

ECONOMY AND TOURISM

THE COASTAL REGIONS OF EUROPE: ECONOMIC DEVELOPMENT AT THE TURN OF THE 20TH CENTURY

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This article explores the current condition and spatial dynamics of the key socioeconomic processes in the coastal zone of the European subcontinent at the turn of the 20th century. Europe is a region where the “coastal component” of socioeconomic development plays a major role and is therefore one of the most interesting objects for research in this field.

Russian geographical proximity to the European countries, a significant number of shared problems, and a considerable potential for cooperation in solving them and developing the world ocean’s resources create grounds for an integrated study of European coastal regions. The author analyses Russian findings in the field of the socioeconomic development of coastal regions.

The differences in the natural and socioeconomic conditions and resources along a significant portion of the European coastline necessitate the zoning of subcontinent’s coastal territories and contiguous water areas. The findings of EU maritime research constitute the economic and statistical basis of the study, whose author, relying on necessary calculations, proposes a new concept of coastal regions.

The study identifies significant differences in the nature and trends in the development of European coastal regions in the first decade of the 21st century. Thus, Russian coastal regions show the most dynamic development rate. In general, coastal regions are not superior to inland European regions in terms of major development rates.

Key words: coastal regions, Europe, EU, socioeconomic development, maritime industry, territorial structure of economy, gross regional product, population.

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The significance of the coastal factor for social development is difficult to overestimate. The first studies of the issues within the marine sector emerged in the second half of the 20th century as the use of sea and ocean resources was increasing in almost all coastal countries. The USA, France, the UK, Norway, the European Union, and international organisations (UN, OECD, etc.) have proved to be extremely active in this field [15].

A substantial research of this problem has been carried out by the Soviet and Russian authors. In 1979, Salnikov et al. authored a seminal tome called *The Economic Geography of the World Ocean*, which was published in a series of books on geography of the sea. It focused on a number of spatial aspects of ocean resource potential studied within the framework of contemporary theoretical assumptions of economic geography. “The economic geography of the ocean,” Pokshishevsky and Salnikov wrote in the preface to the book, “is part of geography of world economy addressing the patterns of geographical division of social labour in the process of development and functioning of spatial socioeconomic complexes of the World Ocean... Thus, economic geography of the ocean is an integral part and research area of geography *per se*, in particular, part of economic geography” [33].

The methodological framework of the new research area continued to develop. In the 1970s and 1980s, Soviet academic community began to summarise the first results of accelerated exploration of nearshore areas and shelves and development of the maritime industry. The most notable studies of this period include the works of Voitlovski, Dergachev, Zalogin, Lavrov, Nadtochy, Pokshishevsky, Slevich, and others [7; 10; 12; 16; 24; 25; 28]. In particular, V. Pokshishevsky uses the notion of a land-water production complex [25]. One of the key concepts — natural and economic system — was developed in the “maritime” context. Another important concept, that of land-ocean natural and economic contact zone was introduced by Dergachev [10; 17] and further developed by him in a general theoretical direction. The land-ocean natural and economic contact zone is defined as a historically developed system of interactions between population, economy, and nature.

A significant number of works on the geoecology of nearshore areas has been published over the last three decades. One of the key operating terms introduced in that time is the *geoecology of coastal sea zone* [1]. N. Aibulatonov and Yu. Artyukhin pay special attention to identifying the subject and objectives of the new scientific area [2]. Some of these works focus on regional environmental/economic problems [3; 21].

An interesting interpretation of the international practices of managing coastal territories is presented in S. Fadeev’s work, where the coastal zone is defined as a special hierarchical economic and geographical object [32].

Fadeev believes that the functioning of different types of coastal zones in Western Europe defines them as an established integrated system. A systemic approach is developed in S. Sychev's work, which examines a coastal zone as a composite complex bringing together geographical, environmental, economic, and social systems [31].

Relevant economic and geographical problems of the development of coastal regions are explored by L. Bezrukov [4, 5]. He emphasises the need to analyse the impact of such basic factor of planetary heterogeneity as the land/ocean division on the features and efficiency of national economies. An analysis of the 20th century changes in the population distribution in Russia shows a pronounced shift in the demographic and economic potential towards the inland regions (continentalization). However, the global trend is quite different — population migrates towards the coasts of warm seas. Various strategic methods have been proposed to mitigate the negative consequences of the process observed in Russia.

The calculations (see Fig. 4) do not suggest that coastal regions are unconditionally attractive — in Europe, at least. In 2000—2011, the contribution of coastal regions to the GDP of corresponding territories did not show a significant increase. The specific weight of the regions' population demonstrated a slight growth of 0.9 per cent. The development of new high-speed transport links gave inland regions an additional advantage in competing with coastal ones.

Several little-studied aspects of managing the economy of coastal regions are addressed by I. Soloviova [29]. The competitiveness of a maritime sector in the conditions of globalisation requires efficient methods of organisation, for instance, maritime corporations. The latter should have the tools to ensure the economic and military-political presence in certain Russian offshore areas.

The pronounced Northern—Arctic vector of Russian maritime policy is discussed by L. Bocharova [6]. She identifies and provides some justification for the strategic priorities of maritime sector development and Russian Arctic policy.

Yu. Malinina estimates the total contribution of maritime activities to Russian economy at approximately 1 % of the GDP, which is much less than in the US and the EU [18]. The largest industries of Russian maritime sector are transportation (41 %) and fishery (27 %, as of 2006).

A significant contribution to maritime sector studies has been made by G. Gogoberidze. His major work, *Complex Zoning of the Coastal Territories of the World Ocean* [8], uses the concept of diversified complex multifactor

zoning based on the characteristics underlying the physical geographical, socioeconomic, political and administrative, and military geographical factors. Based on an analysis of numerous sources and statistics, he attempts the zoning of coastal areas. Gogoberidze identifies eight major georegions in Europe: Russian-Barents Sea, Norwegian-Icelandic, Anglo-European, German-Danish, Baltic, Iberian-island, European Mediterranean, and Black Sea-Caspian. Our work relies on a modification of the scheme developed by Gogoberidze (we, too, distinguish between eight georegions, however, of a different format, see Fig. 1). Our focus will be on the problems of development of European coastal regions and the spatial aspects of the maritime policies of European countries.

G. Gogoberidze defines the maritime complex as an aggregate of industries, enterprises, and organisations situated on the sea coast and immediately related to maritime activities, which contributes to the implementation of the national marine policy and sustainable economic development of coastal territories [9]. He also addresses the possibility of building a three-level structure of managing marine georegions (a state, a region, a municipality).

Of significant interest is the monograph of V. Ivchenko on the network programming of the development of Russian coastal regions [13]. This work analyses the theory, methodology, and practice of economic network programming. Ivchenko stresses that Russian coastal regions were rather successful in overcoming crises and that their development was largely sporadic.

State programmes for the development of coastal regions took into account the theoretical and practical groundwork. These programmes include the Maritime Doctrine of the Russian Federation until 2020 [23], the Decree of the Government of the Russian Federation of December 8, 2010 No. 2205 On the Strategy for the Development of Maritime Activities in the Russian Federation until 2030 [27], and the Decree of the Government of the Russian Federation of August 10, 1998 No. 919 On the Federal Target Programme “The World Ocean” [26]. They emphasise that Russia has historically been a leading maritime nation due to its spatial and geophysical features and its role in global and regional international relations. The priority areas of national marine policy are the Atlantic and Arctic regions.

Overall, the studies of coastal regions use the following conceptual approaches to *identifying* and *analysing* territories:

- 1) spatial (geospatial), geographical, chronological approaches [5; 8; 31];
- 2) genetic historical approach [2; 4];
- 3) geosystemic (including geoeconomic, geopolitical, geodemographic, military geodemographic, geoecological, resource-based, and physical geographical) approaches [3; 4; 8; 11; 22; 31; 35; 36, etc.];



4) problem-based (including target programme) approach [4; 16; 18].

Russian state programmes for the development of coastal regions are of pronounced systemic nature. One can easily identify the solid base of the integrated systemic approach to studying *coastal regions*. We will also adopt this approach.

Of special interest are studies into the regional features of maritime economic activities of the neighbouring maritime nations and integration groups, in particular, the EU. Modern trends in population distribution and economic development stress the significance of water area resources and similarities in the problems of their development. It thus seems relevant to study the dynamics of the “maritime vector” of Europe — a large well-developed region with long-standing tradition of benefiting from its coastal position.

The European coastline is 70,000 kilometres long within the EU and is washed by the Atlantic and the Arctic Oceans, as well as four large seas — the Baltic, North, Mediterranean, and Black Seas. Approximately 10,000 km of the European coastline are controlled by Russia and Ukraine. The EU coastal region (within a 100 km range) was home to 52 % of the Union’s population and accounted for 51 % of its GDP (PPP) in 2011. Overall, together with similar territories of non-EU European countries, the European coastal region is home to 4.5 % of the world’s population and a producer of 11.3 % of the world GDP.

To a great degree, Europe owes its prosperity to the sea. Shipbuilding and navigation, fishing and fish processing, port industry, energy resource extraction (oil, gas, and renewable resources), coastal and marine tourism, and aquaculture are all key maritime activities. The pronounced “maritime” development vector results in significant benefits associated with an increase in international trade, which makes Europe a leading economy. The potential of offshore areas and coasts requires constant development. The stability of the marine environment is a major prerequisite for the success and competitiveness of the above-mentioned industries. The implementation of industry-specific and national marine policies, for instance, in the fields of transport, fishery, energy, or tourism can lead to conflicts of interests and reduce their efficiency. There is a need for closer cooperation and integrated approach to solving problems.

The current concept developed by the European Commission (Integrated Maritime Policy for the European Union, 2007) focuses on the comprehensive maritime policy covering all aspects of relations between the society and marine ecosystems. This innovative approach is expected to be highly efficient [19]. The attention of the European community to the issues of marine environment is rapidly increasing. At the same time, the tension in the nature/society system is growing, too. On the one hand, modern technologies make it possible to generate excess profits from the coastal and ma-



rine areas, and attract investment and human resources to these territories. On the other hand, they contribute to a growing pressure on the environment. The need for a prompt response to this challenge is further intensified by rapid globalisation and climate change.

Being aware of these circumstances, the EU, represented by the European Commission, launched the process of extensive consultations and analysis of the current situation. The Integrated Maritime Policy rests on the clear understanding of close connection between the existing problems and the need for a joint coordinated solution. Working programmes and initiatives within different industries should be developed in the framework of the common policy. The following projects are considered crucial to the European Union:

- 1) creating a European maritime transport space without barriers;
- 2) developing a European strategy for marine and maritime research
- 3) developing national integrated maritime policies;
- 4) creating a European maritime surveillance network;
- 5) developing a roadmap for maritime spatial planning;
- 6) formulating a strategy for mitigating the impact of climate change in coastal areas;
- 7) reducing environmental pollution, including CO₂ emission, associated with navigation;
- 8) eliminating pirate fishing and destructive high seas bottom trawling
- 9) promoting a European network of maritime clusters;
- 10) reviewing the EU labour law exemptions for the shipping and fishing sectors [19].

This document sets a framework for cooperation and identifies key areas of EC activities in the field of managing and developing cross-industry tools for implementing the EU Integrated Maritime Policy. Practical steps are to be based on the principles of subsidiarity, increasing competitiveness, ecosystem approach, and active participation of stakeholders. These projects seem to be feasible. Certain complications are associated with the implementation of initiatives 6 (high cost of environment protection efforts) and 10 (a conflict between national and common European interests). Despite well-known tensions between Russia and the EU, the current agenda suggests further development of bilateral and multilateral (intergovernmental and interregional) cooperation in all priority areas for Russia: the Arctic, Baltic, and Baltic Sea regions.

An example of EU international cooperation is its innovation policy in the framework of the programme for developing marine technology (“blue growth”) for 2014—20. In particular, it includes the creation of a digital map of European waters by 2020. The map should have a high resolution, reflect

the topography and geology of habitats and ecosystem, grant access to information on the past and present physical, chemical, and biological condition of waters, contain data on human activities and their impact on marine ecosystems required for oceanographic forecasts. The first steps have already been made. One of them is the publication of the European Atlas of the Seas [37].

According to the geosystem approach, the zoning of the World Ocean and coastal territories is a crucial method of summarising and analysing spatial information that forms the basis for managing different social, natural, and socio-natural processes taking place in different conditions (environments) at different levels of the spatial hierarchy. The major problem is the principal difference between the marine and land geosystems. There is no unanimous opinion in the research community as to the principles of zoning marine and marine-land systems (see the works of S. Salnikov, S. Mikhailov, V. Dergachev, G. Gogoberidze, etc.). However, industry-specific zoning schemes are the most common. This approach is widely used in Europe. In particular, the EU Maritime Policy uses different schemes for zoning the adjacent seas. The most recent variation was developed after 2007 and includes eight large marine regions, six of which lap the shores of the “mainland” EU (the Baltic, North, and Celtic Seas, the Bay of Biscay, the Iberian Coast, and the Mediterranean and Black Seas). The seas that surround distant territories of Spain, Portugal, and France (overseas departments) and the Arctic Ocean are considered separately [37].

This zoning scheme corresponds to the key areas of the EU Maritime Policy. However, the developing international cooperation, including that with non-member states, requires certain additions. Firstly, there is a promising “test field” between the Euroregion of the North Sea and Arctic Ocean with increasing participation of Norway, Iceland, Greenland, and the Faroe Islands. This can be achieved through expanding the “responsibility areas” of the North Sea region northwards along the Norwegian coast and that of the Celtic Sea region towards Iceland and Greenland. Secondly, it is possible to divide the vast and diverse (in terms of natural and socioeconomic conditions) Mediterranean region. Within the EU, it is possible to distinguish between the Western and Central Mediterranean regions, as well as those of the Adriatic and Aegean Seas. It is also important to take into account the prospective development of cooperation with the coastal countries of Eastern Europe (Russia, Ukraine), Turkey, and Georgia.

This work aims to give an overview and study the dynamics of the economic development of European coastal regions in the beginning of the 21st century. Therefore, the applied zoning scheme is “coast-centric” and focused primarily on the economic and geographical economic features of the local

business activities. At the same time, special attention is paid to the economic use and features of the environment of contiguous offshore areas. The key zoning factors (groups of factors) are physical geographical, resource, and environmental ones, as well as those of transport position, economic specialisation, political and administrative organisation, and management. Based on a combination of natural and socioeconomic conditions, it is possible to distinguish between eight marine and coastal regions (see fig. 1).

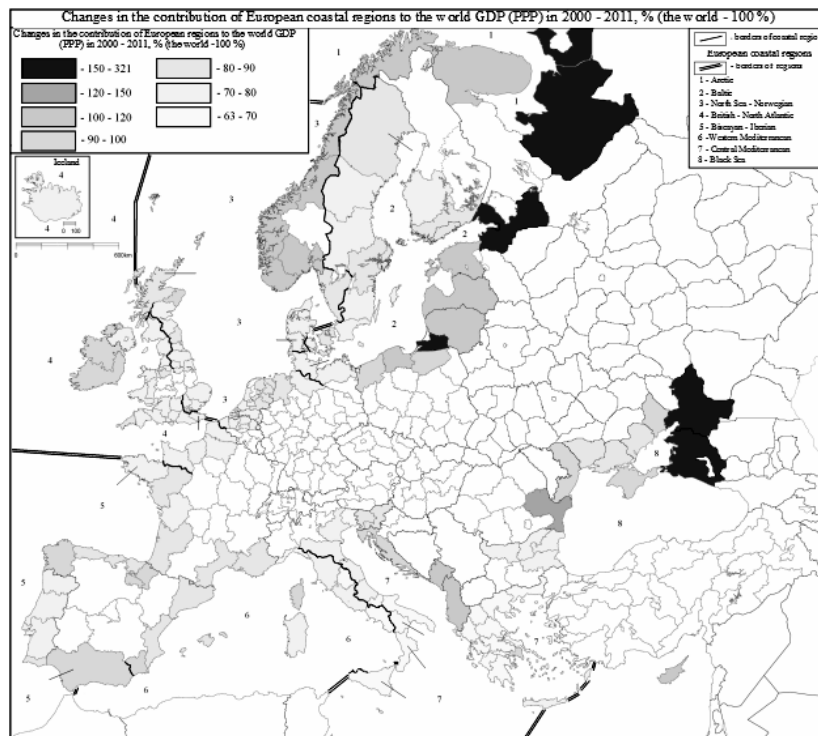


Fig. 1. European coastal regions.
Economic development dynamics, 2000—2011

For the purposes of an economic and statistical analysis, coastal territories incorporate a 100 km onshore area. All political and administrative units, more than half of whose population live within this area, are considered coastal. The analysis and calculation units are Eurostat's NUTS 2 territories and Russia's and Ukraine's regions. The 100 km area suggests the convenient accessibility of the coast by car. Moreover, this approach makes it possible to cover almost all European regions with sea access except for Western Finland, West Midland (the UK), and Karelia (Russia), where most population lives at a distance of over 1000 km from the

coast (see fig. 1). The European Atlas of the Seas uses a 50 km criterion, which seems to be too strict for large regions of Eastern Europe [37].

Table 1 summarises data on the development of major marine sector industries of foreign European countries (excluding Ukraine; as per the methodology of the European Atlas of the Seas). These industries include coastal and marine tourism, aquaculture, mineral extraction, fishery, transport, shipbuilding, and ship repair. As of 2010, the number of those employed in these industries did not exceed 3.5 m people and its output 256 billion euros. The North Sea-Norwegian region boasted the best-developed marine sector with an output of 119 billion euros accounting for 47 % of the total output of all European coastal regions (the contribution of mineral resource extraction amounts to 75 billion euros); however, the Western Mediterranean one employs more people (659 and 965 thousand respectively).

Table 1

**Population and development of marine sector industries
in foreign European countries (2010)**

Region	Population 100 km area), m people (2011)**	Number of those employed in the key marine sector industries, 1,000 people	Output of key marine sector industries, m euros
Arctic	3.1
Baltic	38.1	355.9	17870
North Sea- Norwegian	62.5	659.4	119391
British-North Atlantic	42.1	281.5	11065
Biscayan-Iberian	40.2	409.4	14034
Western Mediterranean	42.5	964.6	48152
Central- Mediterranean	44.6	609.6	43134
Black Sea	29.3	251.3*	2442*
Total	302.3	3531.7*	256088*

* Excluding Ukraine.

** Including Russia and Ukraine.

Calculated by [38].

Tables 2 and 3 present detailed information on the employment rate and output of the marine sector industries of foreign European countries. The most labour-intensive industry is coastal and marine tourism, which accounts for

1.6 m or 47 % of all those employed in the marine sector. Partially owing to this industry, Europe remains the world leader in international tourism. The other largest employing industries are fishery (22 %) and transport (15 %).

Table 2

Employment in the industries of marine sector in foreign European countries

Region	Number of employees, thousand people					
	Coastal and marine tourism	Aquaculture	Mineral extraction	Fishery	Transport	Shipbuilding and ship repair
Baltic	123.5	0.7	2.9	107.6	61.0	60.2
North Sea-Norwegian	251.0	12.7	60.2	117.5	151.0	67.0
British-North Atlantic	146.8	10.7	0.6	42.9	47.8	32.7
Biscayan-Iberian	144.0	29.7	0.9	168.5	21.8	44.5
Western Mediterranean	472.3	40.2	2.3	226.2	127.2	96.4
Central-Mediterranean	354.8	6.2	3.9	82.3	116.4	46.0
Black Sea*	160.5	0.2	3.8	21.1	20.8	44.9
Total	1652.9	100.4	74.6	766.1	546.0	391.7

* Excluding Ukraine.

Calculated by [38].

In terms of monetary value, the leading industry is mineral extraction (see table 3). It accounts for 30 % of the marine sector output. Primarily, it is hydrocarbon extraction. Transport still accounts for another 30 %. Coastal and marine tourism is ranked third with 21 %. Overall, the marine sector of foreign European countries accounts for 2 % of their GDP, and this percentage remains stable. According to earlier data [33], the total output of key marine sector industries was estimated at 2 % of the world's national income in the beginning of the 1970s. At the time, the structure of the sector included oil and gas extraction and navigations, which accounted for 65—75 % of the total income [33].

Table 3

Output of marine sector industries in foreign European countries

Region	Output, m euros					
	Coastal and marine tourism	Aqua-culture	Mineral extraction	Fishery	Transport	Shipbuilding and ship repair
Baltic	3823	33	222	3284	7467	3041
North Sea-Norwegian	8214	2451	74665	4796	23509	5756
British-North Atlantic	3028	312	30	2019	3539	2137
Biscayan-Iberian	4642	250	150	4846	1802	2344
Western Mediterranean	17435	458	629	7811	16403	5416
Central-Mediterranean	14169	581	1584	2419	22829	1552
Black Sea*	1173	0	94	153	367	655
Total	52484	4085	77374	25328	75916	20901

* Excluding Ukraine.

Calculated by [38].

The demographic potential of European coastal regions is rather high. As of 2011, the 100 km onshore area was home to 302 million people (see table 1) or 4.3 % of the world's total population, however, this rate was constantly decreasing (4.7 % in 2000). The most densely populated region is the North Sea-Norwegian region (63 million people). Densely populated Western European territories — the Netherlands, Belgium, and partly the UK and Germany — have access to the northern coast. Traditionally, the least populated territories are those of the Arctic region (3.1 million people).

Table 4 presents additional information on the largest agglomerations of coastal regions. These include the London (14 million people), Istanbul (13.8 million people), Randstad (6.8), and Saint Petersburg (5.3) agglomerations. A significant number of agglomerations have a population of 3—5 million people, namely, Barcelona, Manchester-Liverpool, Naples, Rome, and Athens. The Rhine and English, as well as the Padan (North Italian) conurbations include vast coastal territories. Many coastal cities develop high-capacity port facilities (see table 4). Good examples are the ports of the North Sea area. Although Rotterdam has lost its world lead-



ership in annual cargo tonnage, it is still ranked first in Europe (370 m tons in 2011), followed by Antwerp (169), Novorossiysk (116), and Hamburg (114). In the beginning of the 21st century, Russian ports have seen a rapid development.

The leaders in passenger services are Danish ports and the terminals in the areas of the Straits of Dover and Messina and the Aegean Islands. The Arctic, North Sea-Norwegian, and British-North Atlantic regions are leaders in fishery with an annual catch of 2 million tons.

Table 5 contains data on the dynamics of GDP (PPP) of coastal European territories corresponding to the identified marine regions. The analysis is based on Eurostat's NUTS 2 regions, most of which meet the criterion of two-hour accessibility (100 km) of the sea coast. Fig. 1 shows the dynamics of one of the most informative indicators of the economic development level — the regions' contribution to global GDP (PPP). In 2000—2011, certain territories showed an unprecedented increase in this rate. Most of them are situated in the Arctic, Baltic, and Black Sea region. Many of them are Russian. Among foreign coastal territories, the highest dynamics is exhibited by the regions of the Baltics, Poland, Norway, and Romania. The regions of the West Balkans and (to a lesser degree) Ukraine were also rapidly developing. On the contrary, the worst results were shown by the Central Mediterranean and British-North Atlantic regions that had been seriously affected by the 2008 crisis.

Overall, the analysis of data obtained does not show any apparent trends in the development of coastal regions in the beginning of the 21st century. Despite the evident advantages of the coastal position, the dynamics of the regions' development is indicative of the “slowing down” (in comparison to the world community) rate of the EU economic development. It is affected by crisis phenomena and lags behind the global rate. On the other hand, the leading coastal regions — the Arctic and Black Sea ones (as well as the Baltic region, but to a lesser degree) show an accelerated development rate. This can be explained by the catching-up development of the Eastern European economies. Over the period under consideration, they increased international economic ties and attracted more investment. A large number of projects (with participation of many European countries) involving extraction and transportation of resources (mainly, hydrocarbons) were launched, which contributed to the accelerated development of the coastal regions.

Socioeconomic characteristics of European coastal regions

Region	Largest urban agglomeration (city), million residents (2011)	Annual cargo tonnage of major ports, million tons (2011)
Arctic	Arkhangelsk — 0.35, Murmansk — 0.30, Severodvinsk — 0.19 (Russia), Tromsø — 0.06 (Norway)	Murmansk — 25.7; Arkhangelsk — 4.3; Tromsø — 1
Baltic	Saint Petersburg — 5.30 (Russia), Stockholm — 2.01 (Sweden), Copenhagen — 1.54 (Denmark), Helsinki — 1.20 (Finland), Gdansk-Sopot-Gdynia — 0.90 (Poland), Riga — 0.80 (Latvia), Tallinn — 0.50 (Estonia)	Primorsk — 75, Saint Petersburg — 60, Ust-Luga — 23 (Russia), Tallinn — 36, Klaipeda — 34 (Lithuania), Riga — 32, Ventspils — 28 (Latvia), Gdansk — 24
North Sea-Norwegian	London — 14.0 (UK), Randstad — 6.7 (Netherlands), Hamburg — 2.5 (Germany), Oslo — 1.1 (Norway)	Rotterdam — 370 (Netherlands), Antwerp — 169 (Belgium), Hamburg — 114, Amsterdam — 60 (Netherlands), Bremen and Bremerhaven — 74 (Germany), Goteborg — 41 (Sweden), Immingham — 57, London — 49, Teesside — 35 (UK), Bergen — 52, Narvik — 18 (Norway)
British-North Atlantic	Manchester-Liverpool — 4.3; Glasgow — 1.6 (UK); Dublin — 1.3 (Ireland)	Le Havre — 63, Dunkirk — 41 (France), Milford Haven — 49, Southampton — 38, Liverpool — 33 (UK), Dublin — 19
Biscayan-Iberian	Lisbon — 2.6; Porto — 1.2 (Portugal); Bilbao — 0.9 (Spain)	Algeciras — 69, Bilbao — 30, Huelva — 27 (Spain), Nantes — Saint-Nazaire — 30 (France), Sines — 25 (Portugal)
Western Mediterranean	Barcelona — 4.7 (Spain), Naples — 4.2, Rome — 3.3 (Italy), Marseille — 1.6 (France)	Marseille — 84 (France), Valencia — 54, Barcelona — 35 (Spain), Genoa — 42 (Italy)
Central-Mediterranean	Athens — 3.6 (Greece)	Trieste — 42, Taranto — 41 (Italy), Athens — 24
Black Sea	Istanbul — 13.8 (Turkey), Odessa — 1.1 (Ukraine), Rostov-on-Don — 1.3 (Russia)	Novorossiysk — 116, Tuapse — 19 (Russia), Odessa — 35 (Ukraine), İzmit — 55, Ambarlı — 34 (Turkey), Constanța — 31 (Romania).

Based on [30; 34; 37].

Contribution of European coastal regions to the world GDP (PPP)

Indicator	GDP (PPP), billion euros		Contribution to the world GDP (PPP),%		2011/2000 ratio, %
	2000	2011	2000	2011	
Arctic	24.5	59.3	0.07	0.10	144.9
Baltic	545.2	889.4	1.46	1.43	97.6
North Sea-Norwegian	1487.5	1994.3	3.99	3.20	80.2
British-North Atlantic	814.2	1021.6	2.19	1.64	75.1
Biscayan-Iberian	623.5	870.0	1.67	1.40	83.5
Western Mediterranean	763.8	1025.0	2.05	1.65	80.3
Central Mediterranean	734.4	919.1	1.97	1.48	74.8
Black Sea	109.9	236.7	0.29	0.38	128.9
Total for European coastal regions	5103.0	7015.4	13.70	11.26	82.3
EU 27 total	9201.7	12646.6	24.70	20.31	82.2
World	37259.7	62280.5	100	100	100.0

Calculated by [20].

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