BACKGROUND PAPER FOR THE STAKEHOLDERS CONFERENCE

SUSTAINABLE DEVELOPMENT OF THE BLUE ECONOMY OF THE BLACK SEA

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1. Introduction

The European Union is striving to unleash the potential of Europe's oceans, seas, and coasts to benefit the economy of both the EU and its neighbourhood, while at the same time safeguarding biodiversity and protecting the marine environment. A comprehensive overview of the marine and maritime economy in Europe has demonstrated that its potential is significant, provided appropriate investments are made and research conducted.

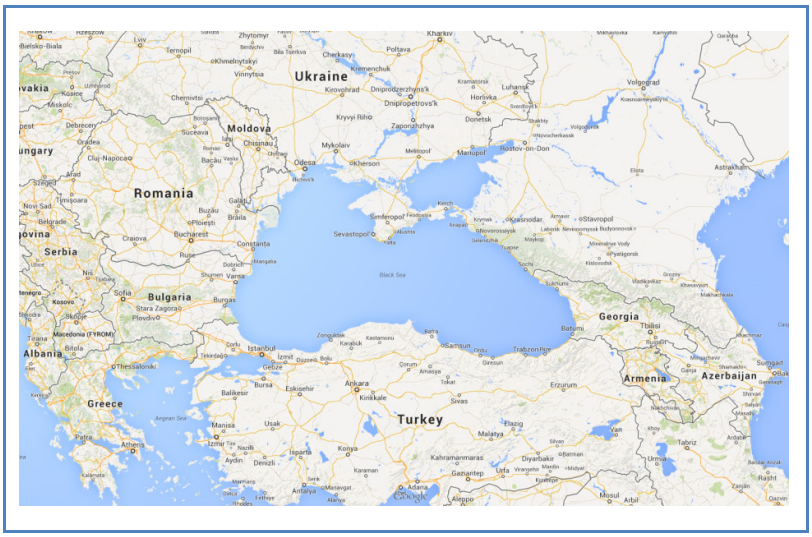
Since 2007, the EU has fostered an **Integrated Maritime Policy (IMP),** which aims to increase coordination between the maritime sectors and to provide a more coherent approach to cross-cutting issues such as marine data and knowledge, integrated maritime spatial planning and maritime surveillance. Since 2012, the IMP has focused on **Blue Growth,** which aims to support sustainable growth in the marine and maritime economy, including in the Black Sea.

This paper briefly highlights the state of play in the most important marine and maritime economic sectors in the littoral states and addresses the challenges and possible perspectives of a broader basin-wide cooperation between the countries surrounding the Black Sea.

2. Background

The Black Sea basin can be regarded as a strategic bridge connecting Europe with the Caspian Sea area, Central Asia, and the Middle East, and further with Southeast Asia and China. It is characterised by close national ties, but also by diversities and rivalries. It comprises three EU Member States (Bulgaria, Greece, and Romania), one EU candidate country (Turkey), five European Neighbourhood Policy (ENP) partners (Armenia, Azerbaijan, Georgia, the Republic of Moldova (hereinafter Moldova), and Ukraine), as well as the Russian Federation (hereinafter Russia) as a strategic partner for the EU. Of these, six countries (Bulgaria, Romania, Ukraine, Russia, Georgia, and Turkey) are riparian countries, with Armenia and Azerbaijan on the eastern watershed and Moldova lying inland of Ukraine to the northwest of the Black Sea.

FIGURE 1. MAP OF THE BLACK SEA BASIN



The Black Sea coastal-zone population numbers nearly 39 million, and Turkey and Ukraine have the longest coasts, 1.700 and 1.756 km, respectively. With a total surface area of 436.400 km² and a shoreline of 4.869 km, this brackish-water inland sea is of considerable economic importance to the EU and its neighbours.

Most economies in the Black Sea basin are smaller than those in the EU. In 2012, the Georgian and Moldovan economies (measured as GDP at purchasing power parity-PPP) were EUR 19.167 million and EUR 8.772 million, i.e. each is less than 1% of the EU-28 GDP average.

The region is an expanding market and, traditionally, a major energy production and transmission area, where some countries, such as Russia, possess vast energy resources, while most other countries are in need of them. It is also an important component of the EU's external energy strategy. It is believed that offshore oil and gas has the potential to become a major conventional energy resource in the economies of some of the littoral states, such as Bulgaria, Romania, and Turkey. It has a busy maritime transport network, albeit with several safety and efficiency issues. Coastal tourism is the third major marine and maritime economic sector with an expanding international clientele. It is also an important fishing region, where most stocks are transboundary in nature, and with an emerging aquaculture sector.

Due to its enclosed nature, urbanisation and industrialisation of coastal areas and increasing human pressure on its natural resources, the Black Sea has undergone substantial degradation over the last century. As a result, there have been considerable efforts at both regional and national levels to curb pollution, address eutrophication and improve natural resource management. In addition, there is the wider concern of how climate change will impact the Black Sea ecosystem. Tackling these issues will enhance the environment and facilitate the development of those maritime activities that are dependent on a healthy environment, such as fisheries, aquaculture and tourism.

The Black Sea littoral states are structurally very heterogeneous, which presents a multitude of opportunities, but also challenges. The sea is the site of different economic activities. Among them, coastal tourism, short-sea shipping, inland waterway transport, fisheries, as well as exploration and exploitation of oil and natural gas are of considerable importance. Water projects, which include the construction and dredging of waterways, harbour and river works, and the creation of marinas, are also important for many countries.

A brief overview of the blue economies in the littoral countries highlights the following features[1]:

Bulgaria's coastline is 414 km long and represents 8,5% of the total Black Sea coastline. Bulgaria's coastal regions are responsible for ca. 13% of the nation's gross value added (GVA). GDP in 2012 constituted EUR 37 billion, a 4,8% decrease over 2011. **Coastal tourism** is a fast growing sector, encompassing ca. 80% of the total tourism sector and ca. 10,5% of the total national GVA. The sector offers significant potential for future development. **Short-sea shipping** of goods depends greatly on oil transportation, while future growth depends on fleet renewal and on the development of infrastructure including **inland waterway transport**. The Danube River is the only domestic inland waterway, linking the Black Sea to the North Sea. Transport services are expected to grow further. **Water projects** are vital to waterway maintenance, especially on the Danube River, and for improved access to maritime ports in the Black Sea. Another important marine and maritime sector is the **fisheries sector**, but it faces significant challenges due to the need to further improve cooperation at the Black Sea level for the sustainable management of stocks. Since 2011, efforts to tackle these issues have been made under the GFCM umbrella. Until now, **marine aquaculture** has remained underdeveloped. The farming of sturgeon and mussel dominates the industry.

The Black Sea coastline of **Georgia** has a total length of 322 km, which is 6,6% of the entire Black Sea coastline. In 2012, GDP reached EUR 11,4 billion, a 9% increase over the previous year. There are several seaports along Georgia's Black Sea coast, the largest and busiest being the Port of Batumi. Chartered **passenger ferry services** link Georgia with Ukraine and Turkey. Georgia may also play an important role in the **short-sea shipping** sector adding to coastal employment opportunities. Services, where **tourism** is one of the fastest growing sectors, have the potential to increase their contribution to Georgia's economy. In 2012, the number of foreign tourists reached 4.430.000, a 3,5-fold increase over 2008. Traditional economic sectors on the coast include **fisheries** and **aquaculture.** The main species caught are European anchovy, sprat, whiting, mullet, red mullet, turbot, sea snail, and dogfish. Recently, total fish production has declined to ca. 3.000 tonnes caught by 360 fishing vessels.

Moldova's GDP in 2012 constituted EUR 5,3 billion, a 3,4% increase over 2011. The Moldovan economy recovered from the recession last year, with increases in industrial and agricultural output and inward remittances. The **tourism** sector has been growing for the past several years. In 2012, the number of overnight stays amounted to 1,46 million, a 4% improvement since 2010. Moldova is one of the smallest countries of the Danube River basin and one of the partners in the EU Danube Strategy. It has access to the Black Sea through the Danube Delta. Giurgiuleşti is the only Moldovan port on the Danube. Only small seagoing vessels can dock at the port, which, since 2007, has also hosted an oil terminal. **Shipping** on the lower Prut and Dniester rivers, Moldova's largest rivers, plays a modest role in the country's economy.

Romania's coastline is 256 km long and is entirely on the Black Sea representing 5,3% of the total Black Sea coastline. Romania's coastal regions are responsible for ca. EUR 5,5 billion of gross value added and for roughly 5% (470.000 people) of total national employment. In 2012, GDP constituted EUR 140 billion, a 1,5% increase over the previous year. The Romanian **shipbuilding** industry has a long tradition and, although affected by the economic crisis, is

[1]Data for Bulgaria, Romania, and Turkey are based on the ongoing "Study to support the development of sea-basin cooperation in the Mediterranean, Adriatic and Ionian, and the Black Sea", while data for Georgia, Moldova, Russia and Ukraine are based on the World Bank, national statistical institutions, sectoral ministries and other relevant sources (port authorities, tourism agencies, etc.).

now improving its competitiveness by investing in green technologies and innovation capacity. Construction is devoted mainly to commercial transport vessels. **Short-sea shipping** is the fastest growing maritime activity in Romania and is concentrated in the Port of Constanţa. The recent discovery of new gas fields on the Romanian continental shelf of the Black Sea has the potential to strengthen this sector's role and that of **offshore oil** and **gas**, which is already the third-largest employer in the coastal economy. **Inland waterway transport**, a sector defined by the Black Sea and the Danube River, plays an important role in the national economy because of its size and positive contribution as a result of activities such as the construction of intermodal transport infrastructure. **Coastal tourism** is also an important economic activity because of the potential stemming from Romania's natural and cultural resources.

The Black Sea coastline of **Russia** has a total length of 421 km representing 8,6% of the total Black Sea coastline. In 2012, GDP reached EUR 1,5 trillion, a ca. 6% increase over 2011. Russia has extensive natural resources, particularly oil and natural gas. The country is the world's leading natural gas exporter and second largest **gas** producer, as well as the largest **oil** exporter and producer. Container cargos, using well-developed cargo terminals, are the major transport segment in the **short-sea shipping sector**. The Novorossiysk Commercial Sea Port Modernisation Programme foresees development of the port's marine infrastructure, including dredging, and construction of new cargo terminals. **Inland waterways** in the European part of the country form a network of channels connecting the basins of major rivers. Russia plans to construct **shipbuilding and ship-repair** facilities on the Black Sea coast. Russia has a long tradition in **fisheries** based mainly on catches of European anchovy, which constitute ca. 65% of the country's total catches in the basin. The cities of Anapa, Gelendjik, and Sochi on the Caucasian coast of the Black Sea are famous destinations for **coastal tourism**.

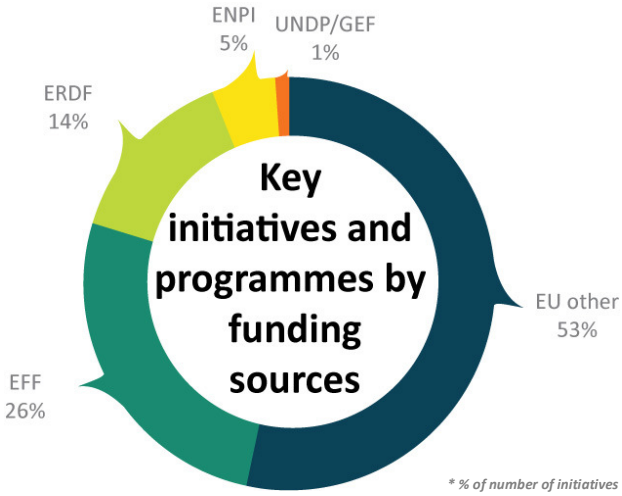
Turkey's total coastline is 8.333 km, of which 20% or 1.700 km are on the Black Sea (34,9% of the total Black Sea coastline) and 80% on the Mediterranean Sea (Marmara sea, Aegean sea and the East Mediterranean). In 2012, GDP reached EUR 572 billion, a 1,7% increase over the previous year. Maritime economic activities support ca. 280.000 jobs and reach a total GVA of more than EUR 4,4 billion. **Coastal tourism** is one of the most promising economic sectors of Turkey's blue economy. **Cruise tourism** in the Black Sea, like coastal tourism, is noted for its potential. The **shipbuilding and ship-repair** sector is concentrated in the Mediterranean Sea basin (82% of total GVA) and focuses on chemical tankers, mega-yachts, and offshore infrastructure, while **short-sea shipping** is important because of Turkey's strategic position at the intersection of the East–West and North–South international transport corridors. **Marine aquaculture** has been one of the fastest growing activities in Turkey. Currently, this sector produces more than 88.000 tons (with a planned increase to 600.000 tons by 2023) and has a 25% market share of the seabass and seabream trade in Europe. More than 96% of the production is located on the Aegean coast; however, it is underdeveloped in the Black Sea area. Here, nine sea-cage farms operate with a production volume of just 8.500 tons.

The total length of **Ukraine**'s Black Sea coastline is 1.756 km (or 36,1% of the total Black Sea coastline). Ukraine's GDP in 2012 amounted to ca. EUR 128 billion, a 7,9% increase over the previous year. The **shipping** sector in Ukraine makes a significant contribution to the country's economy. The country has 18 deep-sea merchant ports and 11 merchant river ports. The biggest sea ports, Odessa, Illichevsk, and Yuzhny, take a 60% share of the total cargo turnover through Ukrainian seaports. Odessa offers regular **passenger ferries** to Istanbul (TR), Varna (BG), and Haifa (IL). Intermodal sea–railway transport is well developed, connecting Ilichevsk (UA) to Varna (BG) and to Batumi (GE). The port of Illichevsk has received a loan from the European Bank for Reconstruction and Development (EBRD) to develop port infrastructure, including the reconstruction of berths, and the execution of dredging works. **Tourism** in Ukraine plays an important role in the national economy. Yalta, Odessa, Sevastopol, and Kerch are among the main tourist centres on the Black Sea. **Fisheries** is another well represented marine sector in Ukraine. The main species caught are European anchovy, sprat, mullet, flatfish, mussel, sea snail, and dogfish.

3. A brief review of the most relevant cooperation initiatives

Several current initiatives, programmes, and projects with a marine and a maritime dimension were analysed with a special focus on Blue Growth and integrated Maritime Policy (IMP)-related measures. Approximately 40 maritime-related initiatives from countries around the Black Sea were examined to determine the extent of existing maritime cooperation at the sea-basin level.[2]

3.1 Sources of funding for Blue Growth initiatives



The different objectives within an initiative raise the possibility that multiple sources of funding may be available. If initiatives include research and innovation, for example, then EU funds can be accessed from the Seventh Framework Programme for Research and Technological Development **(FP7),** the **Competitiveness and Innovation Framework Programme**, and various structural funds. FP7 (and FP6) have funded efforts to consolidate the potential of Black Sea countries and to establish stronger links with the scientific community**.** Horizon 2020 (the successor of FP7) programmes will most probably feature regional cooperation for research and innovation aimed at supporting a policy dialogue and enhancing cooperation in several areas. ERA-NET integrates participating Black Sea countries in the European Research Area by linking research activities within existing national bilateral and regional RTD programmes.

In EU Member States structural funds support the development and structural adjustment of regional economies to strengthen competitiveness and innovation. These are the **European Regional Development Fund (ERDF),** the **Cohesion Fund (CF),** and the **European Social Fund (ESF)**. Some initiatives have access to specific funding sources such as the **European Fisheries Fund (EFF)** and (from 2014) the **European Maritime and Fisheries Fund (EMFF)**. The **Instrument for Pre-accession (IPA)** is a funding source for some blue-growth initiatives involving Turkey.

Several EU initiatives are implemented using the **European Neighbourhood and Partnership Instrument (ENPI): the Black Sea Cross Border Cooperation Programme,** the **INterstate Oil and GAs Transport to Europe (INOGATE) Programme**, the **TRA**nsport **C**orridor **E**urope-**C**aucasus-**A**sia **(TRACECA)** Programme, and projects on **Improving environmental monitoring in the Black Sea (EMBLAS)**, on the setting up of a **Shared Environment Information System (ENPI-SEIS**) and the **MISIS** project – MSFD Guiding Improvements in the Black Sea Integrated Monitoring System. The **Black Sea Cross-Border Cooperation Programme** and the **South East Europe (SEE) Territorial Cooperation programme** are good examples of initiatives with many funding sources, including the ERDF, national public funds, IPA funds for candidate or potential candidate countries, and ENPI funds for European Neighbourhood Policy partner countries.

[2]The analysis has been based on the ongoing "Study to support the development of sea-basin cooperation in the Mediterranean, Adriatic and Ionian, and the Black Sea", carried out by COGEA SRL (Italy) in consortium with AND International (France), CETMAR (Spain), DEIGRA (Italy), EUROFISH International Organisation (Denmark), AZTI (Spain) and POSEIDON (UK).

The analysis of the initiatives reveals that different EU funds are by far the most important source of funding for candidate countries (i.e. Turkey), European Neighbourhood Policy partners (Armenia, Azerbaijan, Georgia, Moldova, and Ukraine), but to a lesser extent for the strategic partner of the EU (Russia).

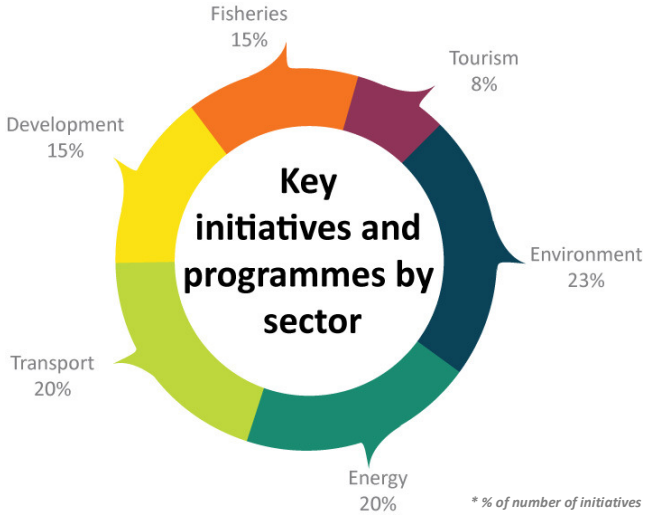
However, there are also several different international financial institutions involved in the Black Sea region. Apart from the **European Investment Bank** (**EIB)** and the **European Bank for Reconstruction and Development** (**EBRD)**, the **Black Sea Trade and Development Bank (BSTDB)** operates under the Black Sea Economic Cooperation (BSEC). The **Nordic Investment Bank (NIB)** has also established a loan agreement with the BSTDB to finance projects of mutual interest in the Black Sea region. The BSTDB also cooperates with other interstate banks such as the **International Investment Bank (IIB)**. The **EBRD** has contributed to the Black Sea Energy Transmission System and has made equity investments in support of the energy sector. It is also interested in developing the hydrocarbon potential of the Black Sea region and modernising thermal power facilities to reduce the industry's carbon footprint.

Other bodies, such as **UNDP** and the **Black Sea Trade and Investment Promotion Programme (BSTIP)**, are also important funding sources, as is the **Global Environmental Facility (GEF)** for specific initiatives.

There are also several major private capital investment entities (private banks, hedge funds, other lenders) operating in the area. The larger banks work with selected financial institutions as intermediaries in different countries, where such delegation of responsibility assists the bank in servicing a market segment more efficiently or effectively than the bank might be able to directly. This cooperation between investment entities and local financial institutions operates in four main areas, (a) trade finance, (b) SMEs finance, (c) programme lending (e.g. credit lines), and (d) equity participation. Hedge funds have been used to invest in Black Sea holiday residences (e.g. the **Black Sea Property Fund**), and port commodity terminals (e.g. **Louis Dreyfus Commodities**).

3.2 The scope of key initiatives

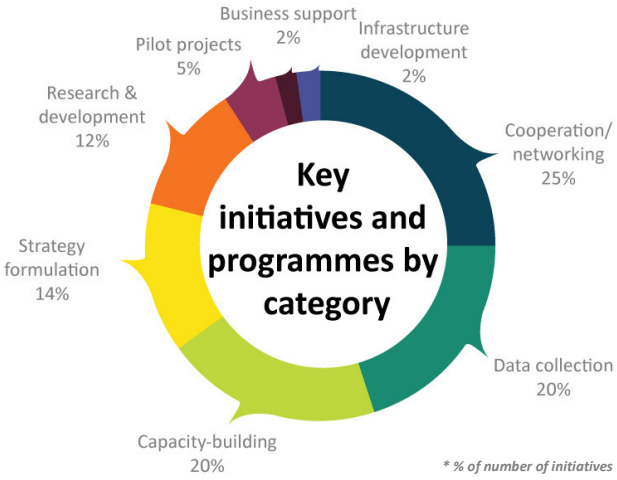
This section briefly highlights key cooperation initiatives in the Black Sea region, focusing on sectors, categories of initiatives, and the beneficiaries of those initiatives.



Cooperation initiatives often have a strong **environmental** focus reflecting a strong historical concern about the environmental health of the Black Sea. Whereas older environmental programmes focused strongly on fisheries and water quality, more recent environmental projects have continued to work on water quality and have increasingly concentrated on inland waterway management, flood defences, habitat restoration, shared environmental information systems, and disaster risk reduction. Among the completed projects, the MONINFO project on Monitoring and Information Systems for Reducing Oil Pollution can be seen as a model of good cooperation between all the littoral states, which joined efforts and worked together to reduce/eliminate oil pollution in the Black Sea.

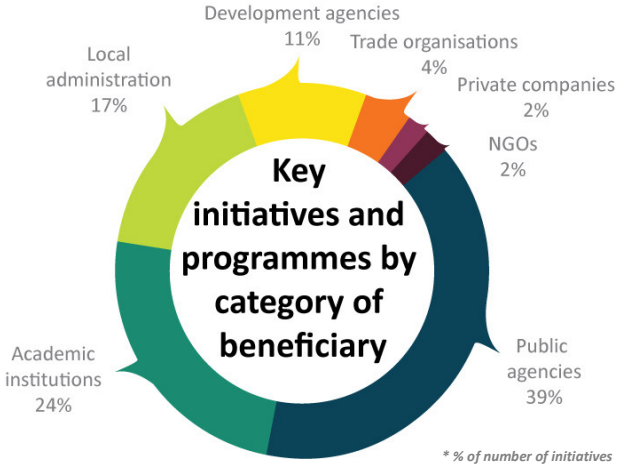
The **transport** initiative, TRAnsport Corridor Europe–Caucasus–Asia (TRACECA) Programme, which began in 1993, contributes to transport cooperation in the Black Sea region. The TRACECA Project - Transport Dialogue and Networks Interoperability II, which started in January 2013, aims to facilitate regional cooperation in the field of transport and promote effective dialogue among the partner countries and the EU.

Romania, and to a lesser extent Bulgaria, also has or has had several **general development** projects with maritime components. These tend to be long term (looking as far ahead as 2030), with a cross-sectoral focus on inland and marine transport and associated infrastructure development, gas field development, and coastal tourism.



Fisheries initiatives generally involve all Black Sea countries including, rather surprisingly, the non-riparian countries (Moldova, Armenia, and Azerbaijan). In most cases, these are short-term (i.e. less than 5-year) initiatives focusing on capture fisheries rather than aquaculture. **Tourism** initiatives are mainly national rather than sea-basin projects. Among the completed projects in the tourism sector, the Bulgaria-Turkey IPA Cross-border Cooperation Programme can be mentioned as a good example. Most of the few maritime development initiatives in the Black Sea have been, or are, focused on developing **sea-basin cooperation and networking**, especially in the areas of transport network development, fisheries, energy development, and habitat protection.

Data collection focuses mainly on environmental monitoring at the sea-basin level, while **research and development** programmes tend to concentrate on marine environment and fisheries research. Aligned with the Europe 2020 growth and job creation strategy the ERA-NET scheme is an important support for different research activities. The remaining intervention areas, **pilot projects**, **business support**, and **infrastructure development** tend to be national programmes, with less emphasis on sea-basin cooperation.



Overwhelmingly, the organisations that benefit most from these initiatives are national **public sector** institutions/organisations. Where such organisations are involved, there is no obvious pattern across different sectors, although tourism appears to be poorly represented. **Local administrations** are also reasonably well represented, mainly in the environment and transport sector. They are less involved in centrally run sectors such as fisheries and energy. There is little involvement of **trade organisations**, **private companies**, or **NGOs** in these initiatives, which possibly reflects the nature of the funding programmes and their eligibility rules, which generally target public sector/non-profit institutions.

4. Areas of cooperation for achieving Blue Growth

Several intergovernmental organisations operate in the Black Sea region – the **Black Sea Commission (BSC), Black Sea Economic Cooperation (BSEC), Danube Commission (DC),** and the **General Fisheries Commission for the Mediterranean (GFCM)** – to support economic development in diverse maritime sectors, including transport, energy security, sustainable fisheries, and environmental protection. The **Balkan and Black Sea Regional Commission (BBSRC)** under the umbrella of the Conference of Peripheral Maritime Regions of Europe (CPMR) aims to encourage dialogue and cooperation between regions and strengthen interregional cooperation. It seeks also to develop joint projects in sectors such as transport, the environment and economic development.

The cooperation between SMEs in the region is promoted by the **International Network for SMEs (INSME)** and the **Black Sea Trade and Investment Promotion Programme (BSTIP).** Organisations that support better governance, effective civic sectors, independent and professional media development, and provide assistance include the **Black Sea Trust for Regional Cooperation –** the **German Marshall Fund** and the **Black Sea NGO Forum,** which brings together approximately 170 representatives from civil society organisations from the Black Sea region.

4.1 Coastal tourism

Currently, coastal tourism is a significant economic sector in terms of tourist flows and income generated, among other maritime activities, in Bulgaria, Turkey and Romania. The Crimean peninsula, the regions around Sochi and Batumi are also well established tourist destinations, however, compared to neighbouring sea-basin areas such as the Aegean and the Mediterranean it is less developed. The Black Sea could be an attractive destination for tourists from all over the world, however, this potential has not yet been fully developed, because of limited resources, insufficient transport infrastructure, inadequate tourist facilities, and poor quality of services.

4.2 Energy

Currently, the Black Sea is not a major oil and gas production region; however, unexploited oil and gas reserves within Romanian, Georgian, Bulgarian and Turkish waters might be substantial. The Black Sea is a significant oil and gas transportation channel linking the Caspian region and Central Asia with the EU. Today, the sector is characterised by the proliferation of pipelines and oil terminals in the Black Sea and increased offshore activities for exploration and exploitation of hydrocarbons.

Apart from existing bilateral agreements, such as those between Russia and Bulgaria, or Russia and Turkey, cooperation in the field of energy is also related to the *Baku process,* which acknowledges the role of the INterstate Oil and GAs to Europe (INOGATE). The transport of crude and refined products affects the development of the maritime transport sector in the region. The main ports in the Black Sea, Novorossiysk, Poti, Bourgas, and Varna, include oil terminals, of which more are planned in the riparian countries, despite the environmental consequences including increased risk of accidental spills and threats to marine biodiversity.

4.3 Environmental protection

Owing to natural factors, the diversity of fauna in the Black Sea is less than that in the Mediterranean. Specific features of the Black Sea make it vulnerable to disturbances to its environment and ecosystems. Eutrophication, pollution, and irresponsible fishing have resulted in an overall decline in biological resources, in the diversity of species and landscapes, and in the aesthetic and recreational values of the Black Sea, thereby bringing its ecosystems to the brink of collapse.

Oil spills, heavy metals, sewage, litter, and the ship-borne introduction of exotic species are the major causes of environmental degradation in the Black Sea. The transboundary nature of different environment pollution risks emphasise that coordination across the Black Sea basin would improve monitoring and management. There are visible changes in the Black Sea ecosystems, and the relatively low-lying nature of much of the Black Sea coast places large areas at risk of increased flooding. Mitigation to combat climate-change issues such as the increase in invasive species and the creation of marine protected areas to protect vulnerable species and habitats requires transboundary cooperation. There is a need to further sea-basin cooperation to support coastal/marine ecosystem conservation and marine protected areas management. This would facilitate coexistence and prevent conflicts between competing economic activities in marine waters and coastal areas.

Tackling these issues will enhance the environment, but also encourage the development of marine and maritime economic activities that depend directly on a healthy environment: fisheries, aquaculture, and tourism. It will also enhance ecosystem services for the benefit of the wider Black Sea community. National efforts and cross-border cooperation should play a major role in these endeavours.

The Commission on the Protection of the Black Sea Against Pollution (the **Black Sea Commission**) was established to implement the Convention on the Protection of the Black Sea Against Pollution. The Contracting Parties to the Convention are Bulgaria, Georgia, Romania, Russia, Turkey, and Ukraine. The EU wishes to become a Contracting party, thus bringing its institutional role in line with its substantial contribution towards environmental protection in the Black Sea region. Among the main functions of the Commission is the promotion of scientific and technical research. The work programme of the Commission includes implementation of the Black Sea Strategic Action Plan (2009), coordination with national and regional projects/activities, and with international financing agencies.

An intact, functional, and attractive environment has the potential to underpin long-term Blue Growth on several levels. Capture fisheries, aquaculture, coastal tourism, and several other activities all depend on good seawater quality, whereas others, such as short-sea shipping and inland waterway transport depend on stable hydrology. The sustainable and balanced long-term growth of marine and maritime economic activities also requires integrated coastal zone management. It is essential that this area is included in a policy framework. Key requirements are:

- Further developing the use of national and transboundary maritime spatial planning and coastal zone management for environmental conservation, including greater use of coastal and marine protected areas and restricted use zones;
- Further focus on correct implementation of commitments undertaken under the Bucharest Convention;
- The need to urgently address issues such as environmental impacts of shipping and of oil and gas related activities (exploration, exploitation, transport), where effective regional coordination is an essential component of any solution;
- Developing renewable energy in the Black Sea littoral states as part of global renewable energy targets and linking the relevant Black Sea forums with European Technology Platforms (ETPs) on Renewable Energy, with due consideration of environmental aspects;
- Supporting the development of common standards for project-specific environmental impact assessments (EIAs) and strategic environmental assessments (SEAs), and improving the capacity for their scrutiny and use in planning.

As with environmental protection, ecosystem monitoring has developed strongly at the sea-basin level over the past decades. However, it is also essential to be included in any policy framework. Key requirements are the:

- Development of interoperable, common standards;
- Development of cost-effective data collection that utilises an optimal mix of remote sensing, dedicated data collection, and routine data collection by stakeholders, e.g. the fishing, shipping, and tourism industries;
- Provision of equitable access to data and analysis.

The semi-isolated Black Sea is highly susceptible to climate-driven environmental changes. The Black Sea is warming, both at the surface and at deeper layers; the sea level is rising slowly but constantly. Climate-change policy areas to be included in any policy framework could include the following:

- Building resilience to climate change, specifically identifying barriers to progress and where increased co-operation and collaboration can be facilitated;
- Promoting innovation and green entrepreneurship in climate change mitigation and adaptation measures.

4.4 Fisheries

In the Black Sea region, there are only a few commercially important species, e.g. the small pelagics, anchovy, sprat, and horse mackerel; demersal fish species are subject to stricter regulations aimed at restoring depleted stocks, but they (e.g. turbot) are often the target of poaching. Bottom trawling and rapana dredging are among the most destructive fishing practices in the region.

Overfishing remains the most significant threat to Black Sea marine living resources. A drop of more than 40% in landings during the past five years may be the result of significant changes in the structure and function of the marine ecosystem, but equally may be the result of a high fishing effort. Climate changes resulting in abnormalities in water mass stratification, circulation, and temperature have driven changes in fish behaviour (mainly anchovy, sprat, and dogfish) in certain areas and have led to the complete extinction of certain species in some fishing areas (e.g. sprat, dogfish, and whiting in Georgian waters). There is also a massive agglomeration of jellyfish.

The **General Fisheries Commission for the Mediterranean** aims to promote the development, conservation, rational management, and optimal utilisation of living marine resources, as well as the sustainable development of aquaculture in the Mediterranean, Black Sea, and connecting waters. The GFCM adopts binding recommendations for fishery conservation and management in its convention area and thus plays a crucial role in fishery governance in the region. The EU actively participates in GFCM work, where it represents Bulgaria and Romania on the strength of its exclusive competence in fisheries management matters.. The GFCM also executes cooperation projects at subregional and regional level.

A Memorandum of Understanding between the Black Sea Commission and GFCM has been signed to ensure mutual involvement in promoting an ecosystem-based approach for the conservation of the marine environment and sustainable use of living marine resources. It also urgently addresses the problem of IUU fishing. A roadmap to combat IUU fishing has been drawn up and shows the willingness of different regional organisations to collaborate on both environmental and fisheries issues.

4.5 Transport

The development of a transport network has been identified as a priority for the Black Sea to stimulate economic relations in the region. The construction of ports, railroads, highways, and other facilities should be accelerated to expedite the flow of passengers and goods. The Black Sea lies between two of five major transnational axes in the European neighbourhood: the Central Axis including the northern Black Sea (linking Central Europe to Ukraine) and the

South–Eastern Axis including the southern Black Sea (linking the Balkans, Turkey, Caucasus, and the Caspian region). Drawing on these existing processes, three regional priorities can be identified in the field of transport:

- *Infrastructure:* future investments should be consistent with the projects identified for the Central and South–Eastern Axes and the Eastern Partnership Transport Network, which links Moldova, Ukraine, Georgia, Armenia, Azerbaijan, and Belarus to the EU's Trans-European Transport Network;
- *Interoperability:* approximation of standards; lowering of non-physical barriers to transport (notably on safety of transport modes);
- *Intermodality:* facilitation of transfers from one mode of transport to another (road–rail–sea).

The environmental impact of maritime transport on the ecosystems of the Black Sea and the Danube River is addressed by the **Black Sea Commission**. The Commission works to strengthen interregional cooperation and develop joint projects in such sectors as transport, environment, and economic development. EU projects, such as MONINFO and TRACECA dealing with maritime safety and security also include measures to prevent pollution from shipping.

Partner organisations in the maritime transport sector are the:

- **BSEC Transport Working Group** promotes bilateral shipping agreements, based on the principle of free and fair competition and facilitates transport links between the Baltic Sea, the centre of Russia, and the Azov and Black seas;
- **Black and Azov Seas Ports Association (BASPA)** focuses on intermodal transportation between the Black Sea and the Baltic Sea regions;
- **Association of International Road Transporters (BSEC-URTA)** promotes the development of and the reduction and elimination of barriers to road transport;
- **Black Sea Region Association of Shipbuilders and Ship Repairers (BRASS).** Countries in the region are converting defense shipbuilding facilities to civilian ones, cooperating on technology transfer, and coordinating measures to prevent the emergence of overcapacity in the shipbuilding industry.

4.6 Cooperation between SMEs in the region to support business growth

The **International Network for SMEs** (INSME) is a multistakeholder network to stimulate innovation and technology transfer to SMEs. INSME is a catalyst for North–South and South–South cooperation that encourages partnerships with other international initiatives to avoid overlapping activities and to maximise the flow of information. The **Black Sea Trade and Investment Promotion Programme** works directly with SMEs and their associations in the region to organise networking, matchmaking, and other events.

The cooperation between SMEs in the region needs to be placed in the overall context of supporting business growth. With Europe yet to fully recover from the recent financial recession, public finance for investment in maritime ventures is both scarce and often limited to low-risk developments. This can restrict the ability to raise funds for new and innovative activities, both in established and emerging maritime sectors, such as ship-building, development of port infrastructure, marine aquaculture, offshore wind energy, and marina development. Therefore, it may be necessary to include policy approaches that both free up public finance for Blue Growth, as well as allow the development of more flexible financial mechanisms that could foster investments in more innovative activities. Key requirements are:

- Considering novel financial instruments for the funding of major offshore infrastructure projects such as wind and other marine power generation;
- Developing the capacity of the region's financial institutions and encouraging greater collaboration with the key international financial institutions (IFIs) operating in the Black Sea basin;

- Promoting diverse financial mechanisms that can be used to encourage innovation and to provide incubation facilities for businesses emerging from the R&D stage;
- Promoting the ability of sector-specific and cross-sectoral alliances to prepare strategic development plans that permit better business planning and reduce risk;
- Encouraging the inclusion of the private sector in strategic development;
- Encouraging multi-stakeholder platforms to link public, private, and academic partners when addressing specific sectoral opportunities;
- Giving different sectoral interests the means to collectively explore the synergies, benefits, and barriers to cluster development in the Black Sea basin.

4.7 Data information and knowledge

The lack of reliable marine and maritime data is a key challenge for all sea basins and in particular for the Black Sea. Continued efforts to build capacity and to harmonise data collection and collation is therefore essential. The level of higher educational capacity across the Black Sea basin has been identified as a strength. The problem for Blue Growth is the ineffective linkages between the academic arena and the private and public sectors. With the fast pace of development in the Black Sea basin, capacity development in maritime skills will continue to be a key requirement, and will be needed at several different levels (e.g. to address individual skills, organisational/institutional development, as well capacity at a broader societal level). Key requirements are:

- Reducing the technical and institutional barriers to integrated marine data collection and harmonisation;
- Developing mechanisms to identify current and emerging capacity gaps in blue skill areas, and to develop associated training and other forms of capacity development to bridge these;
- Utilising the approach adopted by the Black Sea Commission and its regional activity centres to identify and develop regional centres of excellence for different disciplines that can be used to disseminate innovative ideas and good practice;
- Promoting sea-basin opportunities for young persons to reduce the regional brain drain in maritime skills and experience.

One key aspect of developing knowledge is the sharing of cultural characteristics of different areas around the sea basin. Although it is important that individual areas retain their unique and characteristic nature and values, it is necessary to build up a sea-basin-level knowledge of the different aspects of coastal communities, natural environment, and cultural heritage to demonstrate the blend that makes up the sea basin as a whole.

4.8 Perspectives on and challenges to Black Sea basin cooperation

Within the Black Sea basin, one of the chief challenges has been the limited cooperation between countries, despite the need for coordinated action at the sea-basin level.

Cooperation between non-EU countries and EU Member States operates largely on a bilateral basis in contrast to EU initiatives in other geographical regions, e.g. the Baltic. In the Black Sea area, sea-basin cooperation is inhibited to some extent by bilateral issues among countries.

The European Union has already made major efforts to stimulate regional cooperation through the Black Sea Synergy**,** adopted in 2007, but has had limited results to date. The EU also supports the various cooperation areas of the BSEC. It is a major source of funding in the Black Sea. Currently, multilateral cooperation between the Black Sea countries and the EU is largely confined to programmes such as the Black Sea Basin Cross-Border Cooperation programme, FP6, FP7, Horizon 2020, and sectoral initiatives, such as the INterstate Oil and GAs to Europe (INOGATE), the TRAnsport Corridor Europe-Caucasus-Central Asia (TRACECA), and the Black Sea Pan-European Transport Area (PETrA). This suggests that there is scope for the EU to promote deeper sea-basin cooperation for the Black Sea region as a whole.

Besides, greater involvement of local and regional authorities, academia, and civil society would certainly strengthen sea-basin cooperation, build trust and confidence in the region, and reflect positively on the investment climate, thus improving the overall competitiveness of the region. Good governance, education, science, and technology also require region-wide efforts to be continued.

Past initiatives have focused mainly on public sector agencies and academic institutions, while direct interaction with businesses and trade organisations has been limited. It has been suggested that future cooperation within the Black Sea basin should increasingly be driven by public-private partnerships as well as by improving business-to-business linkages. This could both stimulate the development of more efficient supply chains and allow greater sea-basin cooperation in sectors that have historically developed more through national efforts than cross-border cooperation, e.g. coastal tourism, shipbuilding and repair, and the development of recreational maritime facilities such as marinas.

Currently, maritime spatial planning does not exist in the Black Sea basin as a whole nor in the EEZs of many Black Sea coastal states. Integrated coastal-zone management is applied partially and inconsistently. This affects the ability to integrate local development processes across different sectors. Key requirements are the:

- Development of stronger institutional coordinating mechanisms, especially between national and local authorities;
- Provision of stable financial resources to support innovative, transparent, and robust local development, through EU Structural and Investment Funds well as from other sources available in the region;
- Linking of maritime spatial planning and infrastructure development strategic planning;
- Exchange of information to drive innovation in smart infrastructure development.

The uncertain security environment and difficult socio-economic conditions as well as the negative effects of the financial and economic crisis are the major challenges to be addressed in the region as a whole. Different issues of common interest, such as biodiversity conservation, environmental protection, and integrated coastal-zone management, must be given increased attention with a view to cultivating a shared feeling of responsibility. Programmes linking economic, social, and environmental issues need to be rapidly conceived and implemented. Maritime spatial planning and integrated coastal-zone management practices, for example, are still only in the inception phase in the region.

Existing bilateral and sectoral partnerships can address the immediate opportunities and challenges in the individual countries, while ambitious multilateral coordinated actions with a cross-sectoral perspective are needed to address strategic issues, and create a shared vision of development in the region.