

Countries and regions

Black Sea region



Brief introduction

The Black Sea region has become an area of particular interest to the European Union (EU) not only due to the accession of Bulgaria and Romania but also because it is a transit area for oil and gas resources from Russia and the Caspian Sea. Due in part to its strategic importance, the area is also subject to political conflicts and tension as currently observed in Ukraine. The area covers two EU Member States, Romania and Bulgaria, and one candidate state, Turkey. It also includes the Russian Federation, as well as a number of countries covered by the European Neighbourhood Policy: Ukraine, Georgia, Moldova, Armenia and Azerbaijan.

The Black Sea has distinctive natural conditions, with over 90% of its deeper water volume consisting of anoxic water^[1]. The interaction between the oxygen rich surface waters and the Black Sea's deeper areas tends to be limited. This leads to a layering structure being created which affects the diversity of the organisms within the Black Sea.

The Black Sea's catchment area is very large, with a total surface area of around 2 million km², five times the surface of the Black Sea itself. Some of Europe's longest and largest rivers flow into it including the Danube and the Dnieper. The population living around the Black Sea coast is unevenly distributed and includes over 12 million inhabitants in the metropolitan area of Istanbul; two large cities Odessa (Ukraine) and Samsun (Turkey) each with 1.2 million inhabitants; and several smaller cities with 300 000 to 450 000 inhabitants each: Constanta (Romania), Trabzon (Turkey), Sochi (Russia), Varna (Bulgaria), Sevastopol (Ukraine) and Novorossiysk (Russia).

The Black Sea ecosystem has been the subject of intense scrutiny^[2]. Changes to its ecosystem during the last 50 years clearly indicate its vulnerability to the anthropogenic effects. Marine resources in the Black Sea have declined due to over-fishing, unplanned development of coastal zones and intense maritime traffic. Meanwhile unique terrestrial ecosystems, such as those in the Caucasus region, the Danube Delta and the East Carpathians are also under threat^[3].

The Black Sea Convention^[4] (BSC) provides a regional cooperation framework to protect against pollution. It entered into force in 1994. Following the accession of Romania and Bulgaria to the EU, the Black Sea became the focus of various EU policies, both thematic (e.g. Fishery, Integrated Coastal Zone Management (ICZM), Marine Strategy Framework Directive (MSFD), Water Framework Directive (WFD), Habitat and Birds Directives); and horizontal such as Environment Impact Assessment/Strategic Environment Assessment (EIA/SEA), access to environment information, control of major-accident hazards involving dangerous substances (SEVESO)^[5].

In 2009, an updated Black Sea Strategic Action Plan (BS SAP) for the Rehabilitation and Protection of the Black Sea^[6] was adopted by all coastal countries. Based on an ecosystem approach and coherent with MSFD provisions, the plan aims to resolve transboundary environmental problems. It contains 'realistic' targets, including legal and institutional reforms, as well as suggestions as to the necessary investments to solve the main environmental problems identified by the Black Sea Transboundary Diagnostic Analysis (BS TDA) report published in 2007.

The key transboundary challenges of the Black Sea region are as follows:

- eutrophication/nutrient enrichment;
- changes in marine living resources;

- chemical pollution (including oil); and
- biodiversity/habitat changes, including the introduction of alien species.

These four priority areas have also been acknowledged and analysed in the context of the last State of Environment Report for the Black Sea^[7] released in 2008. Since this report has not been updated, it is difficult to assess recent progress in relation to the aforementioned challenges. Moreover, the monitoring activities behind the data used are not systematic, and in some cases not comparable between institutions and countries, with some important parameters yet to be measured.

A number of projects have been put in place to address these and other issues — an overview of the most recent and relevant projects is presented in Table 1.

Table 1. Recent Black Sea environment-related projects

Period	Ongoing projects	Topic	Donors
2009-2011	BlackSeaScene	On-line access to in-situ and remote sensing data, meta-data and products	EU
2009-2010	MONINFO	Monitoring and reduction of oil pollution in the Black Sea. See also:  Presentation, MONINFO Project.	EU
2009-2013	EnviroGRIDS	Building Capacity for a Black Sea Catchment Observation and Assessment System supporting Sustainable Development and contributing to Global Earth Observation System of Systems (GEOSS)	UNEP-ICPDR
2009-2014	MSFD Project	Harmonisation with the Marine Strategy Framework Directive	EU
2010-2014	PEGASO	Integrated Coastal Zone Management (ICZM)	EU
2010-2014	SEA-ERA	Integrated Marine Research Strategy and Programmes	EU-ERA-NET Scheme
2011-2013	Baltic2Black	Focusing on nutrient pollution and eutrophication, through transfer of related existing best practices from other regions, in particular the Baltic Sea	EU
2011-2014	CREAM	Ecosystem approach to Fisheries, management advice in the Mediterranean and Black Sea	EU
2012-2016	CoCoNet	Marine protected areas coupled with sea based wind energy potential	EU
2012-2015	PERSEUS	Assessing the dual impact of human activities and natural pressures on the Mediterranean and Black Seas	EU
2012-2014	MISIS-MSFD	Black Sea integrated monitoring system	EU Ministries of Environment in selected countries
2013-2014	EMBLAS	Improving Environmental Monitoring in the Black Sea and strengthen the capacities of Georgia, Russian Federation, Ukraine for biological and chemical monitoring of water quality in the Black Sea, in line with EU water related legislation	United Nations Development Programme (UNDP) and the joint EC/UNDP Project

What are the main problems/threats related to the Black sea region

Land-based sources are the biggest polluters and account for more than 70% ^[8] of all pollution. Eutrophying^[9] nutrients, which enter the sea through rivers, are one of the worst pollutants. Meanwhile, nutrients coming from the Danube River (mainly nitrates) remain significant but stable during recent years ^[10].

Oil pollution in the Black Sea remains an ongoing concern along major shipping routes and in coastal areas around river mouths, sewage outputs, industrial installations and ports. There is no evidence of significant heavy metal, pesticides and other persistent organic pollutants in surface waters, although elevated levels of these substances can be found around industrial centres, large cities and ports ^[12].

The wider Black Sea area is becoming increasingly important for energy production, transportation and distribution. The role of the Black Sea region, as a transit route of major oil and gas exports, is expected to increase as are the risks associated with these activities, such as oil spills, or accidental pollution. Around 50 000 ships sail through the Bosphorus every year, including at least 10 000 oil tankers ^[13]. Several Black Sea ports in Russia and Georgia are terminals for oil and gas pipelines from the Caspian Sea. While bringing jobs and economic development, the increase of oil transport/transit and handling operations, if not regulated and systematically monitored, could put additional pressure on the already fragile ecosystem of the region.

There are considerable stocks of hydrogen sulfide and gas/oil available in the depth of Black Sea which serve to underline the increased economic significance of the region. The full-scale extraction of some of these resources will require the development of new and more complex technologies. In addition, the long-term impacts of such large scale activities will have to be carefully assessed given the potential consequences on the marine ecosystem.

The fish stock has deteriorated dramatically over the past three decades. The diversity of commercial fish caught has decreased over this period from about 26 species to 6. The volume of fish caught has actually increased, despite a near collapse in 1990. This is almost entirely due to significant anchovy fishing by Turkey, accounting for almost 80% of the total catch ^[14]. The main factors behind the decline of fish stocks are: changes to the ecosystem as a result of eutrophication; the arrival of alien species and overfishing. Illegal fishing in the Black Sea is rapidly increasing^[15], affecting both the marine biodiversity as well as economic activities in the region, in particular the fishing industry ^[16].

The introduction of alien species, for example the rainbow comb jelly fish (*Mnemiopsis leidyi*), has severely affected the marine biodiversity ^[17]. The majority of these alien species reached the Black Sea via shipping activities (ballast water) or through migration from the Mediterranean Sea, possibly as a result of climate change. Some were even introduced through aquaculture activities. Ballast water continues to be discharged into the sea despite existing national regulations ^[18]. Russia has been party to the ballast water management convention ^[19] since 2012 and Turkey is in the final stages of ratification. This global convention is not yet in force^[20].

What are the main policy responses to key challenges / environmental concerns in relation to these issues?

There are two key problems concerning the Black Sea region and its environmental problems. The implementation of commitments derived from the existing legal framework remains problematic and the adoption of new instruments is moving at a slow pace. Implementation is also related to the quality of the reporting by countries, underpinned by dedicated monitoring systems and strongly dependent on national priorities and funding. In the absence of a compliance instrument under the BSC, national reporting is at the behest of each coastal party leading to a 'piecemeal' assessment at regional level.

The 2009 BS SAP contains short, medium and long term targets as well Ecosystem Quality Objectives (EcoQOs) necessary to solve the main problems identified in the 2007 BS TDA. Furthermore it is grounded on a modern ecosystem approach in line with the requirements of the MSFD. It proposes indicators to assess progress and identifies a realistic time frame for achieving various objectives against key challenges. In spite of all these positive developments, the implementation is lagging behind. Some efforts are made by coastal countries such as Romania and Bulgaria, but are primarily driven by compliance to EU legislation (MSFD, WFD, etc.) rather than by the provisions of the SAP.

The management of the fish stocks in the Black Sea requires both strengthening of the regulatory and legal framework as well as regional harmonisation. The six coastal states have been unable to conclude a joint fisheries agreement. Moreover, no assessment of the fish stock for the entire basin has taken place.

What are the main challenges ahead?

Improved governance and speeding-up the implementation of existing commitments remain two key challenges for the Black Sea region. The BSC and its secretariat have been in operation for 20 years. Improvements are still needed for a better linkage between policies and the underpinning knowledge base in order to stimulate implementation. Strengthening the BSC secretariat and equipping it with additional human and financial resources remains a priority. Cooperation and regular information exchange between the Danube River Convention^[21] and the BSC needs to be reinforced ^[22].

Concerning membership to the BSC, it is essential to continue strong EU engagement including eventual EU accession to the convention, which will help reap important benefits for the environment in the same way that EU participation has done in the Baltic and Mediterranean Conventions. This membership would strongly help facilitate strengthened cross-fertilisation between regional and EU relevant policy frameworks and accelerate the implementation of agreed targets with support from various programmes and instruments ^[23]. Considering the current political context in the region, the BSC and its secretariat have a crucial role to stimulate closer cooperation and dialogue between all coastal countries and participating networks and to monitor the implementation of the agreed commitments.

In parallel, full implementation of the MSFD and WFD by Romania and Bulgaria, followed gradually by Turkey, will, among other policies, have a direct impact in regulating land based pollution and contribute to achieving the objective of 'good water status' for the Black Sea. Nonetheless, the challenge remains in encouraging Ukraine, Russia and Georgia to meet this objective. Available EU instruments and initiatives, as for example the Black Sea Synergy, could be better focused to target these policies and support gradual harmonisation. The signature of enhanced EU association agreements with Georgia, Ukraine and Moldova in 2014, may well represent the ideal opportunity to accelerate this process.

The adoption of a dedicated fishery convention or protocol under the Black Sea Convention, under negotiation over the past 20 years ^[24], will hopefully create a coherent and sustainable framework for the management and conservation of the shared fish stock, grounded on common evaluation and assessment of the available resources. To reduce the risk of introducing/or reintroducing alien species in the Black Sea ecosystem, the ratification and implementation of the International Maritime Organization Convention on ballast water management by all coastal states remains essential. This need to be combined with an improved implementation of existing regulations in the field at individual country level.

SOER 2015 regional briefings provide an overview of state of the environment across three regions, identified as priority areas in the EU's 7th Environmental Action Programme. They are part of the EEA's report SOER 2015, addressing the state of, trends in and prospects for the environment in Europe. The EEA's task is to provide timely, targeted, relevant and reliable information on Europe's environment.

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