 2023b.

[73] Auriemma, Buccolieri 2021; Auriemma *et al.* 2022b.

[74] Auriemma *et al.* 2023a.

[75] https://www.themonumentspeople.it/it/eventi/ballate-dal-mediterraneo/

[76] Auriemma *et al.* 2023a.

[77] [http://www.parks.it/regione.puglia/].

[78] Ciancio, Colucci 2018.