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CNR CASE HISTORIES IN THE BLUE PLANET ECONOMY

edited by
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Isabella Maria Zoppi

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The Mediterranean: economy, societies, technologies, humanities

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ABSTRACT
This volume gathers the eighteen interventions of the researchers of the National Research Council of Italy presented at the Blue Planet Economy European Maritime Forum 2021. These include conference papers and extended writings deriving from the transcription of the videos produced specifically for a session dedicated to the Mediterranean.
These contributions touch on seemingly distant themes, such as economy, archaeology, ecological transition, tourism, culture…, organized into four sections: Economics and Green Economy, Strategies and Policies, Archaeology and Cultural Heritage, and Borders and Societies. They show that the complexity of the current situation stems from history, different cultures, societies and religions that have shaped the countries bordering the Mediterranean basin. The sea has always been a kind of 'road infrastructure', available for the easy transfer of goods, services, technology, and people.

KEYWORDS: Blue economy, Mediterranean Sea, social sciences, humanities.

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1 INTRODUCTION

This volume gathers the interventions of the researchers of the National Research Council of Italy presented at the Blue Planet Economy European Maritime Forum 2021. These include conference papers and extended writings deriving from the transcription of the videos produced specifically for a session dedicated to the Mediterranean.

There are eighteen contributions whose range touches on seemingly distant themes, such as economy, archaeology, ecological transition, tourism, culture – just to cite a few. This wide span finds its origin in the core itself of the Mediterranean. As Emanuela Reale underlines in her Blue Economy and research in social sciences and humanities, the key point lies in a multidisciplinary approach: any reflection around the Blue Economy must consider not only the work of experimental scientists but also the work of researchers in the human and in the social sciences. This is especially true when the research pivots around the Mediterranean.

Economy, demography and technology are the big issues on which the current geopolitical balance is played. Actually, more than a balance is a strong imbalance that generates inequality, with the forces of the free market that find themselves without efficiency and effectiveness in generating all the wealth of a potential GDP, much higher than the actual GDP today created collectively by the Mediterranean countries. Economists say the Mediterranean could be the engine of economic and social growth of this century, but unfortunately it is not. Geopolitics experts point out that the problem is particularly difficult and complex to solve. It is a matter of fact that the current complexity of this area comes from history, cultures, societies and religions. All of these elements have shaped the countries that overlook this basin in very different ways.

This volume is organized into four sections: Economics and Green Economy, Strategies and Policies, Archaeology and Cultural Heritage, and Borders and Societies.

2 ECONOMICS AND GREEN ECONOMY

The papers included in this section show how Italy can play an important role in the Mediterranean, although currently it seems undervalued in economic policies and, above all, in the foreign policies of our country. The importance of the Mediterranean is very evident for Italy when it comes to the economy of the sea. This sector has an incredibly positive impact on the growth and well-being of our country, as the BPE European Maritime Forum 2021 has demonstrated. The examples in this section concern the cases of the nautical industry, the port services, and the marine tourism. In their overview on The shipbuilding industry in Italy, Giampaolo Vitali and Giuseppe Giulio Calabrese show Italian leadership in some market segments, such as luxury yachts. The excellence of the services in the port of Naples is highlighted by the paper of Massimo Clemente, Gaia Daldanise, Eleonora Giovene Di Girasole, Maritime cultural landscape: collaborative governance for resilience and sustainability.

In her The city-port collaboration in low carbon transition: the case of Livorno, Barbara Bonciani points out that the relationship between city and port, when the latter is understood as an exchange infrastructure at the service of the country, must establish a dynamic of coexistence useful to both, especially in the management of the ecological transition. The resulting balance must consider the positive effects (e.g. the economic impact that the port services generate on the host city) and the negative ones (e.g. pollution caused by ships). Finally, in her Transition strategies towards a more sustainable marine tourism Monica Cariola summarises the organisational innovations proposed by the European Bluemed project for the management of marine tourism, a sector that could create more wealth in the less industrialized countries.

3 Strategies and Policies

When common strategies are involved toward cooperation and development, they can activate synergies and coordination between different programmes and funds, as Raffaella Coletti explains in her EU Region-building for Maritime cooperation in the Mediterranean Sea, focusing on EUSAIR, for the Adriatic and Ionian regions and WestMED, dedicated to the Western Mediterranean.

Susanna Paleari opens a focus on environmental policies in her Blue in the Green. How the European Green Deal will affect Eu seas and the maritime sector. She reminds that cooperation is fundamental, because pollution does not respect administrative borders between countries. The ecological transition imposes a new collective behaviour, which is imperative especially when one lives around a close sea where many different environmental legislations are intertwined.

In the Mediterranean not only transit flows of goods and services, which refer to manufactured products or port activities, or flow of migrating people. There are also flows of technologies, of intangible assets, human resources. This latter aspect is the subject of the contribution of Emanuela Varinetti, Mobility of non-European researchers in the Mediterranean, that explores the relationship between Spain and Italy, and of the contribution of Antonio Zinilli, Italian research network in the Mediterranean area, examining the existing research networks among Mediterranean universities.

4 Archaeology and Cultural Heritage

Mobility of people flows is inherent in the concept itself of the sea, the connecting infrastructure used since the beginning of our civilization. We cannot understand how to manage the current economic and geopolitical complexity of the Mediterranean basin without deepening the cultural and social stratifications of the past. The archaeology of the Mediterranean and of its Cultural Heritage is one of the keys to the future of this area, towards a lasting and constructive balance. Ida Oggiano leads us towards a greater understanding of this stratification with her The Phoenician Mediterranean: a space for communication, transmission and sharing. Maja Gori traces Balkan routes even more ancient in her Adriatic Voyages. Prehistoric mobility between the sea and the mountains. With their Archeofish project, Darío Bernal-Casasola, Daniele Malfitana, Antonino Mazzaglia and José Juan Díaz explore fishing and commerce in Greek and Roman Sicily. The use of new technologies has allowed great progress in the study of marine archaeology, as shown by Crescenzo Violante in his Invisible landscapes: a journey beneath the sea in the Bay of Naples, Italy. Contributions like this confirm the need to integrate technology with human sciences, such as history and sociology, in order to make the most of the opportunities offered by innovations.

5 Borders and Societies

Even recently, mobility and flows have continued to shape landscape, economy and culture. Focussing on Tunisian workers in Sicily between the Sixties and the Seventies, Michele Colucci identifies the origins of foreign immigration in Italy in the fishing economy. He highlights the specific features of the relations between Sicily and Tunisia in that period, which were very different from the current ones, not only in quantitative terms, but above all in qualitative terms and human respect.

From the range of papers included in this Quaderno IRCrES emerges that societies, economies, cultures, religions around the basin are very different from each other. Nevertheless, “The Mediterranean Sea is our home”, as we are reminded by Carmelo Bennici, Angela Cuttitta, Marilena Di Natale, Tiziana Masullo, Marianna Musco, Vito Pipitone, Stefania Russo, and Donatella Spera. A common “home” in which the search for a shared governance of the sea finds its juridical instrument in major international agreements on marine borders. As Gemma Andreone points out in her Legal patchwork and national borders in the Mediterranean Sea,

marine borders are much more difficult to define and enforce than land borders, which are more easily defined by a river or by the ridge of a mountain. Like marine borders, also the boundaries between societies bordering the Mediterranean are difficult to define. As it is true that people are deeply rooted and connected to their homeland, it is also true that people migrate and flow, bringing with themselves their own experiences and narrations. This is another field in which human scientists can effectively contribute, by examining and reconstructing narrations, roots and routes, as Antonella Emina does in her Mediterranean ports and literature. Minds as open as ports, an excursus through the novels of Amin Maalouf.

Finally, the presence of the Mediterranean is immanent in the national identity of the countries around it or under its influence. Songs that speak of sea, ports and ships are historically present in Italian popular music and they help to give a sense of perspective while they contribute to create our cultural identity, as Isabella Maria Zoppi shows in her Musical words for a Mediterranean imaginary: Genoa in singer-songwriters' lyrics.

Blue Economy and research in social sciences and humanities
Toward a multidisciplinary approach

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ABSTRACT
Blue Economy identifies the complex of theoretical and applied studies, experimental and not, related to the sea and its ecosystem. The mentioned studies require not only a special commitment of experimental scientists but also the contribution of researchers in the human sciences (historians, philosophers, humanists, art historians) and in the social sciences (policy science scholars, sociologists, jurists), those who can add knowledge relating to the outcomes connected with the use of resources, to the writing of rules, to interventions, education, and training to address and support social behaviours.

KEYWORDS: Blue Economy, social sciences, humanities, sustainability, training.

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Reale, E. (2022). Blue Economy and research in social sciences and humanities. Toward a multidisciplinary approach. In Vitali, G. & Zoppi, I.M. (eds). *CNR Case histories in the Blue Planet Economy* (pp. 6-9). Quaderni IRCrES 16. Moncalieri, TO: CNR-IRCrES. http://dx.doi.org/10.23760/2499-6661.2022.16.02

1 INTRODUCTION

The scientific research on the sea has often been characterized by a strong centrality of the so-called "hard", "experimental" disciplines, or using a well-known acronym, the STEM disciplines. However, the need to tackle complex issues related to the economic and social development of the sea, and the need to create paths for the sustainable use of resources, has brought the concept of Blue Economy to the attention of the public.

Blue Economy identifies the complex of theoretical and applied studies, experimental and not, related to the sea and its ecosystem. The centrality of the Blue Economy was particularly accentuated in the period characterized by the COVID-19 pandemic, which urges policy makers, stakeholders, and scholars from public and private research organizations to deal with problems deriving from the use of resources in emergency periods. This effort requires not only a special commitment of experimental scientists but also the contribution of researchers in the human sciences (historians, philosophers, humanists, art historians) and in the social sciences (policy science scholars, sociologists, jurists), those who can add knowledge relating to the outcomes connected with the use of resources, to the writing of rules, to interventions, education, and training to address and support social behaviours.

In this respect, it is worth to point out the importance of the Mediterranean within the Blue Planet Economy. According to the last Blue Economy Report of the European Commission published in 2020[1], the gross value added (GVA) of the sector is 218 billion. The Atlantic Ocean represents 36% of the Blue Economy field, the North Sea 31%, and the Mediterranean 29% (59.6 billion). The total employment of the Blue Economy is five million people, and the Mediterranean area represents 40%, with 1.78 million employees, while the Atlantic Ocean represents a percentage of 29% of the employment and the North Sea 20%.

Looking at Italy, the Report indicates 525,216 employees in the established sectors of the Blue Economy, which generate 23.3 billion of GVA and contribute with 2.3% of the national jobs, and 1.5% of national GVA (p. 19). One sector dominates: Costal tourism with 59% of Blue Jobs and 45% of GVA, followed by Maritime Transport and Marine living resources.

2 COMPLEXITY

One key feature of the Blue Economy is the complexity of the problems to be addressed. Thinking about migration, local economies, ports and logistics, fisheries and aquaculture, growth, and resilience of economic systems, we can recognize that all the mentioned themes need new solutions to increase the sustainability, to develop and introduce innovation (both technological innovation and social innovation), and human capital with adequate knowledge and skills. To put it differently, the complexity of the themes and problems to deal with always requires a vision that integrates different perspectives deriving from different disciplinary areas, assuring at the same time the policy coherence within the portfolio of the policy instruments used.

If we focus our attention on research and development, the required transition is from multidisciplinary approaches (trying to solve problems through the juxtaposition of different knowledge under a "silos" approach) to interdisciplinary approaches (where the aim is to deal with the integration of different disciplines) and, in perspective, to the realization of a new trans-disciplinarity perspective oriented toward problem solving (reformulation of the problem due to its complexity to encourage innovation). Therefore, one new question for researchers in social science and humanities (SSH) fields should be: what is the contribution of your work to sustainability? And the answer to this question should consider not only the contribution to

[1] European Commission (2020). The EU Blue Economy Report 2020. Luxembourg: European Union. Figures refer to 2018.

understanding a phenomenon (why) but also to help solve/alleviate a social problem (what) and to figure out concrete solutions (how).

3 THE SPECIFIC CONTRIBUTION OF SSH RESEARCH

The theme of the sea is a key example of how important is the research in the SSH fields to tackle social problems. Blue Economy is a global economic model dedicated to creating a sustainable marine ecosystem by transforming previously wasted substances into profitable commodities.

If we need innovation to achieve the goal of eco-sustainable growth, one first and important step is to share knowledge between the different actors involved (for instance sharing access to data implementing an open science perspective) and to promote cultural innovation, a new way of thinking, the so-called "blue thinking", that is to think that protecting the environment is not a constraint but it has to be seen as an opportunity. The mentioned achievements are strongly connected with cultural changes, which allow the emergence of new behaviours, values and attitudes, and research in SSH is very keen to produce them.

Social sciences and humanities are of crucial importance to deal with topics such as migration; increasing inequalities, which are even stronger because of the impact of COVID-19; a shared governance to contrast the fragmentation of the actors playing a role in the Blue Economy; the design of new indicators for evidence-based policies, looking not only at the input-output measures but also at the outcomes of public policies and the impact they have had.

Education and training are at the core of this process, and in this respect the actions foreseen in the Italian National Plan for Recovery and Resilience (PNRR) are moving in the right direction. What the Blue Economy field needs is not only education related to school or university. Training involves efforts toward dedicated programs for advanced post-graduate training, where doctoral positions play a major role to build professionals with highly skilled profiles, whose value can be extremely important in different working contexts beyond the academic ones.

Training also involves interventions for lifelong learning, and a strong directionality to increase the digital skills of the population and the soft skills – the combination of individuals' skills, social skills, communication skills, personality traits, attitudes, mentality, career attributes, and capability of interaction with stakeholders.

CNR is at the forefront of all the mentioned efforts, and this book indicates few examples of actions, competences, and results produced. All these activities and results can contribute to build a new research agenda for the sustainability of the sea.

Economics and Green Economy

Maritime cultural landscape: collaborative governance for resilience and sustainability

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ABSTRACT

The paper develops the issue of the sea-coast system as a "maritime cultural landscape", using the theory of the "commons". The maritime cultural landscape is understood as a common good and this implies the need to involve urban and maritime communities in both its care and enhancement. Based on this assumption, we consider the maritime cultural landscape as a "cultural ecosystem", an expression of the heterogeneity of urban and maritime communities and their interrelationships. In this perspective, the research proposes a framework to analyse "cultural values" and "cultural services" for the maritime cultural landscape enhancement by involving the coastal community through collaborative governance processes.

KEYWORDS: maritime cultural landscape, commons, collaborative governance.

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1. MARITIME CULTURAL LANDSCAPE AND COASTAL COMMUNITIES

In seaside cities and coastal territories (Carta, 2012; Clemente, 2013; Clemente & Giovene di Girasole, 2017; Greco, 2009; Hein, 2019; Kalaora & Konitz, 2004; Russo, 2010; Soriani, 2002), environmental issues perception has been growing (Billé, 2008; Esteban Chapapría, 2012; Estrada Llaquet, 2012; Giovinazzi & Moretti, 2009), the concept of cultural landscape as a set of material and immaterial values has been established (Fusco Girard, 2013; UNESCO, 2011; Veldpaus, Pereira Roders, & Colenbrander, 2013), and the cities and territories intended as ecosystem has been developed (Cerreta et al., 2021; Cerreta & Poli, 2017; Hogan et al., 2014).

The coastal areas show the fusion of urban and maritime culture (Clemente, 2011), named by Konvitz as "urban maritime culture" (Konvitz, 1978; 2020). Maritime culture represents a common heritage, the historical, cultural, economic substrate that merges together the communities living along coastal areas. In this perspective, a specific attention to coastal areas is proposed, considering the land-sea interaction (European Commission, 2020). In this perspective, the core of the enhancement action is the tangible and intangible maritime cultural heritage, intended as "maritime cultural landscape".

The maritime cultural landscape development process, as a cultural project, starts from the urban and maritime community. At the same time, in coastal areas we can simultaneously find the defining traits of the commons, or those ecological characters (which distinguish a wetland from a fishing bench, the global climate from the local microclimate), or intrinsic qualities appreciated by humankind (often they directly contribute to the existence of man or are necessary conditions for man's life on earth), or the quality of social facts (products of human interaction and history) that the human mind has produced, or is capable of appreciating or recognizing as something that is valid, for the individual as well as for the whole humankind (Donolo, 2010).

In this perspective, we can consider the maritime cultural landscape as a common heritage (Clemente et al., 2015b). Therefore, recognition of the maritime cultural landscape as a common good can allow the construction of "common ground" conditions that Elinor Ostrom (Ostrom, 2006; Ostrom et al., 1994) considered fundamental to achieve trust, reliability and reciprocity among the community members, who identify shared values, objectives and rules for the use of the maritime cultural landscape. Thus, the maritime cultural landscape can represent a common good in which institutions together with the urban and maritime community recognise a shared value, becoming common (Clemente et al., 2015a).

This implies an individual and collective responsibility within collaborative governance processes in which political institutions recognise the importance of "no-state stakeholders" (Ansell & Gash, 2008, p. 544) and the need for their direct contribution in decision-making processes is interesting.

Through the activation of collaborative decision-making processes (Tisdall, 2013; Wilson, 2003), it is possible to build relationships among the various actors of the coastal community (institutions, urban community, tourists, stakeholders, shipping companies, etc.) and to bring together the different instances (of conservation, protection, development, etc.), thus favouring conflicts resolution and developing shared projects (Clemente et al., 2015a).

Coastal communities could be relevant to trigger strategies for a fair and sustainable sea-coast use and for the land-sea interactions strategies definition. Coastal communities are bearers of environmental, cultural, historical, economic values, which reveal new possible territorial vocations. In this perspective, collective actions could be collected in a shared plan, to identify objectives and rules to combine environmental protection with the cultural enhancement of the sea-coast resource.

2. MARITIME CULTURAL ECOSYSTEM FRAMEWORK

The maritime cultural landscape as commons represents, therefore, the heterogeneity of urban and maritime communities and of their interrelationships oriented to build development processes. In this perspective, triggering strategies for a sustainable use of the maritime cultural landscape implies the recognition of a shared value in the coast-sea-community system as a "cultural ecosystem" (Antrop, 2001). This needs the identification of cultural functions that contribute, directly or indirectly, to the well-being of individuals.

Generally, the ecosystem definition (Odum, 1977) is closely related to the identification of "ecosystem services" (Costanza & Folke, 1997; MEA, 2005) that consider the multiple landscape functions (Bastian et al., 2014; Cerreta & Poli, 2017; Wu, 2013). In this context, referring to ecosystem services is useful as they are defined as the result of an evolution over time of natural processes, uses, rules of use and social norms (Chan, Satterfield, & Goldstein, 2012; MEA, 2005).

We can classify ecosystem services as: "habitat", "regulatory", "production" and "information services" (Gómez-Baggethun et al., 2013; MEA, 2005). "Habitat services" are related to the capacity of the natural system to maintain biological and genetic diversity in the processes of evolution. "Regulatory services" are oriented towards regulating the ecological processes essential for maintaining the life of systems. "Production services" (food, energy resources, genetic material, etc.) are the processes necessary for the survival of the population. Finally, "information services" contribute to the maintenance of human health by creating opportunities for cognitive development, spiritual enrichment and recreation.

Several classification systems have been proposed at the international level (Haines-Young & Potschin, 2012; MEA, 2005; The Economics of Ecosystems and Biodiversity (TEEB, 2010), such as the MEA system (Millennium Ecosystem Assessment) including the TEEB system (The Economics of Ecosystems and Biodiversity) and the CICES system (Common International Classification of Ecosystem Services).

In order to build a new point of view for maritime cultural landscape planning (Clemente et al., 2020), the "cultural ecosystem services" (Chan et al., 2012; Haines-Young & Potschin, 2012; Poli & Daldanise, 2021) identify some interesting categories of functional values for research. In fact, these values are defined by the three aforementioned classifications according to the following interpretations:

1. "spiritual and religious value, cultural diversity, aesthetic value, knowledge systems and values of education, recreation and ecotourism" (MEA classification);
2. "culture and art, information for cognitive development, spiritual experience, aesthetic information, recreation and tourism" (TEEB classification);
3. "spiritual, aesthetic, information, community activity and recreation" (CICES v4).

These three categories of values allow researchers to identify the different dimensions linked to a cultural service and the relationships generated with the cultural ecosystem.

In the MEA classification (1), a key role is given to spiritual and religious values, as well as to the cultural diversity and the educational values that tangible and intangible cultural heritage are able to generate. In the TEEB classification (2), special attention is given to the experiential part of cultural and tourism activities and, at the same time, to the informational function that these experiences are able to trigger. Finally, in the CICES v4 classification (3), the distinctive character with respect to the other classifications is the relational one, including in the value system those generated by community and recreational activities.

Using the three classifications described above (MEA, CICES v4, TEEB), we can attribute a key role to three categories of values and related services: spiritual and religious values, cultural diversity and educational values which are associated with the services derived from the use of tangible and intangible cultural heritage; social and community values linked to community and recreational activities; cultural, experiential and information values which generate quality cultural and tourism experiences.

For this purpose, it is necessary to identify the different subjects, institutional and non-institutional, involved in the construction of cultural services in the coastal ecosystem, assuming a model of collaborative governance, understood as: "a governing arrangement where one or more public agencies directly engage non-state stakeholders in a collective decision-making process that is formal, consensus-oriented, and deliberative and that aims to make or implement public policy or manage public programmes or assets" (Ansell & Gash, 2008, p. 544).

This governance model highlights six important criteria: (1) the model is started by public agencies or institutions; (2) participants are also "non-state stakeholders"; (3) participants are engaged directly in the decision-making process and are not merely "consulted"; (4) the model is formally organised and have collegial meetings; (5) the model aims to make collective decisions by consensus; (6) the focus of collaboration is on public policies and projects.

Starting with these considerations, co-assessment processes (Krogstrup & Mortensen, 2021; Van Der Meer & Edelenbos, 2006) can be structured to analyse "cultural ecosystem values" (cultural, social and economic) and co-planning (Evans & Foord, 2008; Sarkissian, Hurford & Wenman, 2010) could define innovative "cultural ecosystem services".

3. Perspectives for a sustainable use of the maritime cultural landscape

Coastal areas have always been crossroads of goods traffic between peoples, places of contamination and cultural richness. These areas are characterised by huge resources linked to history, culture, traditions, architecture, environmental peculiarities, and the activities that are representative of their "urban maritime culture".

The strong identity and the belonging to water and land are elements characterising coastal areas that have specific critical issues requiring appropriate responses.

The coast is, therefore, a high value landscape but also with great fragilities and its environmental, social and economic specificities highlight a differentiated and targeted demand for active protection. In this perspective, the research framework can represent the key to carry out capillary analyses on coastal areas in order to bring out social, cultural, economic, ecological and environmental values, which are able to enhance the sea and the coast as "maritime cultural landscape".

In a world that is facing an unprecedented crisis generated by the COVID-19 pandemic, collaborative decision-making processes applied to the logic of ecosystem services can be a great opportunity for sea cities development. In fact, starting from the recognition of a specific asset (in this case the maritime cultural landscape) as a common good, they allow the identification of shared rules, objectives and values.

In order to rebuild our economy and to introduce the necessary recovery plans, it is essential to move from a vertical (government) to a horizontal (governance) vision in order to, on the one hand, achieve a common vision of the coast (starting from its cultural value) and, on the other hand, overcome the fragmentation of plans and projects on the coastal system. In the collaborative governance model, a crucial role is played by the system of institutional and non-institutional actors and the responsibility to plan and act through a common strategic vision.

Through a governance process aiming at a collaboration between the "prosumers" (Rifkin, 2014) of the coast and the sea, it is possible to identify a relevant resource in the local culture, in particular in the urban maritime culture, to be enhanced for its central role in the coastal landscape. The separations between maritime and coastal clusters can therefore be overcome by developing models in which socio-cultural and economic forces work together to reconstruct maritime cultural landscape.

In this perspective, it is relevant that public and research entities, cultural organisations, citizens, associations, and companies can be involved in the processes of coastline enhancement, intended as maritime cultural landscape, in order to improve the competitiveness and the quality of the whole coastal ecosystem in its cultural, environmental, economic and social contexts.

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THE SHIPBUILDING INDUSTRY IN ITALY: AN OVERVIEW

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ABSTRACT
This paper summarizes the main results of a research project about the economic organization and the financial structure of a large sample of companies (a thousand limited companies) of the Italian shipbuilding industry. Export characteristics have been analysed, too.
Shipbuilding is a complex industry, with high heterogeneity of products and technologies, and a labour organization mainly based on a pyramidal supply chain that is localized within industrial districts. Balance sheet ratios show a robust financial structure, as well as good production dynamics, mainly thanks to a high export intensity. Results suggest good opportunities for the Italian companies to recover from the 2020 economic crisis caused by the covid pandemic.

KEYWORDS: shipbuilding industry, industrial districts, exports.

JEL CODES: L6, F14, G30

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1. INTRODUCTION

At CNR-IRCrES we deal with economic studies about the most significant sectors of the Italian economy, such as automotive, textile, industrial machinery, fine chemicals, pharma (Calabrese, 2002; Rolfo & Calabrese, 2006; Calabrese & Vitali, 2007; Calabrese, 2009). The shipbuilding industry is one of them.

This paper summarizes the main results of a research project about the shipbuilding industry in Italy, shedding light on its economic organization, financial structure, and export characteristics.

Shipbuilding is a complex industry, with high heterogeneity of products and technologies, and a labour organization mainly based on a pyramidal supply chain that is localized within industrial districts.

We collected a sample of a thousand limited companies, with their balance sheets, economic performance, and financial ratios, in addition with a micro-economic database of Italian exporting firms to analyse export dynamics and intensity. The 2019 balance sheet ratios show a robust financial structure and suggest good opportunities for the recovery from the covid economic crisis.

The remainder of this paper is structured as follows: section 2 describes the labour organization of the industry and its supply chain, that are determined by technology, core product, and company strategies; section 3 deals with the balance sheet analysis of a thousand limited (ltd) companies in the 2017-2019 period; in section 4 we consider the export data, in terms of destination countries and concentration ratios, at country level as well as at company level; some conclusive remarks and policy implications are in the final section.

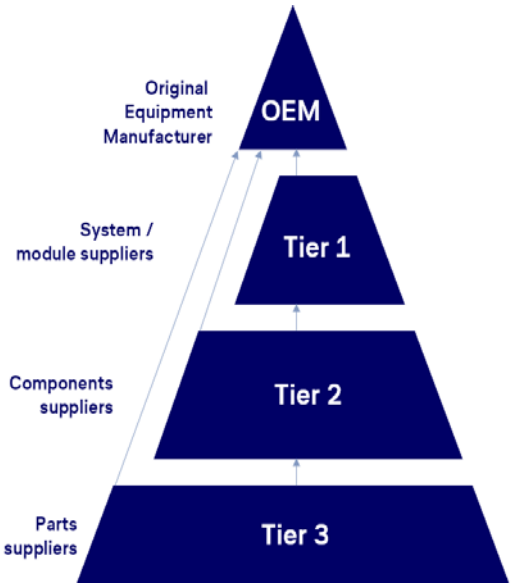
2. LABOUR ORGANIZATION AND SUPPLY CHAIN

Within the shipbuilding industry, there is both a high heterogeneity of products, and a high complexity of labour organization.

First of all, there are a lot of different kind of products, such as cruise ships, ferries, yachts, military ships, offshore. Some of them use high technology, whereas others have a traditional low technology process. High-tech products rely on new materials, electronics, satellites, robots, AI, digital devices, whereas low-tech products use traditional construction process by steel, old mechanics, old plastics, wood.

This kind of heterogeneity of products and technologies determines the complexity of the supply chain, where the industrial supply chain consists of a huge number of manufacturing as well as service companies: the former deal with mechanics, electronics, communication, plastics, and engineering; the latter with repairing and maintenance service, shipyard service, refitting service, insurance, and finance service (Symbola, 2019).

Picture 1 shows that the shipbuilding industry has a composite labour organization and supply chain. At the top of the pyramidal production cycle there is the final assembler, specialized in the production of complete commercial ships, military ships, cruise, or yachts. The first tier of the chain supplies the final assembler with full modules and systems, whereas the suppliers of the subsequent tiers are usually small-sized firms, for small parts and components. This area is mainly composed of small artisans, that are located in the industrial districts (Tracogna, 2010).



Final assemblers:
Merchant ship manufacturers
Yacht manufacturers
Naval ship manufacturers

Supply chain:
-Industrial components and parts;
-Service: Ship repairers, Shipyards, Refitting service, Port service, Marine terminals, Docks, Insurance, Finance.

Picture 1. Shipbuilding supply chain. Source: CNR-IRCrES.

The input-output tables confirm that shipbuilding suppliers are present in almost all the economic sectors, as the commercial ships, the naval vessels and the yachts are complex objects from a technological and, above all, organizational point of view. The components that flow through the supply chain are numerous and refer to heterogeneous technologies: some of them come from mechanics, others from plastics, new materials, and electronics. Over the last decades, the latter has become very relevant for on-board services and navigation instruments. In general, specialized services for the shipbuilding industry are more and more important – such as refitting, maintenance, cruising, leisure, catering – and even the financial and insurance services become crucial for the firm competitive advantage (Bruni & Carcano, 2009). For example, the competitive advantage in the yacht industry is linked to the financial opportunities that leaders can offer to the clients.

In addition, the characteristic of the supply chain has a geographical concentration, too.

In order to exploit external economies, the final assembler is located close to the local supply chain, creating an industrial district specialized in a single family of products, such as yachts at Viareggio, cruises at Monfalcone, naval vessels at La Spezia. Other important districts are Genova, Livorno, Napoli, Ancona, Forlì, Trieste.

As the leading firms have a product specialization too, there is a strong link between products, industrial districts, and leaders: each industrial district has a product specialization and one or few leading companies, which are the final assemblers of their pyramidal supply chain. For example, the most important Italian firm, Fincantieri group, is the leading company of the Trieste-Monfalcone area; Azimut-Benetti, Sanlorenzo, The Italian Sea Group, Intermarine, and Overmarine are the leaders located in the Tuscan industrial district, in the area from Livorno to Viareggio, Carrara and La Spezia, too. Even if Ferretti group (Ferretti, Riva, Pershing, Itama, CRN, Custom Line e Wally) has several multibrand production sites, it is historically located in the Adriatic Sea district of Forlì-Ancona.

The medium-sized dimension of the Italian firms, apart from the Fincantieri case (4 billion euros of turnover), determines a low degree of diversification and a high degree of product specialization of each company: Italian Sea Group, Palumbo, Absolute, Overmarine produce yachts; Intermarine produces military ships; Cantiere Navale Visentini makes ferries (ro-ro and ro-pax); Rosetti group makes oil platforms; and so on. More recently, there are a few cases of

product diversification, looking for exploiting economies of scale in the financial resources, but this is not a widespread strategy of growth.

3. FIRM'S SIZE AND OTHER STRUCTURAL CHARACTERISTICS OF THE SECTOR

According to the CNR database on Italian firms, the shipbuilding[1] sector is made up of more than 1,800 companies and 30,000 employees (table 1).

Table 1. Number of firms and employees by firm's size

Firm's size	Number of firms	Employees	% Firms	% Employees
Large	7	11,441	0.4	37.6
Medium	73	6,651	4.0	21.9
Small	410	8,595	22.7	28.3
Micro	1,320	3,722	72.9	12.2
Total	1,810	30,409	100	100

Source: CNR-IRCrES.

Table 1 shows that the 1,810 companies in the shipbuilding sector can be broken down into 1,320 micro-enterprises, 410 small enterprises, 73 medium enterprises, and only 7 large enterprises[2].

The micro-sized firms represent 73% of the frequencies, followed by small-sized firms (23% of the total firms) and by medium-sized enterprises (4%). The importance of large companies emerges with their 11,400 employees, which determine more than 38% of the total employment. Another large share of employment refers to small (28%) and medium-sized (22%) firms, while micro-sized firms count for only 12% of total employees.

This distribution reflects the most important feature of the Italian manufacturing industry, with the widespread presence of small and medium-sized firms and the dominant role played by very few leading firms, as far as the employment is concerned[3].

[1] We process all the firms operating in the Ateco 30.1 code.
[2] We process four size classes:
- micro firms, less than 10 employees;
- small firms, between 10 and 50 employees;
- medium-sized firms, between 50 and 250 employees;
- large firms, more than 250 employees.
[3] Not only employment but production, too (see below).

Table 2. Average number of employees

Firm's size	Average number of employees
Large	1,634
Medium	91
Small	21
Micro	3
Total	17

Source: CNR-IRCrES.

The differences between the firm's size emerge in the average employment of each size class, with the 7 large firms having an average of 1,634 employees and the 1,320 micro-sized firms with only 3 employees each one (table 2). The sector average is about 17 employees per company and it summarises this great dimensional heterogeneity.

Table 3. Geographical distribution of firms and employment

Region	Employees	Number of firms
Friuli-Venezia Giulia	9,859	102
Toscana	3,122	288
Liguria	2,723	160
Emilia-Romagna	2,407	88
Campania	2,387	177
Marche	2,284	156
Lombardia	1,764	197
Piemonte	1,734	35
Sicilia	1,156	154
Veneto	1,057	111
Other regions	1,905	342
Total	30,409	1,810

Source: CNR-IRCrES.

Table 3 shows the geographical distribution of the shipbuilding companies, and it highlights the regions with the most important industrial districts, such as Friuli Venezia Giulia (Fincantieri headquarters), Toscana, and Liguria. As already mentioned, each industrial district has its own product specialization and its supply chain leaders, as analysed in section 6.

4. BALANCE SHEET ANALYSIS OF 876 LIMITED COMPANIES

4.1. Structural characteristics

Within the 1,810 companies in the sector, the CNR-IRCrES database has detailed financial information on 876 limited (ltd) companies that published their balance sheet in 2019.

Table 4 shows the considerable importance of the 6 largest ltd companies, which account for 68% of the sector's production, followed by 50 medium-sized firms with 16% of production[4]. The high presence of small and micro companies represents only 12% and 4% of production, respectively.

Table 4. Number of ltd firms and value of production

Firm's size	Number of ltd firms	Value of production (million euro)	% number of ltd firms	% value of production
Large	6	6,378	0.7	68.4
Medium	50	1,463	5.7	15.7
Small	273	1,116	3.2	12.0
Micro	547	0,365	62.4	3.9
Total	876	9,324	100	100

Source: CNR-IRCrES.

The distribution of the production value (table 5) finds another confirmation of the relevant role of the leading firms: while the 876 ltd companies produce on average about 10 million euros each one, the 6 large companies of capital have an average production of about one billion euros whereas medium-sized companies have 29 million euros.

Table 5. Average production

Firm's size	Average production (million euro)
Large	1,063
Medium	29
Small	4
Micro	0,7
Total	10

Source: CNR-IRCrES.

The distribution of the production value by location of the ltd company confirms the concentration of the sector in the regions where the industrial districts of the shipbuilding sector are present (table 6). Friuli-Venezia Giulia emerges with 46% of the entire production thanks to the presence of Fincantieri, followed by Liguria, Toscana and Emilia-Romagna, that count for about 14-10% of total production each one.

[4] We process four size classes according to the value of production:
- micro firms, less than 2 million euros;
- small firms, between 2 and 10 million euros;
- medium-sized firms, between 10 and 50 million euros;
- large firms, more than 50 million euros.

Table 6. Geographical distribution of production of ltd firms

Region	value of production (million euro)	% value of production
Friuli-Venezia Giulia	4,817	46.1
Liguria	1,509	14.4
Toscana	1,313	12.6
Emilia-Romagna	1,093	10.5
Lombardia	549	5.2
Marche	293	2.8
Veneto	284	2.7
Campania	194	1.9
Sicilia	124	1.2
Piemonte	44.	0.4
Other regions	236	2.3
Total	10,460	100

Source: CNR-IRCrES.

4.2. Financial structure

Table 7. Financial ratios

Firm's size	Coverage ratio (*equity + long-term debt / fixed assets)*	Financial dependence *(debts / total liabilities)*	Sustainability index *(financial debts / gross operating margins)*	Current ratio
Large	120	77%	2.0	110
Medium	168	74%	2.5	129
Small	117	74%	19.2	113
Micro	71	94%	22.6	114
Total	121	77%	2.8	112

Source: CNR-IRCrES.

A financial structure is solid if there is a balance between the sources and the uses of the financial resources. To verify this, some indices obtained from the preparation of the financial statements of the sector for 2019 are examined, such as the coverage index of financial assets, the financial dependence index, the sustainability index of financial debts, the current ratio (Manello & Calabrese, 2017).

Business literature states that a firm with solid assets has a coverage ratio of fixed assets (equity + long-term debts / fixed assets) ideally between 100 and 130. Values lower than 100 indicate that the company makes investments in fixed assets using, in an improper way, even short-term debts. On the contrary, values well above 130 show that the company has an excess of long-term financial resources compared to the necessary investments, resources that are in fact also used to cover short-term investments in addition to fixed assets.

In the shipbuilding industry, the coverage of fixed assets is optimal in its aggregate, and in all size classes, except the case of micro enterprises which are generally characterized by low levels of equity (table 7) (Manello & Calabrese, 2018).

The index of financial dependence, given by the ratio between debts and total liabilities, indicates whether the role of third-party capital in making corporate investments is preponderant and excessive, or whether it is complementary to the role played by the equity. In the first case, the dependence on the renewal of the debt and its burden could reduce the autonomy decision of the company. As far as the shipbuilding industry is concerned (table 7), the average financial dependency index is 77%, and is slightly higher than the threshold recommended by the literature (70%), indicating the quite robust weight of equity (23%) that support the corporate investments. However, we note the excessive degree of undercapitalization of micro enterprises, as they have an excessive dependence on borrowed capital (94%).

The sustainability index of financial debt (financial debt/gross operating margin) indicates how many years companies take to repay financial debt using the cash generated in the operations. The limit identified by the literature is 4 years. As can be seen in table 7, there is a clear difference between micro and small firms, on the one hand, and medium and large enterprises, on the other: the former have financial difficulties due to an excessive level of indebtedness.

A spread indicator in the literature to determine the financial liquidity of the company is the "quick ratio", calculated as the ratio between short-term assets, nets of inventories, and short-term liabilities. The comparison between current assets and short-term debts indicates whether the company is able to repay the short-term debts by the convert of the short-term assets. However, in the case of the shipbuilding sector it is more appropriate to apply the "current ratio", that is the ratio between short-term assets and short-term liabilities, which also contains data on inventories, as the production cycle of the shipbuilding is order-based, with a high degree of "work in progress" and therefore of inventories of semi-finished products. In the past, the company literature suggested that this indicator was optimal around 200, but the current trend and the specificity of the shipbuilding sector lead us to believe that the values included in the 100-130 threshold are also excellent. As can be seen in table 7, all the size classes exceed the limit of 100, which denotes full coverage between short-term credits and debts, with medium-sized enterprises reaching up to 129.

4.3. Productivity and profit ratios

Labour productivity, measured by the ratio between added value and labour cost, is linked to the size of the company, with large shipbuilding companies having a productivity almost double than that of micro enterprises: one euro of wages generates a value added of 2.33 euros on the average for the sector, with the large firms reaching 2.75 euros (table 8).

Part of the productivity differential existing between company sizes is attributable to the pyramidal organization of work, with large companies assembling components supplied by smaller companies, and the former have a strong value chain that generates a high value added.

The rotation of working capital, calculated from the ratio between turnover and working capital (inventories + short-term credits), reflects the efficiency of short-term investments. On average, for every euro invested in working capital, one euro of turnover is generated within the production cycle, with a particularly high index in small businesses that reaches 1.5 (table 8).

The profitability of investments, measured by ROI as the ratio between operating income and investments, decreases according to the company's size, with large companies where ROI is 4.2% and micro companies where ROI is zero (table 8).

The ROS indicates the net income obtained from each euro of turnover. We have the same comments mentioned before: large companies having an income of 6.2% and micro companies without any positive ROS (table 8).

Table 8. Productivity and profit ratios

Firm's size	Labour productivity	Rotation of working capital	ROI	ROS
Large	2.75	0.90	4.2%	6.2%
Medium	2.02	1.34	2.6%	3.1%
Small	1.70	1.56	2.8%	3.0%
Micro	1.52	1.16	-0.3%	-0.4%
Total	2.33	0.98	3.8%	5.3%

Source: CNR-IRCrES.

5. EXPORTS

In 2019, exports from the shipbuilding industry amounted to approximately 4.4 billion euros. The distribution of exports by area of destination indicates which are the most important foreign markets for shipbuilding companies. The role of "other OECD countries" (i.e. USA, Canada, and Australia) emerges, and it determines almost half of total exports, followed by European countries with almost a third of the total (table 10).

Table 9. Exports by area of destination

	Millions of Euros	%
Europe	1,352	30.6
Asia	352	8.0
Africa	22	0.5
North America	2,131	48.3
Central & South America	557	12.6
Total	4,415	100

Source: Own elaboration based on Istat data.

If we go into detail on the breakdown of exports by country of destination, the United States plays a primary role, with as much as 44% of total exports. The distance between the United States and the other countries that import from the Italian shipbuilding sector is considerable, as it can be seen in table 11, and it confirms the strong links between the Italian exports and the US economy, regarding mainly the cruise ships as well as the yachting.

The geographic concentration of exports is therefore considerable, not only regarding the first country that imports from Italy, but also if we consider the top-9 export destination countries, that account for 80% of the total exports.

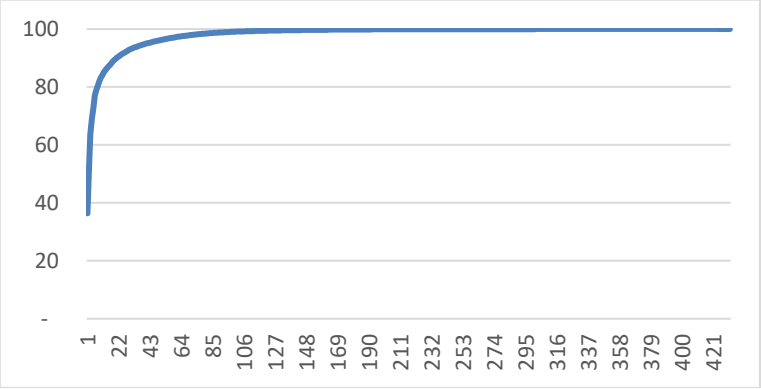
Table 10. Top-9 destination countries of exports (2019)

	Millions of euros	**%**
United States	1,964	44.5
Cayman Islands	278	6.3
Malta	249	5.6
France	238	5.4
Spain	230	5.2
Cyprus	220	5.0
Australia	153	3.5
UK	124	2.8
Hong Kong	100	2.3
Other countries	854	19.4
Total	4,415	100

Source: Own elaboration based on Istat data.

The export data can be further analysed at a microeconomic level to define the business concentration of the export flows and the number of exporting companies within each country.

In 2019, there were 430 exporting companies in all, more than a quarter of the total companies of the industry and almost half of the ltd companies. However, the distribution of exports within this high number of companies is very asymmetrical and concentrated. Indeed, more than three quarters of exports (77%) come from the international activity of only 6 companies, leaving the remaining 424 companies with only 23% of total exports in 2019 (graph 1).

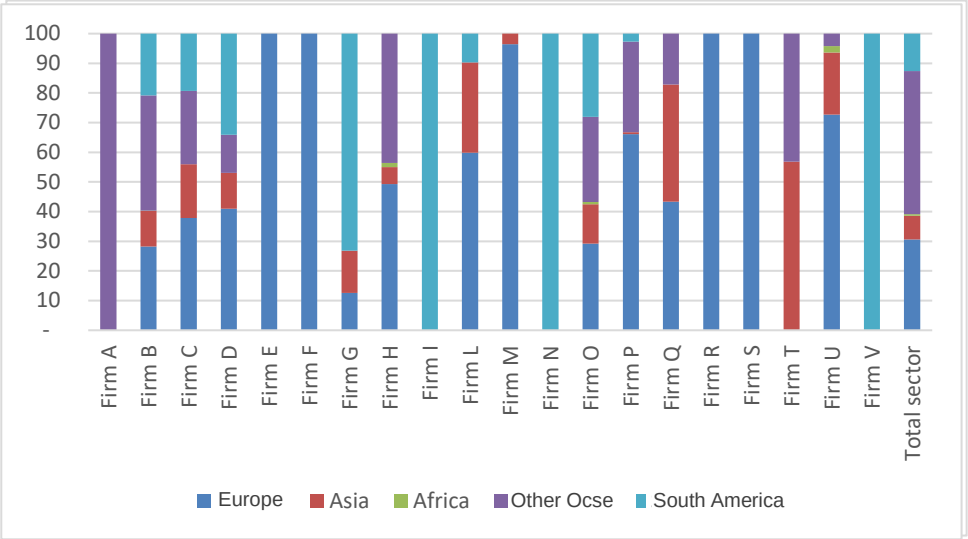


Graph 1. % export concentration of exporting firms (2019).
Source: Own elaboration based on Istat data.

These data confirm the role within the international growth played by big leaders of the shipbuilding sector, such as Fincantieri, Azimut-Benetti, Ferretti, Sanlorenzo, Cantiere Navale Visentini, Palumbo Superyacht, Absolute, CRN, Overmarine, Italian Sea Group, Viareggio Superyachts.

The distribution of export by area of destination at microeconomic level highlights the geographical specializations of each leader. Within the international growth strategy, there are some leaders who concentrate exports in a single area, on one side; and, on the other side, other leaders who have a wide presence around the world. Graph 2 shows the geographical

diversification of the top-20 companies: half companies are concentrated in one area, while the remaining half are diversified, but only two companies are present in all the five geographic areas examined here.



Graph 2. Export diversification of top-20 exporters.
Source: Own elaboration based on Istat data.

6. INDUSTRIAL DISTRICTS OF THE SHIPBUILDING SECTOR

The location of the leaders has a direct reference in the main Italian industrial districts of the shipbuilding sector, confirming the role played by the territory and by the local supply chain. The latter is one of the most important determinants of the Italian leaders' competitive advantage.

Table 11. Leaders and their industrial district

	Industrial district
FINCANTIERI	Trieste
AZIMUT-BENETTI	Viareggio-Livorno
FERRETTI	Rimini-Pesaro
SANLORENZO	La Spezia
THE ITALIAN SEA GROUP	Massa-Carrara
CANTIERE NAVALE VISENTINI	Venezia
C.R.N.	Rimini
OVERMARINE GROUP	Viareggio
CANTIERE NAVALE VITTORIA	Rovigo
PALUMBO SUPERYACHTS	Ancona
AMICO & CO.	Genova
CANTIERE DEL PARDO	Forlì-Cesena
CANTIERE DELLE MARCHE	Ancona
SOLARIS YACHTS	Udine

Source: Own elaboration based on Istat data.

The importance of the leaders within their industrial district can be valued by the distribution of shipbuilding employment. Table 12 shows the areas with more than one thousand employees, where the emerging role of Trieste is indisputable, as it counts for more than 8,000 workers[5].

Table 12. Top-10 industrial districts by employment

Area	Employees
Trieste	8,180
Napoli	2,074
Torino	1,703
Lucca-Viareggio	1,703
La Spezia	1,510
Forlì-Cesena	1,348
Gorizia	1,266
Pesaro e Urbino	1,165
Genova	1,062
Ancona	1,005
Italia	30,409

Source: Own elaboration based on Istat data.

Table 13 shows the exporting areas with more than 100-million-euro exports and therefore indicates the most active industrial districts at the international level. It could be the effect of their competitive advantage.

Table 13. Top-10 industrial districts by exports

Provincia	**Millions of euros**
Trieste	952
Lucca	692
Gorizia	686
Rimini	282
Ancona	224
Forlì	204
Pesaro	193
Torino	182
Padova	179
La Spezia	149

Source: Own elaboration based on Istat data.

[5] The high level of Torino derives from the fiscal location of the Azimut-Benetti holding, even if its main shipyards are in Viareggio and Livorno.

The Friuli-Venezia Giulia district, with the provinces of Trieste and Gorizia, is the most important one, thanks to the presence of Fincantieri, the leader which determines a significant share of the total exports.

The second district in term of exports is Viareggio, the most important area for the pleasure boating, with a very high level of internationalization (Lazzaretti & Capone, 2009).

The Adriatic area has a significant role within the international growth, as there are notable exports coming from the firms of Rimini, Forlì, Pesaro and Ancona.

The list of top-exporting areas ends with the shipbuilding industry of La Spezia.

The comparison between table 12 and table 13 shows a sort of export productivity at district level, i.e. euros of exports per workers (table 14). Lucca and Gorizia have the best ratios, mainly due to their high value-added products, whereas the others (La Spezia, Forlì, Pesaro and Ancona) have a lower data, even if it is higher than the average of the Italian manufacturing industry. On the contrary, Napoli and Genova are not present in the list of table 14 because they are more important for their employment than for their exports. Maybe, the difference is mainly due to their labour organization, as they could be mostly manufacturing suppliers of the export leaders, or because of their propensity to serve the internal market and not the international one.

Table 14. Export productivity

Area	Exports per employee (euros)
Trieste	116,436
Lucca	406,632
Gorizia	542,630
Ancona	223,443
Forlì	151,784
Pesaro	166,540
Torino	107,136
La Spezia	99,317

7. SOME CONCLUDING REMARKS

Within the shipbuilding sector there is a complex hierarchical organization structure, where few leaders have a large supply-chain composed of hundreds of micro and small companies. The supply chain is mainly organised at the local level, and it forms the local industrial district. The main characteristic of the supply-chain is its pyramidal organization, with a leader at the top, medium-sized companies at the first tier, and very small firms and artisans at the second tier.

The industrial districts are composed of manufacturing and service firms: the former deal with mechanics, electronics, communication, plastics, and engineering; the latter with repairing and maintenance service, shipyard service, refitting service, insurance, and finance service.

The industry is composed of more than 1,800 companies and 30,000 employees, but only 876 limited (ltd) companies. In general, balance sheet ratios of the ltd companies show a robust financial structure, as well as good production dynamics, mainly thanks to a robust export intensity. Indeed, the pyramidal organization of the industry affects the results of the balance sheet analysis, because all the ratios and indexes about the economic and financial structure are very good for large and medium-size companies, and even for the small ones, but not for the micro firms. The latter have a bad problem of lack of equity that negatively affects all the financial structure, and indirectly the economic performance, too. We have to consider that, except for

Fincantieri, most of the other leading companies are usually family-owned companies, with traditional financial limits[6].

Another interesting characteristic of the shipbuilding industry is its high degree of internationalization, as in 2019 the exports are about 4,4 billion euros. There is a high concentration in exports, both at geographical and at firm level. Europe and North America count for 80% of total exports, and the top-6 leading exporters count for more than three quarters of total exports.

Maybe, the high concentration degree concerning exports derives from the pyramidal organization of the production, and the top leaders are the final exporters, whereas the first and second tiers of the supply chain are only indirect exporters.

In any case, our results suggest good opportunities for the Italian shipbuilding companies to recover from the 2020 economic crisis caused by the pandemic and to exploit all the opportunities of the 2021 good economic cycle.

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[6] One exception is Ferretti Group, owned by the Chinese Weichai Group, whereas the others are controlled by Italian families, such as Colaninno (Intermarine), Vitelli (Azimut-Benetti), Perotti (Sanlorenzo), Costantino (The Italian Sea Group), Balducci (Overmarine).

The collaboration between port and city in low carbon transition: the case of Livorno

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ABSTRACT
The importance of low carbon transition is particularly high in port-cities, especially in the Euro-Mediterranean area, where the characteristics of ports are linked to their location, which remains strongly rooted inside urban system. Maritime transport accounts for about more than 80% of global merchandise trade by volume, and it is responsible for 3% of global CO2 emissions. The increasing awareness of the growing global air pollution issue and its impact on health resulted in the adoption of international, national and local measures to reduce ship emission into the atmosphere. This paper explores low carbon transition in shipping and port services, with a focus on the city-port collaboration in reducing urban pollution derived by port activities, of which the Livorno Blue Agreement is an example.
This paper is complementary to the video *The role of port cities in efforts to reduce greenhouse gas emissions from shipping*, presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: shipping, low carbon transition, city-port collaboration, environment, governance.

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1 INTRODUCTION

This paper is complementary to the video *The role of port cities in efforts to reduce greenhouse gas emissions from shipping*[1], presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021. Other interviews released on the European Project PASSAGE (Interrreg). The aim of the project was to promote public Authorities support in low carbon growth in European maritime border regions[2].

Since 1990s, climate change has risen on the agenda of urban government. The conjunction of the growing prominence and plurality of urban climate change responses and the emergence of calls for low carbon transition raises important questions about the future of port-cities.

Within this framework, the low carbon city is a sustainable urbanization approach that focuses on minimizing or abolishing the utilization of energy sourced from fossil fuels.

The importance of low carbon transition is particularly relevant in port-cities, especially in the Mediterranean area, where characteristics of ports are linked to their location, which remains strongly rooted inside urban system. Coastal areas, and especially port-cities, concentrate factors that have been proved to have a direct influence on CO2 emissions (Mat et al., 2016).

Indeed, ports generate heavy traffic and congestion with associated health impacts for local residents (citizenship and port workers). Ship emissions are often one of the major sources of urban pollution in and around port-cities. Indeed, although the most of these emissions are emitted into the sea, a noticeable portion of shipping emissions takes place in port areas, mainly where docked ships keep their engines running. In many port-cities, citizens claim for a reduction of ship emissions in order to reduce their impact on health.

Maritime transport accounts for about more than 80% of global merchandise trade by volume. Shipping is responsible for 3% of global CO2 emissions.

The increasing international awareness of the growing global air pollution issue resulted in the adoption of measures to reduce ship emission into the atmosphere.

Since 1973, international regulation (IMO, 1998) has aimed at preventing and minimizing pollution from ships – both accidental and routine pollution.

The Marpol convention with 1997 Protocol amendments included a new Annex VI, which regulates harmful compounds emitted from ships on international voyages for the first time.

Within this framework, ports became central to climate change initiatives and energy/technology development for marine and offshore energy, biomass imports, and maritime freight that present a diversification challenge for port cities(Dario, Bonciani & Spadoni, 2021). More recently, the European Green Deal, aimed to make Europe climate neutral by 2050, boosts the economy through green technology, creates sustainable industry and transport, and cuts pollution. Turning climate and environmental challenges into opportunities will make the transition just and inclusive for all. Within this framework, ports need to become new clean energy hubs, contributing to better living conditions for workers and nearby residents.

2 EVOLUTION OF THE PORT CONCEPT AND OF PORT-CITY RELATIONSHIP

Within the fourth-generation ports, the environmental and human factor features become particularly important for port competitiveness (Unctad, 1992; 1999).

[1] https://www.youtube.com/watch?v=CDKob_REGAY

[2] Other interviews released on the European Project PASSAGE (Interrreg) are available at http://retedigital.com/en/progetto-passage-interreg-europe-porti-e-citta-una-comune-strategia-ambientale-intervista-a-barbara-bonciani-comune-di-livorno/;
www.academia.edu/40337358/city_port_collaboration_in_reducing_shipping_emissions
The aim of the project was to promote public Authorities support in low carbon growth in European maritime border regions.

In this framework, the collaboration between cities and ports on common environmental objectives is the fundamental condition for preventing conflicts, and on which to orient policies focused on port growth, urban development and life quality improvement.

One might wonder why ports have to consider city communities in their environmental strategy and how cities and ports could collaborate to develop a common strategy in order to reduce urban pollution derived by port activities.

To answer these two questions, first of all we need to highlight the port concept evolution.

During the last twenty years, ports have undergone major changes due to the containerization and mass transportation with profound effects on their hinterland.

Today, the competitiveness and sustainability of ports are not only determined by operational features but depend on a proper integration of three dimensions: operational, spatial and societal. The societal dimension addresses ecosystem and human factors (Verhoeven, 2015).

Table 1. Three dimensional "fourth generation" port concept

Dimension	Sub-dimension	Key features
Operational	Ship-shore operations	Technological changes, introduction of new services (e.g. shore-side electricity, waste reception facilities).
	Value-added logistics	Shift from core to non-core port activities.
	Industrial activities	Shift from traditional to sustainable industries (e.g. LNG terminals, biofuel plants).
Spatial	Terminalization	Multinational operators develop networks of terminals under corporate logic. Competitive emphasis shift to terminal level, extending into the supply chain.
	Port-city relationship	Loosening of spatial relationship combined with the weakening of economic and societal ties (although first signs of re-integration initiatives appear – see societal dimension).
	Regionalization	Network development beyond the port perimeter, involves co-operation with inland ports and dry ports (load center development) as well as with other seaports in proximity.
Societal	Ecosystems	Seaport in part of a wider (coastal) ecosystem where it has a variety of environmental interactions with the outside.
	Human factors	Sustainable co-habitation with local communities, focus on avoiding negative (pollution, congestion, etc.) and stimulating positive externalities.

Source: Verhoeven, 2015, p. 21.

Ecosystem means that the seaport is a part of a wider coast ecosystem where it has a variety of environmental interactions with the outside.

Human factors refer to sustainable co-habitation with local communities focused on avoiding negative externalities, and stimulating the positive ones. Many ports are already planning for the development of environmental facilities to support green transition.

In this context, the port-city goal is to accelerate the economic strength of ports, improve competitiveness of ports and reduce emission incurred by international and domestic shipping.

Ports are central to some climate change initiatives and in green transition policies. In this framework, port authorities play a very important role for their potential to face socioeconomic and environmental pressures from stakeholders and for their role in implementing green economy policies.

Furthermore, recently the erosion of public support from port authority has been recognized as an issue that need attention from the port management, embracing co-habitation and dialogue with cities and local communities (Verhoeven, Espo & Backx, 2010).

In this context, the mitigation of urban pollution derived by shipping became an important question for port-cities, where city communities are more engaged in climate actions, asking for greenhouse gas reduction.

Today, the port-city relationship is experiencing a new dynamism driven on both sides, by aspirating to improve port competitiveness, and, at the same time, by making the most of their potential as a stimulus for city life and regeneration.

In this framework, cities and ports can establish a new relation and exercise their potential to address environmental externalities. Balancing the environmental impact of port on the city is a challenging task for both port and city management.

Societal integration has been recognized as an essential part of port governance and concerns actions that aim to optimize the relation between port and its surrounding societal environment.

3 The advanced node of Livorno: towards a smarter port-city collaboration on greenhouse gas reduction

The port of Livorno is a multipurpose port, adjacent to the urban fabric of the city, where ships operate near areas that are heavily populated and sensitive to the phenomenon of emissions into the atmosphere by ships.

The City of Livorno, together with the new Councilor for port and port-city integration, launched a new cooperative working framework (open governance process) focused on improving port-city relations in different fields: economic development, environment, planning and technologies, human factors and social issues.

The Municipality of Livorno has joined RETE[3] (the international association for the collaboration between port and cities), giving life to the *Advanced node of Livorno*, a permanent operational center aimed at promoting and strengthening collaboration between stakeholders for a better integration of the port in the urban and territorial context, as well as shared development of the port-city.

The general aim of the *Advanced node of Livorno* is to foster the collaboration between public and private at a local level for a better integration of the port in the urban context, and also to create a dynamic platform of collaboration between city and port that can be considered as an example at local, national and international level.

As a part of the RETE Agreement, the Municipality of Livorno has set up the Environmental working group on sustainability and circular economy with a focus on greenhouse gas reduction, engaging port communities (institutional/public and private), the local research Institute and the laboratory. The specific aim was to encourage port-city collaboration on reducing emissions from the shipping sector and to explore and share the best practices and current solutions realized by other ports and cities in Europe, in order to reduce pollution generated by ships and port operations (use of environmentally friendly technologies and propulsion; low emission electric power supplies at berth, LNG PowerPacs, low emission and energy efficient machinery and equipment, etc.).

In this scenario, on 20th January 2020 the Municipality of Livorno, together with the Coast Guard Office and the shipping companies which have regular lines in the port of Livorno, signed the *Livorno Blue Agreement*, a voluntary agreement focused on mitigating the gas emission derived by ships. It is considered appropriate to adopt some best practices in order to reduce

[3] http://retedigital.com/en

atmospheric emissions from those ships frequently berthing to Livorno port, especially during the time of stay of ship in port (dockside, berthing and un-berthing), to protect the health of citizens and port workers.

This also considered the obligations introduced by international legislation which entered into force on 1st January 2020. On October 2008, the International Maritime Organization (IMO) had adopted a set of amendments to Annex VI of the MARPOL Convention which, among other things, strengthened the requirements on the sulphur level permitted in ship fuels. The amendments provide for a progressive reduction of the sulphur content of marine fuels (so called "Sulphur cap") which avoid the use of marine fuels with sulphur content greater than 0,50% by mass in territorial waters and particularly established that ships at berth in Italian ports do not have to use marine fuel with a sulphur content exceeding 0,10% by mass.

Thanks to the *Livorno Blue Agreement*, it was possible to introduce more severe best practices in order to mitigate green gas emissions as follows: using main and auxiliary engines at the best speed and power rate for an optimal combustion; starting the engines in such a way as to limit the smoke at low engine speeds; avoiding the passage between engines if not necessary; avoiding to blow the exhaust pipes in port; carrying out frequent checks on the correct implementation of maintenance programs and retain all the documentary evidence on board.

4 CONCLUSIONS

Port cities are emblematic of complex and integrated socio-ecological systems, which are experiencing challenges and opportunities related with green port transition and, in general, with the interactions between bio-geo-physical territorial components and governance.

Characteristics of Euro Mediterranean and Italian ports are linked to their location, which remains strongly rooted inside urban systems. The air pollution and health impacts of ports on urban and marine system cause environmental conflicts between city and port community.

Indeed, ports can be considered as major hubs of economic activity, but at the same time the major sources of pollution derived by shipping and operational activities. Among the low-carbon strategies, the projects developed by ports and cities at local level become particularly important for their ability to add value to international and national policies. Local communities in city port ask for urban pollution mitigation strategies and ports are central to the green transition process. In this framework, the *Livorno Blue Agreement* represents a best practice about port-city collaboration in green gas emission mitigation. The voluntary agreement, signed by the Municipality of Livorno, the Port Network Authority of the North Tyrrhenian Sea and the Coast Guard of Livorno, includes some best practices and engagements for ship companies signatories focused on reducing atmospheric emissions derived by those ships frequently berthing to Livorno port. The *Livorno Blue Agreement* is the first goal of port-city collaboration focused on atmospheric pollution reduction. It represents a social responsibility practice, a first step in port-city collaboration in ship emission mitigation.

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Transition strategies towards a more sustainable marine tourism: some proposals from a European project

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ABSTRACT

In Italy, the economic relevance of coastal and inland tourism is demonstrated by its added value, which amounts to about 10% of the national GDP, and by its share on total employment, around 13%. Marine tourism is the main type of tourism in Italy, accounting for 20% of foreign arrivals only, but 30% of attendance.

This paper analyzes the implementation process and some results on possible transition strategies towards a more sustainable marine tourism of the European Project Bluemed, a Coordination and Support Action (CSA) just focused on specific characteristics and needs of the Mediterranean area. One of the main maritime socio-economic drivers identified and then analyzed by Bluemed is just marine tourism, given its importance for the economic and coastal-maritime development (Italy has about 7.500 km of coastline). Nevertheless, it has many constraints to face and solve, manly the high seasonality, strongly concentrated in the summer months.

In the present paper, only the Italian activities and results of Bluemed will be analyzed. These activities have been carried on with the engagement and contribution of the Italian marine scientific community and of relevant marine and maritime stakeholders. This paper will describe the several approaches, activities and tools adopted within the four Italian Mirror Platforms, created in order to manage these interactions, as well as the new transition strategies proposed.

This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: marine tourism, sustainability, blue growth.

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1 INTRODUCTION

Maritime and coastal tourism is the largest maritime activity in Europe and employs nearly 3.2 million people, generating more than 180 billion EUR in gross value added, which represents over a third of the maritime economy.

Coastal tourism includes not only tourist and recreational activities related to the beach, but also many other activities for which the sea proximity is an advantage, such as those that can be carried on along the coast and inland. Maritime tourism, on the other hand, refers to mainly water activities, such as sailing and water sports or cruises.

Coastal tourism shows significant differences at the local scale. Some areas are characterized by tourism products that have reached good levels of maturity. Other places, especially in the coastal hinterland, are still struggling to become a tourist destination and to intercept the nearby seaside tourism and integrate with it. Italy is among the countries with the oldest tourist vocation and it also boasts an artistic and natural heritage like few others. Domestic and international bathing tourism, despite generating only 1/5 of arrivals, amounts on 30% of attendance, and is therefore the main type of tourism in Italy (Cariola, 2021).

Coastal economies are particularly vulnerable to economic, financial and political changes, as they are mainly made up of Small and Medium Enterprises (SMEs) and micro-enterprises. Due to the economic crisis, most SMEs, which are active in the tourism sector, have problems accessing credit for investments and innovation.

This paper summarizes some results of the European project Bluemed (a 2016-2021 CSA within H2020), which involved nine different European countries (Croatia, Cyprus, France, Greece, Italy, Malta, Portugal, Slovenia, Spain) and their relevant stakeholders in the definition of shared strategies for the empowerment of the blue growth in the Mediterranean area. The Italian National Research Council (CNR) coordinated this project. Bluemed analyzed the most relevant activities and thematic objectives for some of the main marine and maritime socio-economic drivers (such as transports, tourism, energy, shipbuilding, etc.). The present paper focuses its attention on Bluemed's results relating to the coastal and maritime tourism sector, trying to draw some suggestions for its development and some policy indications.

2 A FRAMEWORK OF THE SECTOR

Tourism expansion continued until 2019[1]: for example, between 2000 and 2016, tourist arrivals grew by 42% and the number of nights spent by 17%. This trend is even more relevant as far as the international portion is concerned: before the Covid-19 crisis, foreign arrivals had increased by about +60%, and the share of foreign tourists had passed from 44% in 2000 to about 50%. The provenance of foreign tourists is relevant because it implies different behaviors: the German-speaking share (1/4 of the total international arrivals) mainly prefers seaside resorts, lakes and spas in northern Italy; Anglo-Saxon and non-European mature tourists focus on cities of art. The Italian tourists have always shown a strong preference for proximity seaside tourism, mainly during the summer, characterized by regional or interregional movements with the use of private transportation (especially towards the second home). For these reasons, bathing tourism is the main type of tourism in Italy, accounting for 20% of foreign arrivals only, but 30% of attendances (CNR-IRiSS, 2016; CNR-IRiSS, 2017; CNR-IRiSS, 2020).

After the 2020 serious tourism crisis, due to the COVID-19 pandemic, summer 2021 turned positive mainly thanks to the return of Europeans, as it emerges from the usual end-of-season survey carried out by CST Florence for Assoturismo Confesercenti[2]. According to this survey, in Italy the summer of 2021 was characterized by an estimated growth in flows of + 21% more than

[1] Data www.istat.it/it/archivio/turismo (last access on 30/09/2021).
[2] https://centrostudituristicifirenze.it/blog/turismo-estate-2021-in-italia/

the summer of 2020, with 33 million tourists and 140 million overnight stays. Seas (+ 19%) and Mountains (+ 13.1%) were doing well, but also Cities of Art (+ 25.4%), Lakes (+ 29.2%), and Hills (+20.4) were recovering. The estimated increase in demand from foreigners was + 25.1%. These were European tourists: Germans (+ 40%), French (+ 30%), Dutch (+ 25%), and Swiss (+ 21%). Overseas and Asian tourism was still on standby. Unfortunately, these data are not stable yet, as the pandemic is not over yet, and its trend determines continuous variations and stop and go.

3 ELEMENTS CHARACTERIZING THE STRUCTURE OF THE PROJECT

In the past, most of the European policies in favor of the sea have never paid a particular attention to the Mediterranean. On the contrary. they have often favored the seas bordering the Northern European countries. Instead, the Mediterranean area has always been a crucial crossroad for the history, economy and culture of European, Middle Eastern and North-African Countries. This specific context has very different problems compared to the Northern European seas and the Oceans.

For this reason as well, in the last years, the European Union (EU) has decided to support a more sustainable use of the sea and its sustainable marine/maritime economic development, in particular with reference to the Mediterranean Sea[3].

The present article analyzes the implementation process and some results related to the marine tourism sector of the European Project - Coordination and Support Action (CSA) - Bluemed[4], just focused on the specific characteristics of the Mediterranean area. Eleven organizations from nine countries participated in Bluemed (budget 2,998 K€), which involved the relevant actors/stakeholders of the Mediterranean Sea in the definition of sustainable strategies for supporting the blue growth, with many different approaches, tools and activities. The eleven organizations are:

- Consiglio Nazionale delle Ricerche (CNR) Italy;
- Research Promotion Foundation (RPF) Cyprus;
- Ministerio de Economía y Competitividad (MINECO) Spain;
- Instituto Español de Oceanografía (IEO) Spain;
- Centre National de la Recherche Scientifique (CNRS) France;
- Institut Français de recherché pour l'exploitation de la mer (IFREMER) France;
- Hellenic Centre for Marine Research (HCMR) Greece;
- Institut Za Oceanografiju i Ribarstvo (IZOR) Croatia;
- Malta Council for Science & Technology (MCST) Malta;
- Direção-Geral de Política do Mar (DGPM) Portugal.

The methodology followed in the Bluemed project was based on a long interactive process for the definition of goals, in turn divided into actions and sub-actions specifically identified to reach those goals. To support this process, interviews, panels and workshops with main maritime actors and stakeholders were carried on in each participating country. The Mediterranean Region is characterized by evolving political, social and environmental conditions, according to the aim of the project, it needed an interactive process, able to involve the main actors from different sectors

[3] See: European Commission Staff Working Document (2017). Report on the Blue Growth Strategy: Towards more sustainable growth and jobs in the blue economy Staff Working Document (SWD), 128. Available at https://ec.europa.eu/transparency/documents-register/detail?ref=SWD(2017)128&lang=en;
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[4] http://www.bluemed-initiative.eu/the-project/

and disciplines, in order to build the right environment for supporting the economic growth, also considering social implications and environmental conservation (EU, 2016; Cvitanovic et al., 2015).

Both a top-down and a bottom-up approaches have been used to stimulate a dialogue among stakeholders; four thematic working groups were established, the so called Bluemed Platforms, both at the national (Mirror Platforms) and at the Mediterranean level. They are:

1. Knowledge Platform: knowledge of Mediterranean Sea dynamics and ecosystems
2. Economic Platform: economic sectors of Blue Growth economy
3. Technology Platform: enabling technologies for Blue Growth
4. Policy Platform: science to policy for Blue Growth

Platforms have been conceived as "virtual environments" where representatives from stakeholders at the national level could interact to convey the message of national communities, as well as to discuss and agree on gaps, needs, barriers and priorities related to the actions identified in the Bluemed Strategic Agenda (Bluemed Italian Working Group, 2018).

One of the platforms' activities was to identify the most relevant thematic objectives for Blue-growth in the Mediterranean for each of the main marine and maritime socio-economic drivers (tourism, food, transport, chemicals and materials, energy, security). Their relevance has been defined by looking at their potential impact in terms of societal, economic and environmental benefits.

3.1 Activities at the Italian level within the Mirror Platforms

In this paper we will describe the activities carried on within the Mirror Platforms only at the Italian level, with the contribution and the active engagement of the Italian marine scientific community and of relevant stakeholders. Several approaches and tools were adopted within the four Italian Mirror Platforms in order to reach shared opinions on the strategies to be pursued to achieve the objectives set for each driver, including tourism.

The main tools and activities carried out in Italy have been (Bluemed Italian Working Group, 2018; Cariola, 2021):

1. National Bluemed events gathering the Italian stakeholders (the first one was held in Rome, June 2017) for collecting ideas and suggestions and identifying problems and areas of intervention in order to draw up a draft of the Bluemed Agenda.
2. The online survey "Share your view on the Research and Innovation agenda for the Med". It was launched to obtain inputs/revisions to update the Bluemed Agenda by examining in detail each goal and action, identifying barriers and bottlenecks, always with specific attention to the peculiarities of the Mediterranean area.
3. Consultations with experts. Leading experts in different marine sectors were invited to review the state of the art of "blue" sectors; to analyze related cross-cutting issues and constraints; to define trajectories towards Blue Growth objectives.
4. An inter-ministerial working group on Blue Growth. To coordinate and strengthen the outputs of the previous steps, open and public discussions were organized through regular meetings. They involved decision makers, including representatives from relevant ministries, to better align and strengthen the Bluemed goals with national programs and strategies on the Mediterranean.

4 Possible transition strategies toward a more sustainable tourism sector

Among the Bluemed Italian platforms' activities, for Tourism and each of the other identified marine and maritime socio-economic drivers, the most appropriate roadmaps have been written,

to overcome the many obstacles identified and reach the relevant thematic objectives selected for the Blue growth in the Mediterranean.

Seasonality has been identified as one of the main obstacles in the marine and costal tourism sector. As it is concentrated in the summer period, there is a consequent lack of career opportunities because this seasonality does not attract or retain sufficient qualified staff, thus causing problems in the quality of services and hindering competitiveness. The sector needs qualified professionals, with a service-oriented mindset and ability to speak multiple languages. It also needs dynamic entrepreneurs to promote professional approaches between local businesses, administration and stakeholders (European Commission Staff Working Document, 2017).

Today, many tourists prefer a unique and personalized experience rather than a more traditional type of "sun and sea" holiday solution. This turn in demand requires flexibility and the operators' ability to adapt very quickly, developing new products and innovative activities, for example promoting the attractiveness and accessibility of coastal and marine archeology, maritime heritage, underwater tourism and food and wine activities. In the last years, an interesting case has been the *SubArcheo* project[5], which has developed new methodologies for distance learning, aimed at training archaeologists and underwater guides in the coastal areas of the Mediterranean Basin, as well as Certifications for the use of Multimedia Tools and Visual Tools (e.g., virtual reality reconstruction trough 3D software). The project also contributed to developing courses for the retraining of fishermen, as well as to promoting the protection of social and cultural heritage.

Another kind of marine tourism, cruise tourism, has had a great expansion until the Covid limitations; in the future, it could still be a great opportunity for the coast and the inland areas. However, if not well managed, it is not always easy to reap the economic benefits generated by cruise tourism. This type of tourists often stop in the port for only a short time without giving a real added value to the area involved in the landing, notwithstanding the high investments requested by cruise tourism for port infrastructures and environmental protection.

Considering the main opportunities and the obstacles identified by Bluemed, the transition strategies towards a more sustainable and profitable marine tourism sector can be summarized in the following roadmaps (Bluemed Italian White Paper Working Group, 2018; Cariola, 2021):

- Identification and differentiation of the main types of coastal tourism (e.g., nautical tourism, maritime tourism, cruise tourism, urban tourism, green tourism, experiential tourism) and the related main objectives, in order to offer to each of them different and targeted proposals, but also proposals of integration with cultural and natural attractions.
- Integration between the coast and the hinterland with forms of slow inter-mobility; for example, through connection and promotion of cycle routes between coastal areas and the hinterland and combination with other forms of mobility, such as navigable waterways and railway network.
- Integration of marine tourism into other productive activities (agriculture, crafts, culture, fishing, etc.) and between different destinations, in order to expand the offer of tourism products. An example could be the development of fishing and ichthyic tourism, involving local fishermen or local workshops in tourism offerings, so that vital productive activities and important professions can be valued (Manente, 2016). The interventions for the development of fishing tourism, involving local entrepreneurs, could thus be able to supplement their income; visits to historic artisan businesses could enhance and maintain vital productive activities and professions relevant for the local culture, both tangible and intangible, which is at risk of disappearance.
- Use of tourism as a vehicle for educating people, increasing the use of the heritage and historical-cultural, natural and food and wine resources.
- Development of new advantages for coastal tourism also through a "life learning" approach and of alternative tourism products that respond to the growing demand for a more

[5] http://euroreso.eu/projects/subarcheo/

experiential and active holiday, which allows to "discover and live" the destination in an authentic and sustainable way. For example, responsible underwater tourism, volunteer camps for responsible tourists, experiential-educational proposals through boat excursions with marine biologists, marine archaeologists and other experts.
- Implementation of interactive and multi-device tools based on ICT technologies to enrich the visit experience (e.g., augmented and virtual reality that allows to "reconstruct" aspects of the territory that are no longer visible, or historical events, or to learn a certain craftsmanship technique, etc.).
- Expansion towards the coast and the inland of the opportunities offered by cruise tourism, which is often "hit and run".
- Greater control and better management of tourist flows, to limit temporal and spatial over/under uses.
- Promotion of new products and activities along the coast, addressed to more "advanced" and "spending" tourists.
- Fostering the tourism development of the internal "minor" localities, often little known, but which could offer interesting opportunities for recreation and integration with more purely maritime activities.

5 CONCLUSIONS

Some results of the analysis and activities carried on within the Bluemed project have allowed to identify the main criticalities/bottlenecks that could prevent or preclude the achievement of the national and trans-national objectives of the Bluemed Agenda. Specifically, we refer to those carried on within the Mirror Platforms on tourism, one of the more important marine and maritime socio-economic drivers in Italy. In conclusion, the main specific identified factors on which the maritime system should still concentrate its efforts are (Cariola, 2019; European Commission Staff Working Document, 2017):

- The different perception of priorities within the different stakeholders (tourism operators, public authorities, civil society, scientists, industries).
- The present low levels of interactions among the different stakeholders.
- The present strong level of competition among different areas and the existing conflicts for related activities.
- The knowledge gaps (related to each aspect: natural sciences, technology, economy).
- The skill gap (fit-for-blue-job competences which have yet to be developed).

In order to give impulse to a sector with very good potential, but still with many critical issues, it could be helpful to follow a strategy focused mainly on three directives (to be then declined on various levels) , namely (Bosello et al. 2016; Cariola, 2019; EC, 2017, MIBACT, 2017):

- New technologies and ICT services for a more sustainable and profitable marine tourism.
- Integration between coast and hinterland, to overcome the next challenges, including those related to climate change.
- De-seasoning and differentiating the tourist offer, enhancing the enjoyment of the historical-cultural, natural and eno-gastronomic heritage of the hinterland.

This kind of strategy could favor another important twofold objective: promoting new products along the coast aimed at more "advanced" and "spending" tourists, and promoting the tourist development of the internal "minor" localities. This strategy should also seek to predict the dynamics of tourism in Italy in the next future: it is estimated that cultural tourism will be the most dynamic; green tourism will be expanding, too; while seaside tourism could slow down in the medium-long term (CISET, 2018).

The way towards a complete sustainable and profitable development of coastal and marine tourism is still long and sometimes tortuous, but the main cornerstones have been defined and

placed. The influence of the pandemic and climate changes are also creating new sensitivities in the population and this could be supportive even at a policy level.

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Strategies and Policies

Blue in the Green
How the European Green Deal will affect EU seas and the maritime sector

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ABSTRACT
The European Green Deal was presented in 2019 as the European Commission's roadmap to make Europe the first climate neutral continent by 2050, while ensuring sustainable and inclusive growth. It has been accompanied by the adoption, in the period between 2019 and 2021, of about 20 strategic documents, which address all the environmental policy areas and all the economic sectors. This article illustrates how the EGD strategic framework will affect the European marine environment and the blue economy. In particular, it shows that the blue economy needs to be deeply transformed to deliver on the EU 'green ambitions' and that this sustainable transition will result in healthier oceans, which in turn, within a virtuous circle, will bring further benefits to the blue economy. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: European Green Deal, maritime environment, blue economy.

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1. INTRODUCTION

The European Green Deal (EGD) was presented in 2019 as the European Commission's roadmap to make Europe the first climate neutral continent by 2050, while ensuring sustainable and inclusive growth (European Commission [EC], 2019). The policy framework shaped by the EGD has been completed by about 20 strategic documents, adopted in the period between 2019 and 2021, addressing all the environmental policy areas and all the economic sectors (EC, 2019). Among these documents, the Communication on a new approach for a sustainable blue economy (EC, 2021a) specifically aims at integrating ocean policy into Europe's new economic policy, even if many other EGD strategies set objectives and implementation measures, which will directly affect the marine environment and the blue economy.

Oceans are essential for our own existence and our economic prosperity: they hold 80% of all life forms, play a major role in climate regulation, contribute to food security and are the most important asset of the blue economy. Therefore, the European Commission recognizes that there is no Green Deal without oceans and no green recovery, after the COVID-19 pandemic, without a sustainable blue economy. The present article illustrates how the EGD strategic framework (EGDSF) will affect the European marine environment and how the blue economy needs to be transformed to deliver on the EU 'green ambitions' related to decarbonisation, climate adaptation, pollution prevention & reduction, conservation of natural capital, circular economy and responsible food production.

2. THE EUROPEAN GREEN DEAL: A SUSTAINABLE BLUE ECONOMY IN THE EU

According to the EGDSF, in the first place the blue economy is expected to support the achievement of the climate neutrality goal (including, as an intermediate step, 55% GHG emission reductions target, compared to 1990 levels, by 2030; EU, 2021) and the transition towards zero pollution. To this end, the renewables shall be used to produce at least 40% of energy in the Union by 2030 (EC, 2021b). Within this context, offshore renewable energy shall become a core component of Europe's energy system, by generating a quarter of the EU's electricity in 2050. The related capacity will have to be multiplied five-fold and 30-fold, respectively, by 2030 and 2050. At the same time, since ports are crucial to the connectivity and the economy of regions/countries, they should work as energy hubs (EC, 2021a). This massive change of scale requires careful planning and good cooperation between all the stakeholders involved, to make it compatible with the protection of biodiversity and all the other uses of the maritime space (a Blue Forum will be created to coordinate dialogue between sea users). It also requires an adequate and stable legislative framework, as well as investments and research efforts. Investment needs by 2050 amount to almost 800 billion Euros (two thirds to fund grid infrastructure and a third for offshore generation; EC, 2020a).

The increasing share of renewable energy will be counterbalanced by the projected reduction in fossil fuels' consumption. By 2030, oil and gas consumption should decrease by more than 30% and 25%, respectively (EC, 2020b). The European Investment Bank will stop funding unabated oil and gas projects by the end of 2021, cutting about 2 billion Euros of yearly investments (EIB website).

Another relevant contribution to climate mitigation and the "zero pollution" ambition is expected from the transport sector, which should reduce its overall GHG emissions by 90% compared to 1990 levels by 2050 (EC, 2020c). In maritime transport, emissions today are higher than in 1990 and they are projected to grow further in a business-as-usual scenario. Therefore, the Commission has already proposed to extend the EU Emission Trading System to the maritime transport sector from 2023 (EC, 2021c), to fully internalise the related environmental costs. The Energy Taxation Directive is also currently under revision, to abolish tax exemptions for the use of fossil fuels, while encouraging that of sustainable fuels (EC, 2021d). The demand of renewable

and low-carbon fuels will be stimulated by a dedicated initiative (the so called "FuelEU Maritime"; EC, 2021e). Zero-emission ocean-going vessels will have to become market ready by 2030. The Sustainable Mobility Strategy also calls for a substantial part of the 75% of inland freight carried today by road to shift towards more sustainable transport modes, including short-sea shipping, which, along with inland waterways, should increase by 50% by 2050. Short-sea shipping represents a lead market for hydrogen, which is essential to achieving the EGD goals, since it does not emit CO_2 and almost no air pollution when used. A specific strategy has been adopted to produce up to 1 million and 10 million tonnes of renewable hydrogen, respectively by 2024 and 2030 (EC, 2020d). Finally, in order to promote zero-emission ports, the Ship-Source Pollution Directive (EU, 2005) will be revised to bring its provisions on illegal discharges at sea into line with the EU rules requiring ships to deliver their waste in ports.

The protection and restoration of biodiversity represent another fundamental goal of the EGDSF. A set of actions has been defined by the European Commission to improve the protection of marine biodiversity, with regard to both species and habitats (EC, 2020e). In the first place, the EU should protect at least 30% of the EU's seas by 2030 (+19% compared to today) and, in all protected areas, Member States will have to establish clear conservation objectives and measures. If the EU is not on track to meet the above objective, the Commission may later decide to introduce adequate legislation. The upcoming new action plan to conserve fisheries resources and protect marine ecosystems will promote the transition towards more selective and less damaging fishing techniques, which will be financially supported by by the European Maritime and Fisheries Fund (EMFF). The Biodiversity Strategy (EC, 2020e) also provides for the reduction of the by-catch of species threatened with extinction, the adoption of a zero-tolerance approach for illegal harvesting of marine resources and the reduction of the adverse impacts of fishing, extraction and other human activities on sensitive species and seabed habitats.

Over 200 million EU citizens live in coastal regions or on one of Europe's many islands. If current trends are not reversed, they will be increasingly exposed to loss and damages due to climate change and extreme weather events. The cost of inaction on the protection of coastlines from the risk of erosion and flooding would amount to 340-360 billion Euros per year in terms of lost ecosystem services along EU coasts (EC, 2020a). The EU Strategy on adaptation to climate change (EC, 2021f) highlights the importance of developing nature-based solutions on a large scale and green infrastructures in coastal and marine areas, as they will enhance coastal defence and reduce the risk of algal blooms, while providing further benefits such as carbon sequestration, tourism opportunities, and biodiversity conservation and restoration. These adaptation activities will become a new sector of the blue economy.

The blue economy is also key in the transition towards a sustainable food system (shaped by the Farm to Fork Strategy; EC, 2020f), which, in turn, will contribute to climate mitigation, the protection of biodiversity and the reduction of pollution. Seafood farming and algae may be a relevant source of alternative proteins for a sustainable food system (as well as for animal feed), since they generate a low carbon footprint compared to animal proteins. A specific initiative on algae will be launched in 2022. The EMFF will offer targeted support for the algae and seafood industry and marketing standards will be revised to encourage the uptake of sustainable fisheries and aquaculture products. The Commission will act to reduce the overall EU sales of antimicrobials for farmed animals and in aquaculture by 50%, by 2030 (EC, 2020f and 2021g). Organic aquaculture should significantly increase. The new EU Strategic Guidelines on Aquaculture (EC, 2021h) favour this process and the improvement of the environmental performance of the sector.

Marine litter is a global concern; it is estimated that more than 150 million tonnes of plastics have been accumulated in the world's oceans (Jambeck et al., 2015), with detrimental environmental effects and serious economic consequences. The Commission aims, *inter alia*, at halving plastic litter at sea and reducing by 30% microplastics released into the environment by 2030 (EC, 2020g and 2021g). At the international level, the EU will lead efforts to reach a global agreement on plastics. Standards are being developed for the circular design of fishing gears to facilitate their re-use and recycling. The agenda, shaped by the Action Plan, includes other "circular measures" affecting the maritime sector, such as the revision of the standards for ship

recycling and the initiatives aimed at ensuring the environmentally sound management and optimal treatment of decommissioned offshore oil and gas platforms.

3. Conclusions

Overall, the EGDSF presents a strategy for reconciling economic growth with the urgent need to effectively tackle environmental challenges. This requires a deep transformation of the economic system. With regard to the blue economy, some traditional sectors will be cut back. This is the case of offshore fossil fuels, which, based on the EGD, have no viable future, although the Commission recognizes that, in the short run, fossil gas may still play a role, as long as clean energy cannot yet be deployed on the desired scale. Other traditional sectors, such as fisheries, seafood farming, coastal tourism and transport, will need to "evolve" to improve their sustainability and circularity. New and emerging activities, including blue biotechnology, algae production, green infrastructures and certain innovative offshore energy (e.g. wave and tidal) hold significant potential for the future and will further expand, even if their environmental impacts have to be carefully studied and monitored. This sustainable transition of the blue economy will contribute to delivering on the EGD environmental ambitions, resulting in healthier oceans, which in turn, within a virtuous circle, will bring further benefits to the blue economy.

Two issues deserve special attention in the implementation phase. In the first place, tensions and potentially conflicting activities are present in the EU seas, also considering that there is no private property on marine waters. Joint efforts and enhanced cooperation between all the sea users are, therefore, crucial to turn the EGD into reality. Secondly, investments are essential to meeting the EGD objectives and they will have to be scaled-up and will have to mainstream all the sustainability issues described above. According to the European Commission, by 2030, one third of investments in the blue economy is at risk of being still unsustainable (EC, 2021a). About 600 billion Euros investments from the Next Generation EU Recovery Plan and the multiannual financial framework will finance the implementation of the EGD. EU public funding will have to support especially less mature technologies and projects that need to attract investors, bring down costs and uncertainties, and accelerate market entry. With regard to the private sector, the EU taxonomy for sustainable investments (EU, 2020), along with other relevant initiatives (e.g. the voluntary Sustainable Blue Economy Finance Initiative, developed, *inter alia*, by the Commission, the European Investment Bank and the WWF; UNEP website) will help to channel private funds to achieve the transition.

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EU Region-building for Maritime cooperation in the Mediterranean Sea: the EUSAIR and the WestMED initiative

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ABSTRACT

This paper offers an overview of EU region-building strategies in the Mediterranean, with a focus on the EU Strategy for the Adriatic and Ionian Region (EUSAIR) and on the Western Mediterranean Initiative (WestMED). Both of these strategies include the blue growth among their priorities and ensure the mobilization of various stakeholders at different scales. This paper discusses the contribution that these strategies may offer to activate synergies and coordination among different programmes and funds, in order to make the efforts towards a sustainable management of the Mediterranean Sea more effective. The 2021-2027 programming period of EU funds offers an important opportunity in this regard. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: European Union, Blue Growth, Mediterranean, EUSAIR, WestMED.

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1 INTRODUCTION

The aim of this paper is to offer an overview on two EU Region-building strategies for Maritime cooperation in the Mediterranean Sea: the European Union Strategy for the Adriatic and Ionian Region (EUSAIR) and the Western Mediterranean Initiative (WestMED).

In general terms, regional strategies are based on the definition of transnational areas of cooperation which offer spaces for inter-institutional dialogue between the European Union and third countries on topics of common interest (Coletti & Celata, 2013).

As we shall see, these strategies have been largely used by the European Union in the relationship with its neighbouring countries, including in the Mediterranean. In this framework, the peculiar characteristics of both the EUSAIR and the WestMED initiative are to be identified in the wide involvement of stakeholders at different scales that these initiatives ensure, and in the attempt to coordinate and create synergies among different programmes and funds. From this point of view, the EUSAIR and the WestMED initiative may offer a specific added value during the incoming 2021-2027 programming period of EU funds, as they offer a pre-defined and agreed set of priorities where it is possible to focus efforts and resources with the aim of obtaining more relevant and long-lasting results, including in the field of blue growth.

The paper is structured as follows: section two introduces policies and practices of EU region-building in the Mediterranean. Sections three and four present the EUSAIR and the WestMED initiative respectively. In section five, the main future opportunities and challenges for the two initiatives are discussed, highlighting the contribution that they may offer to a sustainable management of the Mediterranean Sea.

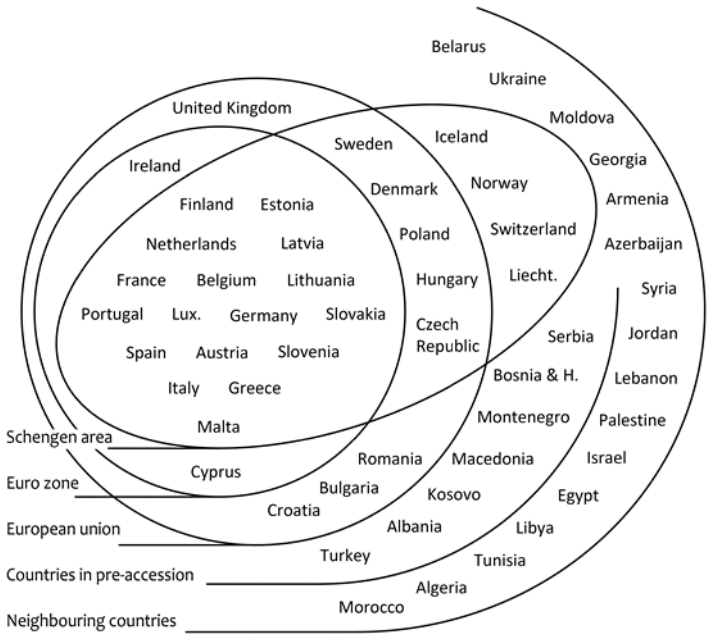
2 EU DRIVEN REGIONALIZATION PROCESSES IN THE MEDITERRANEAN

The EUSAIR and the WestMED initiative, discussed in this brief contribution, are not the first examples of regionalization processes in the Mediterranean; rather the EU has put in place several initiatives of region-building in the area.

Firstly, we can say that the very policy frameworks adopted by the EU in the relationship with its neighbouring countries determine different frameworks and regionalization throughout the Mediterranean Sea. With a “territorial turn” adopted in 2007, the European Union has given value to geographical proximity, by adopting the European Neighbourhood Policy for framing the relationships with non-EU countries at EU Eastern border and in the Southern Shore of the Mediterranean. The European Neighbourhood Policy has determined the creation of a geographical category, the “European neighbourhood”, which includes all the recipient countries of the European Neighbourhood Policy despite the profound differences that exist among them (Aliboni, 2005; Dimitrovova, 2010); however, different applications and approaches emerge respectively between the Eastern and Southern dimensions of the Neighbourhood Policy (Coletti & Celata 2013; Celata & Coletti 2015). At the same time, the Enlargement Policy applies to candidate and potential candidate countries in South Eastern Europe, *de facto* creating a region in the heart of the European Union territory, as evident in Picture 1.

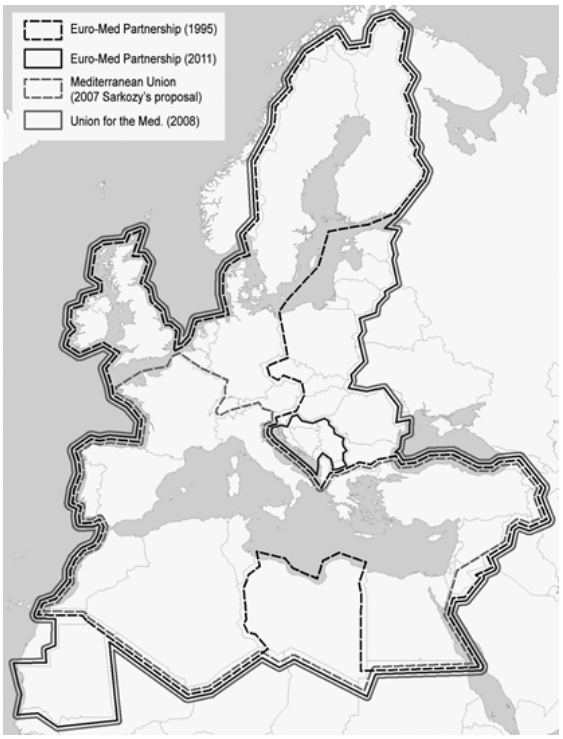
Picture 1. The European Union and its neighbourhood (Celata & Coletti, 2015, p. 2).

An effective metaphor to describe the territorial dimension of the EU integration is that of concentric circles, which exist both inside and outside EU borders (Moisio, 2007; Zielonka, 2006): inside, through the definition of the Eurozone or the differentiated accession to the Schengen Treaty; outside, through the differentiation between countries with accession prospects (medium or long term) and countries excluded from these perspectives but with which the EU is still trying to establish privileged relationships by virtue of their geographical proximity (Coletti & Celata, 2013).



Picture 2. Concentric circles of integration (Celata & Coletti 2015, p. 3).

Both the policy frameworks adopted by the EU in the relationship with proximate countries include bilateral as well as regional relations. In the case of Enlargement Policy, regional cooperation and reconciliation of Western Balkan countries is explicitly mentioned as a crucial area of intervention for a credible enlargement perspective (European Commission, 2018). The European Neighbourhood Policy includes an Eastern Dimension and a Euro-Mediterranean Partnership (Celata & Coletti, 2015). In the Southern shore, actually, several Euro-Mediterranean Cooperation programmes have been launched since the 1970s, with the establishment of the Global Mediterranean Policy. The Euro-Mediterranean partnership or Barcelona process, launched in 1995, can be considered as the most ambitiously coordinated multilateral effort to establish a common policy towards the Mediterranean. The partnership was successively revitalized within the Union for the Mediterranean (2008), with partially different and evolving geographies (Celata & Coletti, 2015).



Picture 3. Delimitations of the Euro-Mediterranean area within EU policies (Celata & Coletti, 2015, p. 92).

Cooperating regions are created also by Interreg cross-border and transnational cooperation programmes in the Mediterranean, funded within the European Territorial Cooperation (ETC) objective of the EU Cohesion Policy (Celata & Coletti 2011; 2015; Coletti 2013; Medeiros 2018). By supporting cooperation across internal and external EU borders, ETC programmes create spaces of cooperation with different geographies and open to the participation of diverse stakeholders.

Finally, and more recently, other regionalization processes are put in place in the framework of EU macro-regional strategies and sea basin initiatives, further discussed in the following sections dedicated to the EUSAIR and the WestMED initiative respectively.

Overall, EU region building strategies can be considered as a response to the complexity of the challenges faced by the European Union inside and outside its boundaries, including in the Mediterranean. They present indeed several advantages, as they create spaces of governance where to coordinate efforts and initiatives to face challenges and opportunities at different scales, and they propose an open and trans-European scale of development. In doing so, they offer powerful instruments not only in a material but also in a symbolic perspective (Celata & Coletti 2011; 2015).

Marine and maritime issues have always been important topics within the “regions” that have been created at different scales across the Mediterranean. The Mediterranean Sea is indeed

characterized by a number of threats and opportunities that need to be tackled jointly by the different actors and countries bordering its shores. To be realized, Blue growth needs the efforts of different levels of government, from supranational to local, and different typologies of stakeholders, from private companies to local communities (European Commission 2012). There is the need to coordinate different actions and initiatives in order to obtain significant impact; that is where the two initiatives here under scrutiny can play an important role.

3 The EU Strategy for the Adriatic and Ionian Region

The EU Strategy for the Adriatic and Ionian Region (EUSAIR) was adopted by the European Commission and endorsed by the European Council in 2014 (European Commission, 2014). It is a macro-regional strategy, or "a policy framework which allows countries located in the same region to jointly tackle and find solutions to problems or to better use the potential they have in common" (European Commission, 2017a, p. 1). EU macro-regional strategies are initiated and requested by States located in the same geographical area, eventually in coordination with sub-national authorities. In the case of EUSAIR, for example, subnational authorities have played an important role alongside national ones for the emergence of the initiative; in particular, we can report an activism of Italian Adriatic regions (Cugusi & Stocchiero, 2016). Macro-regional strategies are built around physical features – sea basins, river basins, mountain ranges (Gloersen et al, 2019); in the case of the EUSAIR, around the Eastern portion of the Mediterranean, and more precisely the Adriatic-Ionian Sea.

The Strategy includes four EU countries (Italy, Slovenia, Croatia, Greece) and five Western Balkans Countries (Albania, Serbia, Montenegro, Bosnia Herzegovina, North Macedonia), with North Macedonia that joined the group in 2020. The aim of the EUSAIR is to catch the strategic opportunities in the area, favoring at the same time a sustainable development of all the countries involved. Moreover, the strategy aims at accompanying the EU integration process of Western Balkan Countries (Chiodi et al, 2021).

Macro-regional strategies offer a multi-level governance framework for integrated territorial development in functional areas and, consequently, for the definition of a polycentric development in the European Union (Prezioso, 2017; Stocchiero 2018). According to OECD (2020), a functional area or region can be defined as a territorial unit that results from the structure of social and economic relations between residents across space, with boundaries that do not necessarily reflect administrative geographies or historical events. Consequently, a functional region offers an alternative subdivision of territories (OECD, 2020). As stated in its official website, the EUSAIR "is a functional area primarily defined by the Adriatic and Ionian Seas basin. Covering also an important terrestrial surface area, EUSAIR treats the marine, coastal and terrestrial areas as interconnected systems"[1]. Blue growth is one of its main pillars, together with other relevant marine and maritime issues as summarized in Table 1.

With respect to other macro-regional strategies, on the one hand, a specific complexity has been recognized in the case of the EUSAIR as a consequence of the participation of enlargement countries (Cugusi & Stocchiero, 2016; Caligiuri, 2016). Asymmetries in the institutional structure and administration capacity between EU and Western Balkan countries, in particular, have been identified as limiting the implementation of the strategy (Bianchi, 2018; Belloni, 2020). On the other hand, several strengths can be identified in the potential contribution of EUSAIR to the enlargement process, including the opportunity for Western Balkan countries to collaborate as peers with EU countries and the involvement of different stakeholders (Chiodi et al., 2021).

[1] www.adriatic-ionian.eu

Table 1. Pillars and specific objectives of EUSAIR

	Pillar 1	**Pillar 2**	**Pillar 3**	**Pillar 4**
	Blue Growth	**Connecting the region**	**Environmental quality**	**Sustainable Tourism**
Topic 1	Blue Technologies	Maritime transport	The marine environment	Diversified tourism offer (products and services)
Topic 2	Fisheries and aquaculture	Intermodal connections to the hinterland	Transnational terrestrial habitat and biodiversity	Sustainable and responsible tourism management
Topic 3	Maritime and marine governance and services	Energy networks		

Source: Author's elaboration on European Commission 2020.

The Macro-regional strategies merge EU, national, regional and local authority levels, and should mobilize and create synergies among resources from different instruments and funds (Stocchiero, 2010). Macro-regional strategies are indeed based on the "3 NO" principle: no new EU funds, no additional EU formal structures and no new EU legislation. The lack of specific funds can be considered as a limitation, but it can rather represent an opportunity, insofar as the strategies offer mechanisms that can create synergies and foster coordination among all the territories involved, at different scales.

ETC transnational cooperation programmes in the respective areas are recognized as crucial financial instruments for the implementation of macro-regional strategies, and are explicitly bound for this purpose (EU Regulation 2021/1059). Supporting the governance of EUSAIR, for example, is one of the priority axes of the transnational cooperation Interreg Adrion programme. Moreover, many projects funded within Adrion supports the goals of the EUSAIR. For the incoming programming period, 80% of the resources of Adrion programme should contribute to the objectives of the EUSAIR (idem, art. 15.3). Moreover, there are a number of other ETC cross-border cooperation programmes which are included in the EUSAIR cooperation area, and which consequently contribute to the goals of the strategy (overall twelve programmes including, across the Adriatic-Ionian Sea, Italy-Slovenia, Italy-Croatia, Greece-Italy, Italy-Albania-Montenegro).

However, countries are encouraged to use different funding sources, going beyond European Territorial Cooperation, to contribute to the common goals outlined in the strategies (European Parliament 2017). Specific efforts to encourage an "embedding" of the priorities defined within macroregional strategies across different funds have been put in place by the European Commission and by single countries in light of the 2021-2027 programming period (Council of the European Union, 2020).

4 THE WESTMED INITIATIVE

The Initiative for the sustainable development of the blue economy in the Western Mediterranean region, WestMED, was adopted by the European Commission and endorsed by the Council of the European Union in 2017 (European Commission, 2017b). It is a sea basin initiative[2].

[2] www.westmed-initiative.eu

The strategy was established following the Euro-Mediterranean Ministerial Declaration on the Blue Economy endorsed by the Union for the Mediterranean in 2015, which invited the participating countries to explore the added value and feasibility of appropriate maritime strategies at sub-regional level. Successively, the Directorate General for Maritime Affairs and Fisheries (DG MARE) of the European Commission together with the Executive Agency for Small and Medium-sized Enterprises (EASME) supported a project with the aim of preparing a Maritime Initiative for the Western Mediterranean and the development of an action plan for its implementation[3].

If compared to macro-regional strategies – including the EUSAIR – the WestMED initiative is characterized by a stronger involvement of the European Commission and, in particular, of the DG MARE. The process that led to the definition of the initiative, moreover, can be defined as top-down, differently from the countries-led approach which is at the basis of macro-regional strategies.

Table 2. Goals and priorities of the WestMED initiative (including the six priorities selected in Algiers, in italics)

	Goal 1	**Goal 2**	**Goal 3**
	A safer and more secure maritime space	**A smart and resilient blue economy**	**Better governance of the sea**
Priorities	1. Coastguard functions cooperation (training, capacity building, search and rescue)	3. Strategic research and innovation	7. Spatial Planning and coastal management
	2. Maritime safety and response to marine pollution rescue	*4. Maritime clusters development*	8. Marine and maritime knowledge (data gaps, data analysis and sharing)
		5. Skills development and circulation	*9. Biodiversity and marine habitat conservation*
		6. Sustainable consumption and production (maritime transport, ports, maritime and coastal tourism, marine aquaculture)	*10. Sustainable fisheries and coastal community development*

Source: Author's elaboration on European Commission, 2017b; 2017c.

However, since its official launch in 2017, the ten countries participating to the Strategy (in the EU Italy, France, Spain, Malta, Portugal; in the Southern shore Algeria, Morocco, Tunisia, Libya, Mauritania) actively participate to the management of the initiative, based on a rotating co-presidency between an EU and a non-EU member. The geography of the initiative is based on the experience of the 5+5 Dialogue, launched in 1990 with the celebration in Rome of a first foreign affairs ministerial meeting. After an interruption of ten years, the Dialogue resumed in Lisbon in January 2001. It is based on annual foreign affairs ministerial meetings and has progressively expanded its scope to different fields such as defense, transport, migrations and

[3] For more information: https://www.msp-platform.eu/projects/support-development-maritime-strategy-western-mediterranean-sub-sea-basin

education and successively renewable energy and environment, health, education, culture, tourism, and water, among others.

The goals and priorities of the WestMED initiative are entirely focused on marine and maritime issues. In 2018 in Algiers six priorities were agreed upon by the Ministers of the WestMED countries together with the European Commission and the Union for the Mediterranean, in order to establish a common roadmap for the development of a sustainable blue economy in the Western Mediterranean area.

Like the EUSAIR, also the WestMED initiative is characterized by the involvement of different stakeholders. This is favored in particular by the Assistance Mechanism of the initiative, funded by the European Commission, which offers support to the dissemination of the WestMED initiative and the development of project ideas through a network of national hubs.

Moreover, like the EUSAIR, also the WestMED initiative does not offer funds for realizing projects, but rather aims at fostering synergies and impact by coordinating different programmes and funds within its goals and priorities. Several projects have been identified which are considered aligned with the aims of the WestMED initiative (WestMED, 2021). Different funding programmes are mobilized, but Interreg plays an important role also in the framework of the WestMED initiative. Indeed, the already mentioned regulation for European Territorial Cooperation 2021-2027 (EU Regulation 2021/1059) explicitly mentions sea basin initiatives alongside macro-regional strategies, as crucial references for the definition of priorities and goals of each programme. Unlike the example of EUSAIR and the Adrion programme, there is no Interreg programme specifically covering the WestMED initiative, but several programmes include two or more WestMED countries among their eligible territories (namely, the transnational MED and ENI MED programmes, and the cross-border maritime programmes Italy-France, Italy-Malta and Italy-Tunisia in the 2014-2020 programming period). These programmes can thus potentially contribute, through cross-border and transnational projects, to the aims of the initiative. As in the case of the EUSAIR, in the case of the WestMED initiative, too, the attention to financial instruments is not limited to European Territorial Cooperation funds; rather, the aim of the initiative is to exploit and coordinate different typologies of funds to pursue its goals.

5 ACHIEVEMENTS AND FUTURE CHALLENGES

The EUSAIR and the WestMED initiative play an important role for activating synergies in the Mediterranean Sea, in particular for projects related to marine and maritime issues. By recognizing and emphasizing the contribution of different projects to the aims of the initiatives (in particular, but not exclusively, ETC funded projects), the two strategies stimulate the convergence of resources and potentially amplify the impact of the activities carried out, by framing them into a bigger picture of shared goals across respectively the Eastern and Western Mediterranean.

The role played by the initiatives in the field of blue economy was recently recognized in the framework of the Ministerial Declaration on Sustainable Blue Economy of the Union for the Mediterranean issued on February 2021, where, at art. 17 “Ministers recognise both the WestMED initiative and the EUSAIR as successful examples of cooperation, focused on clear goals, priorities and measurable targets and as a catalyst for the development of sustainable blue economy projects in the region”.

The need to improve synergies in the Mediterranean among different actors and programmes is particularly urgent in the field of environmental sustainability, in order to strengthen the impact of the various initiatives and to make blue growth a tangible reality.

The EUSAIR and the WestMED initiative may prove to be useful tools to this aim, in two ways: firstly, because they offer a space of concerted governance; secondly, because they offer a set of concerted priorities where different funds and programmes may converge.

From this point of view, the new programming period of EU funds for 2021-2027 offers an important opportunity, because now it is the time to define priorities and instruments for the next seven years.

Indeed, significant efforts had been put in place in the last years by the European Commission and member states in order to facilitate the embedding of the priorities of these initiatives in the relevant national/regional EU funding for 21-27. These efforts were particularly evident in the case of macro-regional strategies, including the EUSAIR (Council of the European Union, 2020), but activities were undertaken also in the framework of the WestMED initiative.

It is soon to assess if and to what extent these efforts were successful. What we can say is that the success of the embedding would surely support the achievement of the goals of the initiatives, which are of crucial importance for the present and future of the Mediterranean Sea.

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Mobility of non-European researchers in the Mediterranean. The Italy-Spain relationships

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ABSTRACT

To this day, academic mobility has acquired increasingly marked traits of a true migratory phenomenon. In Italy and Spain, the internationalization strategies at supranational and institutional level, and the presence of tutor figures in the country of origin and destination could steer the mobility choice of foreign researchers and could be driving forces for academic migration, especially where the national context is not favorable for the permanence of these resources.

This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: academic mobility, internationalization, intellectual migration.

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1 INTRODUCTION

Today, mobility of academics and students is one of the main forms of international mobility and it is an individual choice influenced both by external factors and a variety of actors involved (Mahroum, 2000). On the one hand, the intensification of student and scientist mobility is linked to the internationalization processes encouraged by European institutions to face and compete in the global knowledge market (Teichler, 2015). On the other hand, academic mobility plays a key role in internationalization processes promoted by universities. Moreover, it has positive effects on the quality of research, the international prestige and the attraction of funding (Cattaneo et al., 2016). Lastly, internationality is also an essential element in the career path of future researchers, and it is linked to the pursuit of different individual objectives as well as to the need for academic socialization, that is the need to activate useful international networks (Fahey & Kenway, 2010).

Many definitions given to this phenomenon (brain drain -gain -waste -export -bank, etc) do not show the career paths that can be at the base of the mobility choices. Intellectual mobility is a kaleidoscopic phenomenon, hard to conceptualize, whose positive or negative appreciation is subject to a country-specific analysis (O'Connor & Crowley-Henry, 2020). Its characteristics change in accordance to the point of view observed: institutional, geographical, political and individual (Ackers & Gill, 2008; Weinar & Klekowski Von Koppenfels, 2020).

This paper investigates the relationship between the paths of academic mobility and the migratory processes, which involve highly skilled resources in the field of scientific research. The phenomenon of intellectual mobility and migration has been observed through three levels of analysis, supranational, institutional and individual, to trace the framework of constraints and opportunities presented to foreign resources engaged in scientific research during the course of one's own career.

2 THEORETICAL FRAMEWORK

The economic competition, based on the ability to innovate and combined with the lack of research personnel, has generated new orientations in the internationalization of research policies. In fact, at supranational level, EU policy, by making mobility and the possibility of studying abroad accessible, is configured as a trigger for the circulation of skilled human resources both during the first phase of university studies and the other stages of the academic career (Mangematin, 2000; Teichler, 2015).

At institutional level, the academic integration path is favored by incentives such as scholarships, research grants, inclusion in research groups. These facilitate the process of integration for foreign researchers in an academic context other than their original one. Universities represent a privileged field of observation, framed as new territories of knowledge where foreign researchers create relationships, networks and plan their future (Leemann, 2010). Moreover, universities benefit from scientific mobility in terms of both international reputation and local legitimacy (Knight, 2004; Cattaneo et al., 2016).

Short-term mobility can be transformed into a long-term project thanks to the support of tutor figures and the collaborations activated during this mobility experience. The literature highlights how internationality constitutes an essential step in the career path of future researchers. Moreover, the propensity to move becomes stronger with the increasing of the mobility experiences, transforming these unidirectional flows into multidirectional flows (Teichler, 2015; Franzoni et al., 2014). The networks and connections established during the experience abroad have a positive influence on the choice to return in a given country or to have further research experience in a third country (Reale et al., 2018).

3 MATERIALS AND METHOD

This work is carried out through a mixed method approach (Morgan, 2014), which uses descriptive quantitative analysis of secondary data collected from European commission on Marie Skłodowska-Curie Actions and social analysis tools such as semi-structured interview (Corbetta, 1999). The Marie Skłodowska-Curie actions (MSCA), whith the Seventh Framework Programme for Research (FP7) and H2020 programme, it aim to equip researchers with the necessary skills and international experience for a successful career. The programme responds to the challenges sometimes faced by researchers, offering them attractive working conditions and the opportunity to move between academic and other settings (European Commission). [1]

Qualitative analysis conducted from interviews involved institutional figures and foreign human resources engaged in University and research and they are conducted at Polytechnic of Milan (PoliMi) for the Italian case, and at Universitat Politecnica de Valencia (UPV) for the Spanish case.

Table 1. Number, gender and academic position of interviewed

		PoliMi	**UPV**
Individual level	**Number of interviews**	**12**	**19**
	Gender	7 men 5 women	7 men 12 women
	Position	4 PhD students 6 research fellows 2 Prof.	13 PhD students 6 research fellows
Istitutional level	**Number of interviews**	**2**	**3**
	Gender	2 women	1 woman 2 men
	Position	Delegate of Rector	Delegate of Rector

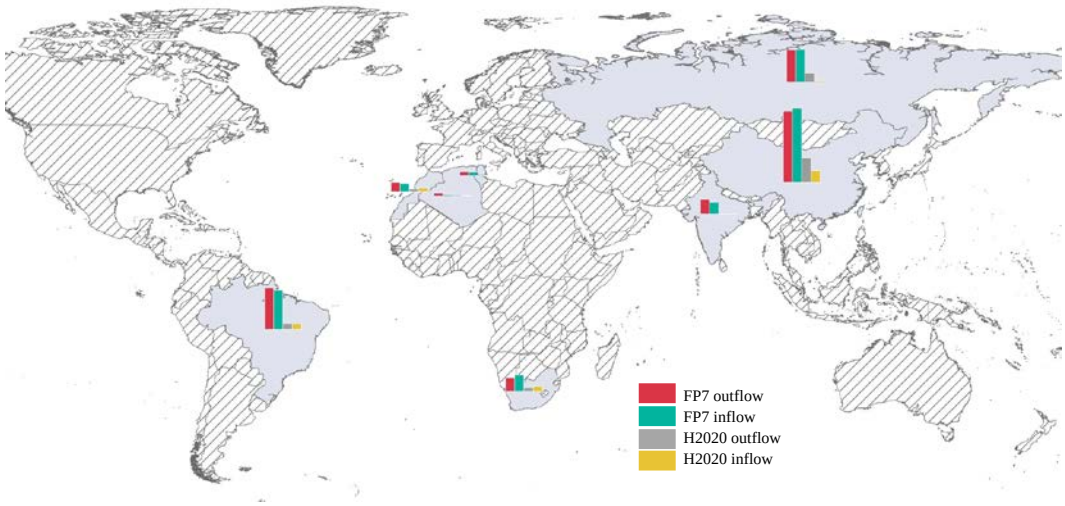
At the institutional level, Delegates for internationalization and research have been identified as specific profiles capable of satisfying purpose of research. At individual level, however, interviews involved research fellows, contract professors and PhD students. For the Spanish case, interviews were conducted in Valencia in June 2017. The sample of interviews at the PoliMi, conducted in September 2017 was selected by the CINECA portal which it was possible to identify a list of foreign human resources involved in research activities. Interviews were recorded, then transcribed and all textual material was subjected to content analysis with the aim of transforming the large amount of text into an organized key results. The coding procedure allowed the identification of themes. Each theme identified was treated in literal quotes extracted from the interviews.

4 RESULTS

The policies for the circulation and attraction of highly qualified human resources promoted at supranational level by the EU are among the main reasons for attracting non-European

[1] http://ec.europa.eu/research/mariecurieactions/msca-numbers_en

students and researchers to the EU area. At the supranational level, the analysis of the scientific mobility measures of Marie Skłodowska-Curie Actions (MSCA), promoted by the European Commission to increase the attractiveness of the EU in the field of scientific research, confirms a leading role of the BRICS countries. In recent years, China has become a more attractive country for European researchers than is the EU for Chinese researchers.



Picture 1. Research personnel from BRICS and Maghreb involved in exchange schemes. Source: MSCA data, 2018.

Data on researchers' mobility between the EU and the Maghreb are lower than the data relating to the BRICS countries. Among Maghreb countries, Morocco arises as the main country to benefit from the research grants made available by the MSCA. Despite Tunisia could offer equal opportunities to researchers from EU counterparts thanks to the association agreement for H2020, it showed less interest in the MSCA fellowships than Morocco. Data on researchers' inflow from the aforementioned two groups of countries also show that France, Germany and the United Kingdom are the top three of EU countries with the largest quota of incoming researchers. On the other hand, Italy and Spain classified respectively at fifth and sixth place.

At the European level, the importance of supranational policies as drivers for circulation of foreign resources in scientific research emerged at the meso and micro level. The interviews conducted with non-EU research personnel in the two observed case studies, the Polytechnic of Milan (PoliMi) and the Universitat Politecnica de Valencia (UPV), show that European organizations have made mobility more accessible, offering the opportunity to undertake degree and/or doctorate abroad. In many cases, the access to these EU exchange programs was the first impulse to be involved in academic mobility experiences. The interviews also show the influence of the European guidelines among delegates of PoliMi and UPV, who have underlined the importance of the supranational orientation in internationalization processes of the university, on several occasions. On the national level, in Spain and Italy, there is a low level of attractiveness for highly skilled resources from abroad. In the Italian context, a scarce presence of highly qualified human resources in the field of scientific research is confirmed, both among students enrolled in degree courses and among the university staff with foreign citizenship. In addition to this, the Spanish context has similarities with Italy in terms of foreign presence within the staff employed in its universities.

At the institutional and individual level, the qualitative research has produced the most interesting results confirming the important role of universities and the related internationalization processes as intangible bridges for the transition of talents. The main results of the interviews confirmed that academic integration in foreign universities begins during an experience abroad as visiting students at the beginning of the academic course:

> Master degree from Italy, Politecnico di Milano and then the PhD again from Politecnico. I have studied environmental engineering in bachelor, master and PhD, and water research management on I'm working […] Well there are different dynamics because I continued my PhD in the same line, with the same professor, because she was encouraging me to go forward and so than also for PhD I decided to stay here. I met my professor in the master degree thesis in the last part she was my thesis supervisor and after that... we continue working together (IT12F - Research fellow, Turkey).

Degree and doctorate are stages in which the universities intercept the best foreign talents and decide to "keep them" scientifically productive through economic and professional incentives during the first stage of their research career. In fact, for many research fellows interviewed, the career in host university began thanks to a first mobility experience that allowed them to establish first contacts with a new scientific environment.

At the same time, although complex and competitive, university environment is a place of integration for foreign researchers with respect to other more discriminatory working contexts, as in the case of the industrial sector. Among the internationalization initiatives described by delegates, the increase in delegates abroad in specific geographical areas is a common element between the two universities.

> I think there is another aspect: the human contacts with other universities and other countries and the academic network. As I said before many years ago we establish strong relation with Latin American university and we have many many relations with professors. We have a very high number of graduated or doctors in Latin America Universities. Than this is a source of contacts (Delegate UPV, Spain).

Even the international prestige has a significant weight. In other cases, the presence of an internationally renowned scientist in a given university is the main reason for the mobility choice.

In the Spanish case, among the interviewees there is greater satisfaction with the experience in the UPV, especially among the doctoral students who are in a transitory condition between training and research. In the interviews conducted at the PoliMi, instead, less enthusiasm emerges among researchers who have started in Italy both a career path and a family life project. Moreover, some difficulties emerge linked both to the economic crisis andto the complexity of the Italian academic system. Problems are experienced by any individual who is in a precarious condition, given by annual contracts or research fellowship. According to some interviewees, access to the job market in Academia for foreigners is even more problematic, a "glass ceiling" that discriminates non-EU citizens. Finally, the delegates of the Politecnico di Milano know well the lack of benefits in Italy, such as the necessity of parental support and the problems of housing. The researchers interviewed complain about this inefficiency by comparing it with efficiency of other foreign university systems.

5 CONCLUSIONS

The results emerged from this research confirm that European policies and institutional strategies constitute an input for circulation of foreign resources in the scientific sector and they underline the important role of university strategies and tutors to guide mobility choices and to retain foreign researchers in the contexts of arrival. Institutional strategies, tutorship, and international networks are therefore the main pull factors for attracting foreign highly skilled

human resources, especially where the national context is not favorable for the permanence of these resources.

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Italian research network in the Mediterranean area: situation and outlooks for the future

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ABSTRACT
We explore the relationship between Italy and Mediterranean countries in a specific funding program: Horizon 2020. Studying the collaboration patterns in the Mediterranean area is crucial for policy design aiming at reducing research fragmentation and fostering knowledge sharing and production. Empirical evidence is derived from a specific research network, projects funded between 2014 and 2017 in Horizon 2020 in three research domains (Social Sciences and Humanities, Physics and Engineering and Life Sciences). It reveals as research collaboration between Italy and Mediterranean countries is not sufficient to face the challenges of the future, yet. As a policy implication, it emerges that policy makers should consider incentives to foster successful collaborations in joint programs. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: knowledge networks, research collaborations, Horizon 2020, Mediterranean area.

JEL CODES: F50, O30

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1 INTRODUCTION

Science, technology and innovation play a crucial role in contributing to the dialogue and development of Mediterranean area.

The aim of this work is to investigate the relationship between Italy and Mediterranean countries in a specific funding program: Horizon 2020 (H2020). Using data over the period 2014-2017 on EU funded projects, we observe the main partners of Italy in three ERC (European Research Council) research domains: Social Sciences and Humanities (SSH), Physical Sciences (PE) and Engineering and Life Sciences (LS).

The analysis of connections between Italy and the other Mediterranean countries in Horizon 2020 allows to understand which are Italy's main partners among the countries of the Mediterranean area and the level of integration in a specific research funding program. Being a research program funded by European Union (EU), we expect that the main collaborations of Italy are with the other countries of the European Union. The research questions are: which are the main non-EU Mediterranean countries that collaborate more with Italy? Are there differences among research domains?

We reflect on the Italian scientific partners involved in joint projects with reference to the research carried out in Europe, showing:

1) the network of Italian scientific partners in the European framework program;
2) an illustration of the Mediterranean country disparities existing in the scientific collaboration in three ERC domains through the observation of links.

Observing the Italian research partners in Horizon 2020 represents an important indicator to define the position of the different territorial areas in the Mediterranean and to characterize the weak points in order to invest resources for increasing the collaboration between the countries.

2 MATERIALS AND METHODS

The data used in this work stem from the RISIS project, European Research Infrastructure for Science, Technology and Innovation policy studies[1] (Zinilli, 2021; Spinello et al., 2021). The empirical analysis is based on the EUPRO dataset. EUPRO allows to represent the data on the collaborations of countries for projects funded in Horizon 2020 (H2020). The data extracted from EUPRO foresee the participation of at least one Italian organization (public or private) and another organization of another Mediterranean country in a joint project during the period between 2014 and 2017. In addition to Italy, the Mediterranean countries involved in our study are: Algeria, Bosnia and Herzegovina, Cyprus, Croatia, Egypt, France, Greece, Israel, Libya, Malta, Morocco, Montenegro, Palestine, Slovenia, Spain, Tunisia, Turkey.

The goal is to observe collaborations in joint projects funded in H2020 between 2014 and 2017 to understand the cooperation between Italy and the other Mediterranean countries. Following this goal, organizations represent interconnected nodes through joint H2020 projects. By joint projects we mean projects that have at least one affiliation located in Italy and in another Mediterranean country. The data at the organization level have been aggregated in order to observe the distribution at country level.

Each project has been classified according to the ERC domains, assigning each project the following three scientific domains: Social Sciences and Humanities (SSH), Physical Sciences and Engineering (PE), Sciences of Life (LS). Each project was assigned to a particular domain on the basis of the keywords and on the basis of the abstract of the project.

In the EUPRO dataset there is the possibility that an organization collaborates on multiple projects in the same year; we consider the intensity of the relationship among countries.

[1] Grant Agreement 824091 (RISIS: https://www.risis2.eu).

Furthermore, the matrices we deal with for counting the collaborations are indirect, i.e. the connections between organizations are symmetrical (for more information see: Zinilli & Cerulli, 2015; Zinilli, 2016). All metrics were standardized to allow comparisons between years.

3 RESULTS

The figure 1 shows the relationship among Mediterranean countries with respect to all ERC domains in the considered years (2014-2017). Closer countries to Italy indicate a higher number of collaborations.

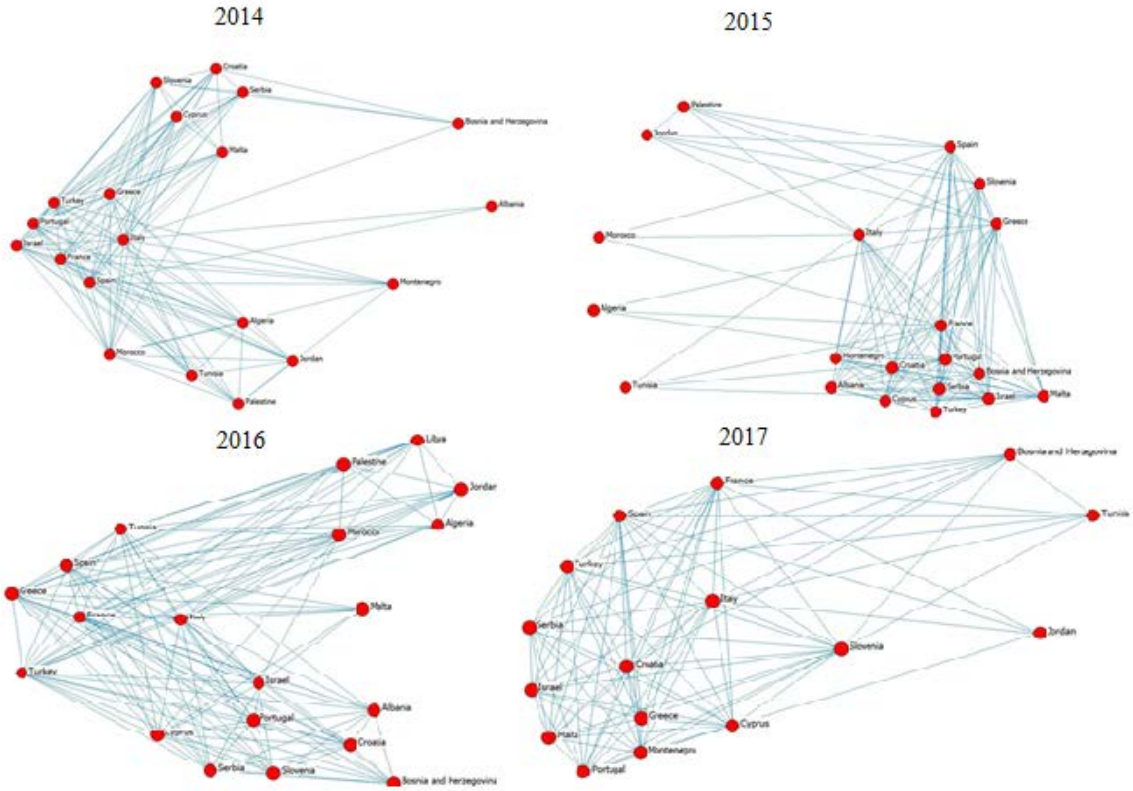

Figure 1. Joint project network between 2014 and 2017. Source: Author's elaboration.

In 2014 we can observe a cluster composed of Italy, France, Spain, and Greece, which are the most important partners of Italy for the intensity of connections. Then, we find countries such as Portugal, Israel and Turkey. All other Mediterranean countries are in a peripherical position respect to Italy. In 2015, Italy has a central position (in the middle of the network). This means that it is no longer part of a cluster of countries with many connections between them, but seems to have more connections with other countries such as Slovenia, Croatia, Montenegro. In 2016, countries as Malta, Cyprus and Tunisia stand out with a similar importance in terms of collaboration with Italy. Finally, in 2017 the network appears to be denser. Only Tunisia, Jordan and Bosnia and Herzegovina are more isolated.

The next map (figure 2) shows the most important partners of Italy by ERC domains (Social Sciences and Humanities, Physics and Engineering and Life Sciences). The intensity of the color indicates the importance of a country in terms of number of connections with Italy.

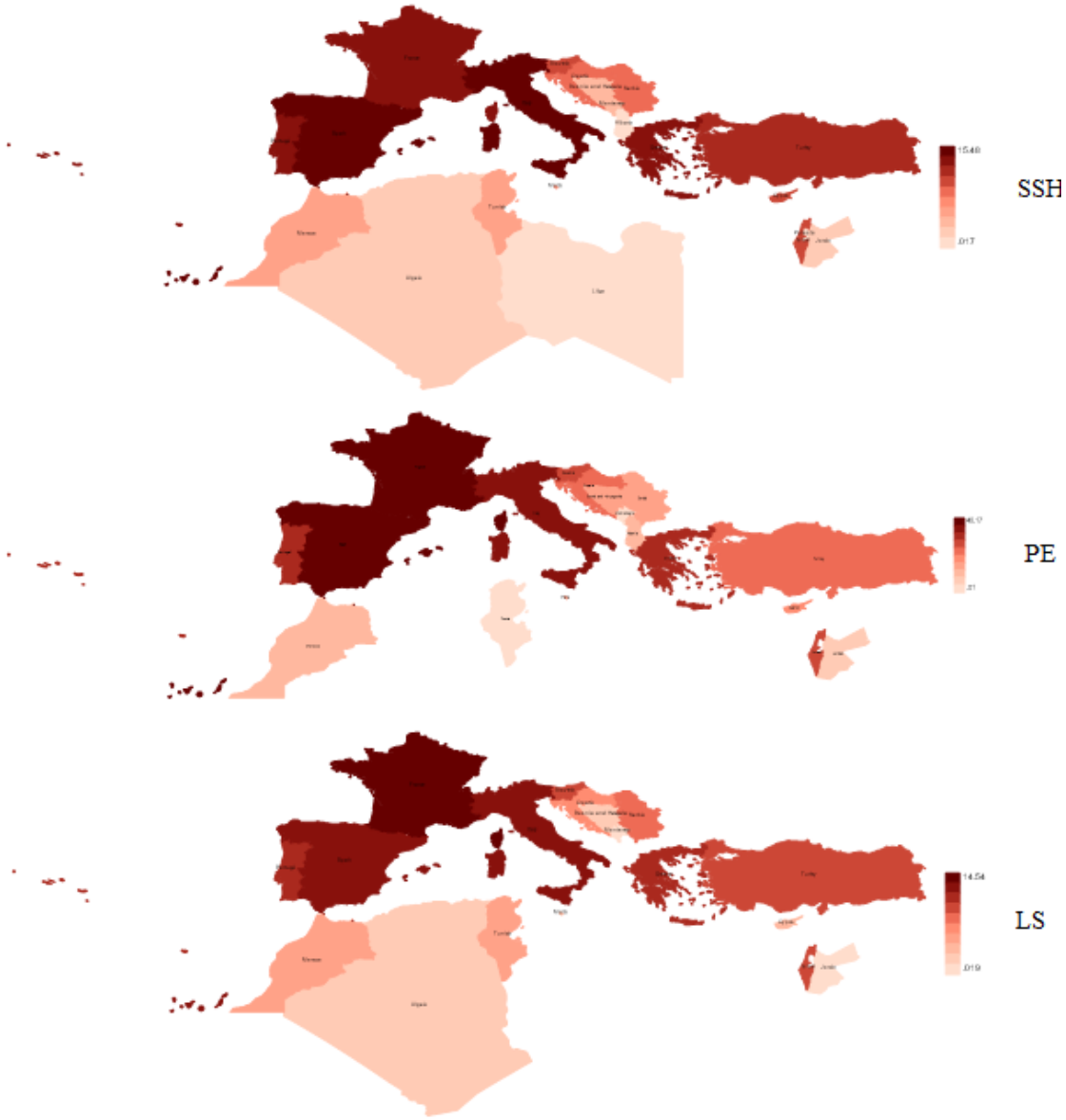

Figure 2. Map of the main Italian partners by ERC sector between 2017 and 2017. Source: Author's elaboration.

Looking at the figure, we note that for all three ERC domains France and Spain are the most important partners for Italy, followed by Portugal and Greece. Among the non-EU countries, we see that Turkey is the main partner of Italy in Horizon 2020. All the other countries have a marginal role in terms of collaboration with Italy in this specific European program. In particular, we can observe how the countries of North Africa have a very light color; this indicates that they have few connections with Italy.

4 CONCLUSIONS

The results show that in recent years Italy has had greater openness to collaborations with Mediterranean countries other than France, Spain, Portugal, and Greece; there is a higher number

of collaborations especially in joint projects relating to Social Sciences and Humanities. The North African countries seem to collaborate more with Italy in projects belonging to SSH domain.

Research collaboration between Italy and the other Mediterranean countries has increased in the last years, but it is still not enough. There is still a long way to go for true integration in research among the Mediterranean countries. Much still needs to be done for increasing cooperation on research innovation activities along the value chain in order to build a productive and resilient Mediterranean area where social wellbeing, sustainable prosperity and the good environmental status of the region are reached (Filippetti et al., 2019; 2020).

Italy together with the other Mediterranean partners have to rethink the role of multilateral, regional and sub-regional organizations, in order to make them better prepared to respond to fast-changing local and global conditions and to address the pressing demands coming from all Mediterranean societies.

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Archaeology and Cultural Heritage

Adriatic Voyages. Prehistoric mobility between the sea and the mountains

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ABSTRACT

This paper summarizes the main results of a research project on trans Adriatic mobility in Late Prehistory, with particular focus on the Western Balkans in the 3rd millennium BC. Through a combination of analyses on material culture, seascapes and mountainous landscapes, ethnographic approach and computational archaeology, mobility at different scales is researched and understood. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: prehistory, Adriatic area, mobility.

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1 INTRODUCTION

Adriatic Voyages is a section of a wider project investigating mobility between the Balkans and the Mediterranean in the 3rd millennium BC. It focuses mainly on central Dalmatia, Croatia, but it also researches sites in Bosnia-Herzegovina, Montenegro, Albania, Italy and Greece[1].

Adriatic Voyages benefits from a cluster of international collaborators, projects, and Institutions. The most important collaborations are the City Museum of Šibenik (Croatia), the Sapienza University of Rome (Italy), the University of Tübingen (Germany), and the Croatian Science Foundation (Croatia).

Figure 1. Cetina pottery from Dalmatia (photo M. Gori).

[1] For more details, please watch the following video: *When (South)East meets (North)West. Transculturation phenomena in the Western Balkans*. Available at https://www.youtube.com/watch?v=nBJjyVfj6ac

2 The Cetina Region (Croatia)

One of the most relevant areas investigated with this project is the Dalmatinska Zagora, and in particular the upper course of the Cetina River[2]. Along the upper course of the Cetina River, a large numbers of funerary stone barrows of different dimensions are clustered together; some of them covering a central cist grave. These structures represent landmarks and are possibly connected to communication routes.

The barrows contain pottery decorated with characteristic geometric patterns (Figure 1). Thanks to petrographic analysis undertaken on pottery by Silvia Rita Amicone (University of Tübingen), we were able to trace the spread of peculiar manufacturing techniques in the Adriatic-Ionian areas.

Many efforts were devoted to surveying the area and mapping new sites.

3 Korçë Basin (Albania)

Albania is another key region for the study of trans-Adriatic mobility, especially for investigating the relationship between the Balkans, Italy and Greece. Thanks to the French-Albanian archaeological mission in the Korçë Basin (Albania), we undertook pottery and clay sampling campaigns, supplemented with analyses with portable XRF. The aim was to produce a solid dataset for comparative analysis.

Figure 2. Sampling campaign in the Korçë Basin (photo M. Gori).

[2] For more details, please watch the following videos: *The Cetina phenomenon between the land and the sea. Where are we now?* Available at https://www.youtube.com/watch?v=xr3G6A3GNE8; *Western Balkan mountainscapes: connectiveness and disconnectedness in the Cetina period*. Available at https://www.youtube.com/watch?v=nLRtiGzhlG0

4 CONCLUSIONS

New laboratory and fieldwork data were combined with legacy data and studied by applying Network Analysis and Agent-based Modelling. We used ethnographic examples to test the feasibility of our models and fully understand seaborne mobility in the Adriatic during prehistory. In the third millennium BC, small groups of people crossed the Adriatic in search of resources. One of the most important was the Gargano flint. New research pinpointed the small island of Palagruža as a crucial stopover for voyages between Italy and Dalmatia, directed to Gargano flint procurement.

The Balkans are a key place situated between the mountains and the sea, where mobility represented not only a means to get different types of resources. It represented a way for Late Prehistoric community to mark their identities across the Mediterranean (Cazzella et al., 2020; Gori, 2020). The project researching Adriatic mobility will continue including Southern Dalmatia and Montenegro.

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Invisible landscapes: a journey beneath the sea in the Bay of Naples, Italy

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ABSTRACT

This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021. The video deals with three-dimensional reconstruction of the submarine landscapes in the Bay of Naples based on high-resolution multibeam bathymetry. This technology is indeed very effective for the identification and study of submerged features and allows for a comprehensive access to the underwater environment to diving and non-diving public. The presented bathymetric data were acquired during various oceanographic cruises aboard CNR Research Vessels, in the frame of several research projects, and mainly as part of the CARG project - Geological cartography of marine areas. Creating such accurate seabed reconstructions provide a primary record of the current state of the submerged landscapes and allows for the establishment of various measures for their future preservation and monitoring.

KEYWORDS: submerged landscapes, submerged cultural heritage, multibeam bathymetry.

HOW TO CITE THIS ARTICLE

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1 INTRODUCTION

Underwater landscapes are not human living environments and we do not see them directly and continuously. The notions of panorama, or even quite simply perspective, viewpoint, belvedere and background are not applicable in the undersea environment. In addition, underwater landscapes resting at depths greater than 100m are largely invisible to the majority of the public. Nevertheless, underwater landscapes do exist and, to a large extent, we know how to represent them.

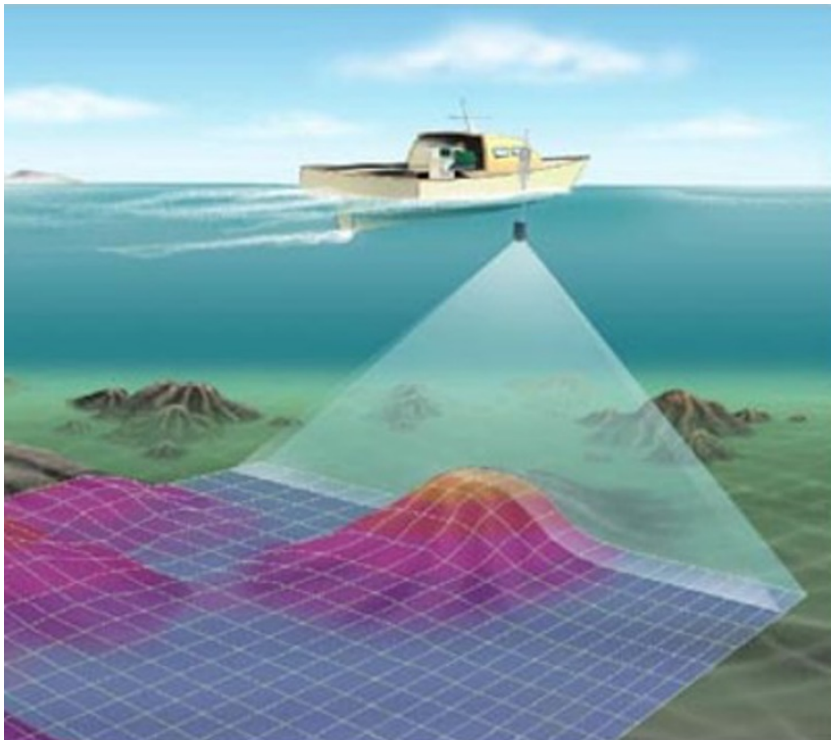

Figure 1. Multibeam bathymetric sonar.

Representation is a core aspect that allows for a comprehensive access to the underwater world (e.g. Wille, 2005). Inventory, mapping, classification and monitoring procedures have been developed in the last decades by the scientific community to build representations of underwater seascapes. These maps and classifications are crucial to develop strategies for the conservation of marine ecosystems and landscapes, and for a number of policy and management issues (Brown et al., 2012; Violante et al., 2012; Violante, 2015; Harris and Baker, 2020).

Among new technologies that enable the representation of submarine seascapes, marine geophysical surveys provide fast and cost-effective tools now widely applied to the reconnaissance and management of underwater resources. Geophysical surveys are non-destructive methods of investigation that allow to preserve the artefacts and landscapes as well as the context in which they are found. This is of special relevance for maritime archaeological heritage, which is lost forever if destroyed (Violante, 2018; Violante et al. 2019; Violante, 2020). This paper summarizes the geophysical technology used to obtain the 3D seabed reconstructions shown in the video titled “Invisible landscapes: a journey beneath the sea in the Bay of Naples, Italy”[1], produced for the Blue Planet Economy (BPE) European Maritime Forum 2021. It also

[1] https://youtu.be/5Uy4bxW9GLM

describes the main features of the submarine landscapes of the Bay of Naples that are presented therein. The Acoustic Remote Sensing research unit of the ISPC-CNR accomplished bathymetric data analysis and interpretation that were used to produce seabed digital elevation model (DEM) and 3D video animations. This unit is part of the Remote Sensing, Spatial Data Science Lab (RES-Data LAB)[2], which integrates Remote Sensing methods and Spatial Data Science for the study and dissemination of the natural and cultural heritage.

2 MULTIBEAM BATHYMETRY

Bathymetry deals with the topography of the seafloor. It describes the measurement of water depth in oceans, seas, lakes, rivers, estuaries, and canals. In its most basic form, bathymetric information usually consists of data points that have XYZ coordinates. X and Y are the position (e.g. latitude and longitude) and Z is the depth measurement. Knowledge of bathymetry is important for a wide variety of uses starting with the fundamental understanding of environmental dynamics such as ocean circulation, tides, sediment transport, environmental change, and underwater geo-hazards, along with ensuring navigational security by providing surface and sub-surface information (IHO, 2014). Bathymetric data can be visualized as 3D computer models and they are commonly represented on charts and maps using contours and depth values, in the same way that land maps use contours and heights. For the aim of this paper, bathymetric data are important as they provide high-resolution depth measurements which are used for the production of high-quality bathymetric maps and for detailed reconstruction of submerged landscapes.

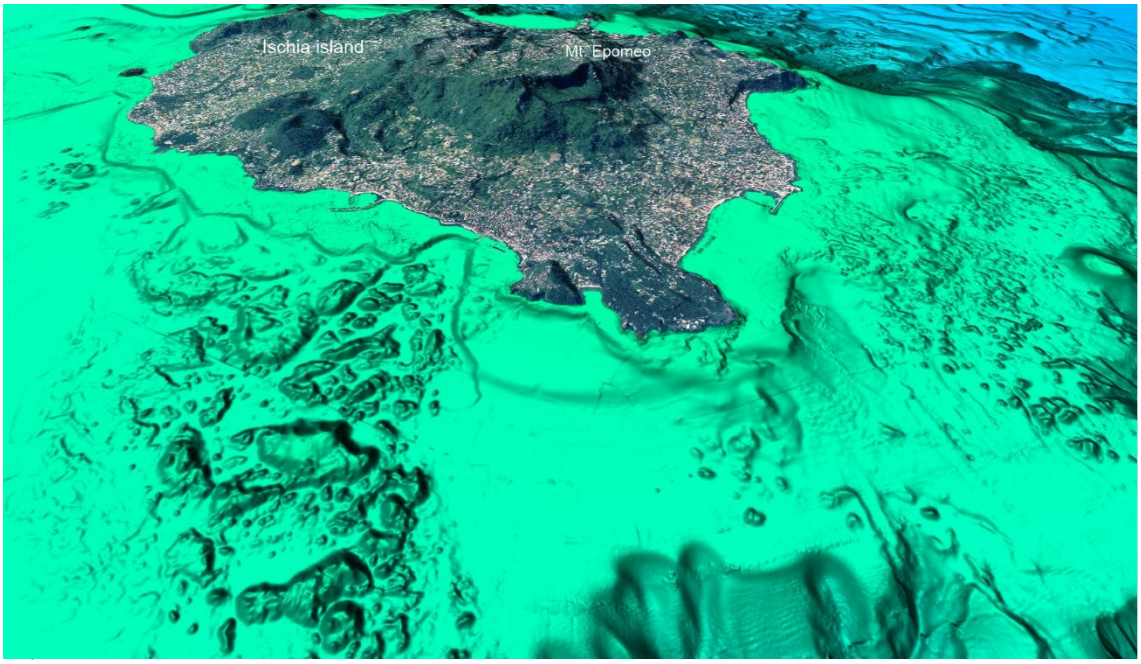

Figure 2. Hummoky landscape off Ischia Island.

Depth measurements (bathymetry) can be gathered from any vessel with sonar equipment as part of a hydrographic survey. These systems were introduced during World War II to detect enemy submarines and underwater obstacles. The basic concept of a bathymetric sonar is the ability to "see" underwater with sound. When a sound is emitted in the water it creates a pressure wave that moves away from the source. If a pressure wave encounters a sudden change in the

[2] https://www.ispc.cnr.it/en/2021/11/02/res-data-lab/

properties of the material in which it propagates (i.e. the seafloor), a part of the acoustic wave will change its direction of propagation. The portion of the acoustic wave that reverses its propagation direction is the echo, which echo sounders (sonars) are designed to exploit for depth measurements.

Nowadays, acoustic seafloor mapping is dominated by the multibeam sonar (figure 1) (e.g. Hughes, 2017), which can perform a large number of depth measurements along a wide strip of seafloor terrain perpendicular to the ship's track, after the transmission of a single acoustic signal. This system is primarily designed to produce quantitative bathymetric data by measuring the acoustic time of flight to the seabed as a function of angle from nadir. Using trigonometric functions, the travel times are converted into a set of points, each with a vertical and horizontal coordinate, relative to the multibeam sonar (depth and position). Water depths are finally obtained by applying the speed of sound in the water column (the sound/velocity profile). Because of the non-vertical measurement geometry, it is absolutely essential that full X-Y-Z inertial motion sensors should be installed and operated on the survey platform along with the multibeam sonar.

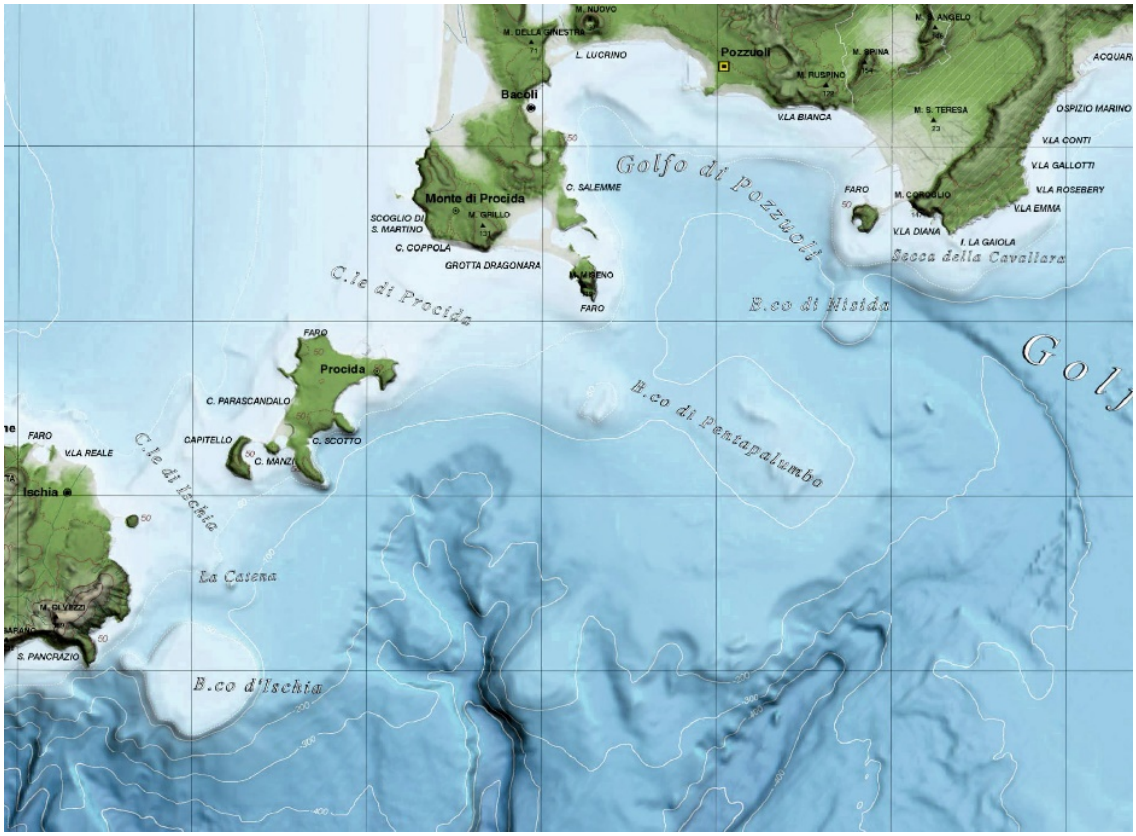

Figure 3. Volcanic bank in the northern sector of the Bay of Naples.

Multibeam sonars appeared in the late 1970s and underwent significant development in terms of technology and performance from then on. Improvements are still implemented today. Modern multibeam sonar systems (MBES) cover a relatively large area from a safe distance above the target, while resolving the 3D shape of the object with centimeter-level resolution. These techniques generate results with high spatial resolution, repeatable and quantifiable, which can be easily integrated with other scientific and terrestrial data.

3 SEABED LANDSCAPES OF THE BAY OF NAPLES

The Bay of Naples includes among the most active volcanoes, namely Somma-Vesuvius, Campi Flegrei, and Ischia Island. These volcanoes delivered a huge amount of volcaniclastic deposits to the marine areas, which significantly contributed to shape the submarine landscapes (Violante, 2009; Violante et al., 2017). At Ischia Island, volcanic activity triggered a number of catastrophic landslides, most of which entering into the sea with high tsunamigenic potential. Coastal and submarine volcanic activity is testified off Campi Flegrei and in the Pozzuoli Bay, where several underwater eruptive vents occur as submerged volcanic banks at depth ranging from -30 to -150m (D'Argenio et al., 2004).

3.1 Ischia Island submarine landslides

Large aprons of avalanche deposits spread out off Ischia Island, extending over a total seabed area of ca. 200km^2 (figure 2). They formed as a consequence of large-scale sector collapses of the Mt. Epomeo, which is the main volcanic structure of the island (de Alteriis and Violante, 2009). Such deposits are characterized by megablock structure – deformed and fractured large blocks up to some hundred meters in diameter. The surface topography of the deposit is characterized by irregular hills and depressions typically known as "hummocky topography". Hummocky topographies shape the seabed landscape in the Southern, Western and Northern marine sectors of the Ischia Island with hill structures up to 900m in diameter. The estimated total volume of these submarine landslide deposits ranges from 1.5 to 3km^3.

4 CAMPI FLEGREI VOLCANIC BANKS

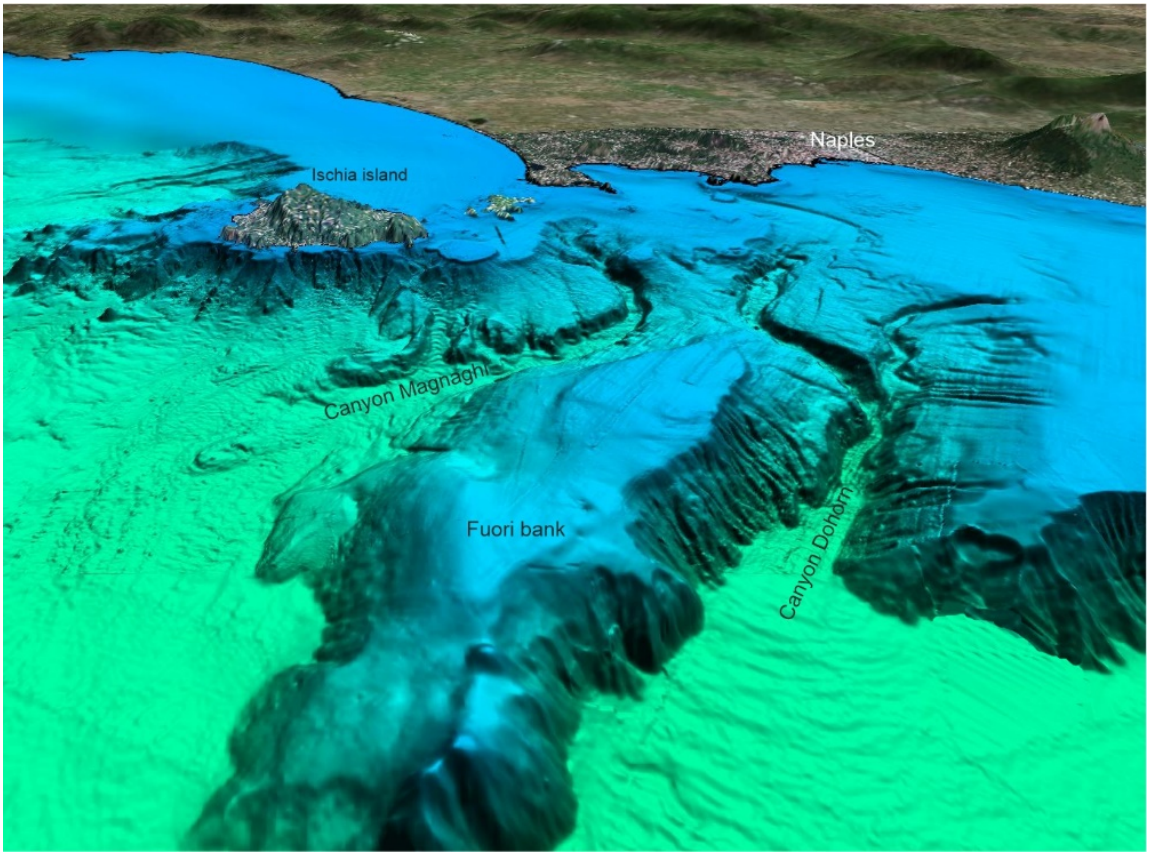

Figure 3. The Dohorn and Magnaghi canyons.

A number of submerged banks characterize the seabed landscape in the Northern sector of the Bay of Naples (figure 3) (Sacchi et al., 2009; Milia, 2010). These banks are remnants of ancient volcanoes eroded by the sea. In particular, four main volcanic banks occur off Ischia and Procida Islands and in the proximity of the Pozzuoli Bay: the Nisida and Ischia Banks with circular shape in plan view and flat surface at their tops, and the Penta Palummo and Miseno Banks with a more articulated morphology. The Ischia and Nisida Banks are respectively at an average depth of 35 and 75m with the Ischia Bank, attaining more than 2.5km in diameter. The Penta Palummo is at an average depth of 135m, while the top of Miseno Bank occurs at a depth of ca. 70 m. The Penta Palummo and Miseno Banks are respectively 1.5km and 3km across.

4.1 Naples submarine plain

A wide coastal submarine plain (the continental shelf) develops off the Neapolitan coast up to a distance of more than 20km and maximum depths of ca. -200m (Violante, 2002). It has an average slope of less than 1° and is mostly composed of soft bottom consisting of sand and mud transported by rivers and/or originated from volcanic eruptions. This marine area marks the interface zone between open water and terrestrial realm where humans interact most directly with the sea. Most of sea economy activities, firstly fisheries, are found within this environment. Due to increasing human pressures, submarine plains are particularly sensitive to transformation, exposing urban populations to marine-related hazards.

4.2 Dohrn and Magnaghi Canyons

The seabed landscape of the Bay of Naples is dominated by two deep incisions, the Dohrn and Magnaghi Canyons, which develop from the seaward edge of the Naples submarine plain down to a depth of ca. -2000m (figure 4). These canyons are characterized by steep sides hundreds of meters high that are engraved by a dense network of gullies (Violante, 2014). They represent a critical link between coastal waters and abyssal depths, by transferring sediments, nutrients and even litter and pollutants to the deep seafloor.

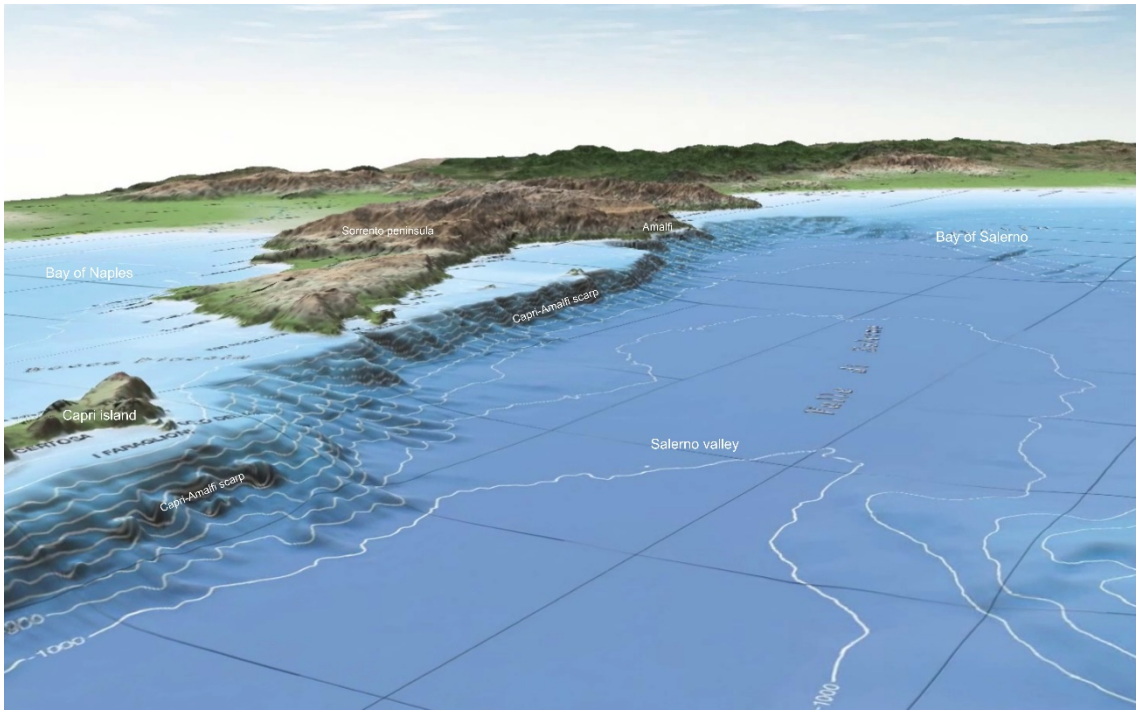

Figure 4. The Capri-Amalfi Scarp and the Salerno Valley.

The upper section of the Dohrn Canyon consists of two major curved branches that converge into a main valley. The branches of the Canyon are ca. 15km in length while the main valley is about 10km long. The Magnaghi Canyon is characterized by a triple incised head and has a total length of 25km. It runs at the base of the submerged Southern flanks of Ischia Island with an overall semicircular shape. The Dohrn and Magnaghi Canyons are separated from each other by the Fuori Bank, a NE-SW elongated seamount (25 x 10km), which rises up to 1700m from the surrounding seafloor.

4.3 Capri-Amalfi Scarp

A large submarine slope, the Capri-Amalfi Scarp, separates the Bay of Naples from the Bay of Salerno (figure 5). It develops off Amalfi and Capri seamless with a difference in height of more than 800m. This submarine slope bounds to the North a large, submerged valley up to 50km long and 15 km wide, namely the Salerno Valley. A dense network of gullies characterizes the surface morphology of this submerged landscape, partly reflecting the hydrographic pattern of the corresponding emerged sector (Violante, 2015).

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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.

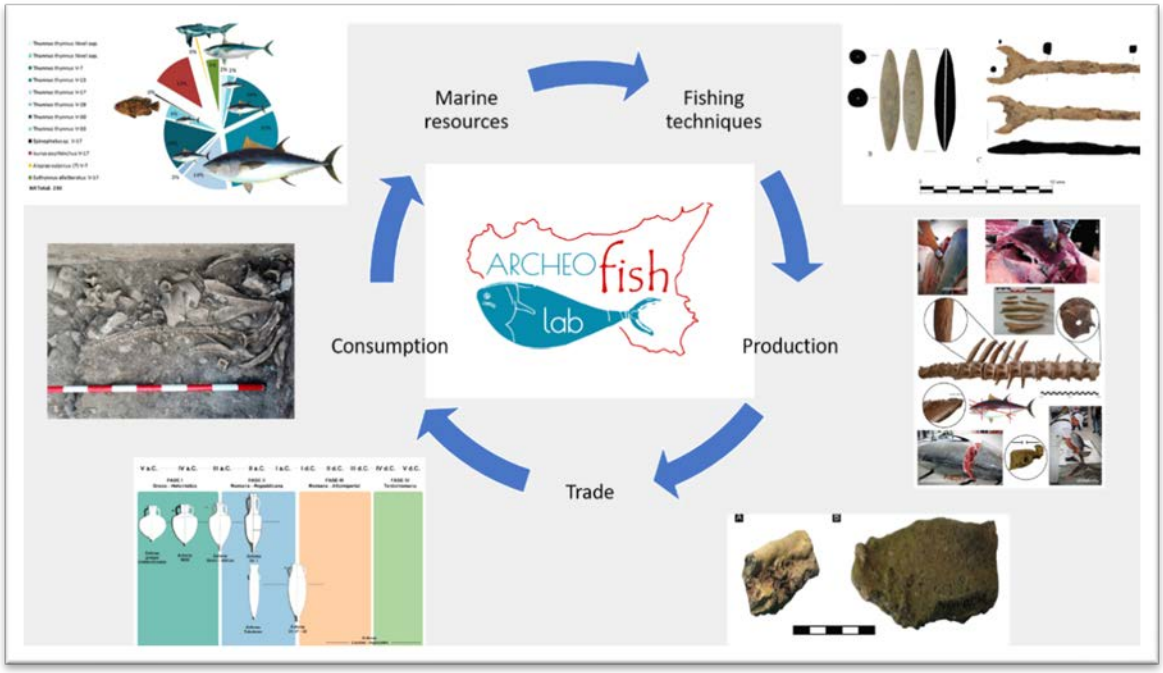

Figure 2. The five components of the "fishing cycle" object of research in Archeofish.

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.[1] 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

[1] 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 5th century BC to the 5thcentury 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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The Phoenician Mediterranean: a space for communication, transmission and sharing

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ABSTRACT
Archaeology and history play a very important role in understanding the development of the contemporary Mediterranean economy. To give an example of ancient Mediterranean Blue economy, this article focuses on the Mediterranean people par excellence in antiquity: the Phoenicians. In fact, the themes of the 2021 Conference (fishery, development of ports, green shipping), along with certain basic concepts of contemporary economy (e.g. networking, globalisation, glocalization, goods and brain circulation, etc.) and sociology (migration, socio-economic gaps, etc.), perfectly fit with the Phoenicians who spread from the Levantine coast as far as the Atlantic coast of modern Portugal.

KEYWORDS: Phoenician archaeology, ancient Mediterranean networking, glocalization.

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1 INTRODUCTION

In this paper, we do not plan to focus on the importance of archaeology and history in the development of the Mediterranean economy (a theme largely illustrated in the CNR's book *Mediterraneo*, 2019), but rather on the Mediterranean people par excellence in antiquity: the Phoenicians (Bondì et al., 2009; Doak & López-Ruiz 2019; Bonnet, Guillon & Porzia, 2020).

The preliminary question is why to talk about the past in a conference on the development of the contemporary economy of the Mediterranean maritime world? Because we like to think that the economy should not only be evaluated in terms of the wealth produced but also in terms of the happiness created. According to World Health Organization (WHO) data, happiness, or a sense of mental and physical wellbeing and good health, is positively influenced by cultural welfare. Therefore, a presentation on the history of the Phoenician Mediterranean is perfectly suited to our session on the Blue Planet Economy (BPE)[1]. Looking back to that time could be a starting point for profitable investments, and a way to bring people closer to well-being and health and, therefore, to "the Blue Mediterranean economy of happiness".

The themes of this Conference (Fishery, the Development of Ports, Green shipping), along with certain basic concepts of contemporary economy (e.g. networking, glocalization, etc.) and sociology (migration, socio-economic gaps, etc.), perfectly reflect the Phoenicians who spread from the Levantine coast as far as the Atlantic coast of modern Portugal. Among those peoples who sailed in the ancient Mediterranean, Phoenicians are certainly those most frequently associated with the sea. They were skilled navigators (the discoverers of Polaris), shipbuilders, builders and hunters of ports, experts in numerous economic activities linked to the sea (trade but also fishing, salt pans, purple dye). We can safely claim that the Phoenicians were the unaware champions of a sustainable Blue Economy: like all pre-consumer societies, they were recyclers and left a minimum impact on the sea – although the same cannot be said of their impact on the metal mines of Spain or on the cedars of Lebanon! At the same time, they were a Blue-Economy-aware people in pursuing the Blue economy goals: great opportunities for growth and development for the territories, employment and professional training deriving from the sea and the industries that gravitate around it.

We will focus on a few closely interconnected topics, in order to recognise antiquity's pivotal role in the development of Blue economy projects: Phoenician networking, the circulation of goods and brain power, globalisation and glocalization. This is also a fil rouge combining the many Mediterranean archaeological missions of the Institute of Heritage Sciences, which cover different themes, thanks to the variety of regions and chronologies[2].

2 ANCIENT NETWORKING

If the main components of economic networks are joint ventures and partnerships, both written and archaeological sources authorise us to describe the Phoenicians as true networking champions. Just consider the legendary joint venture between Solomon and Hiram of Tyre in the land of Ophir, not to mention the active partnerships in the commercial networks that the Phoenicians created throughout the Mediterranean. Corporations of Phoenician merchants opened offices in different areas of the Mediterranean (e.g. the merchant Urkatel in Egypt, mentioned in the Wenamoun's papyrus; Betrò, 1990; Sass, 2002). They acted as the fil rouge among different territories, setting up partnerships among diverse peoples and different forms of economy (e.g. the palatial system of the Phoenician cities, the élites of Latium and Etruria, the Nuragic and Tartessian economy). In this way, each Mediterranean people benefitted from their own "diversity", another keyword of the sustainable economy.

[1] *CNR: Case Histories in the Blue Planet Economy*. Rome, October 8, 2021. Cf. https://www.blueplaneteconomy.it/cnr-case-histories-in-the-blue-planet-economy/

[2] https://www.ispc.cnr.it/it_it/

3 THE CIRCULATION OF GOODS AND BRAINS

When merchants moved, objects and goods obviously moved too. So did artisans, to Etruria and Spain for example, along with their technologies, experience and ideas, such as iron working, silver cupellation, improvements in vine and olive culture, new breeding (such as roosters and donkeys), building techniques, urbanization and new iconographies.

Figure 1. Slide 13 from Oggiano's presentation at BPE European Maritime Forum, 2021.

4 GLOCALIZATION

Strictly linked to networking and globalisation glocalization was defined in 1980 by the sociologist Roland Robertson as "the simultaneity – the co-presence – of both universalizing and particularizing tendencies" (1997, p. 4). Archaeology demonstrates that Phoenicians adapted their international products to different contexts and tastes, creating a strong link with local workshops that adapted them to new markets (some examples: amphorae but also precious materials, like metals and ivories).

5 INSTITUTE OF HERITAGE SCIENCES AND THE PHOENICIAN AND PUNIC RESEARCH GROUP

The Italian National Research Council's interest in studying the Phoenicians dates back to 1969, with the creation of the Istituto di Studi Fenici e Punici. Nowadays, this tradition of studies is still well represented by the Phoenician and Punic Research Group, one of the research groups of the Institute of Heritage Sciences[3]. Its goal is a multidisciplinary investigation of the Phoenician and Punic world, encompassing East and West, with missions in Lebanon, Sardinia and Tunisia. The project entitled "Transformations and Crisis in the Mediterranean" focuses on the much-debated concepts of identity, interculturality and "hybridization", so important for the ancient and contemporary Mediterranean (Garbati & Pedrazzi, 2015; 2016; 2021).

Archaeological missions in Lebanon and Sardinia are good examples for studying the relationship between the coast and the hinterland. The coast, in fact, does not separate the sea from the countryside, but they are both part of a unique development process involving ports,

[3] https://www.ispc.cnr.it/it_it/2021/01/26/phoenician-and-punic-research-group/

anchorages, rock-cut coastal installations and rural centres, whose economies are oriented to the sea.

5.1 Kharayeb Archaeological Project (KAP) between sea, river and rural hinterland

The Kharayeb region features a complex ecological and cultural system, where coastal, fluvial and terrestrial economies are concentrated in the area at the mouth of the Litani river[4] (figures 2-4).

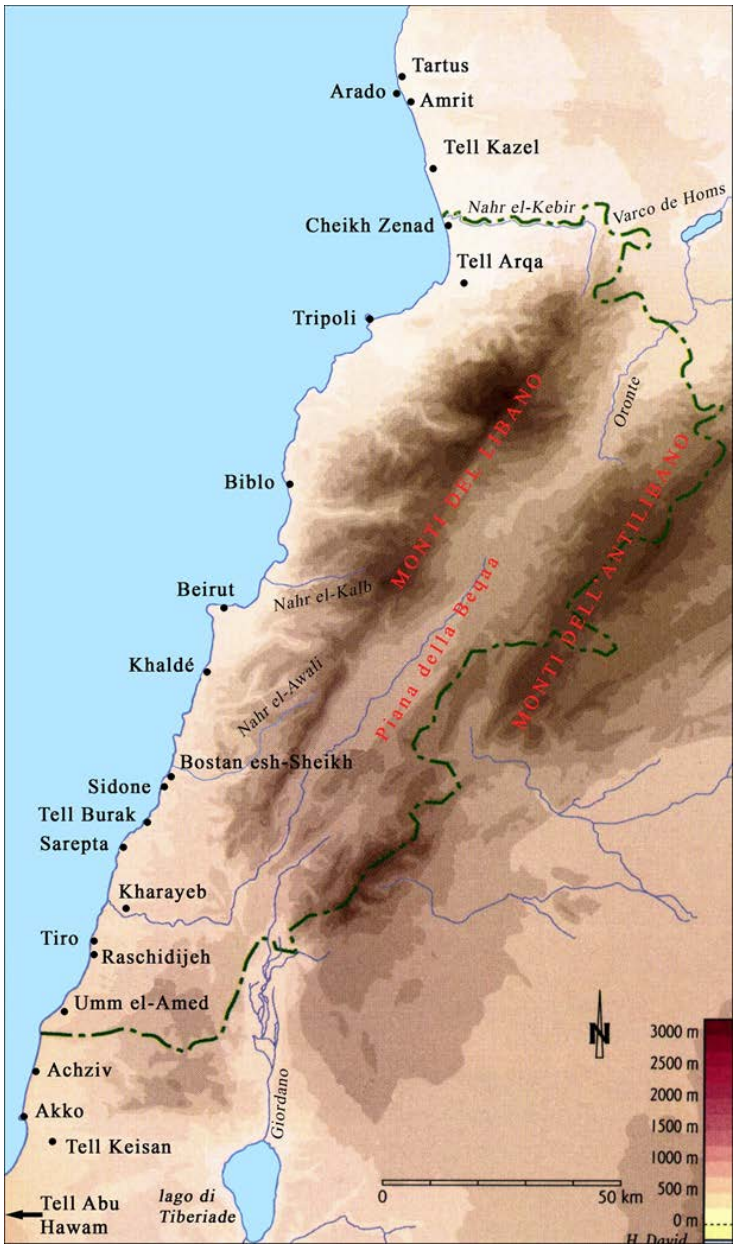

Figure 2. Map of Lebanon (Jomier,1998 reworked by Laura Attisani).

[4] https://www.youtube.com/watch?v=j9KfXyywtw4

Figure 3. The mouth of Litani (Photo Tatiana Pedrazzi).

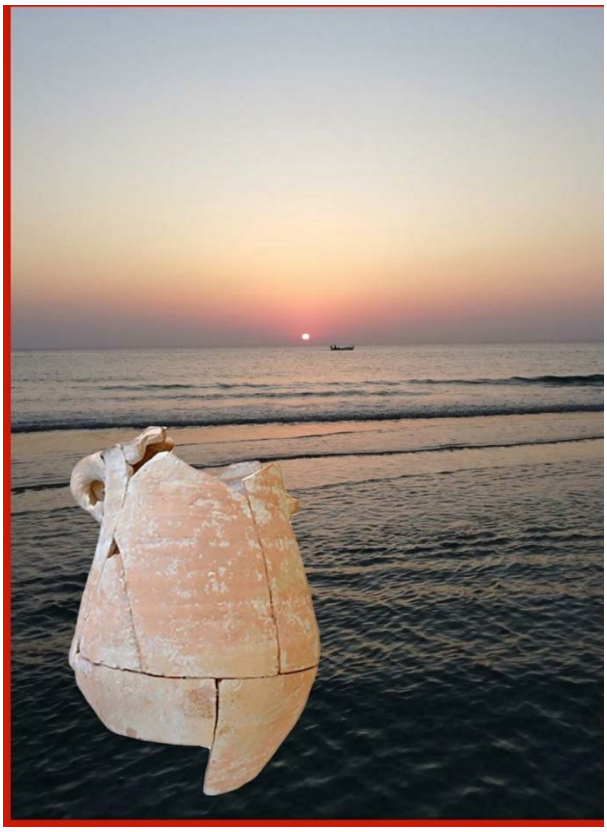

Figure 4. A Persian period commercial amphora and the sea in front of Kharayeb (Photo Ida Oggiano).

The goal of the KAP is to analyse this system with an interdisciplinary approach: archaeology, geomorphology, underwater activities, etc[5] (figure 5).

[5] http://www.kharayebarchaeologicalproject.cnr.it

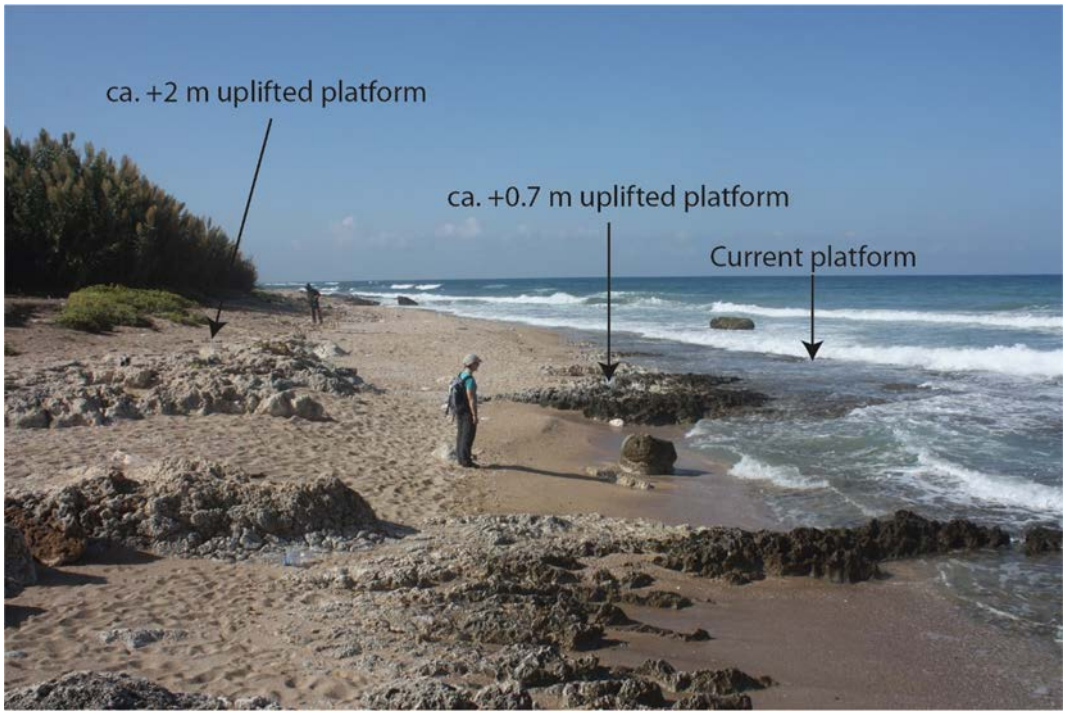

Figure 5. Geomorphological studies of the area at the mouth of Litani (Photo and elaboration Nicolas Carayon).

The overall philosophy is to look at the past to project the future: excavating the ancient port of Qasmyie goes hand-in-hand with requalifying the local beach. The landscape is beautiful, but the Litani and the sea are polluted, and the municipality is trying to develop activities with local schools to clean up the beach (Oggiano, 2015).

The ancestral relationship with the hinterland is testified by the site of Jemjim, which was a highly productive centre from the second millennium to the Persian period. Its products were distributed all over the area and reached the port of Qasmyie (Oggiano & Khalil, 2020. Figures 6-8).

Figure 6. The Kharayeb coastal plane with banana cultivations (photo Ida Oggiano).

Figure 7. Productive basin at Jemjim (Photo Ida Oggiano).

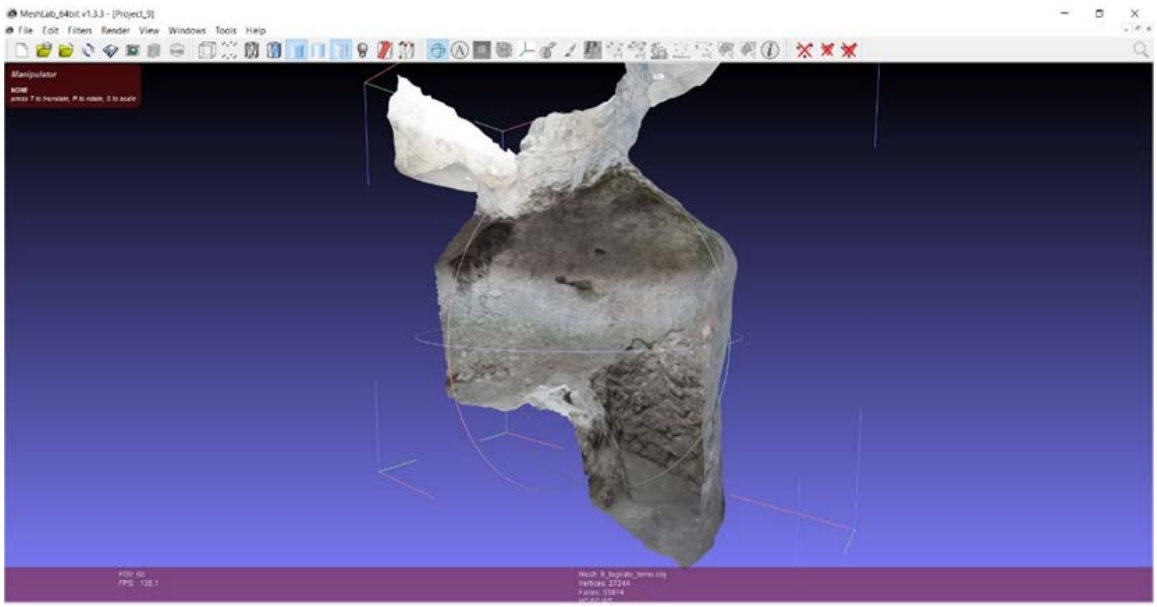

Figure 8. 3D relief of the plastered cistern ai Jemjim (Carlo Baione).

5.2 Sardinia: Pani Loriga. A link between the hinterland and the Sulcis ports

A different situation existed at Pani Loriga, in the Sulcis region, a site founded by Phoenicians at the end of the 7th century BCE and with an urban floruit in the Punic period, from the second half of the 6th century BCE. The site is not on the coast, but it is a typical example of an "interface" economy connecting the coast with the agricultural hinterland, and it played an important role in commercializing products from the rural hinterland through the coastal ports (figures 9-10).

Figure 9. Location of the Pani Loriga hill in the South Western quadrant of Sardinia (Botto, 2017).

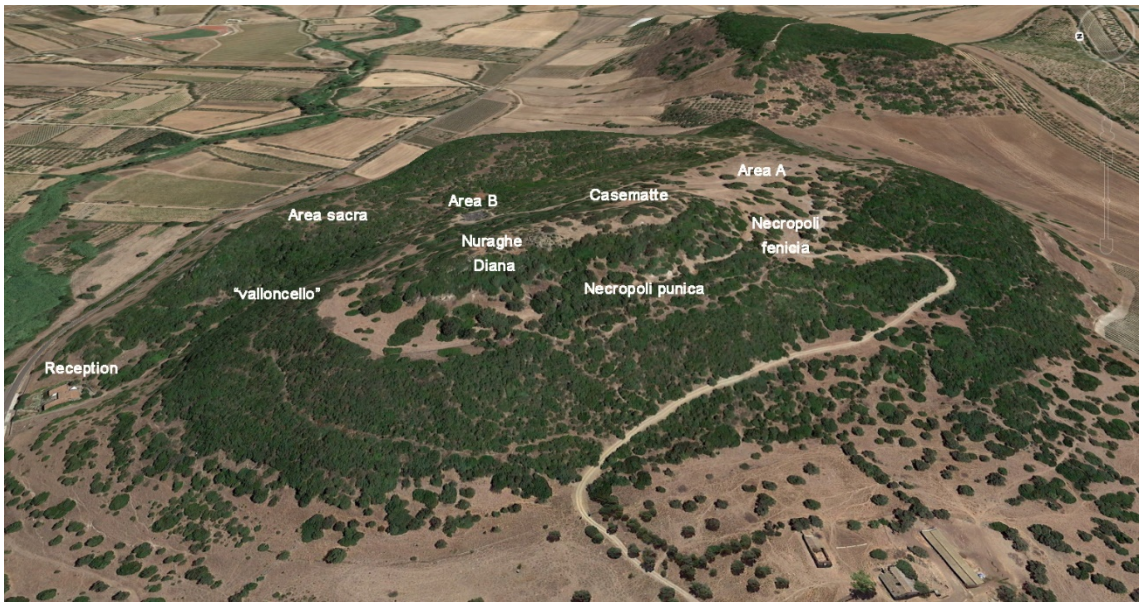

Figure 10. Areal view of the Pani Loriga hill (Photo Giovanni Alvito, Teravista; graphic elaboration of Federica Candelato).

In the case of Pani Loriga, biochemical analyses have documented that wine, olive oil and honey were locally produced, and they are still important resources for the region today (Botto & Candelato, 2021; Botto et al., 2021; Madrigali & Tirabassi, 2020. Figure 11).

Both these archaeological activities are not only devoted to research but also to wider cultural interaction and enhancement, thanks to their close collaboration with public and private institutions in the areas where they operate.

Figure 11. Commercial amphora from area B of Pani Loriga.

6 THE ALPHABET, WRITING AND THE BASE OF KNOWLEDGE

We conclude with the alphabet, a fundamental invention for the past, the present and the future of every discipline, with which we can move to contemporary literature and to the Lebanese writer Amin Malouf, who is so passionate about ancient Mediterranean history. From *Les Échelles du Levant* he moves to our troubled present in *Le naufrage des civilisations*. Climate change, environmental degradation, land use, urbanization, water crises, scarcity of resources, loss of

biodiversity, political-social contrasts, demographic pressure, migratory movements, socio-economic gaps: how can studying the past help us to avoid all this?

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Borders and Societies

"The Mediterranean sea is our home": a video to summarize some of the research activities developed by ISMed CNR

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ABSTRACT

This paper summarizes the main dissemination activities carried out by the ISMed CNR research group of Palermo on the Mediterranean Sea. This young group is made by researchers and technicians with skills in economics, biology, natural sciences and it is strongly motivated by the love for the sea and biodiversity and by the desire to protect it. The dissemination activities of the team arise on the assumption that only knowledge can increase awareness of the importance of protecting the world's resources and the environment. Scientific dissemination and training actions constantly follow the numerous activities conducted by this group, such as monitoring, sampling, analysis, research, writing articles, obtaining patents. The key to all of these activities, resulting from a continuous literature study, is environmental protection and sustainability with a view to ecological transition and sustainable development. This paper is complementary to the video *The Mediterranean sea is our home* presented by the authors at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: dissemination, ecological transition, environmental sustainability.

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1. INTRODUCTION

The mission of the Institute for Mediterranean Studies is based on the dynamics and nature of the growth and development processes of the countries of the Mediterranean area. The regional focus hinges on the strategic centrality of the Mediterranean, both geo-economic and political. At the crossroads of three continents, this sea is the center of gravity for the exchange of goods, energy resources, people and technologies between North and South and between East and West, and among these the biological resources that support the economies of all populations.

Within the large thematic areas that characterize the scientific mission of the Institute of Mediterranean Studies, the Palermo Unit also follows an interdisciplinary approach, linking multiple complementary spatial and temporal scales to reconstruct the processes that support the economic, social, and environmental functioning of the Mediterranean. In fact, the collaboration of a heterogeneous community of researchers and the availability of scientific instrumentation provides the basis to support socio-political decisions, in order to promote sustainable and balanced economic growth, a continuous training and development of scientific competences, an optimal management and protection of the seas in terms of blue growth.

The Palermo Unit, founded in 2019, enriches the mission of ISMed with specific features that allow better translating scientific knowledge to support the implementation of important European Directives on environmental protection in Italy. It contributes to increase awareness of the factors and dynamics of global change from the Industrial Revolution to today, on a Mediterranean scale and on the biologic resources (Adger, 2009; Balzas et al., 2013). Therefore, the Palermo ISMed CNR Unit decided to develop a line of research on the Mediterranean Sea and strong dissemination and Citizen Science actions to favor the positive effect of research on environment and humanity.

A line on ecological dissemination and blue economy research has thus been developed as described: it aims to study the sea and biodiversity as a resource, with a view to the regeneration of coastal marine ecosystems and their sustainable use (Adams, 2012; Carr, 2004). Far from being a mere ethical and moral goal, the study of marine biodiversity has cultural, economic and social implications, and involves enhancing what can be broadly defined as “natural capital”. This, like any other productive factor, is a fundamental ingredient for an economic-social system not only to grow, but also to develop along a path of sustainability (McCormick, 2012). In this sense, the fully understanding of the interrelation between economic activities ascribable to marine resources and the study of biodiversity is an essential element for drawing up policy guidelines.

Scientific popularization is also and above all important in moments of crisis, moments in which humanity feels the need of understanding what happens in nature and what are the efforts that researchers make to study the phenomena (Carrera et al., 2019).

2. SCIENTIFIC DISSEMINATION ACTIVITIES DEVELOPED

Numerous scientific dissemination and training activities have been developed here summarized in Table 1.

Table 1. Scientific dissemination activities

Kind of activity	Nr of items	Nr of people involved	Products developed: nr and type
Open Seminars/Webinars	5	>200	video
School lessons	88	>300	Ppt presentations, interviews, videos, exhibitions, books
University lessons	160	>200	Ppt presentations
Scientific conferences	3	150	Ppt presentations
Specific stakeholders formation	11	105	Interviews, videos, questionnaires
Dissemination events	9	>1000	Ppt presentations, videos, exhibitions, science quizzes
Total	173	>1855	

Source: CNR-ISMed.

All the dissemination activities, carried out by this research group and reported in Table 1, belong to the two-year activity of the group. The first thing highlighted in Table 1 is the type of dissemination or training activities; among these we have identified: open seminars, school lessons, university lessons, scientific conferences, training for specific stakeholders, participation in national and international dissemination events. Table 1 also indicates the number of people involved (from 1 to 10, from 10 to 50, from 50 to 100, more than 100), pointing out whether there has been particular attention to inclusiveness with respect to the different abilities of the subjects included in the activities. Finally, the table reports the products developed, which were identified as follows: multimedia products (videos, video clips, commercials, online lessons, cartoons, and animations) and traditional ones (printed publications, presentations). Both the online activities, theoretical and practical, have a very strong educational value and have been calibrated to the different categories of users they were intended for (Wallerstein & Duran, 2010; Flórez-Aristizábal et al., 2018).

Among the products of dissemination, great priority was also given to artistic forms or to those that introduced artistic elements and forms of inclusive dissemination for the blind (Lesen et al., 2016, Setti et al., 2018).

3. PROJECTS

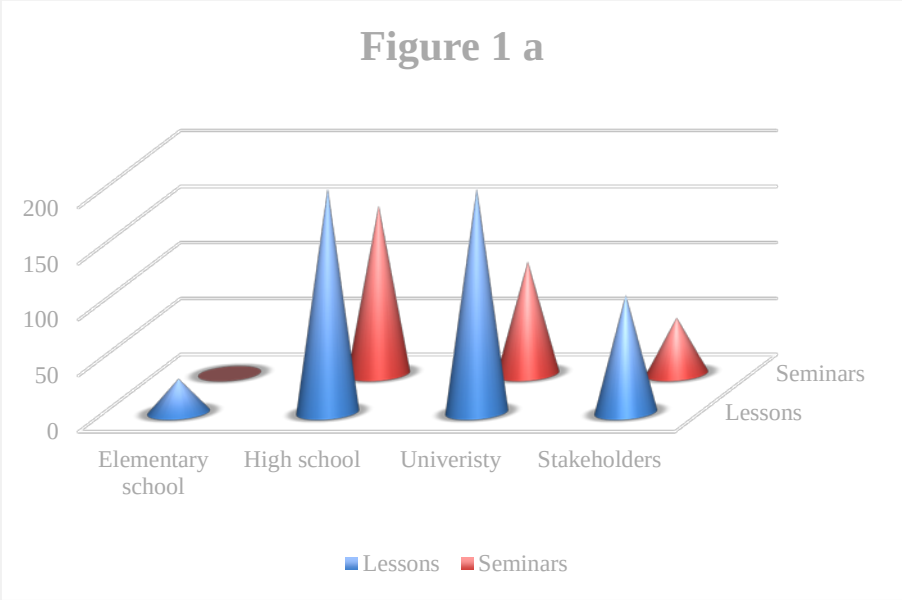
Upstream of all the dissemination and training activities, an intense project activity was carried out. In Table 2 the list and type of these projects.

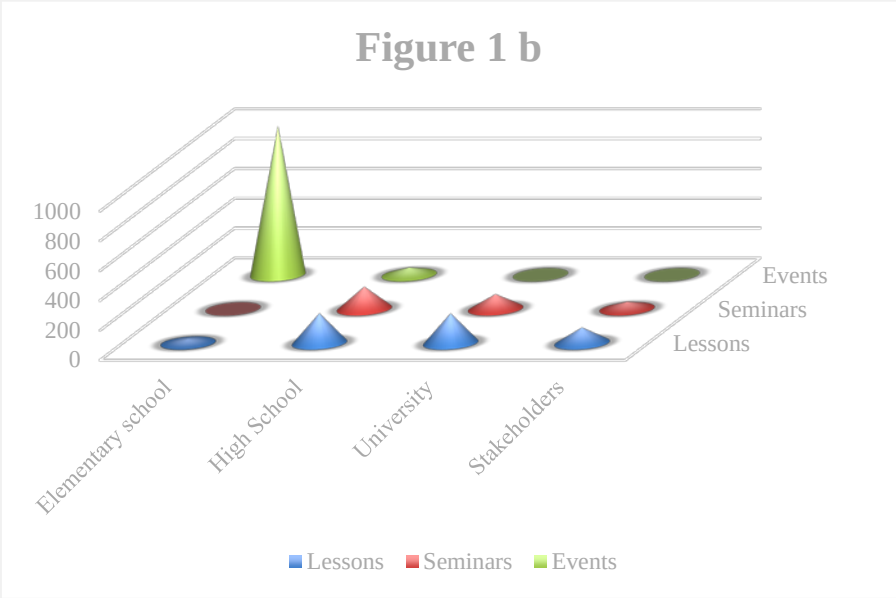
Table 2. Project supporting the dissemination activities

Year	Financing	Institution	Type	Title
2019	Ministry of school	Marco Polo	Higher technical institute	La biodiversità la nostra risorsa
2019	Ministry of school	Danilo Dolci	High school	Sperimentare la biodiversità
2019	EU	CNRS Lebanon	Research Institute	DIAMETER
2020	EU	Several research institutions	Research Institute	CELAVIE
2020	EU	Various and numerous schools	High school	European Biotech week
2020	MIUR	Various and numerous schools	Many schools	FuturoRemoto
2020	EU	Various and numerous schools	Many schools	Maker Fair
2020	MIUR	Various and numerous schools	Many schools	Esperienza Insegna
2020	EU	Various and numerous schools	Many schools	Roma Videogame Lab
2020	EU	Various and numerous schools	Many schools	Time4child
2020	EU	Different stakeholders	Technicians	Pescaplastica
2020	EU	Various and numerous schools	High schools	PCTO
2021	MIUR	Various and numerous schools	Many schools	FuturoRemoto
2021	EU	Various and numerous schools	Many schools	Leaf2021
2021	EU	Various and numerous schools	Many schools	Meetmetonight 2021

4. IMPACT GENERATED ON KNOWLEDGE OF THE ISSUE OF ENVIRONMENTAL SUSTAINABILITY

The impact generated by the intense dissemination activity promoted is measured in terms of the number of people involved, identified by age and school level.





Figures 1a, **1b**. Numerical impact of dissemination activities with and without public events.

If we examine the data on participation in events without considering the typically playful ones, we obtain that our effort has been concentrated on high-grade schools (Figure1a). If we consider the playful events, we see how the dissemination activities have been very effective on lower schoolchildren (Figure 1b).

5. Conclusions

An informative video has been realized to summarize the research activities developed by ISMed CNR group, from its foundation until today. In this sense, the project and associated dissemination activities and their impact on different stakeholders are presented. We can notice that in 2019 the research team made three projects match with dissemination activities, in 2020, nine projects, and in 2021, three projects.

We can notice that, in 2019, projects involved only the high-level school and one European project; both of these activities are time consuming also because of the lectures and presentations to be prepared. In 2020, most of the activities were addressed to dissemination events or lessons in primary school; both of these activities are not much time consuming and it has allowed us to produce various media for communication, such as videos and games. In 2021, the research group was more involved in scientific action and training.

These activities, addressed to specific stakeholders, claimed a lot of effort and have produced a plethora of different products aimed at different categories of people and schools, and have allowed an intense and effective dissemination action over time.

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Legal patchwork and national borders in the Mediterranean Sea

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ABSTRACT

The Mediterranean is a particularly vulnerable sea due to its morphology and its geographical position, and it is a highly complex basin also from a legal point of view. This paper highlights some legal issues emerging from state and international practice that are destined to influence the future developments of the legal regime of the Mediterranean Sea. In particular, the focus is on the legal fragmentation and uncertainty related to national regulations and actions in the Exclusive Economic Zone (EEZ) that can entail a number of risks for an effective and durable protection of the marine ecosystem. Indeed, the legal patchwork of the maritime zones in which the basin is divided and the existing and potential conflicts on the delimitation of those zones between the coastal states can undermine national or even international efforts to protect the marine environment and its resources, thus causing negative and irreversible effects on the whole planet ecosystem. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: Mediterranean Sea, exclusive economic zone, environmental protection.

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1 THE SPECIAL CHARACTERISTICS OF THE MEDITERRANEAN SEA

The Mediterranean is a particularly vulnerable sea because of its morphology, of its geographical position and of the fragmentation due to the many maritime zones established by the Mediterranean states, as well as to the heterogeneity of their political and legal systems.

The basin has unique characteristics: it is a semi-enclosed sea, according to the legal definition contained in art. 122 of the United Nations Convention on the Law of the Sea of 1982 (hereinafter the 1982 Convention)[1], and it is surrounded by 22 coastal states, belonging to three continents[2].

The significant impact caused by international navigation, by continuous industrialization of the coastline and by other severe and numerous anthropogenic pressures on the marine environment and on its resources highly contributes to the particular vulnerability of this sea.

In addition, several other elements of political and legal relevance increase dramatically the complexity of the whole picture, such as the social and political instability of a number of coastal states, the several open or latent inter-state and intra-state conflicts and the strategic importance of the basin in the EU and international political and security theatre[3].

1.1 The legal regime and the proclamation of the Exclusive Economic Zone

As far as the legal regime of the Mediterranean Sea is concerned, the peculiarity of the basin is even more evident[4]. Indeed, differently from the states of the other seas of the planet, the Mediterranean coastal states have started proclaiming their Exclusive Economic Zone (hereinafter EEZ) only since the nineties and the process of proclamation is not yet completed. The EEZ is a maritime zone related to the water column and to the seabed and subsoil starting from the baseline and extending to a maximum distance of 200 nautical miles, where each coastal state can exercise some exclusive sovereign powers and jurisdictional rights in certain domains, as illustrated in paragraph 2[5].

As a consequence, today, a number of areas of this sea are still subject to the legal regime of the high seas in the absence of EEZ proclamations by all coastal states[6].

Moreover, until very recent times, states decided to exercise only some powers and not all the rights provided for by international law, creating the so-called reduced areas, also known as *minoris generis* zones, such as fisheries protection zones or ecological zones[7]. This was the case of many coastal states, as Spain, France, Libya and Algeria, that, after having proclaimed a reduced zone, decided to extend their proclamation to all the rights offered by international law, transforming their fisheries or ecological protection zones into full-fledged EEZ.

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[1] The United Nations Convention on the Law of the Sea of 1982 (hereinafter the 1982 Convention) is the framework convention regulating all activities at sea. It was adopted on 10 December 1982 and entered into force on 16 November 1994 (1833 UNTS 397 UNCLOS).
The Convention is available at https://treaties.un.org/doc/publication/CTC/Ch_XXI_6_english_p.pdf
The Convention has been ratified by all Mediterranean states with the exception of Israel, Libya, Syria and Turkey. See the status of the ratifications at https://www.un.org/Depts/los/reference_files/chronological_lists_of_ratifications.htm

[2] The coastal states of the Mediterranean, not considering United Kingdom for Gibraltar and the basis of Akrotiri and Dhekelia, are the following: Albania, Algeria, Bosnia-Herzegovina, Croatia, Cyprus, Egypt, France, Greece, Israel, Italy, Lebanon, Libya, Malta, Morocco, Monaco (Principality), Montenegro, Slovenia, Syria, Spain, the State of Palestine, Tunisia, and Turkey.

[3] For some security issues under the international law of the sea, see Andreone (2018)

[4] On the legal regime of the Mediterranean Sea see Andreone & Cataldi (2010); Gavouneli (2008); Gimenez (2007); Scovazzi (2001).

[5] Art. 55 of the Convention, in defining the legal regime of the EEZ, states that "The exclusive economic zone is an area beyond and adjacent to the territorial sea, subject to the specific legal regime established in this Part, under which the rights and jurisdiction of the coastal State and the rights and freedoms of other States are governed by the relevant provisions of this Convention".

[6] For an update picture of the national proclamations by Mediterranean coastal states beyond the 12 nautical miles of the TS, see Andreone (2020).

[7] For a survey of the *minoris generis* zones as well as the new maritime zones, see Molenaar (2015).

To complicate the already composite picture, there are also the often-conflicting implications deriving from national proclamations by coastal states, drawing unilaterally the external limits of their EEZ in areas overlapping the maritime zone already claimed, or potentially claimable, by opposite or adjacent states. Indeed, in the Mediterranean Sea the distance between the coasts never exceeds 400 nautical miles; as a consequence, no coastal state can unilaterally proclaim an EEZ of 200 nm, which is the maximum extension admitted by international law. The potential conflicts and the criticalities arising from the delimitation of a maritime border are illustrated in paragraph 3.

The partition of the sea into as many maritime national zones as the number of bordering states, regulated differently by each coastal state (although it was inevitable and, in some respects, desirable[8]) entails legal uncertainty regarding the applicable rules and the standard of effective environmental and resources protection. It also increases the risk of conflicts between opposite and adjacent states on the maritime boundary delimitation and on the appropriation of living and non-living resources.

In this context, this legal fragmentation appears counterproductive for the environmental protection of the Mediterranean ecosystem that would require a much greater cooperation effort by bordering States.

Finally, it has to be recalled that once the process of extension of national jurisdiction will be concluded, the high seas regime will disappear in the Mediterranean Sea (see Figures 1 and 2, respectively illustrating the current situation of proclamations and the future one).

Figure 1. Current situation of the Mediterranean Sea national proclamations.

[8] Most of the proclamations established by Mediterranean states in the nineties were based on their environmental concerns and on the idea of exercising the necessary environmental and fisheries protection through the establishment of national zones.

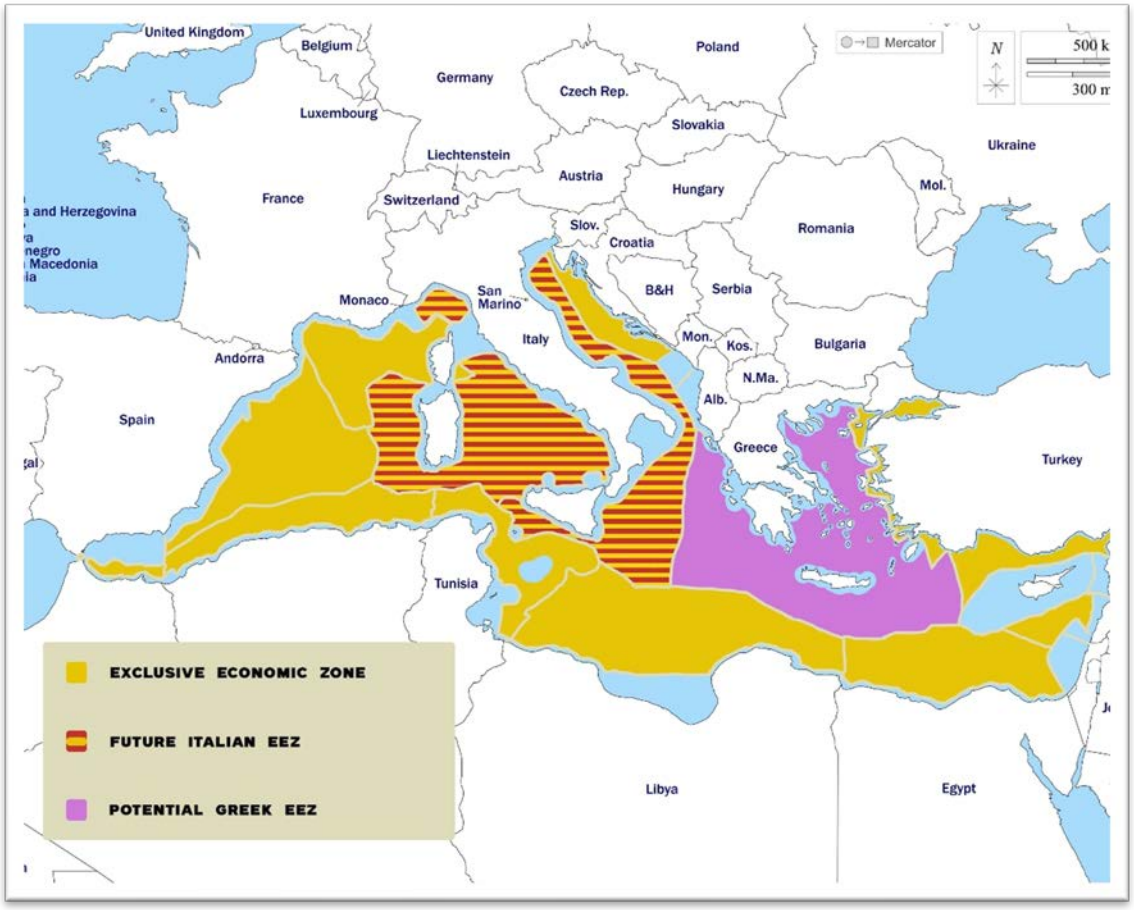

Figure 2. Future situation of the Mediterranean Sea.

Disclaimer: The maps have the sole aim of showing the partition of the Mediterranean Sea in many maritime zones and they do not reflect the official geographic coordinates claimed by states. Being the purpose exclusively illustrative, there is no intention of indicating official and/or possible borders neither suggesting solutions. Apologies for evident mistakes due to the fact that they have been realised by non-expert in cartography and in relevant disciplines.

1.2 The Italian case

In June 2021, the Italian Parliament approved the law that authorises the declaration, by Presidential decree, of an EEZ, in all or part of the waters beyond the Territorial Sea[9], on the basis of a decision by the Council of Ministers on the proposal of the Minister of Foreign Affairs and International Cooperation. The external limits of this future zone will be fixed by agreement with the opposite or adjacent states.

Previously, Italy had established an ecological protection zone beyond the 12 nautical miles in the Ligurian Sea, in the Tyrrhenian Sea and in the Western Mediterranean Sea by the Presidential Decree No. 209 of 27 October 2011 on the basis of Law No. 61 of 8 February 2006, authorising the establishment of Ecological Protection Zones[10]. Therefore, in this area national,

[9] Law No. 91, June 14, 2021, "Istituzione di una zona economica esclusiva oltre il limite esterno del mare territoriale", entered into force on 08 July 2021 (GU No. 148 of 23 June 2021).

[10] Presidential Decree No. 209, October 27, 2011 (GU No. 293 of 17 December 2011) establishing an Ecological Protection Zone in the North Western Mediterranean, in the Ligurian Sea and in the Tyrrhenian Sea with the exclusion

European and international rules on the prevention and repression of all possible types of marine pollution and on the protection of marine mammals and biodiversity are also applied to ships flying a foreign flag and to persons of foreign nationality. In this zone, Italy also exercises exclusive sovereign rights over fisheries as specified by Law No. 116 of 11 August 2014, amending Law No. 61 of 2006[11].

For the time being, until the approval of a Decree establishing the EEZ beyond the territorial sea in the Sicily Channel and in the Adriatic and Ionian Seas, for foreign vessels those waters remain subject to all freedoms of the high seas, from the exploitation of resources to navigation, without the possibility to apply national and EU environmental protection measures and regulations.

2 Legal aspects of the Exclusive Economic Zone

The concept of EEZ, as regulated by Part V of the 1982 Convention, represents the development and merger of the exclusive fishing zone, at the centre of the international debate since 1958[12], and of the concept of "patrimonial sea", which was affirmed during the seventies, following the claims of the newly formed and developing states to re-appropriate their own natural resources, including the marine ones [13].

Over the years, the claims of sovereignty of coastal states have extended to all the economic resources of the water column beyond the Territorial Sea (hereinafter TS), and therefore not only to fisheries resources, including the seabed and subsoil resources which were already part of the Continental Shelf (hereinafter CS) concept. Therefore, the EEZ, as codified by the 1982 Convention, also absorbs the powers of the coastal state over the CS, although the latter continues to have a distinct discipline in Part VI of the Convention.

In the EEZ, coastal states enjoy exclusive rights of exploitation of all the marine resources and jurisdiction over environmental protection, artificial islands, and marine scientific research; in this zone, they should also respect relevant international obligations to protect and conserve the marine ecosystem.

Differently from the TS and the CS, which are the so-called automatic maritime zones, as the coastal State enjoys respectively sovereignty and some exclusive sovereign powers over resources regardless of their will and express proclamation concerning the exercise of those powers, the EEZ has to be proclaimed by the coastal state.

However, today, the need for an express proclamation is being discussed as a *sine qua non* condition for the existence of the EEZ itself. Indeed, the proclamation has the mere function of informing other States of the ways and limits of the exercise of the powers conferred to the coastal State over its EEZ (Andreone, 2004). In fact, the Convention does not indicate either the forms or the ways in which this proclamation should take place, and also the States practice of proclaiming the EEZ has assumed different forms over the decades, thus not indicating a standard procedure.

Finally, it is necessary to underline that coastal States, when establishing their EEZ according to the 1982 Convention, not only are claiming for the rights and powers conferred to them by

of the Strait of Sicily, was notified to neighbouring states and to the UN Secretary General. For an analysis of the Law No. 61 of 8 February 2006 GU No. 52 of 3 March 2006, see Andreone (2007); Leanza (2006).

[11] By the amendment introduced by Law No 116 of 2014, the national and EU regulations (notable the Common Fisheries Policy) are applicable to foreign fishing vessels in the Italian Ecological Protection zone.

[12] The original core of the concept of the Exclusive Economic Zone (EEZ) is attributable to the Exclusive Fishing Zone (EFZ) and to the most ancient claims of coastal states to exercise exclusive powers of conservation and management over marine resources living beyond the territorial sea. The debate that characterised the First United Nations Conference on the Law of the Sea held in Geneva in 1958, focusing on the extension of the territorial sea (TS) and on the special interests on fish resources located beyond the TS, shows that already at the end of the fifties the issue of extending the powers of the coastal state over fishing resources beyond the TS had already established itself internationally.

[13] The legal literature on EEZ is very extensive and references can be found in Andreone (2015).

international law, but they also assume a number of duties provided by the 1982 Convention, mainly in the XII Part devoted to environmental protection.

2.1 Rights and duties of the coastal state in the EEZ

Art. 56 of the 1982 Convention distinguishes between ***sovereign rights*** and ***jurisdictional rights*** enjoyed by coastal State in the EEZ.

Sovereign rights are recognised to the coastal state for the purposes of exploring and exploiting, conserving and managing the natural resources, whether living or non-living, of the waters superjacent to the seabed, and of the seabed and its subsoil, and with regard to other activities for the economic exploitation and exploration of the zone, such as the production of energy from water, currents and winds.

Then, it is provided that coastal states enjoy ***jurisdiction*** with regard to: (i) the establishment and use of artificial islands, installations and structures; (ii) marine scientific research; (iii) the protection and preservation of the marine environment, and regarding other rights and duties provided for in the 1982 Convention.

A brief analysis of each area of competence provided for by art. 56 can be useful to analyse the scope and the legal nature of the powers recognised to the coastal State by the 1982 Convention.

Living resources. Art. 56 and other relevant articles of the Convention attribute to the coastal State sovereign rights functional to the exploration, exploitation, conservation and management of all living and non-living natural resources of the water column, of the seabed and of the subsoil of the EEZ, as well as functional rights to other activities connected with the exploration and economic exploitation of the area. From the reading of Part V, almost entirely dedicated to living resources, and of the other relevant provisions of the Convention, it is clear that the coastal State enjoys extensive and exclusive powers over living resources, while the exclusive powers over other economic resources are not as specified and regulated. Indeed, art. 73 of the Convention provides for a broad range of measures, including boarding, inspection, arrest, and judicial proceedings, that can be adopted on foreign vessels in the exercise of the sovereign rights of the coastal State over living resources.

Fishing sector. With regard to fisheries, the Convention creates a detailed conventional regime that regulates the rights and obligations of coastal states, and also provides some prerogatives for third states. Firstly, the coastal state must comply with the provisions on the conservation and exploitation of living resources provided for by art. 61 and art. 62 of the Convention, establishing the total allowable catch that can be caught in one's EEZ, and ensuring that conservation is not endangered by excessive exploitation (art. 61, paragraphs 1 and 2). In the second instance, the coastal state is required to promote the objective of the optimal utilization of the living resources (art. 62, paragraphs 1 and 2). Then, the coastal state verifies the existence of a possible surplus of resources, within the limits of the total allowable catch, that can be allocated, through bilateral agreements, to third States chosen by the coastal State on the basis of the criteria set by art. 62. However, the vagueness of the above-mentioned duties of conservation and of rational allocation of the surplus, in the light of all the pertinent provisions of the 1982 Convention and of State practice, leads to the conclusion that the power of management and conservation of EEZ living resources is highly discretionary. Neither the reference to landlocked States and geographically disadvantaged States as favoured beneficiaries of the possible surplus nor the allocation of the surplus itself to third States correspond to practice and customary law.

Non-living resources. Regarding non-living resources and sedentary species, within 200 nautical miles, the applicable rules are those provided for both the EEZ, if proclaimed, and the CS. In the case of an extended CS, which therefore exceeds 200 nautical miles, only the rules provided for the CS in Part VI will apply. However, it is interesting to note that the legal regime of fishing in the EEZ does not apply to sedentary species (art. 68 of the Convention). It follows that a) even coastal states, which have not proclaimed the EEZ, may in any case exercise sovereign rights over these species; b) this exercise of powers is not limited by the conservation and rational

management obligations envisaged for fishing; c) finally, the provisions of art. 73 regarding coercive powers of the coastal State would not, in principle, be applicable to fishing for sedentary species.

However, the practice of coastal states shows a tendency to exercise broad coercive powers also to exercise sovereign rights over the CS's natural resources, living and non-living, which could pose a series of legitimacy and identification problems in the future.

Other economic resources. Coming to the other economic resources of the EEZ, as required by art. 56, the coastal State enjoys «sovereign rights […] with regards to the other activities for the economic exploitation and exploration of the zone, such as the production of energy from the water, currents and winds» (Koulouris, 2020).

Artificial islands. Art. 56 attributes to the coastal State jurisdiction over the creation and use of artificial islands, installations and structures, compatibly with other relevant provisions of the Convention and, in particular, with the provisions of art. 60, which outlines the applicable legal regime, and that art.80 applies *mutatis mutandis* also to the CS.

The coastal state has the exclusive right to build, authorise and regulate the construction, positioning and use of the three categories of constructions at sea. In any case, this exclusive right must be coordinated with the rights of third countries for navigation within the EEZ and the CS, therefore it cannot be said to be absolute.

Scientific research. Art. 56 letter b) of the Convention attributes jurisdiction over marine scientific research to the coastal State, a matter regulated in detail in Part XVIII of the Convention under art. 246-255. Within the EEZ, the coastal state enjoys wide prescriptive powers on marine scientific research, although the Convention reaffirms the general principle of the freedom of pure scientific research, that should not imply any commercial application.

The legal regime envisaged for marine research in the EEZ and in the CS is much more detailed and complex than that provided for by the Geneva Convention on the CS of 1958, with the aim of obtaining a reduction in abuses and non-cooperative behaviour by coastal states towards research vessels belonging to third States[14].

In any case, the coastal State's discretion to authorise scientific research remains very wide both in the EEZ and in the CS.

Protection of the marine environment. Differently from what can be inferred reading only the provisions of art. 56, which recognises jurisdiction on environmental protection to the coastal state, the combined reading of the relevant provisions (including Part XII of the Convention devoted to the protection of the environment) excludes that coastal States enjoy exclusive and extensive rights to protect the environment, but rather selected and specific powers, tailored according to the various types of pollutants under consideration, such as pollution from seabed activities, from installations and other devices, from dumping, or directly from vessels.

For each of these types of pollution, except pollution from vessels, coastal States enjoy wide regulatory and enforcement powers, since the related activities are subject to their previous consent and are not limited by international standards. By contrast, with respect to ship source pollution, coastal States cannot adopt domestic laws or regulations containing environmental protection measures that are less effective than generally accepted international laws or regulations, adopted by the competent international organizations, namely the International Maritime Organization (IMO).

The duty to respect the minimum international standards of environmental protection represents a form of limitation on the power of the coastal State to protect more strictly its EEZ environment. Turning to the enforcement and judiciary powers of the coastal States, the provisions of Part XII indicate a clear preference for the competence of the flag State to judge its vessel in cases of pollution violations within the EEZ of another State. This is evidently due to a general favour, at the time of the negotiation of the 1892 Convention, for the freedom of navigation and the predominance of flag State jurisdiction; but, on the other hand, it highlights

[14] For an extensive discussion of marine scientific research issues, see Cinelli (2020), Treves (2012), and Bateman (2005).

the weakness of the coastal State's enforcement action and its capacity to represent a deterrent to these pollution violations.

2.2 Rights and duties of third states in the EEZ

Art. 58 is dedicated to the rights and obligations of other states in the EEZ. It expressly mentions three freedoms that are still guaranteed by the Convention in art. 87 regulating the freedoms of the high seas: freedom of navigation, freedom of overflight and freedom of laying submarine pipelines and cables.

This specification implies that there is no longer any presumption in favour of other freedoms other than those mentioned.

However, art. 58, first paragraph, also recognises to third States all other uses of the sea that are lawful under international law and connected with the aforementioned freedoms, while the second paragraph expressly refers to the provisions of the Convention, from art. 88 to art. 115, regulating the high seas.

Indeed, art. 58 together with the subsequent art. 59 indicate the need to ensure a constant balance of the interests of the coastal state and of the other states in the exercise of the three freedoms mentioned.

Under the Convention, the limitations to third States' rights of navigation and overflight in the EEZ are not only due to the duty to take into due account (due regard) the rights of the coastal State (art. 58, paragraph 3), but also to the duty to comply with the other applicable international standards (art. 58, paragraph 3), and in particular the rules aimed at protecting general interests, such as the protection of the marine environment (art. 59).

2.3 Conflicts of attribution of powers between the coastal State and third States and creeping jurisdiction

Although the 1982 Convention contains a detailed legal regime of the rights and obligations recognised to coastal States and to other States in the EEZ, the risk of conflict of attribution of powers and competences between States remains very high, both in relation to the activities expressly envisaged and regulated, and regarding economic and non-economic activities, which were not foreseen or foreseeable at the time of the drafting of the Agreement. This potential conflict arises from the functional characteristic of state powers at sea and from the incessant tendency of states to extend their powers rather than reduce them (creeping jurisdiction) (Kwiatkowska, 1991; Franckx, 2005).

Even the drafters of the Convention were aware of the fluidity of the concept of EEZ, and for this reason, by introducing the provisions of art. 56, 58 and 59, they created a "permanent solution mechanism" for conflicts of attribution of rights between states with different interests.

In particular, through art. 59, a balancing rule was introduced for the attribution of residual rights not attributed and not foreseen, based on the concept of equity, on the assessment of all the relevant circumstances and the importance of the interests at stake, as well as on the consideration of the interests of the international community as a whole (Nandan & Rosenne, 1993)[15].

The latter reference to the interests of the international community appears significant, since it implies the necessity to consider, when balancing the rights of coastal or third states, also the *erga omnes* obligations binding all States, such as the obligation to protect the marine environment and the obligation to use the sea for peaceful purposes only.

Although, in principle, no presumption in favour of coastal states or other states appears to be codified in the Convention, international practice shows a certain imbalance in favour of coastal states when resolving conflicts of attribution, which leads us to admit multiple forms of extension

[15] The authors of the well-known Commentary cited believe that art. 59 favours coastal states when their economic interests are at stake while, when such interests are not involved, the interests of third states and the international community must be considered.

of the powers of coastal states within the EEZ (functional creeping jurisdiction)[16]. This happens, for example, in cases of extensive interpretation of the coastal state's powers over fisheries or over protection of marine environment or in other areas of its competence within 200 nautical miles.

3 Delimitation of the Exclusive Economic Zones and potential conflicts

In the absence of the maximum possible extension of the EEZs, being the case of a potential overlap of them, the borders of the EEZs of two or more adjacent or opposite states must be fixed by agreement among the concerned states. Indeed, current international law excludes the definitive unilateral determination of the maritime borders in case of potential overlapping with the maritime zones of other states. Indeed, art. 74 of the 1982 Convention regulates the delimitation of EEZs between states when their zones are overlapping, providing that the agreement among parties involved in the definition of the maritime boundaries of their respective maritime areas would be the preferred solution, as it guarantees the protection of the prevailing interest, which is to ensure an equitable result for the parties.

The agreement on the maritime border of the EEZ must not meet any predetermined criteria: its content is free and may be formal or tacit. Nevertheless, the interested states only have the obligation to conduct the negotiations in good faith and with the real intention of achieving an agreed border, but no obligation to conclude a final agreement on the border.

This is the reason why it can happen that a coastal state decides to proclaim its maritime borders unilaterally, despite the potential overlap with neighbouring states, even after having tried to negotiate an agreement with them. In a number of cases where coastal states did not achieve a positive outcome with the negotiations, the dispute among the parties was brought before international courts.

In those cases, open or latent conflicts among opposite or adjacent states dramatically increase the risk of affecting or undermining an effective protection of the marine ecosystem.

As mentioned, the distance among the coasts of the Mediterranean Sea never exceeds 400 nautical miles, thus implying the possibility of overlaps, and even conflicts, between coastal states.

In the seventies and eighties, some Mediterranean states have concluded a number of delimitation agreements for their CS borders. Following the more recent practice of proclaiming the EEZ, negotiations among coastal states to fix even the border for the water column have been started and, in some cases, peacefully finalised into agreements[17]. Nevertheless, the number of open conflicts and of undergoing negotiations on the EEZ borders is still high.

Italy is also interested by this kind of negotiations, officially or unofficially initiated to fix the EEZ borders with several opposite or adjacent neighbouring states[18]. Interestingly, the EEZ border with Greece has been fixed by agreement in 2020, even before the official proclamation by Italy and Greece of their respective EEZs in the Ionian Sea[19].

[16] The mentioned "functional creeping jurisdiction" is only one aspect of the so called "creeping jurisdiction" claimed by coastal states over the years. Indeed, it has to be added to the well-known tendency of coastal states to extend the spatial range of influence of the coastal state beyond 200 nautical miles (space-type creeping jurisdiction).

[17] Among the several agreements concluded on the EEZ delimitation but still generating doubts and conflicts, we can mention the ones concluded by Cyprus in 2003 with Egypt and in 2010 with Israel (both texts are available at United Nations Oceans & Law of the Sea www.un.org/Depts/los/index.htm). In 2007, Cyprus also signed an EEZ delimitation agreement with Lebanon (Lebanon did not ratify it, claiming an area that overlaps the EEZ delimited by Cyprus and Israel) (Scovazzi, 2012).

[18] For an in-depth analysis of the delimitation issue between Italy and Algeria see Caffio (2020). As per the delimitation agreement concluded by Italy and France in 2015 and not yet entered into force see Caffio (2016) and Ronzitti (2016).

[19] The Italian and English texts are attached to Law No. 93 of 1 June 2021 (GU No. 149 of 24 June 2021) "Ratifica ed esecuzione dell'Accordo tra la Repubblica italiana e la Repubblica ellenica sulla delimitazione delle rispettive zone marittime, fatto ad Atene il 9 giugno 2020", by which Italy ratified the agreement less than a year after the Greek ratification by Law No. 4716 of 28 August 2020, *Official Gazette* of the Hellenic Republic No. 163 of 28 August 2020. The agreement entered into force on the date of the exchange of notifications held on 8 November 2021. For an in-depth analysis of the agreement between Italy and Greece see Marghelis (2021) and Mancini (2021).

4 CONCLUSIONS

Forty years after the signature of the United Nations Convention on the Law of the Sea of 1982, even if its complex corpus of provisions still remains a main point of reference, the uncertainty related to the ability of the Convention to cope with new challenges, to solve conflicts, and to settle disputes in order to overcome tensions between opposing interests within the EEZ is destined to increase due to the numerous environmental emergencies, the massive introduction of new technologies, as well as the new demand for safety and control of marine spaces.

Against this background, the legal fragmentation and the uncertainty related to national and international practice in the Mediterranean Sea show that it is incumbent upon the coastal states to urgently meet the challenge of managing and protecting a semi-enclosed sea threatened by many anthropogenic impacts and dangers.

This complex legal context can be counterproductive for the environmental protection of the Mediterranean ecosystem, which would require a much greater cooperation effort by the interested States. In principle, the Mediterranean coastal states are bound by art. 123 of the 1982 Convention, which provides for an obligation, upon States bordering a semi-enclosed sea, to cooperate with each other in the exercise of their rights and in the performance of their obligations with the aim of ensuring the conservation of marine resources, the protection of the marine environment and the coordination of their scientific research policies. Nevertheless, the practice has demonstrated that over the years this obligation of cooperation has been interpreted more as a duty to attempt negotiation in various matters, in particular as far as fisheries and environmental protection are concerned, but not as an obligation to conclude a binding agreement. Anyhow, the many international cooperation arrangements for conservation and preservation of the marine environment and of its resources are still inadequate, sometimes neither harmonised nor coordinated, too sectoral, or not sufficiently implemented.

Having this in mind, there is a need to protect collective values and to ensure a good status of the marine environment and of its resources in the interest of present and future generations. To achieve this goal, it appears urgent to overcome the conflicts inherent the delimitation, looking for alternative solutions to the strict division of the basin into national maritime zones with different protection measures. International practice in other seas already offers a number of examples of maritime delimitation agreements providing for shared management of common resources and for marine environmental protection, such as shared marine protected areas, in overlapping or disputed areas.

In the Mediterranean too, the focus of the debate should shift from the question of state interests over national maritime areas, mainly the EEZ, to the possibilities of international cooperation aimed at protecting the marine environment (and its resources), to be considered as a *unicum* and not as "space" to be divided[20].

Finally, it is worth to recall that the exercise of state powers and prerogatives conferred by the Convention to coastal states is never free from obligations, which are inextricably linked to the related rights of use and exploitation of the sea and of its resources.

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Tunisian workers in Sicily
Fishing economy at the origins of foreign immigration to Italy (1960s-1970s)

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ABSTRACT

In the second half of the 1960s, foreign immigration in Italy underwent a process of transformation. One of the Italian geographical areas in which this process is particularly visible is the area of Trapani, in Sicily. One of the occupational contexts in which this transformation is rapidly maturing is the fishing sector, especially as far as the fishing fleets based in the port of Mazara del Vallo are concerned Their crews consist mainly of workers from Tunisia. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: fishing workers, contemporary Italy, history, migration, Sicily, Tunisia.

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1. INTRODUCTION

At the end of the 1960s, the history of foreign immigration in Italy underwent a process of progressive and intense transformation.

In the second half of the 1960s, something new happened: migration flows began, essentially linked to male and female workers who arrived in Italy from areas that we can define as border areas, with the aim of working in specific occupational sectors.

These flows – initially poorly significant in quantitative terms but destined to grow rather rapidly – are of decisive importance, as they help to redraw the geography of international migration. Thus, in a much more complete way than in the past, Italy represents a growing pole of attraction for the mobility of populations, especially from the point of view of work, or rather of some specific jobs that foreign immigrants are beginning to carry out.

One of the Italian geographical areas in which this process is particularly visible is the area of Trapani, in Sicily, and one of the occupational contexts in which this transformation is rapidly maturing is the fishing sector, mainly within the fishing fleets based in the port of Mazara del Vallo.

2. MIGRANT FISHING WORKERS

According to the 1979 Censis survey (Censis, 1979, p. 8), workers began arriving from Tunisia to Mazara between 1968 and 1972 at a constant rate of around 60 to 80 people per week. Initially, they stayed mainly in the Mazara area to work in the fishing sector, but within a few years they also moved to other Sicilian areas, mainly for working in the agricultural sector.

The Trapanese and Tunisian coasts were not unfamiliar with commercial and cultural exchanges even before the end of the 1960s, but the shift towards the fishing sector generated a new migratory season. The organisation of such a constant and specialised recruitment stemmed from the interest of Mazara's shipowners in expanding the basin of origin of their workforce, as a consequence of that crisis of the fishing industry which in Mazara, as in other Italian ports, was already particularly visible in the mid-1960s.

In order to contextualise the penetration of immigration into the fishing sector, it is necessary to outline the characteristics of this sector in the years between the 1960 and 1970 Through the internationalisation of fishing, Italy intended to obtain a twofold advantage: on the one hand, to extend the sector’s potential by expanding its markets; on the other hand, to boost its political presence in the Mediterranean area in the context of cooperation with Arab countries, which would become even more central during the 1980s. The fisheries agreements signed by Italy with other countries (not only Tunisia) underwent a turning point in the 1970s, when the commitment of Italian governments became more pressing in order to guarantee an international expansion of the opportunities provided by the sector. During the 1970s, there was a close link between the effects of the international economic crisis that exploded with the 1973 oil shock and Italy's attempt to develop a process of diversification of its economic production, not limited to the prevalence of a large manufacturing industry but also aimed at favouring small and medium-sized enterprises and local industrial districts. Within this perspective, the potential offered by the fishing sector was very attractive.

Looking at the origins of the flow, we can point out that the movements towards Trapani initially originated from the coastal areas of Tunisia. But as the demand for labor intensified, they extended to the Tunisian inland areas of , involving a workforce less experienced in fishing.

The spread of North African immigration in the Trapani area has some characteristics that make it a paradigmatic case. The first Tunisians arrived on tourist visas, without the work permit, and were generally employed without a contract.

To contextualise the first arrivals in Sicily, we need to look at the Tunisian situation. At the end of the 1960s, both internal and international migration increased significantly in the country.

The two phenomena are often overlapping. One of the most rapid effects of the policies developed immediately after independence (obtained in 1956) was the liberalisation of the 'internal borders'. These previously determined the obligation to reside in the places of birth, significantly restricting movement. This liberalisation resulted in a high rate of mobility: first, towards the production centres around the big cities; then, abroad. Already in the aftermath of independence, and then even more rapidly in the 1960s, migration was encouraged both by the urbanisation process that followed independence and by the precarious living and working conditions in the central and southern areas of the country. The first Tunisian migratory contingents of a certain consistency left for three different directions: the first and prevailing one headed towards France, the second towards Libya, and, the third and lesser towards Algeria. The largest flow towards France was based on bilateral pacts on the transfer of labour that established the conditions of employment and residence.

The Tunisians who began to arrive in Italy were following two directions: one characterised by routes concerning the centre-south, the other one characterised by routes concerning the centre-north. In the first case, they arrived through Sicily following the Mahdia-Tunis-Trapani/Mazara del Vallo axis and, in the second case, they arrived from the Ile de France following the Paris-Lyon-Turin-Milan-Bologna axis. Initially, only Tunisians from the North-East coast, mainly fishermen, but also labourers with experience in construction and agricultural workers, headed towards Mazara.

3. 1979 CENSIS INVESTIGATION

In order to retrace this history, we can use the material published in the 1979 Censis Investigation. According to the authors of the study, the condition of isolation of immigrants, their professional placement in sectors defined as “less guaranteed” (Censis, 1979, p. 11), and their low participation in trade union structures determine the fact that

> the perception of the dimensions and characteristics of the phenomenon is completely approximate, insofar as it is linked on the one hand to official data that record, not even exactly, only 'regular' immigration, and on the other hand to impressionistic and alarmist estimates that, upon initial verification, seem equally unfounded (Censis, 1979, p. 14).

The Censis research also includes a section dedicated to seafarers in the fishing sector recruited in Tunisia by shipowners from Mazara. This paragraph opens with a very harsh description of their working conditions. The section on fishing closes with a detailed description of the considerable mobility of Tunisians. This mobility could be defined as multilevel: between one job and another, but also between one territory and another. For most of them fishing represented only one of the possible occupations in the Trapani area during the 1970s.

The history of the Tunisians in the Trapani area from the end of the 1960s and for the following decade is an essential reference point for all those who intend to deal with the development of immigration in Italy from a historical perspective. As stated above, this concerns the beginning of a migratory flow that has then undergone further and multiple developments. This flow has developed and taken root in Western Sicily, an area that in the same historical phase was the protagonist of other migratory movements, mainly outgoing, as it was happening in the rest of Sicily and in Italy, too. Emigration, immigration, commuter mobility and internal migration intertwine and mix with great frequency: this is a typical feature of many social and economic contexts in the Mediterranean area, starting from the 1960s. Moreover, in this case, the specialisation and the peculiarity of a flow originating from a mobile work par excellence, the fishing one, emerge significantly.

But there are further elements of interest.

First of all – and this is a novelty in post-war Italy – the Tunisians’ case began as an active recruitment of labour carried out by the shipowners of Mazara. This was part of a conscious choice, even though it took place within a general legal framework that lacked an organic

framework: until 1986 Italy had no specific legislation on immigration and foreign labour. Partly because of this absence, the path of Tunisians – both in the context of the fishing sector and in the other fields in which they are inserted – has been characterised by a continuous slippage between regularity and irregularity.

Secondly, it was an insertion into the labour market and into society that has led to multiple forms of conflict and multiple forms of integration, as we have been able to highlight from the documentation produced by some observers of the phenomenon (Colucci, 2018; Di Sanzo, 2020; Fortuna, 1984; Hannachi, 1998; Saitta & Sbraccia, 2003, Vizzini & Accardi, 1983).

Thirdly, it represented an element of re-composition in the Italian-Tunisian relations and more generally in the Italian economic and political projection on the Mediterranean. Sicily and Tunisia – united by very ancient commercial and cultural relationships – have experienced an additional opportunity for confrontation through the difficult story of immigration, which came at a time when the mass emigration from Sicily to Tunisia had just ended.

This is a decisive path in the history of contemporary Italy and it could be further investigated from the points of view, for instance, of labour market, international relations, economic history, social history, migration policies, the history of Italy, the history of Tunisia, and the history of Euro-Mediterranean relationships.

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Mediterranean ports and literature Minds as open as ports, in Amin Maalouf's novels

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ABSTRACT
Blue Economy is a cornerstone of the Mediterranean culture and identity as it has provided a positive cultural impact shared between coastal societies.
Stories and experiences, along with some concrete aspects of economy, recur in different narrations of the world, therefore in literature too. For example, economic themes recur throughout many of the novels of the Lebanese writer Amin Maalouf. These themes are so significant that they concur to the development of an actual system of values. This report illustrates some main passages of Maalouf's novels, focusing on suggestions and opinions drawn from *Balthasar's Odyssey* and *Leo Africanus*. This paper is complementary to the video presented by the author at Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: Mediterranean identity, economy and culture in the Mediterranean, Amin Maalouf.

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1 Introduction

The following paper is mainly the script of the video *Mediterranean ports and literature: minds as open as ports, in Amin Maalouf's novels* (Emina, 2021)[1]. It was presented at the BPE European Maritime Forum 2021, an event focused "on the wider theme of Blue Economy and on its capability to promote and create new market opportunities and economic development in Italy, in the Mediterranean Area […]"[2]. How does this video contribute to the already multi-faceted issue of the Blue Economy? This paper illustrates some of the links existing between Mediterranean cultural heritage and sustainable economic development. It depicts a specific commercial and entrepreneurial mentality, outlining some positive aspects of a regional way of conceiving economy. Ultimately, it recognises these concepts as sustainable tools for a full individual life and a healthy social organisation.

Generally, Blue Economy is considered to deal with sea and land, that is with fishing and trade routes, or with tourism and port logistics. However, as far as the Mediterranean Sea is concerned, we must also get into Blue culture, because trade has given a strong cultural impact, shared between coastal societies. In *Balthasar's Odissey* (2000; 2008b), published at the beginning of the third millennium, the main character clearly expresses this exact opinion. Through his characters, Maalouf describes his own vision of the Mediterranean world, relying on the traditional practice of commerce.

2 Economy, Imaginary and the Mediterranean Sea

In alphabetical order, the three key words of this paper are economy, imaginary and the Mediterranean Sea.

The concept of economy is somehow intangible. Its substance is perceived through the results of different actions. Economy is made of inter-related activities of production, consumption, and distribution[3]. These activities, enacted in a given space by communities, together with their way of life and their tales and myths, embody specific cultures and imaginaries. The definition of a specific imaginary, that is of an intangible heritage, needs a proceeding by synthesis and abstractions. Our third keyword, the Mediterranean Sea, marks a geographical space by its physical boundaries.

Borders delimit a piece of land, a piece of culture, a piece of humanity, but they imply the invitation to be overcome. This fact is graphically shown on the following map (Figure 1).

The aim of his map is to illustrate "medieval trade from northern Europe to the Muslim world by way of the Mediterranean, and the network of land and sea routes that tie them together"[4]. This report considers the opposite direction – from the Mediterranean to Northern Europe – of some of the routes that have been mapped out.

In the Maalouf's novels presented below, the connection with land is widespread and includes the Middle East and Africa.

The first novel we are considering is *Balthasar's Odyssey*. Its protagonist is a Genoese Levantine merchant, namely a bookseller. Balthasar Embriaco introduces himself as the descendant of a historic Genoese family. Maalouf uses this character to substantiate his own opinions on his Mediterranean imaginary. The story takes place around 1666, one of the many years in which Apocalypse was supposed to take place, as History had foretold.

[1] The development of the topic is based on previous studies (Emina, 2005; 2008; 2013; 2016).
[2] https://www.blueplaneteconomy.it/en/the-event/
[3] Cf. https://www.investopedia.com/terms/e/economy.asp
[4] https://www.cambridge.org/core/books/abs/cambridge-world-history/european-and-mediterranean-trade-networks/D8B8E85342D89A5064B8F9FBABB0B799

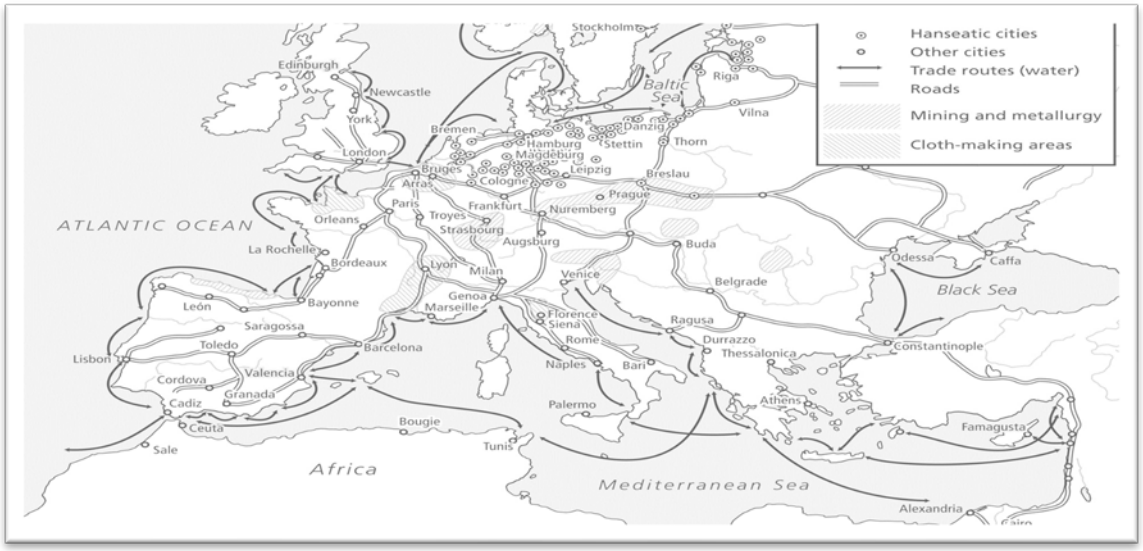

Figure 1. European and Mediterranean trade networks. Source: Balard, 2015.

Balthasar Embriaco embarks on a search for the rarest of books: *The One hundredth Name*, which is supposed to reveal still unknown one hundredth name of God. He sets out on a journey that takes him across the civilized world, making his way to Constantinople and on to Smyrna and Aleppo. Next, he embarks for the Isle of Chios and sails through the Mediterranean. Then, he reaches Lisbon and London. Finally, he settles down in Genoa.

After experiencing life in various Mediterranean societies, often under tyrannical governments, Balthasar Embriaco finds he is a man proud of himself. He proclaims his profession to be more respectable than those traditionally considered as sources of pride, namely military and religious careers.

In fact, Maalouf makes Balthasar say:

> I've always thought, and now I'm convinced of it, that trade is the only respectable activity and those engaged in it the only people who are civilized. The scoundrels Jesus drove out the Temple must have been not merchants, but soldiers and priests (Maalouf, 2008b, p. 314)[5].

3 ETHICS AND BUSINESS

Nowadays, we talk about organizations and infrastructures. Instead, Maalouf's character focuses on the ethical structure underlying his business. Balthasar strongly believes that merchants have some fundamental qualities for worthily inhabiting the world: honesty, as one might easily imagine, but also righteousness, wisdom, and dignity. Moreover, according to Balthasar, the desire for prosperity motivates one's work. The legitimacy of this desire is never questioned, except when it suffocates other fundamental qualities, such as common sense, modesty, and generosity. However, not all the merchants in Maalouf's novel are pious, wise, righteous, and honest. For sure, some cheaters make their apparition, but the main character and his fellows are quite reliable both as merchants and as human beings.

Merchants' scale of values allows Balthasar to draw a pattern for assessing the events looming over the confused European and Middle Eastern world in the second half of the seventeenth century. The occasion is provided by having incurred a debt with his Genoese host, Gregorio

[5] "J'ai toujours pensé, mais aujourd'hui je le pense encore plus : le Négoce est la seule activité respectable, et les marchands sont les seuls êtres civilisés. Ce ne sont point les marchands que Jésus aurait dû chasser du Temple, mais les soldats et les prêtres!" (Maalouf, 2000, p. 408).

Mangiavacca. This debt would have been expired after the expected apocalypse. The end of the world would have erased everything. At that point, he would have disappeared himself without being able to pay off his debt. The possibility that he may not be able to meet his commitments, albeit for higher reasons, raises many questions:

> What will have become of our debts? Yes, how will it be with our debts when the world together with all its men and all its wealth is extinct? Will they just be forgotten, or will they be taken into account in deciding each man's fate? Will bad debtors be punished? Will those who pay up on time get into Heaven more easily? Will bad debtors who keep Lent be treated more kindly than good payers who don't? Just like a merchant to bother his head with such questions, you'll say! Perhaps, perhaps. But I have the right to ask them because it's my own fate that is at stake. Perhaps the fact that I have been an honest merchant all my life will it earn me the right to some of Heaven's mercy? (Maalouf, 2008b, p. 232)[6].

The attention to money related matters, and the feeling that pecuniary debts are debts of honour that must always be paid, whatever it takes, are not trivial matters that concern only the person of Balthasar, an honest merchant. They are moral imperatives that involves each individual within his social context.

4 Instructions for use: a fictional subject focusing on individual and collective well-being

These economic themes recur throughout several novels by Maalouf. For example, in *Leo Africanus*, set between 1492 and 1526, there is a large number of references to various activities. This great amount of information acquires itself a symbolic value that characterizes societies and individuals in the concerned countries. The main character of this novel thinks that commerce (great trade and small business) is included in a set of different economic activities such as craftsmanship, services, and agriculture, which becomes a sort of enterprise.

In both novels, the characters observe that the smooth running of these businesses depends on the good organization of every aspect.

Two more key words taken from Maalouf's novels should be introduced to explain this point of view: simplicity and competence. An excellent organization, based on the fundamental principles of honesty and dignity, results in an easier and more productive activity. To achieve this, Mediterranean people must rediscover their own competencies.

5 Conclusions

From these works, we can draw at least two main interpretative hypotheses. On the one hand, Maalouf communicates nostalgia for historical eras that allowed individuals and groups to carry out economic actions, which provided them prosperity and dignity. On the other hand, these novels are perhaps intended to encourage a return to the traditional spirit of craftsmanship and commerce, which seem congenial to Mediterranean populations.

We are not implying here that novels always provide readers for technical solutions to today's questions, but we are suggesting that Mediterranean people should take what these books can really offer, such as hints for re-building common traditions and opportunities to see new ways of co-existence and to imagine socially sustainable growth. Above all, they should embrace some

[6] "Que deviendront alors nos dettes? Oui, que deviendront les dettes quand le monde se sera éteint, avec ses hommes et ses richesses? Seront-elles simplement oubliées, ou bien seront-elles pris en compte pour fixer le sort ultime de chacun? Ceux qui paient leur dû à échéance gagneront-ils plus facilement le paradis? Les mauvais payeurs qui observent le carême seront-ils jugés avec plus d'indulgence que les mauvais payeurs qui ne le font pas? Voilà bien des préoccupations de marchand, me dira-t-on? Sans doute, sans doute. Mais j'ai le droit de me poser ces questions, puisque c'est de mon sort qu'il s'agit. Cela me vaudra-t-il quelque clémence aux yeux du Ciel d'avoir été, ma vie entière, un commerçant honnête?" (Maalouf, 2000, p. 299).

fundamental pre-economic feelings such as self-esteem and confidence in the future or, at least, hope.

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Musical words for a Mediterranean imaginary: Genoa in singer-songwriters' lyrics

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ABSTRACT

Genoa the Superba, a crossroad for History and stories, has been one of the cradles of the Mediterranean culture and identity and it has been a great source of inspiration for any kind of artists. This paper aims to suggest a specific perspective on this city of water and stone through an unusual journey within its cultural and territorial identity. The filter, or rather the compass of this path, are a few urban musical words born in the Mediterranean imaginary of some Italian singer-songwriters. This paper is complementary to the video presented by the author at the Blue Planet Economy (BPE) European Maritime Forum 2021.

KEYWORDS: Mediterranean identity, Mediterranean culture, Genoa, lyrics, singer-songwriters.

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1 Introduction

Genoa seems to urge on the Genoese and the travellers into telling the spirit of the place through novels, poems, thrillers, essays, songs, be they transparently dedicated or marked with a watermark, spread with echoes and references or gently punctuated with suggestions. Genoa has a harsh, faceted, powerful and pressing landscape which demands visibility within any artistic field: its intrinsic cultural meaning has to be expressed, narrated, re-founded through artistic creation. This paper focuses on a journey through this city of water and stone, an unusual journey guided by urban musical words born in the Mediterranean imaginary of singer-songwriters. I travelled along these paths for the first time in 2005, and the results were an essay (Zoppi, 2005) and a music album, *Porta dei canti* (2005)[1]. Then, I retraced the same cartography along different roads in Musical words for a city of water and stone: Genoa's waterfront as it has been told by singer-songwriters (2012) and finally, last year, in a video presented at the Blue Planet Economy (BPE) European Maritime Forum. This new journey traces different paths, because the ever-changing soundscape is constantly evolving as well as the travellers' gaze, and their ability to listen.

2 "Genoa is only seen from the sea"

The sea, the shore, the Riviera, the wharf, the landing and the leaving, they all are mirrors where singer-songwriters reflect their tales of this city, giving voice to the waterfront and to its backgrounds.

If someone wants to look at Genoa as a whole, the favoured point of view is the access from the sea, according to Ivano Fossati and his *Chi guarda Genova* (Fossati, 1988). Great navigator of words and scores, he gives a clear and conscious portrait of the city, of its atmosphere, its singularities and its colours, from the perspective of someone who is really connected to his place by a bunch of love and water, of tension and desire, of a little illusion and some gloom:

> who looks at Genoa knows that Genoa
> is only seen from the sea
> so do not stand there waiting
> to see something better, something more
> than those geraniums that youth
> still makes grow in the streets[2]

The gaze that tries to grasp the great Genoa from the sea discovers the embrace of a natural theatre facing the Mediterranean, where the stone steps multiply in a theory of terraces, balconies, staircases, and walls. This city embodies the seduction of a falsely motionless Circe waiting for the careless sailor; it unfolds the mirage of a bazaar that promises to fulfil the imaginable and to evoke the unimaginable. The charm of Genoa is a swing of light and shadow, a vertigo. Avoiding the "continent and mainland" categories (Bertone, 2001, p. 8), Genoa is stretched along a coastline made of arches that look like the ribs of a massive stranded whale (Heine, 1960, p. 358), the Moby Dick sought for by countless artists and writers over the centuries. This obsession haunts even the Federico Sirianni's imaginary, where whale, water and journey become a metaphor for the human condition[3]:

[1] Both available at https://www.byterfly.eu/islandora/object/ircres:portadeicanti

[2] All translations from Italian are mine. "Chi guarda Genova sappia che Genova / si vede solo dal mare / quindi non stia lì ad aspettare / di vedere qualcosa di meglio, qualcosa di più / di quei gerani che la gioventù / fa ancora crescere nelle strade".

[3] "I grew up in a place where the sea is a fundamental part of the landscape and of man, and I wanted to pay homage to that sea: so I went to the Film Library of the Ansaldo Foundation Historical Archive in Genoa and asked them to

Holy water, salt water that is not wine
Of acid rain, of calm, water of trade winds
Water, water all around, the giant stirs the water
But the giant isn't looking for me, it's me looking for her (Sirianni, 2021)[4]

3 THE INNER CITY AS A LABYRINTH FOR MEMORIES AND SENSES

Genoa's inner city is a sort of labyrinth to explore through all sensory codes in a synergic way. Any kind of experiences are equally useful to negotiate and recreate the relationship between memories and knowledge of the city's light and shade effects.

Fabrizio De André explores the inner city with its alleys – the typical *carruggi* – the waterfront and its surroundings, and he fixes their memories through unforgettable sketches. He tells the losers' space: the "graziosa" (the pretty one) waiting for her clients on the threshold of her room in *Via del Campo* (De André, F., 1967); the old professor and his "pubblica moglie", everybody's wife (De André, F., 1965); the four half-poisoned pensioners spending their time at a coffee table[5]. These are all characters you can meet walking along the old wharfs "in that thick air full of salt, filled with smells" (De André, F., 1965)[6]. De André offers everyone a sympathetic look:

if you think, if you judge as a good bourgeois
you will condemn them to five thousand years plus the costs
but if you understand, if you look for them all the way
if they are not lilies they are always children
victims of this world (De André, F., 1965)[7]

There is a secret beauty in the vertical stratification of the Genoese *carruggi* between Palazzo Ducale and Sottoripa, built out of magnificence and misery, fulfilled of existences, goods and salt. Those are streets to be walked, taking one's own time, while talking to the city itself, like Cristiano Angelini (2010) does, as if he were talking to a beautiful woman, a dear and old friend lost and found countless times:

Sell yourself to the dreams of an old man
Who saw you as a lady
And who still loves you at night as an hour's bride
Give yourself as a refreshment to the ducal palace
Stabbed by us for four coins
And a debt of charity[8]

help me. [...] so we chose to accompany the song with a chronicle of a holiday on the steamer Roma from the early 1930s" ("Sono cresciuto in un luogo in cui il mare è parte fondamentale del paesaggio e dell'uomo e a quel mare volevo rendere omaggio: perciò mi sono recato alla Cineteca dell'Archivio Storico della Fondazione Ansaldo di Genova e ho chiesto loro di aiutarmi. […] così abbiamo scelto di accompagnare la canzone con la cronaca di una vacanza sul Piroscafo Roma datata ai primi anni Trenta del Novecento"). https://lospettacolonelcassetto.com/2021/06/22/federico-sirianni-il-video-de-la-ballata-dellacqua-il-nuovo-singolo-del-cantautore-genovese-primo-estratto-dallalbum-maqroll/ (Last access 21 February 2021). Video available at https://video.sky.it/spettacolo/musica/video/video-federico-sirianni-la-ballata-dellacqua-679056

[4] "Acqua santa, acqua salata che non è vino / Di pioggia acida, di bonaccia, acqua di alisei / Acqua, tutt'intorno acqua, il gigante smuove l'acqua / Ma il gigante non mi cerca, sono io che cerco lei".

[5] Cf. "quattro pensionati mezzo avvelenati a un tavolino" (De André, F., 1965).

[6] "in quell'aria spessa carica di sale, gonfia di odori".

[7] "se tu penserai, se giudicherai da buon borghese / li condannerai a cinquemila anni più le spese / ma se capirai, se li cercherai fino in fondo / se non sono gigli son pur sempre figli vittime di questo mondo.

[8] "Venditi ai sogni d'un vecchio che ti ha visto signora / E che ti ama ancora la notte come sposa di un'ora / Regalati come un rinfresco al Palazzo Ducale / Da noi accoltellata per quattro monete / Ed un debito di carità".

4 THE OLD PORT

The amphibian Genoese unit which was symbol of centuries of history and culture has been partially broken when the docks in the Porto Antico (the old port) were abandoned. Piazza Caricamento once was the place where the goods were load on freight cars and wagons. Now, it is the viewpoint between the Palazzo San Giorgio and the Bigo. Regaining space, air and colours, Genoa, as a sea city, has lost that old binary rhythm which opposed sails to furnaces. Nowadays, the new rhythm seems to be built on the alternation of empty and full spaces, of lights and sounds, of chiaroscuro and darkness:

> the street is full of moonlights
> and your hands sails for the sea
> on this night that is worth it
> the wheezing of the chimneys (De André, C., 1995)[9].

The waterfront has gained a new life, notwithstanding the changes and transformations of economics and industry. But in Cristiano De André's lyrics this square remains the metaphor of a hard living, industrial archaeology, smoke of drugs, chimneys and funnels, and fogs of memories:

> because it's the whole life that cries inside
> or maybe it's the smoke of Caricamento
> there were mouths to drink everything
> and then spit it all out to the sky
> they were nights adrift
> nights of Genoa I don't remember and I don't believe (De André, C., 1995)[10]

5 THE FOURTH WALL OF WATER FOR A CITY OF SOUNDS AND STONE

The Porto Antico requalification process has re-founded a new relationship among man, sea, land and architecture. Nevertheless, both in its past shape and in the new one, the waterfront maintains a powerful seduction on travellers, navigators, observers and people passing by. The fascination is powerful and demanding, be it on foreigners or on home-insiders, such as Fossati. Navigation, the ancient metaphor of life, becomes less frightening when you know that, anyhow, you can find a port you recognise, and you feel comfortable considering that it can recognise you, too:

> How can I tell how time passes
> how can I say how slow
> Lord of this port
> see, I come closer too
> sails still stretched
> Genoese flag
> that's me (Fossati, 1990)[11]

The Genoese fascination traces its own cartography on waves and stones. It breaks down the fourth wall, thus allowing the imaginary to escape and come into a world made of water and winds: singer-songwriters re-found a wider Mediterranean identity deeply rooted in tradition and

[9] "La strada è piena di chiari di luna / e le tue mani vele per il mare / in questa notte che ne vale la pena / l'ansimare delle ciminiere".
[10] "Perché è la vita intera che grida dentro / o forse è il fumo di Caricamento / c'erano bocche per bere tutto / per poi sputare tutto al cielo / erano notti alla deriva / notti di Genova che non ricordo e non ci credo".
[11] "Come posso dire come passa il tempo / Come posso dire come passa lento / Signore di questo porto / vedi mi avvicino anch'io / vele ancora tese / bandiera genovese / sono io".

innovation, as in the song *Libeccio*, where Max Manfredi (2008) offers his own Mediterranean cartography in a modern and personal ode to the South-West wind:

> Sing a fate that didn't catch me, trinkets of gunfire along the shoreline
> Slingshot and flights, the jump of the witches, the flight of anchovies on the salt roads.
> Sing for me, green wave motions, tomb of surfs, cradle of seabed
> Chillax the saudade, wake of shipwrecks, lacquer of vinyl and leather of boot"[12]

6 Conclusions

Musically speaking, the Mediterranean hosts and inspires great streams and mainland navigators, unique bards of the bond between identity and territory, between water and emerged dreams. Genoa seems to be a place which demands to be told, and it offers itself both as a matrix and as an instrument, that "fourth string"[13] that Giorgio Caproni (1989, p. 186) mentions in his *Litania* as the perfect enchantress, a syren which cannot go out of tune and you cannot forget.

Genoa demands to be told or sung, more than walked or lived, so that personal memories can melt into a shared imaginary, making the one part of the community – making the single breath part of a Mediterranean collective cultural identity. In the end, we all are people from the Mediterranean. As Gino Paoli (1974) sings, translating *Mediterráneo*, a song by the Catalan Joan Manuel Serrat (1971), the fact that we all share the same sea as a matrix marks us deeply and indelibly, wherever we want to or not:

> To your fire-red sunsets are accustomed the eyes of a child who ran
> I'm a singer I'm a liar I love the game and the good wine I'm a man born at sea
> what can I do if I was born in the Mediterranean
> I was born in the Mediterranean[14]

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[12] "Canta un fato che non mi ha beccato, ninnolo di spari lungo il litorale / Fionda e fughe, il salto delle streghe, il volo delle acciughe sulle vie del sale. / Canta per me, verdi moti ondosi, tomba di marosi, culla di fondale. / Scialla la saudade, solco di naufragi, lacca di vinile e cuoio di stivale".

[13] "Genova quarta corda / *Sirena che non si scorda*".

[14] "Ai tuoi tramonti rosso fuoco sono abituati gli occhi di un bambino che correva / son cantante son bugiardo amo il gioco ed il buon vino sono un uomo nato al mare / che ci posso fare se son nato in Mediterraneo / son nato in Mediterraneo".

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