

MARITIME ECONOMY

Analysis and Prospects of Marine Resources

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Summary

The financial and economic crisis, that hit the global market some years ago, has highlighted the serious shortcomings of the dominant economic models; however, 6 years after the crisis, Europe is in a deep state of depression¹ and suffers from a high rate of unemployment, especially among young people. Therefore, the golden eras of economic booms and large industrial developments seem very far; however, it is in these moments that new strategies for economic growth, based on innovative ideas and untapped resources, may come to light. As well as the energy crises of the 70s gave an impetus for the early research of alternative energy sources², the current economic situation in Europe may allow the genesis of new ideas for innovative and sustainable development, in contrast to the disastrous scenarios that will lie ahead for the ecosystem in the coming decades³.

Among the developing resources that could provide a major impetus for economic recovery in the years to come, the sea takes an important position, of course. Today, maritime economy gives a considerable contribution to the GDP and employment rate, in Italy and in the European Union as well; in fact, the exploitation of marine resources has its roots in human history, yet his untapped potential is still high.

1 Stiglitz J. E., *La crisi dell'euro: cause e rimedi*, lectio magistralis c/o Camera dei Deputati, 25 settembre 2014

2 Freeman S. D., *A Time to Choose*, St. Martin Press, 1974

3 OECD, *Enviromental Outlook to 2050: The Consequences of Inaction*, 2012

During the first decade of the 2000s, industries and services linked to maritime economy had seen a continuous development⁴; this growth had generated considerable interest in the topic, especially within the European institutions. In fact, it seemed obvious that this modern and efficient segment could benefit the entire EU economy, generating growth and new jobs. Despite the economic crisis of 2008 led to a decline in sales and the collapse of freight rates⁵, making more difficult to provide and access to public and private funding, the maritime sector demonstrated a strong ability to react, as opposed to recession and to the general stagnation.

In the period between 2009 and 2013, the maritime cluster has been trending in contrast to the rest of the economy: the number of employed increased by 24,300 units (+3.1%), compared to the total loss of 691,200 jobs (-2.9%)⁶. In addition, six years after the crisis, the maritime sector continues to be one of the most dynamic segments of the global economy, especially in Italy. There are about 180,000 enterprises in the country, registered in the Chamber of Commerce, that operate in the maritime cluster⁷. In 2013, maritime economy occupied a workforce of 800,000 people and produced 41.5 billion euro of added value – 3% of the national economy – which become 119 billion by the multiplier effect of the entire sector⁸.

4 Federazione del Mare - Censis, *III Rapporto sull'Economia del Mare*, 2009

5 Federazione del Mare - Censis, *IV Rapporto sull'Economia del Mare*, 2011

6 Unioncamere - SI.Camera, *Terzo Rapporto sull'Economia del Mare*, 2014

7 *Ibidem*

8 *Ibidem*

Today, nearly 5% of European GDP comes from the maritime sector, which generates 5.6 million jobs and a gross added value of 495 billion euro to the EU economy⁹. It is also necessary to remember that the trade by sea covers 90% of the total trade with foreign countries and 43% in the EU¹⁰. The dimensions of this phenomenon have given a strategic importance to the interest of the countries and supra-national organizations on regulating and facilitating the development of maritime economy. Over the last 40 years, Europe have made numerous policies for the large sectors of the maritime cluster.

First, it is necessary to give a definition of the maritime cluster and its components; in fact, the boundaries of maritime resources are often blurred and indefinite. This allows an analysis of all sectors that are part of the cluster at multiple levels, regarding their economic value, employment rate and sustainability, in Italy and in Europe as well. Indeed, we are in front of a 360-degree view of the phenomenon, which includes a variety of activities, linked one to each other, around the marine world. In addition to the seafood chain, which includes fisheries and aquaculture, as well as fish trade (wholesale and retail), the maritime cluster also incorporates the shipbuilding industry, with its manufacturing activities and demolition of vessels and instruments for navigation. Another key element of the cluster is the transport of goods and people, closely related to the import/export, and tourism, which incorporates the services of accommodation and catering, as well as all recreational activities in coastal areas. Finally, the mining of the resources in the sea is linked, now more than ever, to environmental protection and sustainable scientific research.

⁹ European Commission, *Maritime Affairs and Fisheries in Europe*, 2014

¹⁰ *Ibidem*

Regarding the shipbuilding sector, it is strongly affected by global competition; the massive production of eastern countries, the trend of building only massive ships and the relocation of repairs and labor force, represent the major challenges to European industry, which remains the market leader in building highly specialized ships. For these reasons, the European Union has highlighted the need for a common strategy in order to maintain production within the borders of the EU; this strategy¹¹ will allow more competition in the sector, guaranteeing to companies the technological development they need, even with funds.

Similarly, the transport of goods and people is crucial for the import and export of goods and for trade relations within the countries of the Mediterranean sea. Italy is the European leader in the Short Sea Shipping¹², but it still has room for improvement regarding the modernization of the ports, the safety of shipping and the streamlining of bureaucracy, issues that border our country only at the 20th place in the list of logistic performance index of the World Bank¹³.

On the other hand, the tourism sector is the largest component of the cluster in terms of added value; thanks to the variety of services that fall in this area, it can provide an effective source for generational inclusion, since its activity varies from most qualified to least qualified job, encouraging youth employment. The entire sector will grow by 2% -3% in 2020¹⁴, but policies are crucial to contrast the strong seasonality of demand.

11 European Commission, *LeaderSHIP 2020 - The Sea, New Opportunities for the Future*, 2013

12 SRM - Osservatorio Permanente sull'Economia del Mare, *Italian Maritime Economy*, 2014

13 World Bank, <http://lpi.worldbank.org/>

14 European Commission, *Policy measures for maritime and coastal tourism*, 2013

Finally, fishing is a large sectors, strongly linked to sustainable activities for the preservation of marine life; in fact, the European Union has set new objectives in line with the periods of spawning fish, either by restrictive policies in terms of fishing quotas¹⁵, either with funds earmarked for the development of aquaculture¹⁶. The aquaculture is strategically important for the fisheries sector, also in view of the steady increase in the global consumption of fish; indeed, it has been estimated that an increase of one percentage point in the consumption of farmed fish in Europe could create 3,000 to 4,000 jobs¹⁷.

After analyzing all sectors of the maritime cluster, many of which are already widely exploited, and after assessing their economic value, strengths and weaknesses and expected future developments, the last aim of this thesis was to focus on the resource that, more than any other, could provide great benefits in growth during the coming decades. We are referring, of course, to the marine energy, whose potential remains unexpressed even today.

We analyzed the extraction of fossil fuels from the sea, either through the use of offshore oil platforms, either with ocean mining. However, the environmental disaster happened in 2010 on the platform of British Petroleum has highlighted the obvious problems in terms of security and sustainability of the exploitation of these resources. Even the use of methane hydrate, which could meet the energy needs of the world for centuries¹⁸, has many problems regarding the stability of the seabed and the massive emissions of greenhouse gases in the atmosphere¹⁹.

15 European Commission, *Reform of the Common Fisheries policy*, 2013

16 European Commission, *The European Maritime and Fisheries Fund*, 2013

17 European Commission, *The Economic Performance Report on the EU Aquaculture sector*, 2013

18 GEOMAR - Helmholtz Centre for Ocean Research, *Detection and Monitoring of Gas Hydrate Deposits*, 2011

19 GEOMAR - Helmholtz Centre for Ocean Research, *Methane Hydrates and Global Warming*, 2014

The use of marine renewable energy is certainly more in line with the strategy “Europe 2020”, which has, among its objectives, 20% to reduce the emission of greenhouse gases, to increase to 20% energy savings and to lead to 20% the consumption of renewable energy sources²⁰. Therefore, we analyzed the different forms of extracting energy potential from the sea, such as tidal energy (which meets the energy needs of a city of 300,000 inhabitants in Saint-Malo²¹), wave energy, osmotic energy and ocean thermal energy and. However, above all the forms of marine energy, the one that has the largest potential in the medium to long term is the energy of underwater currents, due to the cyclical nature and extent of its flows²²; in fact, extracting only one thousandth of the energy obtainable from the Gulf Stream, you could meet 35% of the energy needs of Florida²³.

The specific needs of the Mediterranean sea, which does not allow the use of renewable energy technologies designed in the oceans or in Northern Europe, makes Italy a potential development pole of these alternative sources; in fact, with an adequate strategy of energy growth, our country could become a leader among the countries of Central and Southern Europe and North Africa. Italian universities and polytechnics, assisted by the action of the Agency ENEA, have developed the first prototypes of systems for the exploitation of renewable marine energy and, with the creation of spin-off Wavenergy, Techflue and Wave4Energy, aim to export their research around the world.

20 European Commission, *Europe 2020 - A strategy for smart, sustainable and inclusive growth*, 2010

21 EDF, <http://energie.edf.com/>

22 Bahaj A., *Fundamentals applicable to the utilisation of marine turbines*, in “Renewable Energy” n.33, 2008

23 US Department of the Interior, *Ocean Current Energy Potential on the US Outer Continental Shelf*, 2006

However, the high fragmentation of universities and scientific centers in Italy, as well as the decline in investment in research and development that has characterized the economic policy of our country in recent decades, jeopardize the effective implementation of this large energy growth. Yet, the goals of sustainability and efficiency prefixed by the EU and, above all, the strong Italian dependence on foreign energy imports and fossil fuels will have to be, in the years to come, the foundation on which we build strategies for economic and employment growth.

Then, the sea is an inexhaustible source of wealth and sustainable development and, in the near future, will provide to the world's population those resources that today are being exhausted on the mainland; however, it is no longer possible to rely on models of uncontrolled growth that are disastrous for our ecosystem. We need the political will to direct investment towards more sustainable resources, to allow the creation of a new marine energy industry, which is lacking today in international scene, and, in this way, arrive before the others to the goals of this new growth in the future.