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Baba, Cape – is the westernmost point of [Anatolian](#) part of [Turkey](#), making it the westernmost point of whole [Asia](#). There is a [lighthouse](#) at Cape Baba. It was called Cape Lectum in classical times.

Babugan-Yaila – the highest massif in the main Ridge of the Crimean Mountains (Mt. Roman-Kosh, 1,545 m). Quasi-plateau surface is structured by limestones. The southern slopes are covered with pine-oak woods, northern—by beech forests. At the foot of B.Y. Gurzuf and Alushta villages are located.

Bacescu Mihai (1908–1999) – outstanding Romanian hydrobiologist. Academician Professor Mihai Bacescu was born on March 28, 1908 in Brosteni, Suceava, northern Romania. His academic career began in 1928 when undertook 4 years of study at the Faculty of Biology in Iasi. During the next 6 years (1932–1938) he stayed at Agigea on the Black Sea where he dedicated his studies and research to marine biology at the Marine Biological Station, which was founded in 1926 by his advisor, Professor Ioan Borcea. This period was his first exposure to the sea and had a profound effect on his career. His doctoral dissertation, which was dedicated to the study of Romanian Mysidacea, epitomized his research at Agigea. He returned to Iasi and had a short university career during which he quickly became chair of the Department of Animal Morphology.

Soon afterward, he was nominated for a scholarship in marine biology in France (Roscoff, Banyuls-sur-mer, Paris) and Monaco by his supervisor, Professor Paul Bujor and the renowned Romanian biologist Emil Racovita, who in 1939 founded the discipline of biospeleology. In France he became highly respected by his French colleagues and carcinologists, who recognized his aptitude and talent in the study of Crustacea. In 1940 Dr. Bacescu came to Bucharest to accept an appointment as a department head, a position equivalent to professor, at the Grigore Antipa Museum of Natural History, which was founded in 1834 and was, and still remains, the premiere institution of its kind in Romania. During the next 48 years, he served the museum as a scholar, researcher, and adroit administrator.

In 1964 he was appointed director of the Grigore Antipa Museum of Natural History, a position he held with distinction until his retirement 24 years later. As

director, his innate talent, enthusiasm, imagination and educational and research expertise, allowed him to transform the museum into an internationally known and respected scientific and educational institution. Because of his vast knowledge of crustaceans (especially in the study of crustacean taxonomy and systematics), a renowned Romanian school of carcinologists developed during his tenure at the museum. Under his adept tutelage, his students undertook the study of a variety of different crustacean groups (Copepoda, Ostracoda, Mysidacea, Isopoda, Tanaidacea, Cumacea, Euphausiacea and Decapoda). Many of them became well-known specialists. After his retirement in 1988, he has served the museum as emeritus director, researcher and mentor until his death.

Prof. Bacescu also made a major and lasting contribution to the development of Romanian oceanography at Constantza on the Black Sea where he helped train and educate many important specialists at the Romanian Marine Research Institute. His pioneering oceanographic work on the ecology and faunistics of the Black Sea established the foundation for much of Romania's many contributions to the biological oceanography of the region.

He was elected to the Romanian Academy in 1964 and became a full member in 1992. Prof. Bacescu has served on the boards of many prestigious foreign organizations and scientific review panels. He also has received many international presentations and awards in recognition of his achievements in research and academia. During a long and productive scientific career spanning over 60 years, Prof. Bacescu published over 300 articles and monographs, most of which dealt with the taxonomy and systematics of marine malacostracan crustaceans.

Bafra – small Turkish town situated 20 km from the Black Sea and on Kizilirmak River delta, 51 km from [Samsun](#). As a settlement, Bafra dates back to the fifth millennium BC. Population—85,000. Ruins of medieval mosque, bath-house, fortress. Water-melons and tobacco are grown.

Bafra Cape – sited to the north-west of Samsun City, Turkish Black Sea coast. The cape definitely juts out into the sea, low-lying, overgrown with wood that comes to the shore closely. Beaches stretch south-west and south-east of it. A light-house is installed 1 mile south-west of the cape.

Bafra Lake – a drainage lake sited on the left arm of the Kizilirmak River on the Turkish Black Sea coast.

Baida – sail fishing boat designed for fishing with a seine, dragnet and other devices. Was in common use on the Black Sea and Azov Sea. Length 6–7 m, width 1.7–2 m, board height 0.7–0.9 m, draught around 0.5 m, tonnage under 3 tons, crew 3–5 persons.

Baidarskaya dolina (valley) – basin in the south-western part of the Crimean Peninsula on the Chernaya River. Length around 16 km, width from 6 to 8 km. The slopes of surrounding uplands (under 500 m in height) are covered with arboreal and shrub vegetation, in the valley—fields, gardens, vineyards. The highway Yalta—Sevastopol runs across B.D. via the Baidarskie Vorota pass.

Baidarskie vorota (gates) – pass over the main ridge of the Crimean Mountains from Baidarskaya valley to the Black Sea coast. Height 739 m. Built in 1848 and are famous for their extremely dramatic position. The gates are on the very edge of a precipitous rock, almost a seaward escarp. Immediately beyond the gates, there is an imposing view of the Southern Coast of the Crimea (SCC) and the Black Sea.



Baidarskie vorota: View on the Russian Church and coast of the Black Sea (Photo by Dmytro Solovyov)

Bakalskaya Spit – sited on the north-western coast of the Black Sea, covers Karkinitzky Bay on the south-west. Embraces with a semi-ring the shallow-water Bakalskaya Bight. The spit's extreme point is Peschany Cape. Natural monument of local significance that includes the spit, Bakalskoe Lake and offshore marine complex. B.S. is of interest as a natural standard of forming a salt lake of marine origin.

Bakalskoe Lake – sited on the wide foundation of Bakalskaya Spit. Shallow-water brackish lagoon separated from the Black Sea by a sand spit. Bottom slopes are small, the bottom is covered with silt exhibiting health-giving properties.

Bakhchisaray – village (Turk. *Bahçesaray*—“*Garden Palace*”), situated between Simferopol and Sevastopol, Ukraine. Emerged to succeed the classical colonies Badathion and Palakion. Sited in the valley of the Churuk-Suv River (“Putrid water”)—tributary of the Kacha River. Built early in the sixteenth century by the

Khan Mengli-Girei as residence of the Gireis. Mentioned for the first time as B. in 1502. Former capital city of the Crimean Khanate (early sixteenth–late seventeenth century). Thanks to the efforts of the Gireis, by seventeenth to eighteenth century B. turned into a flourishing city, a recognized center of merchants and artisans in the mountainous Crimea. There used to function a water conduit facility that supplied water to 150 water wells as well as to fountains, bath-houses, to the houses of the well-to-do city dwellers. Waste waters were used for irrigation. Bazaars were so numerous they were grouped on the basis of the prevalent goods—bread, vegetables, pickles, etc. Until now there exists the Khan's Palace elegized by Russian famous poet A.S. Pushkin. The palace was built early in the sixteenth century by the Khan Adil-Sahib-Girei, in 1736 it was burned down, built anew in the 1750s, partly remodeled by the Prince G.A. Potemkin for the arrival the Russian Empress Catherine II in 1787, was renovated in 1837 and 1857. The palace included several palatial buildings, a harem, the hall of the council and court, Falcon tower, a mosque and gardens. In B. Bakhchisaray Peace of 1681 between Russia and Turkey was concluded. During the Russian-Turkish war of 1735–1739, B. was seized by the Russian troops under the command of B.K. Minikh and was seriously demolished. In 1783, annexed to Russia, included in Novorossiisk Province, from 1902 was made part of the Province of Tavria.

Population at the end of the eighteenth century—around 6,000 people, in 1897—12,900 people (mainly, Tatars as well as Greeks, Armenians, Russians and others). Morocco leather, rifles, leather articles, soap and other products were fabricated in the city. The population grew vegetables, cultivated tobacco. The city has 35 mosques, 3 Russian Orthodox churches, 1 monastery, a synagogue, 2 Muslim religious schools (madrasahs). In B. environs, there are ruins of the medieval cave fortress city Chufut-Kale (was established in the fifth to sixth centuries, early in the sixteenth century experienced a decline, by mid-nineteenth century—was in a state of neglect), as well as the cave cities Eski-Kermen (end of the fifth to thirteenth century) and Tepe-Kermen. There is the Assumption monastery (fourteenth century) near B.

At present, B. is the center of Bakhchisaray Region of the ARC, Ukraine. Population 33,800 people. Railway station on the line Lozovaya-Sevastopol.



Bakhchisaray (<http://ua.vlasenko.net/bakhchysarai/p1010088.jpg>)

Bakhchisaray Peace of 1681 – Treaty of Bakhchisaray between Russia, Turkey and Crimean Khanate establishing a 20-year truce. Concluded on 13 January 1681 at Bakhchisaray. Terminated the Russian-Turkish war of 1676–1681. For the B.P. to be approved by the Sultan, a Russian Mission was sent to Istanbul in 1631 with a commission to gain the frontier along the rivers Tyasmin, Ros and Ingul, obtain Sultan's recognition of Zaporozhye as a Russian possession and push through prohibition for both the parties to settle the area between the rivers Dnieper and Bug. In the ratification instrument handed over to the Russian side in March of 1682 the Turkish terms were listed: 20-year truce; frontier to run along the Dnieper, except Kiev and Cities of Vasilkov, Tripolye, Staiki and others that remained in possession of Russia; the Russian government was not allowed to build cities (fortresses) on either side of the Dnieper; the Russian nationals were free to procure firewood and salt on the Turkish side of the Dnieper; the dwellers on either side of the Dnieper were free to settle where they wished; the prisoners of war were exchanged; Russian pilgrims were allowed to travel to Jerusalem. Russia accepted the Turkish terms. The crucial achievement of Russian diplomacy was recognition by Turkey of Kiev and its environs that belonged to Russia.

The Crimea and Turkey recognized the reunification of the Left-bank Ukraine with Russia. Kiev and the adjoining small locations in the Right-bank Ukraine were included in the Russian state, too. Under the Treaty, the Crimean Tatars were free to adhere to a nomadic lifestyle and engage in hunting in the southern steppes on either side of the Dnieper, where the Cossacks of Zaporozhye were allowed to fish in the Dnieper and its tributaries as far as the Black Sea. The Sultan and Khan were not to win over the Cossacks to their side. The Russian state recognized Yuri Khmel'nitsky as the Hetman of the Right-bank Ukraine and was expected to pay annual "fisk" to the Khan. The states that signed the treaty undertook not to populate the areas between the Bug and Dniester or build fortifications there. The Sultan of Turkey and Crimean Khan pledged not to assist the enemies of the Russian state.

Balaklava – satellite city of Sevastopol, Ukraine, sited 12 km south-east of it. Population 30,000 people (2003). The city is 2.5 thousand years old. Before the 1941–1945 war, B. was connected with Sevastopol by a tramway line that had been laid in 1926. In 1957, B. became part of Sevastopol. During Sevastopol defense, B. was referred to as Minor Sevastopol. A small city sited in a cozy harbor, whose shores were populated by man from times immemorial. Scholars believe that during the eighth to seventh centuries B.C. the place was settled by Tavr people, subsequently—by Greeks. They believe it was the legendary Lamos—Port of Listrigons, who, according to ancient Greek mythology, were ogres whom Odyssey and his companions encountered during their wanderings. It will be noted that as time went on, in the nineteenth century Greek fishermen came to be referred to as listrigons. Ancient Greeks called the harbor "Symbolon-limen"—"Harbor of omens, symbols". Some researchers tend to relate such an unusual name with the fact that Tavres who used to live here (the Greeks regarded them as blood-thirsty robbers) allegedly used to make fires on the shore and by doing so managed to lure the Greek ships sailing by. When the ships approached, the orges attacked and robbed them, sacrificing the seafarers to their Goddess Virgo, whose temple presumably was on Phiolent Cape. In the first to third centuries A.D. there was a camp of Roman legionnaires here, which is proved by the Temple to Jupiter Dolikhan, protector of Romans, discovered by archeologists during the 1996 excavations, as well as by inscriptions to the Roman emperors carved on the stone, other finds of the Roman period.

In mid-sixteenth century, B. was settled by people from Genoa. They built a fortress and named it Cembalo (Tsembalo, Tsembaldo, sometimes Yamboli, Yamboly)—this way, the Genoese pronounced the Greek word "syumbolon". The fortress served the western outpost of Genoese possessions on the southern shore of the peninsula. In 1475, Cembalo City was captured by the Turks. They named the fortress their way—"Balyk-Yuva"—(Fish's Nest) which subsequently was transformed into B.

At the time of Sevastopol siege during the Crimean War, B. was the base of British troops. Balaklava harbor was used as the base of British fleet that provided all necessary supplies for the army. The British built spacious wharfs here, laid a railway line for steam locomotives linking B. with military positions, laid a subsea cable between St. George's Monastery and Varna, established a wireless communication with London and Paris. On the night of November 2 (14), 1854, the British fleet sustained heavy losses near B. resulting from a catastrophic hurricane and

storm. 34 ships were smashed against rocks and sunk, among them the legendary motor steamer “Prince”, which broke up completely within ten minutes and only six of her 150 crew were saved. On October 13, 1854, the Battle of Balaklava was fought in the valley, not far from B.

The Crimean war over, B. for year remained an out-of-the-way settlement, whose dwellers were mainly preoccupied with fishing, grape-growing. Early in the twentieth century, B. became a rather well-known health-resort. In 1904–1905, the Russian writer Alexander Kuprin lived in B., he was fond of going to the high seas with fishermen for fishing. He wrote a whole cycle of excellent feature articles on B. and its people—“Listrigons”. In 1907, Lesya Ukrainka came to B. health-resort to rest and undergo medical treatment. While in B., she completed the drama “In Puscha”, worked at the poem “Ruthin and Priscille”. A. Griboedov, Adam Mizkievich, V. Zhukovsky, I. Bunin and other writers visited the place, too.

During the years of the Great Patriotic War (WWII), the southern flank of the Soviet-German front ended abruptly near the ruins of the medieval Cembalo Fortress. After the war, Balaklava Harbor was used as a secret submarine base. The world’s first launches of ballistic missiles from a submerged submarine were made from B. area in 1958.

At present, the harbor gradually is being turned into a yacht club. B. places of interest include the Genoese Fortress Cembalo, Twelve Apostles Cathedral (built in 1357), Naval Museum Complex “Balaklava”. The winery “Golden Balka” is in B.



Balaklava: Panoramic view of the town (<http://ru.wikipedia.org/wiki/Балаклава>)

Balaklava engagement – On June 23, 1773, there took place a naval engagement between two Russian ships “Koron” and “Taganrog” under the command of Captain 2nd rank Dutchman I. Kingsbergen and the Turkish squadron of four ships. The Turks were trying to land an assault party in the Crimea near Balaklava but were resolutely attacked by Russian patrol ships at the Crimean coasts. During the hard-fought battle, the Turkish ships were badly damaged and were forced to retreat. B.E.—the first victory of the Russian Navy on the Black Sea. In his report, Kingsbergen left a remarkable note of Russian sailors: “With boys as good as these I would drive the devil himself from hell”.

Balaklava harbor – (Turkish.—“*fish’s nest*” or “*nursery pond*”) is sited to the south of Sevastopol. The ancient Greek name Symbolon-Limne—harbor of

symbols as well as bight (harbor) of Istrigons figures in Homer's "Odyssey". A winding, cozy, picturesque bight, concealed between precipitous rocky mountains and unseen from the Black Sea with which it is linked by a narrow, winding passage. The bight is about 1,500 m long, its width ranging from 200 to 400 m. Before the twentieth century, the bight was famous for its abundance of gray mullet and mackerel. The bight is the suite of Balaklava town.



Balaklava harbor: View on the entrance to the harbor (Photo by Dmytro Solovyov)

Balaklava heights (mountains) – Under this name reference is made in some documents to the mountains sited to the north-east of Balaklava harbor which name was the origin of B.H.

Balaklava storm – extraordinary storm on the Black Sea that occurred on November 14, 1854 in the vicinity of Balaklava. The aftermath was catastrophic: 34 British and French Naval ships were sunk, 1,500 people died, economic damage amounted to Francs 60 million. Among the sunk ships was the famous British Royal Navy HMS "Prince", subsequently named "Black Prince". According to the detailed description of B.S. made by I.A. Ivashintsev and the French hydrographic engineer Keller, the storm had all characteristics of a tropical hurricane. In France, the fleet wreck gave rise to organizing the first regular weather forecast service.

Balaklava wind power station (WPS) – the first in USSR wind electric generating plant set up on Karansky Heights produced electricity in 1931. Theoretical foundations of making use of the wind energy were laid down by the Russian scientist

N.E. Zhukovsky in the second half of the nineteenth century. In 1930, the Central Aerohydrodynamic Institute (TsAGI) designed the Balaklava WPS of 10 kW capacity, at that time Europe's most powerful. A generator with vanes of 30 m in diameter was mounted in a special cage on metal supports as high as 8-storeyed structure. The construction weighed around 9 tons. During the Great Patriotic War (WWII) this unique WPS was destroyed.

“Balaklava” – naval museum complex sited in Balaklava Harbor which was a secret underground submarine base during the Soviet period. The Great Patriotic War (WWII) over, on I.V. Stalin's order the world's only underground harbor with submarine repair works was built here, top-secret facility No. 825. The construction began in the western cliff of Mt. Tavros in 1957. The first stage of the plant (submarine repair base) was commissioned in 1961. The second stage (fuel depots for the storage of petrol, oil and lubricants of 9.5 thousand tons capacity, and the arsenal) was completed in 1963. The plant was assigned the first category of stability in respect of nuclear threat. A combined canal for the entry of submarines and the entire infrastructure of the underground works made it possible to repair and service submarines independently. At the end of 1994, the Russian Black Sea Navy Command makes a decision to discard the submarine base. The last Russian submarine was removed from the harbor in February of 1995, whereupon the underground submarine harbor was fully transferred under the jurisdiction of Ukraine. By order of the Ukraine President (2002), B. became an integral part of the State Naval Museum opened in Sevastopol.



Balaklava naval museum: The underground harbor for submarines. http://ukrtrip.com/uploads/posts/1184696502_dsc05256.jpg

Balchik – a town, the Black Sea port and sea health-resort, sited 50 km north of Varna, Bulgaria. Founded by Greeks in the third century B.C. Initially called Kruna or Krounoi (“City of springs”) because of the local karst springs. In the second century B.C. was renamed Dionysopolis in honor of Dionysus—god of wine and merriment, whose marble statue was thrown out onto the shore during a violent storm. One of the most ancient cities on the Black Sea coast. In classical times, was known as a major center of commerce. Minted its own coins. Got its name from the name of the Bulgarian boyar (nobleman) Balike who owned the area in question in the fourteenth century. Upon casting off the Turkish yoke in 1878, the town was part of Bulgaria. In 1913, following the Second Balkanian War, B. became the property of Romania and remained in its possession until 1940. B. has several small hotels, with rest homes around B. Not far from B., in a location sited on the terraces of the Botanical Gardens of Bulgarian Academy of Sciences, there is the former palace of the Romanian Queen Maria “Quiet nest” (1931–1938). Here over 3,000 plant species grow, more than 600 of these are rare from all over the world. There is also a scenic alpinarium with rare alpine species of plants. Since the port is in the center of the country’s grain production, it specializes in grain transshipment for export. Population—12,000 (2009).



Balchik (Photo by Dmytro Solovyov)

Balchik Tuzla – lake-lagoon, 4 km from Balchik town, Bulgaria. Was produced as a result of the impact of old landslides. Famous for its balneal muds. A balneal

center is here, too. The center offers the treatment of arthrosis and of locomotor system diseases. Numerous hotels. A mineral spring with water temperature of 31 °C.

Balik Lake – lake (34 km²) located 1.5 km from the Black Sea coast in Turkey. Situated in the north-western part of the coast as far Injeburun Cape in the direction of Bafra Cape. Several small rivers fall into the lake in the south-west, the Kumjugaz River, falling into the Black Sea, flows out of the lake. Fishery is important in the lake.

Balkan Peninsula – often referred to as the Balkans is a geopolitical and cultural region of the Southeastern Europe. The region takes its name from the **Balkan Mountains** in **Bulgaria** and **Serbia**. The term “Balkan” itself comes from **Turkish** “*Balkan*”, meaning “chain of wooded mountains”. The Balkan Peninsula is surrounded by water on three sides: the **Adriatic Sea** to the west, the **Ionian, Aegean** and **Marmara seas** to the south, and the **Black Sea** to the east. Its northern boundary is often given as the **Danube, Sava** and **Kupa** rivers. The Balkan Peninsula has a combined area of about 490,000 km². The following countries lie entirely or partially in the Balkans: **Albania, Bosnia and Herzegovina, Bulgaria, Greece, Kosovo, Macedonia, Montenegro, Croatia, Serbia, Italy, Romania, Slovenia, and Turkey**.

The first attested time the name “Balkan” was used in the West for the mountain range in Bulgaria was in a letter sent in 1490 to Pope **Innocent VIII** by Buonaccorsi Callimaco, an Italian humanist, writer and diplomat. English traveler John Morritt introduced this term into the English literature at the end of the eighteenth century, and other authors started applying the name to the wider area between the Adriatic and the Black Sea. Most of the Balkan nation-states emerged during the nineteenth and early twentieth centuries as they gained independence either from the Ottoman Empire or the Austro-Hungarian Empire. Greece in 1829, Serbia, Bulgaria and Montenegro in 1878, Romania in 1878, Albania in 1912, Croatia and Slovenia in 1918. In the twentieth century the Balkans were an arena for the First and Second Balkan Wars (1912–1913), as well as for WWI (1914–1918) and WWII (1939–1945).

The Balkans have a population of 48–71 million depending on whether the Turkish and Italian parts are counted within the peninsula. The region’s principal religions are **Christianity** (**Eastern Orthodox** and **Roman Catholic**) and **Islam**. The Balkans today is a very diverse ethno-linguistic region, being home to multiple **Slavic, Romance, and Turkic languages**, as well as **Greek, Albanian** and others. Most of the states in the Balkans are predominantly urbanized. The largest cities (with population more than 1 mln) are: Istanbul (12.9 mln), Athens (3.1 mln), Bucharest (1.7 mln), Sofia (1.2 mln), Belgrade (1.2 mln).



Balkan Peninsula. <http://bnr.bg/sites/en/Lifestyle/BulgariaAndEurope/Pages/2805sasedski.aspx>

Bar – levee-type silt shoal (spit), made up of clastic or shell deposits, of 100–400 m in length. Is formed in the coastal zone under the impact of sea wave and streams as well as in river mouth due to siltation.

Barabulka – surmullet (*Mullus barbatus*) is a species of [goatfish](#) found in the [Mediterranean Sea](#), [North-East Atlantic Ocean](#) from [Scandinavia](#) to [Senegal](#), and the [Black Sea](#). Length—10 to 20 cm. This is favored delicacies in the Mediterranean and the Black Sea countries, and in antiquity were “one of the most famous and valued fish”.



Barabulka (red mullet) fried in a pan (Photo by Dmytro Solovyov)

Baranov Nikolay Mikhailovich (1836–1901) – Russian Navy officer. Studied at the Naval Cadet Corps. In 1856, promoted to a midshipman. In 1865, the Navy Ministry passed into service with the navy a rifle invented by Lieutenant B. of the Baltic Fleet. In 1860, a boarding pistol made to the specimen of B. was passed into service with the Navy. In 1871, B. was promoted to a Lieutenant–commander and appointed director of the Naval Museum. Published articles on naval tactics, whose provisions on the role of cruisers were obviously ahead of his time and were recognized much later. In 1877, at his own request, B. was sent to the Black Sea Navy as a commander of the ROPiT’s refurbished steamer “Vesta”. In the very first battle with the Turkish armor-plated ship “Fethi-Bulend” “Vesta” turned it to flight. After the battle, B. was promoted to a Captain 2nd rank and was designated Emperor’s Aide-de-camp. I.K. Aivazovsky painted his portrait. Another piece “Battle of the Vesta” steamer with the Turkish armor-plated ship “Fethi-Bulend” was painted by the painter L. Bliniov (currently, an exhibit of the Sevastopol Black Sea Naval Museum). At the end of August of 1877, “Vesta” together with the steamer “Vladimir” transported the wounded and sick soldiers and officers from Gagry to Novorossiisk. In 1877, apparently specially for B., the rearmament of the steamer “Rossia” commenced. The heir—Crown Prince of the Russian Empire (the would-be tsar Alexander III) sacrificed the crew of his yacht for the command of the new cruiser. In December, already on the refurbished cruiser that was sailing near the Turkish coasts around Penderakli (now, Ereğli), B. captured the three-mast Turkish steamer “Mersina” and brought it to Sevastopol. B.’s trophy was rather valuable: besides the captives, money, silver ore, government papers and documents, he brought an excellent, recently overhauled ship. “Mersina” was given the name of “Penderaklia” and was made part of the Russian Fleet. B. was promoted to a Captain 1st rank. In 1878, B. is appointed the commander of the oceanic liner “Rossia” purchased in Germany and converted to a cruiser. In 1881, was conferred the grade of a colonel and was appointed Governor of Kovno town. After the death of Alexander II, B.—the Mayor of St. Petersburg. Subsequently, B. governs Archangelsk Province, in 1882—Nizhegorod Province. B. died in 1901 being a member of the Government Senate. In 1906–1909, the destroyer “Captain Commander Baranov” was built in Nikolaev, its tonnage 800 tons. The destroyer was part of the Black Sea Navy until June 18, 1918 when it was sunk by its crew in Tzemes Bay (Novorossiisk) in pursuance of V.I. Lenin’s order: demolish Russian ships lest they become the trophy of Kaiser Germany.

Barkas – barkaz (Dutch. “barkas”), small sailing or transport vessel widely used on the Black and Azov seas. Yawl furniture, with jib on a short horizontal bowsprit. Length 8–12 m, width 2.3–3 m, board height 1–1.3 m, draft around 0.75 m.

“Barkhatnyi sezon” – the name (in Russian) of an autumn season, most benign for treatment because the temperature regime of the air and sea makes it possible to exercise climatotherapy to the maximum extent possible, including sun baths and sea bathing. The expression “B.S.” is believed to have been coined at the end of the nineteenth century on the SCC, when creative intelligentsia (artists, men of letters)

spent their time at the SCC health resorts; these people, judging by their clothes, were called “velvety” public.

Bartın – the Black Sea province of Turkey in the north-western part of the country. Area 2.120 km², population 188,000 people (2011). Center—Bartın. The town of Bartın has very old wooden houses which are no longer found in other places. In Bartın Province is the ancient port town of [Amasra](#) (Amastris). This town is on two small fortified islands and contains many interesting old buildings and restaurants.

“Basic provisions on environment conservation, restoration and improvement in the territorial complex Black Sea—Bulgarian coast” – this program was adopted by the State Council of Bulgaria in December 1976. The basic tasks of this program included the following:

(1) Elimination of available pollution and environment protection from pollution and damage. In this context it was planned to take the integrated effective actions for resolute prevention of new pollution related to marine transport, industry, construction, agriculture and others. It was envisaged to construct treatment facilities in large cities (Burgas, Varna) and by 1985—in other seaside settlements. For improvement and enrichment of the marine and coastal environment the new industrial facilities were to be constructed beyond the seaside resort area. Special actions should be taken to protect the existing natural objects (national parks, nature reserves, etc.). It was contemplated to create new protected objects. Surveys and industrial development of power and mineral resources of the shelf and coast should include actions on environment protection.

(2) Conservation, reproduction and enrichment of biological resources. In this context the comprehensive study of changes in the marine environment was recommended. It was necessary to go on with the study of dynamics of plankton, benthos, fish populations, their reproduction, possible acclimatization of new fish species and invertebrates. The rational management of mussels and algae, control of carnivorous rapan hazardous for bivalves was recommended. The program envisaged a drastic decrease of harvesting of the valuable Pontian tree varieties, preservation of coastal forests, protection of dune vegetation controlling sand drift and forest plantings on idle lands.

(3) Rational management and conservation of natural resources. Sandy beaches covering one-third of the Black Sea coast of Bulgaria are of the highest quality. The climate, mineral spring waters and curative mud in saline lakes provide wide opportunities for health improvement. For improvement of the atmosphere in recreational zones the camps, holiday centers and other resort facilities are removed from the sandy belt; the transit transport is transferred beyond the recreation and tourism complexes.

Basisty Nickolay Efremovich (1898–1971) – Soviet Admiral. In 1914, entered the Sevastopol Sailor Boy School. Sent to the Mining School on board the “Rion” training ship. In 1916, appointed to the “Zharkii” Destroyer as a non-commissioned officer 2nd class. As a participant of the Bosphorus mine-laying operation, awarded a St. George’s medal and soon promoted to a officer 1st class. In 1918, joined the

Volga Military Flotilla in Nizhny Novgorod. As a signaler of the battle-boat “Red Banner”, participated in landing an amphibious party in Fort “Petrovskii” on the Caspian Sea. In 1936, entered the General Staff Military Academy. In 1937, in Spain, was adviser of a destroyers semi-flotilla commander, then adviser of the Mediterranean Fleet Commander. Upon return—Captain 2nd rank, designated chief of the department of operations of the Black Sea Staff, yet insisted on and gained appointment to a ship. In 1939–1941—commander of the Cruiser “Chervona Ukraina”, from October of 1941 as a Captain 1st rank commanded a squadron of light forces made up of newest ships. Commanded the movements of ships during Odessa defense, destruction of enemy strongholds on the Black Sea coasts. Commanded the deployment of a landing party in Feodosiya during the Kerch-Feodosiya operation of 1941–1942. In 1942, promoted to a Rear-admiral. In Feodosiya, secured the support of troops, and when the army was defeated in the Crimea, controlled troops evacuation. From the end of 1942, took part in planning the Novorossiisk amphibious party landing operation. In March of 1943, appointed chief of staff of the Black Sea Squadron, 6 weeks later—Squadron Commander, and in autumn of 1944—the Chief of Staff of the Black Sea Navy. In November of 1946, took over command of the Black Sea Navy. In 1949, promoted to Admiral. In August of 1951, appointed the First Deputy Minister of the USSR Navy. In 1956, appointed Deputy Commander-in-Chief of the USSR Navy for Military and Scientific Work, in June of 1958—Inspector-Adviser of the Group of General Inspectors of the USSR Ministry of Defense. In September of 1960, resigned. Awarded numerous orders and medals. The author of memoirs “The Sea and the Coast” (1970).

Bastion – usually, pentagonal fortifications in the form of a ledge at the corners of a rectangular fencing designed for the bombardment of the terrain in front of a fortress and along the fortress walls and the deep pits arranged around the fortress. Bastions were crucial during the period of Sevastopol defense.

Batilman – health-resort settlement in the south-western part of SCC, in Laspi Bight. Known for the summer cottages (dachas) of V.G. Korolenko, I.Ya. Bilibin, V.I. Vernadsky and other Russian writers, scholars and artists.



Batilman: View from the sea (Photo by Dmytro Solovyov)

Battle of Alma – named after the Alma River in the Crimea, north of Sevastopol, near whose mouth not far from Burlyuk Village (at present, Vilino, named after the Lieutenant-General of Aviation I.P. Vilin) the first combat between Russian forces commanded by Prince A.S. Menshikov and the army of British, French and Turkish troops commanded by the French Marshal St. Arnaud (Armand-Jacques Leroy de Saint-Arnaud, 20 August 1801–29 September 1854) and British General [Lord F. Raglan](#) ([Field Marshal](#) FitzRoy James Henry Somerset, 1st Baron Raglan, 30 September 1788–29 June 1855) took place September 20, 1854. The enemy had landed earlier near Kyzyl-Yar Lake to the south of Evpatoria during the Crimean War. In the battle of Alma the superiority of the allies manifested itself not only in numbers, but in the level of armament. The Russians lost in that battle over 5,000 men, the allies—4.3 thousand. The allies had no cavalry which did not allow them to organize active pursuit of Menshikov’s army. He retreated towards Bakhchisaray, having left unprotected the road to Sevastopol. That victory made it possible for the allies to get intrenched in the Crimea and open the way to Sevastopol. B.A. demonstrated the effectiveness and fire power of new firearms, where the formerly used system of breakdown into closed columns was becoming suicidal. In the course of the battle, Russian troops for the first time spontaneously used a new battle formation—firing chain. Where there used to be the middle of the Russian positions, there stands a monument reading: “Banner to the memory of the warriors who died in the Battle of Alma”. Another monument is below—to commemorate those who specially distinguished themselves in the battle of Vladimir Regiment. British gravestones are there, too.

Battle of Balaklava – On October 13, 1854, during the Crimean war of 1853–1856 in the vicinity of Balaklava, a battle between the Russian force commanded by General P.P. Liprandi and the garrison of British-Turkish troops was fought near Balaklava. The Russian command pursued the main object of attacking this main base of British troops in the Crimea as diverting the allies from Sevastopol. When attacking B., the Russians managed to seize some forts that were defended by the Turkish units. But then the attackers were stopped by the attacking British cavalry. In a bid to capitalize on its success the cavalry brigade (the brigade included great-grandfather of Winston Churchill and other representatives of British aristocratic families) headed by Lord Cardigan went on with the attack and far into positions of the Russian troops. Here, the cavalry came under canon fire of a Russian battery and then was attacked on the flank by a force of lancers commanded by Colonel Eropkin. Having lost most of his brigade, Cardigan retreated. The Russian command was unable to develop this tactical success for lack of the forces made available at Balaklava. Extra units of the allies moved urgently to assist the British. The Russians were reluctant to engage the enemy and start a new battle, so they retreated to their original positions, having destroyed the seized forts. Balaklava Battle made the allies postpone the planned assault of on Sevastopol. At the same time, it helped the Russians to better realize their weak points and buttress Balaklava, which was the Seagate of supplies for the allies at Sevastopol.

Battle of Black River – On August 4, 1855 on the banks of B.R. (10 km from Sevastopol) the Russian Army commanded by General M.D. Gorchakov mounted a battle against three French and one Sardinian divisions. The main battle was for Fedyukhin's heights and broke out on the right flank. Having fought for 6 h, the Russians lost 8,000 men in futile attacks and retreated to the starting position. The losses of the French and Sardinians were around 2,000 men. The battle of B.R. as well as other field battles of the Crimean War revealed clearly not only technical backwardness of the Russian Army, but also lack of talent of the higher military command. After the battle of B.R. the allies were able to allocate large forces to storm Sevastopol.

Battle of Sinop – the battle between the Russian and Ottoman fleet that took place on 18(30) November 1853 in the Sinop Bay during the Crimean War of 1853–1856. The Ottoman squadron (7 frigates, 3 corvettes, 2 steam frigates, 2 brigs and 2 transports, in total 510 guns) under the command of Vice-Admiral Osman Pasha and British Advisor Adolphus Slade (Mushavar Pasha) that came from Istanbul to Sinop anchored in the harbor supported by ground batteries (38 guns) and made preparations for landing near Sukhum-Kale (presently Sukhumi) and Poti. The Russian squadron (6 linear battleships and 2 frigates with 720 guns) under the command of Vice-Admiral Pavel S. Nakhimov blockaded the Ottoman fleet from the sea. Nakhimov decided to attack and destroy it in the Sinop Bay. The battle lasted for 4.5 h. In the battle the Ottomans lost 15 out of 16 vessels and over 3,000 men were killed and wounded. About 200 men were taken prisoners, including Osman Pasha and commanders of 3 vessels. The Russian casualties were 27 killed and 235 wounded. Many ships were damaged. The defeat of the Ottoman fleet

weakened considerably the naval forces of Turkey and frustrated its plans of landing on the Caucasian coast. The participants of this battle were awarded the medal "In Memory of Eastern War of 1853–1856" on the Georgian ribbon.

Battle of Trapezund (1916) – the offensive of the Primorsky detachment of the Russian Caucasian Army supported by the Batumi detachment of the Black Sea Fleet against the Third Turkish Army that occurred on 12 January (5 February)–5 (18) April during World War I for seizure of the city and port of Trapezund (Trabzon). Finishing the Erzurum military operation of 1915–1916 the command of the Caucasian Army planned to storm Trapezund both from land and from sea. On 23 January (5 February) the ships of the Batumi detachment (1 battleship, 2 destroyers, 2 torpedo boats, 2 gunboats) under command of Captain 1st Rank M.M. Rimsky-Korsakov approached the mouth of the Arkhave River and suppressed the Turkish batteries with artillery fire. Under protection of the ship guns the Primorski detachment (about 15,000 men, 28 guns; commander Lieutenant-General V.N. Lyakhov) started an offensive from Arkhave to Trapezund and on 25 January (7 February) and came out to the Turkish positions at Vice. After regrouping the forces on 2(15) February the detachment resumed the attack. In February–March with the support of the amphibious landing troops the Russians occupied the cities of Atina, Mapavri, Rize, Of and Khamurghyan and by 1 (14) April they came to the Turkish fortifications on the Kara Dere River. On 25–26 March (7–8 April) 2 Kuban brigades (about 18,000 men and 12 guns) transferred here from Novorossiysk landed in Rize and Khamurghyan. They were carried by 22 transports under escort of 2 battleships, 4 cruisers, 2 aircraft transports and 19 destroyers and landed under protection of the Batumi detachment and aviation. On 31 March (13 April) the Batumi detachment was strengthened by 1 battleship and 1 destroyer from Sevastopol. On 2(15) April the Primorski detachment together with the Kuban brigades attacked and took the Turkish positions on the Kara Dere River and on 5(18) April Trapezund surrendered without fighting to the Russian troops. On the next days the Russian troops advanced along the coast as far as Buyuk Liman, thus, consolidating the achieved success. As a result, the Third Turkish Army lost its shortest link with Constantinople and from now onward the Russian command could base here the Black Sea Fleet and organize the additional base for supply of the Caucasian Army.

Battle of Yuzhnyi Bug – battle of May 20, 1788 during the Russian-Turkish war of 1787–1791 near the mouth of the Yuzhnyi Bug River between the Russian double-sloop commanded by Captain III rank R. Saken and the Turkish squadron of 30 vessels. During one of the reconnaissance trips to Ochakov, Captain Saken's double-sloop was intercepted by the Turkish ships which cut its way of retreat to the Yuzhnyi Bug mouth. Attacked by the superior Turkish forces, the double sloop began a losing combat. Unwilling to yield himself prisoner, Saken ordered that the sailors leave the vessel, while he himself stayed on and blasted the sloop together with the janissaries who had climbed aboard. In honor of this feat, a memorial plaque was installed in the church of the Naval Corps.

Battles of Anapa – (1) Campaign of the corps under the command of General Yu. B. Bibikov in winter-spring of 1790 against the Turkish fortress Anapa. The campaign was very poorly prepared. The mightiest Turkish stronghold on the Eastern shore of the Black Sea built to the designs of French engineers was protected by a 15,000 garrison. The Russian troops that approached Anapa did not have even scaling ladders. By that time, Bibikov's detachment had no horses or foodstuffs left. Instead of selling supplies to the Russians, the highlanders launched combat action against them. Despite the definitely hopeless situation, Bibikov ordered to start storming Anapa, which ended in failure. Bibikov was tried and dismissed from the army for this unsuccessful operation. Rank-and-file participants of the expedition were awarded a special soldier's silver medal with an inscription reading "For Loyalty".

(2) Seizure of Anapa on June 22, 1791 by the Kuban Corps commanded by General I.V. Gudovich. By that time, the fortress garrison had been reinforced substantially. The number of its defenders reach 25,000 people. Gudovich had good artillery which overwhelmed that of the fortress. On the night of June 21 to June 22, Russian troops, covered by artillery fire, approached the fortress berm secretly and, half an hour before break of dawn, rushed forward and seized the fortress. On Gudovich's order the mighty fortifications of Anapa were completely destroyed. A special medal "For Anapa Campaign" was made for the participants of the battle.

(3) Blockade and seizure of Anapa by the Russian troops commanded by Rear-admiral A.S. Menshikov on May 3–June 12, 1828. The fortress was under the protection of the Turkish garrison of 6,000 to 12,000 soldiers. On May 2, 1828, the Black Sea squadron under the command of Vice-admiral A.S. Graig delivered to Anapa Menshikov's landing party of 5,000 men. The next day, the town was approached overland by the detachment providing for safe landing of the amphibious party. On May 7, the ships of the Black Sea fleet began shelling the fortress. Sorties of the Turkish garrison proved to be futile. The general assault of the fortress was scheduled for June 10, but the fortress was never stormed: having no outside support, the Turks agreed to start negotiations and on June 12 surrendered. A.S. Graig was promoted to Admiral. After the Russian-Turkish war ended, Anapa became part of the Russian Empire.

Batumi, Batum – capital city of the Republic of Adjara, Georgia, an important maritime industrial area, terminal point of the railway line Baku-Batumi, an important port on the Black Sea, a health resort. Situated in the south-eastern part of the Caucasian Black Sea coast, on the southern coast of the deep Batumi Bight, on Kakhaberi Plain adjoined on the east by Shavshet and Meskheth Ranges of the Minor Caucasus. To the south of B., the Chorokh River falls into the Black Sea; the river flows mainly in the Turkish territory, and the last 26 km—in the territory of Adjara (Georgia). Here is the termination of the over 500 km long Caucasian Black Sea coast, one of the most popular holiday-making sites.

It is believed that the name of B. derives from the Svan word "bat" — "stone". The settlement that was eventually succeeded by the city, apparently had a very long history: the Roman author Pliny (first century B.C.) mentions a port with a

Greek name "*Bathys limen*"—"Deep Bight", which is an interpretation of the local name. Known to exist since the second century. In the eleventh century, the fortress Tamaristsikhe was built where B. is sited now. At the end of the thirteenth-early in the fourteenth century, B. is a possession the Mingrelian Prince Bediani; at the end of the fourteenth century—of the Prince Gurieli. From the seventeenth century—part of the Osman Empire. During the Middle Ages, the town was called Batomi, from 1878—Batum, from 1939—Batumi.

Population early in the nineteenth century—around 2,000 people. In the 1850s, the agency "Russian Company of Steamship Promotion and Trade" (ROPiT) is established in B.; B. became the terminal point of the Crimea-Caucasus and Anatolian Shipping Lines. During the Russian-Turkish war of 1877–1878, fierce battles were fought around B. In March of 1878, B. was occupied by the Russian troops under the resolution of the Berlin Congress of 1878, and B. became part of the Russian Empire. In 1878–1886, B. enjoyed the status of a free port (with the right of duty-free export and import of goods). In 1878–1887, the Mikhailovskaya Fortress was built to include the Turkish fortifications of the seventeenth–nineteenth centuries. In 1878–1883 and from 1903, B.—the center of Batumi Region (in 1883–1903—center of a district in Kutaisi Province). In 1883, the railway line Baku—Tiflis (Tbilisi)—Batum was built, B. port (third largest port of Russia on the Black Sea after Odessa and Novorossiisk) was re-equipped. In 1897–1907, the kerosene pipeline Baku-Batum. was built. The Batumi Port was mainly used for promoting trade in oil and oil products as well as wheat, corn, manganese ore and other commodities. Late in the nineteenth—early in the twentieth century, B—a significant industrial center: factories and plants—tobacco, oil refineries, distilleries; railway and ship-building enterprises.

In 1905, an armed resurrection flared up in B., crushed by troops. There were major strikes in 1912–1914. During WWI, B.—one of the rear bases of the Caucasian Front (the Garrison of Mikhailovskaya Fortress—over 3,000 people) and the Black Sea naval base; trade was virtually at a standstill, industry declined.

B. population—170,000 people (2011). At present, crucial to the city economy are machine-building (machines for tea-growing and other food-processing industries), oil refinery, shipyard and zinc-plating plants, tea-packing factories, citrus-processing factory. Over the years of Soviet power, Batumi Port became one of the best on the Black Sea. It is used for importing timber, wheat, sugar, chemicals, equipment. Exported items include: oil products, tea, preserves, fruits, etc.

B. is distinguished by a warm, humid subtropical climate. Mean annual temperature is 14.5 °C, mean temperature of August +23.1 °C, of January +6.6 °C; the amount of precipitation is 2,130 mm/year, with maximum occurring in October (272 mm).

Vegetation is extremely rich and diverse, represented mainly by tropical and subtropical species, large plantations of citrus culture, groves of magnolias, palm-trees, bamboo-trees, eucalyptuses, laurel trees and bananas. The maritime park-boulevard with magnolia and palm alleys is succeeded by a wide pebble beach. Nine km from B. (near the railway station "Green Cape") there is one of the largest botanical gardens—Batumi Botanical Garden. The garden area is 111 hectares. The

garden has over 5,000 species and forms of plants, typical of various regions of the world: New Zealand, Australia, Himalayas, South and North America, Mediterranean area, etc.

In B. there is a Sea Aquarium and Dolphinarium as well as a number of museums (Museum of Adjara, Revolution Museum, I.V. Stalin's House-museum).



Batumi: View on the port (<http://www.seafarersjournal.com/wp-content/uploads/2012/04/batumi.jpg>)

Batumi Bay – the eastern boundary of the bay is thought to be the mouth of the Korolis-Tskali River falling into the Black Sea south-west of Green Cape. On the south-east and south, the B. is hemmed by high mountains distanced from the coastline by 1.5–2.5 km. The western coast of the B. is low-lying. Most of B.B. is flat. There is a trough along the western coast with depths ranging from 20 to 110 m; shoals are near the eastern coast. Batumi Port is at the apex of B.B., the city of Batumi lying on its shores.

Batumi botanical garden – one of the largest botanical gardens of the former USSR. Sited near to the railway station Green Cape, 9 km from Batumi (Georgia). Occupies an area of 111 ha, featuring hilly topography, the soils are krasnozems and others. Established in 1912 by the Russian botanist and geographer A.N. Krasnov. Under his plan, the gardens were to be set up on a landscape-geographical principle. The primary object of the gardens, according to Krasnov, was the acclimatization of economically valuable subtropical plants and introducing these into culture in the southern areas of Russia. After the Soviet power was established in Georgia, B.B.G. development was intensified. Under the decree of the USSR Sovnarkom dated July 30, 1925, B.B.G. was recognized as the main scientific institution of the USSR to promote subtropical crops on the Caucasian

Black Sea coast: tea, citrus culture and others. B.B.G. laid a strong emphasis on introducing in culture valuable acricultural, forest, essential-oil, ornamental and other subtropical plants. B.B.G. comprises the following floristic departments: moist tropics of Transcaucasia, New Zealand, Australia, Himalayas, East Asia, North America, South America, Mexico and Mediterranean. The collection of plants includes over 5,000 species, varieties and forms, out of this around 2,000 species of scrub plants. The herbarium contains over 40,000 sheets.

Batumi raid – (1) Combat operations of the Rioni (from May of 1877, Kobuleti) task force of Russian troops during the Russian-Turkish war of 1877–1878. Object—defeating the Turkish Corps of Darwish Pasha, seizing Batum (Batumi) and prevention of the landing of the enemy’s amphibious party in the rear of the Russian troops. The Rioni body of troops (24,000 soldiers, 96 canons) began an attack on April 12 (24), 1877. Moving in the tough conditions of the mountainous-woody terrain and cross-country, the task force managed to overcome stubborn resistance of the enemy and on April 14 (26) seized the heights of Mukhaestate, Khutsubanskoe. and on May 19 (31) occupied the heights of Sameba. The second attempt to seize Batum was undertaken in January of 1878. The Kobuleti force again advanced as far as Tsikhisdziri and again retreated. Its activity tied large forces of the enemy, thereby contributing to the success of the main forces of the Caucasian Army.

(2) Attacks of the Russian mine launches against the Turkish ships at the Batumi Port during the Russian-Turkish war of 1877–1878. On the night to December 16 (28), 1877, the ship “Velikiy Knyaz Konstantin” (commander—Captain 2nd rank S.O. Makarov approached Batum covertly, launched 4 boats, of which “Chesma” and “Sinop” each had as armament one Robert Whitehead self-propelled mine (torpedo). After midnight, the mine launches penetrated in the port and attacked the Turkish armor-clad battleship “Mahmudiye” (the Turkish [flagship](#) was for many years the largest warship in the world), yet the attack proved abortive as one torpedo, having passed along the board of the battleship, jumped out onto the shore, and the other one hit against the battleship’s anchor chain and exploded on the ground. On January 14(26), 1878, “Velikiy Knyaz Konstantin” repeated a raid on Batum. The launches “Chesma” and “Sinop” by hitting the Turkish armed steamer “Intibah” with two torpedoes simultaneously from a distance of about 80 m destroyed the ship. This was the first in the world recorded successful launch of torpedoes from a torpedo boat.

Batumi Region – instituted in 1878 on the territory acceded to the Russian Empire after the Russian-Turkish war of 1877–1878, by decision of the Berlin Congress of 1878—center—Batumi. Population around 110,000–120,000 people. Initially, B.R. was divided into districts (Batumski, Artvinski, Adzharski). B.R. was managed by the civilian-and military administration. In 1883, B.R. was made part of Kutaisi Province, in 1903 it was again made an autonomous administrative-and-territorial unit as part of Batumski and Artvinski Districts. In 1904, area 6.1 thousand verst; population 152.9 thousand people (Georgians, Turks, Russians, Armenians, Greeks and others); 1 city, around 300 settlements. The primary

occupation of the population—agriculture (80.6 % of the dwellers is engaged in agriculture). The main crops—corn, barley, wheat, rice, subtropical crops. Grape-growing, tobacco cultivation (around 20,000–25,000 puds of tobacco per annum), tea-growing. Industrial production is mainly centered in Batumsky District (this includes, leather industry, flour milling, copper smelting, metal-treatment and wood-working, oil refining, and other industries). At the end of the nineteenth century, there were 29 factories and plants in Batumi Region (2.4 thousand workers). There existed steamer traffic through Batumi Port with all ports of the Black and Azov seas. In 1883, the railway Batum-Tiflis-Baku was commissioned. There were branches of State Tiflis Commercial Bank, South-Russia Industrial Bank, Russian Bank of Foreign Trade, loan associations, 18 secular educational establishments, 19 muslim schools at the mosques.

Batumi sea trading port – sited on the south-eastern coast of the Black Sea, Georgia. Established in 1878 as a free port, which was conducive to its rapid growth. The building of a railway line (1883), wharfs for tankers and dry-cargo sea vessels (1892) and of the Baku-Batumi pipeline assisted rapid development of the port. Early in the twentieth century, the port ranked third in Russia by the volume of transshipment after Odessa and St. Petersburg. In 1923, it was accepted as a first-class port. Today one of the main links of the Transport Corridor Europe-Caucasus-Asia (TRACECA), from Batumi Port the goods are transported by the Black Sea to: the Russian ports Novorossiisk, Sochi, Taganrog; to the Ukrainian ports Ilyichevsk, Odessa, Izmail; to the ports of Bulgaria—Varna; Romania—Constanța, Turkey—Istanbul, and others.

There operate 12 deep-water wharfs with the depths up to 12 m, three of which are intended for the transshipment of oil and oil products. The port handles tankers of up to 140,000 tons. It has a container terminal of up to 50,000 TEU/year capacity; a ferry railway complex of 700,000 tons carrying capacity in compliance with the European standards; a passenger terminal. Port capacity equals 12 mln tons of oil and oil products and 3mln tons of general cargoes per year. Besides oil and oil products, non-ferrous metal ores, prominence in export is also given to tea, wine and fruits. Port imports are dominated by foodstuffs (grain, sugar, etc.) and manufactured articles. The port is serviced by a number of regular traffic lines, linking it with other ports of the Black, Azov and Mediterranean Seas; tramp vessels also call at the port. The port is the main base for the Georgian Shipping Company.

Bay – a rather wide part of the water surface (sea, lake, river, etc.) projecting into the land. In the Black Sea there are found such large B. as Burgas and Varna in Bulgaria; Mamaia in Romania; Odessa, Tendrovsky, Egorlytsky, Dzharylgachsky, Karkinitzky, Kalamitsky and Feodosia in Ukraine; Samsun and Sinop in Turkey; Taman, Taganrog, Temryuk and Arabatsky in Russia (in the Sea of Azov and the Black Sea).

Bay of Cossacks (Kazachya) – sited on the territory of Sevastopol. Adjoins Kamyshovaya Bay on the west, is part of Dvoinaya Bay, being its western bay.

Sited east of Khersones Cape. General Zoological Reserve of republican significance. Established in 1998, occupies an area of 23.3 ha. Valuable maritime nature reserve. Rest location for numerous migratory and wintering birds. A number of species of the animal world entered in the Red Data Book of the Ukraine has been preserved here (swallowtail, Crimean gecko, large whip snake and others).

Beach barrier – a narrow sandy water-permeable spit, a natural bar of sand or pebble separating a bay, lagoon or river mouth from the open sea or lake. It is created as a result of the combined action of marine (lake) currents and tides, aggradation processes in river mouths and tidal activity in shallow areas.

Beaching, coast-protection structures – structures intended for the protection of the banks of water bodies from the destructive impact of waves, currents, ice pressure and other natural factors. By nature of interaction with a water stream, the structures are subdivided into active, using the energy of a stream for hydraulic fill and conservation of shore deposits (on the rivers—transverse dikes, protection dams, guide vanes; on the seas and lakes—silt-retaining groins, breakwaters), and passive, countering a stream with the strength and stability of own design only (on the seas—sea walls, riprap of large blocks and shaped solid masses; on rivers—stone riprap, mats, gabions, concrete and ferroconcrete slabs).

Beisug Liman – named so after the Beisug River flowing into it in spring. The liman is sited on the eastern coast of the Azov Sea, is separated from the sea by Yasen Spit and two channels. Khanskoe Lake with its famous hydrogen sulfide mud is on the northern shore of the lagoon.

Belbek Valley – formed by the Belbek River, flowing into the Black Sea. Sited beyond the northern boundary of Sevastopol. Hilly steppe, covered with vineyards, ends in a high cliff (shore precipice) structured by clay shales at the foot of which sand beaches stretch both ways as far as the horizon. The precipice is not stable: impacted by waves and ground water, there often occur landslides and cave-ins. Fertile lands on the river bank have long been used for horticulture and are heavily populated. The word “Belbek” is translated as “tough, strong back, spine”. After the rains or snowmelt in the upper reaches, B. turns to a shooting flow, rushing toward the sea and bringing uprooted trees with it. Suyren Fortress is in B.V.

Belgorod-Dniestrovskiy – a town close to the coast of the Black Sea, Ukraine. Population—50,300 (2011). It is a regional city and port situated on the right bank of the [Dniester Liman](#) (on the [Dniester estuary](#) leading to the [Black Sea](#)) in the [Odessa Province](#) of southwestern [Ukraine](#), in the historical region of [Bessarabia](#). The city serves as an [administrative center](#) of the [Belgorod-Dniestrovsky Raion](#). Previous names: Ophiusa (colony of [Phoenicia](#)), [Tyras](#) (colony of [Ancient Greece](#)), Album Castrum (“White Castle”, [Latin](#) name), Cetatea Albă (“White Citadel”, [Romanian](#) name), Asperon (colony of [Byzantine Empire](#)), Maurokastron ([Koine Greek](#)), Turla ([Turkic](#)), Montecastro/Asprokastron (colony of [Genoa](#)). The city is known by translations of “white city”.

The town became part of the [Principality of Moldavia](#) in 1359 and the fortress is enlarged and rebuilt in 1407 under [Alexander the Kind](#) and in 1440 under [Stephen the Great](#). From 1503 to 1918 and 1940 to 1941, the city was known as Akkerman, [Turkish](#) for “white fortress”. From 1918 to 1944 (with a short brief in 1940–1941), the city was known by its [Romanian](#) name of Cetatea Albă, literally “white citadel”. Since 1944 the city is known as Bilhorod-Dnistrovskiy (Ukrainian), while on the Soviet geography maps often translated into its [Russian](#) equivalent of Belgorod-Dnestrovskiy, literally “white city on the Dniester River”.

Meat-and-dairy plant, fish-processing factory, grape wine plant, folding-carton plant, furniture-making factory, garment factory, building materials works. There are health resorts Zatoka, Sergeevka and Lebedevka not far from B.D. on the seashore. Local climate is dry, steppe, with numerous sunny days. Good sand beaches, several kilometers in length and as wide as 750 m (Zatokinsky Beach).

Belgorod-Dnistrovskiy sea trading port – established in 1971 in Belgorod-Dnistrovskiy City (Ukraine) that stands on the coast of Dniestr Lagoon and is connected by a channel with the Black Sea. The main purpose of the port is to reduce the intensity of operations of the nearest major ports Odessa and Ilyichevsk that have to deal with small-capacity fleet. The port also includes the port station Bugaz in the very estuary of the Dniestre River. The port specializes in handling the cargoes of foreign-trade and coastal ships (grain carriers, ships carrying timber, general cargoes, livestock, minerals and building materials). Intended essentially for handling general cargoes and cargoes in bulk, but is also capable of container transshipment. The port handles up to 2.5 mln tons of cargoes.

Belgrade Peace (1739) – between Russia and the Osman Empire. Concluded on 18 (29) September 1739 near Belgrade. In tandem with the separate peace treaty signed in Belgrade on (12) September 1739 by Austria and the Osman Empire, B.P. terminated the war of Russia and Austria with the Osman Empire of 1735–1739. Austria insisted on Russia’s signing the peace treaty sacrificing the advantages it had gained during the war. Under the treaty, fortifications of the Azov fortress returned to Russia by the Osman Empire were to be destroyed, whereas the city itself with environs were to be declared “a barrier” between the two empires. Russia was entitled to build a fortress in the vicinity of Cherkas Island on the Don River, and the Osman Empire—in the mouth of the Kuban River (clause 3). The Greater and Minor Kabarda were declared neutral and free (clause 6). The Taganrog fortress earlier destroyed was not to be restored. Russia was not allowed to keep her fleet on the Sea of Azov or on the Black Sea (clause 3). Merchants of each of the countries were entitled to trade freely on the territory of the other country on the terms established for third-country merchants. Trade with the Osman Empire could only be conducted on board of the Turkish ships (clause 9). Russian pilgrims were guarantee free travel to Jerusalem and exemption from payments to the Sultan (clause 11). B.P. did not satisfy Russia, negotiations on specific matters of the treaty continued until 1747. The treaty was canceled by the 1774 Peace Treaty of Kuchuk-Kainarji.

Belli Grigory Grigorievich, Heinrich Heinrichovich (?–1826) – Russian Rear-Admiral. In 1783, admitted from the British service to the Russian military service as a midshipman and sent to the Don flotilla. In 1784–1787, commanded a boat on the Azov Sea as a Lieutenant. In 1788—commander of a schooner, cruised with the fleet and took part in the Battle of Fidonisi. In 1789, promoted to a Lieutenant-commander and conducted the campaign on the Black Sea. In 1790, participated in cruising and took part in the battles at Kerch Strait and Khadjibey, and in 1791—at Kaliakra. In 1792–1798, a frigate commander on the Black Sea. In 1798, set out for the Mediterranean Sea with F.F. Ushakov's squadron, took part in liberating the islands of Tserigo (Kythira), Zante, in Corfu blockade. In 1799, promoted to a Captain 2nd rank. Led an amphibious force from the ships, seized the city of Foggia and occupied Naples. In 1800–1801, while in Naples, was attached to the coastal service. In 1802, returned to Sevastopol. In 1803, promoted to a Captain 1st rank. The next year (1804), while commanding a ship, sailed from Sevastopol to Corfu and the next year cruised in the Mediterranean Sea. In 1806, passed, with a group of ships, from Corfu to the Adriatic Sea and seized Bocca-di-Quattro Province, the Curzalo Fortress and Lis Island. In 1807, sailed in the Adriatic Sea, took part in Patras Island blockade, was promoted to a Captain-commodore. In 1808–1812, (being British, because Russia was at war with Britain) upon imperial command, stayed in Moscow, St.Petersburg and Saratov. In 1812, commanded a ship sailing on the Black Sea, in 1813—at Sevastopol Port. In 1814–1816, commanded naval barracks 59 in Sevastopol. In 1816, promoted to a Rear-admiral. In 1817–1826, commanded the 3rd naval brigade in Sevastopol. Awarded Russian and Italian orders.

Bellingsgauzen Faddey Faddeyevich (Fabian Gottlieb Thaddeus von Bellingshausen) (1778–1852) – Russian Naval personality, famous seafarer, Admiral (1843). Of noble extraction. Graduated from the Naval Cadet Corps (1797). Sailed on the ships of the Revel Squadron. In 1803, participated in the 1st Russian Circumnavigation on board the “Nadezhda” ship under the command of I.F. Kruzenstern. Upon return, served in the Baltic Navy; commanded a corvette (1809). From 1810, in the Black Sea Navy; as a frigate commander, sailed at the Caucasian coasts, did a thorough job of specifying the maps and determining the coordinates of major locations on the seashore, made a number of astronomical observations. In 1816, as a Captain 2nd rank supplemented the “Sailing directions” of 1808 with the results of the description of the Caucasian Black Sea coast, which made it possible to publish in 1817 the General Map of the Black Sea. In it, the position of the coasts was made more accurate on the basis of astronomical data, and in the offshore part of the sea soils of the seabed were designated, directions of currents were indicated (by arrows) and the depths were written down. In 1819–1821, was in charge of the round-the-world expedition that lasted 751 day on the sloops “Vostok” (under the command of B.) and “Mirny” (commanded by Lieutenant M.P. Lazarev). The object of the expedition was to obtain “knowledge about our globe to the maximum extent possible” and “discover likely proximity of the

Antarctic Pole”. The expedition sailed round the Antarctic Continent, reaching the 70th degree of the south latitude, discovered 29 new islands and a coral reef.

In 1826, B. headed a group of ships that cruised in the Mediterranean Sea near the coasts of Turkey. From 1827—commander of a guards crew with which he arrived in the active army at the start of the 1828–1829 Russian-Turkish War; flying his own flag on the ship “Parmen”, participated in the siege and seizure of the Turkish fortress Varna. In 1830–1831, cruised near the coasts of Kurlandia (Latvia). From 1839—commander of Kronstadt Port and military governor of Kronstadt. Under his guidance, new port facilities were built and the old facilities and forts were remodeled, the steamer works were built, a hospital was opened, much was done to provide urban amenities. From 1843—B. is also a member of the Admiralty Council. A sea in the Pacific Ocean, cape in South Sakhalin, an island in the Tuamotu Archipelago, an island in the Aral Sea, a depression in the Pacific Ocean, and other locations are named after B. There is a monument to B. in Kronstadt, and a memorial bust to him in Nikolaev.



Bellingsgauzen F.F. (http://www.navy.su/persons/02/images/bellingsgauzen_ff_00.jpg)

Belokamensk – see Inkerman.

Beluga (*Huso huso*) – one of the most valuable fishes of the sturgeons family (*Acipenseridae*) in the Caspian, Azov and Black seas. The snout is short, pointed. The mouth is big, of half-moon shape, occupies nearly the entire lower surface of the snout. Tendrils with leaf-shaped appendages along the rear rim are flattened on the sides. In the past, they used to catch specimens as long as 9 m and weighing over 1500 kg. Anadromous fish. The males reach sexual maturity at age 12–14 years, females—at age 16–18 years. Propagate also in the lower reaches of the Danube

River, as far as the Iron Gates, from February-March (at water temperature of 4–11 °C) to the end of May. Beluga is extremely prolific. Spawns from 500,000 to 4 million eggs. The fish is predatory: it feeds largely on fishes, crustaceans, mollusks, larvae of some insects. The meat and roe of B. are distinguished by excellent gustatory properties. Commercially available is fresh, frozen, smoked and dried or tinned B. Particularly valued is black caviar. Two actual catches of large B. are known to have occurred on the Black Sea: in the 1930s on the Romanian coast (around 1,000 kg) and in 1956 between Anapa and Novorossiisk (650 kg). Today beluga is very rare in the Black Sea and Sea of Azov.

Belyavskiy Petr Evmenovich (1829–1896) – Russian hydrographer, finished Black Sea navigation company (school), took part in combat actions at the time of Sevastopol defense during the Crimean War of 1853–1856. Then, until 1860, sailed on ships on the Black and Azov seas, made navigational appraisal of the existing ports (1857–1858) and was in charge of midshipmen's practice (1859–1860). In 1861–1865, was busy making a sea description of Odessa Port. Here, he was the first of Russian hydrographers to undertake seabed drilling in the Quarantine Harbor to the depth of 24 feet (7.3 m) for the purpose of soil study. In 1865–1866, was in charge of detailed sea description in the delta arms of the Don River for subsequent dredging operations. In 1868, promoted to a Lieutenant-commander, and in 1871–1875 was the chief of the Special Survey of the North Coast in the Hydrographic expedition on the Black and Azov seas. In 1876, for successful service was promoted to a Captain 2nd rank and was attached to Russia's Ministry of Railways. Awarded Russian orders. Dismissed for retirement in 1885.

Belyi (Beloi, Bilyi) Sidor Ignatovich (Gnatovich) (1735–1788) – koshevoi chieftain of the Troop of Loyal Cossacks, Lieutenant-colonel. Was among the prominent and esteemed elders of Zaporizhye Sich. In 1774, as a troop captain, set out for St. Petersburg as the head of a delegation of Cossacks with a petition to protect the rights and possessions of the dwellers of Saporozhye, and at the time of Sich devastation by General Tekeli, was in the capital city. In 1787, B. was among the Cossack sergeant-majors who delivered an address to Catherine II when she was traveling in Novorossia; in the address, the Cossacks expressed willingness to form a new force and take part in the imminent war with Turkey. In January of 1788, after the Troop of Loyal Cossacks was formed, B. was elected koshevoi chieftain and was approved in that position by Prince Potemkin, the Commander-in-Chief of the Ekaterinoslav Army. This done, B. began organizing the troop headquarters (kosh) near the Bug River mouth. On February 27, 1788, A.V. Suvorov handed over to him Zaporozhye Banners, pernaches (pernach—kind of club), the chieftain's club. During the battle with the Turkish flotilla near Ochakov on June 11, 1788, B. was wounded lethally; he was buried with military honors in Kinburn Alexander's church.

Berdyansk – town, established in 1827, Saporizhye Region, Ukraine. Sited along the coast of the eastern part of Berdyansk Bay, northern coast of the Sea of Azov. In 1939–1958, was known as Osipenko. One of the major sea ports on the Azov Sea.

Railway station. Population—117,000 people (2011). Main industrial enterprises: “Azovkabel”, Yuzhgidromash”, “Azovselmash” and others; fabrication of glass fiber, hydrocarbon oils, Yuzhnyi Plant of Hydraulic machines, glass fiber works, agro-industrial combine “Azovskii”, furniture and knitting factories; food-processing, light industry. Teacher-training college. The local lore and arts museums. Balneal and climate health resort established in 1902. On Berdyansk Spit of over 20 km in length, there are health resorts, children’s and sports and fitness facilities, recreation facilities, boarding houses. There are interesting sculptures in B. There is the world’s only monument to a small fish—Azov goby that saved the dwellers of Berdyansk from famine in the 1930s.

Berdyansk Bay – juts into the northern shore of the Azov Sea between Obotochnaya and Berdyansk Spits. The distanced between the spit terminations is 43 km. The bay shore between the spit bases is flat, then largely it is precipitous, in places transversed by balkas and ravines. There are numerous settlements on the shore of B.B. The largest cities are Primorsk and Berdyansk. The bay is open to southerly and south-westerly winds. Occasionally, these gain a strong force and produce short wave. The shores are hemmed by a shoal with depth up to 5 m, the shoal width at the bay apex reaches 7.5 km. In the western part of the bay, the bay seabed is uneven.

Beregovoe – a village sited between Foros and Katsiveli in a small picturesque natural amphitheater with excellent sand beaches at southern coast of Crimea, Ukraine. A rock with a legendary name of Iphigenia (the daughter of Agamemnon and Clytemnestra)—one of the witnesses of Upper Jurassic volcanism in the Crimea, became the symbol of B. The name of the rock is related to the ancient Greek myth about Iphigenia, the daughter of the Hellenic Tzar Agamemnon who took part in the Trojan War. The Iphigenia rock has been declared a local natural monument.

Berens Mikhail Andreevich (1879–1943) – Russian Rear Admiral (1919). In 1898, graduated from the Naval Cadet Corps. In 1900, as the Boxer Uprising in China was being quelled, B. took part in the seizure of Taku forts. In 1904, graduated from the Provisional Navigator Officers Class. During the Russian-Japanese war (1904–1905), participated in the defense of Port Artur. In 1904–1906, commanded the destroyer “Boikii”, managed to escape on the destroyer from Port Artur, went to China, where he was interned. In 1904, was present golden weapon “For Courage”. From 1906, served on the Baltic Sea. Was the first mate of the cruiser commander (1909–1911); commanded destroyers (1911–1916), took part in the Battle at Irben (Irbe) Strait (the Baltic Sea). In 1916–1917, commanded the battleship “Petrovavlovsk”. On November 16, 1917, appointed Chief of the Naval General Staff, then Chief of Staff of the Baltic Sea Mine Defense. In 1918, dismissed for retirement. Fled from Petrograd via Finland to the Far East. In White Movement: Acting Commander-in-Chief of the Navy in Vladivostok (1919–1920). Headed the departure of a squadron of ships with the Naval School in 1920 from Vladivostok to China. In August of 1920 arrived in Sevastopol at the disposal of

General P.N. Vragel. During Civil War in Russia on the side of the Whites, commanded squadrons of ships and the Kerch base on the Azov and Black seas. One of the organizers of Navy evacuation from Sevastopol to Bizerte, Tunisia. During Navy evacuation from Sevastopol in November of 1920, commander of 2nd party of the squadron, junior flagman of Rear-admiral Kedrov's squadron. From 1920, commander of the Russian squadron in Bizerte. In 1924, in connection with the disbanding of Bizerte Squadron, moved to France. Awarded numerous Russian orders. Died in Tunisia.

Berezan Island – island in the north-west of the Black Sea, lies in the offshore shoal at the entrance to the Dniestr-Bugskii Lagoon, sited 12.8 km west of Ochakov and 1 km south of the entrance to Berezan Lagoon. Area around 0.5 km². Maximum length from the north to the south 850 m, width—from 85 to 200 m, height up to 20 m. The island shores are precipitous. Classical authors used to call B. Boristhene. It is established as a result of excavations that at the end of the seventh century B.C. there was a small trading town on B.—a most ancient Greek settlement in the circum-Black Sea area, moved in the sixth century B.C. to the continent—ancient Olvia. On March 6, 1906, active participants of the Sevastopol uprising of Black Sea sailors of November, 1905 were executed by firing squad on the island: Lieutenant P.P. Schmidt, the sailors A.I. Gladkov, N.G. Antonenko, S.P. Chastik. Nowadays an obelisk stands at the point of their execution.

Berezan Liman – small shallow-water body in the north-west Black Sea area sited 46 km east of Odessa Bay. Its length 20–25 km, mean width 2–3 km, mean depth 3.3 m (maximum around 15 m). Area of water surface 60 km², water volume 0.2 km³. Water exchange with the Black Sea—decisive factor of the liman water balance, the process being characterized by significant variability during a day: over 4 % of liman water volume may be involved in water exchange with the Black Sea within a single day. There is a bar at the entrance to the liman, preventing penetration of deep sea water to the liman. During positive surges, only the waters of the sea surface layer go in the water body. B.L. is inhabited by both the fishes living in the neighboring Dniestr-Bugskiy Liman, and the Black Sea immigrant species. Fish productivity of the liman is low.

Berg Moritz Anton August von (Moritz Borisovich) (1776–1860) – Russian hydrographer, Admiral, Chief Commander of the Black Sea Navy and Ports, Governor-General of Nikolaev and Sevastopol, Inspector of the Corps of Black Sea Navy Navigators, member of the Admiralty-Council. A descender of Baltic Germans. In 1791, entered the Sea Corps as a cadet, in 1795—a midshipman. From 1796 to 1805, sailed on various ships in the Baltic and German (North) seas, made treks to London and Lisbon. In 1806–1809, on the ship “Neva” of Russian-American Company sailed from Kronstadt to the coasts of Russian America. In 1809, returned to St. Petersburg overland. From 1810 to 1817, sailed on various ships over the Baltic Sea. In 1817 transferred to the Black Sea as the supervisor of Black Sea and Azov light-houses (Nikolaev). In 1818–1819, stayed in Sevastopol. In 1820, was making a description of the Black Sea. In 1820–1824—chief of the

expedition for the description of the Black Sea, Light-Houses Supervisor and Director of Sevastopol Naval School; promoted to a Captain 2nd rank. In 1825—Captain of Sevastopol port. In 1827, appointed Inspector of the Corps of Black Sea Navigators, with promotion to colonels (Nikolaev); from 1829, Major-General. In 1831 appointed chairman of the Committee for setting up dry-docks in Sevastopol. From 1832, managing director of the Hydrographic Department of the Black Sea Staff (Nikolaev). In 1838 promoted to Lieutenant-General. In 1849, appointed member of the Admiralty-Council. In 1851 reattested to Vice-admiral and appointed Acting Chief Commander of the Black Sea Naval Staff and ports, Governor-General of Nikolaev and Sevastopol (until 1855). In 1852, promoted to an Admiral. At the time of B. in Nikolaev, for the first time the construction of the 135-canon screw-driven ships “Tsesarevich” and “Sinop” commenced. Also, B. was at the helm of the Russian Navy during the toughest years of the Russian sea history of the nineteenth century: the Crimean war and defense of Sevastopol, making provisions for the defense and supplies of maritime cities, evacuation and accommodation of the wounded, through passages of troops, etc. Awarded numerous orders.

Berlin Congress (1878) – international congress convened for the revision of the 1878 Treaty of San Stefano that terminated the Russian-Turkish war of 1877–1878 rr.; the object of B.C. was to conclude a new treaty called upon replace the Paris Peace of 1856 that virtually had become inoperative. B.C. was held in Berlin from 1 (13) June to 1(13) July 1878. The terms of the Treaty of San Stefano which stipulated considerable territorial acquisitions by Russia in Transcaucasia and enhancement of its positions on the Balkans produced active resentment of Great Britain and Austria-Hungary. On the pretext of protecting Turkey the British Government sent a naval squadron to the Sea of Marmara and conducted partial mobilization of the Navy. The Government of Austria-Hungary, in its turn, announced mobilization in Dalmatia and demanded the convening of a European conference. The participants of B.C. were: representatives of Russia, Austria-Hungary, Great Britain, Germany, Italy, Turkey and France. Some meetings (dealing with matters, relating to respective countries) were attended by representatives of Germany and Romania. Present in Berlin were also the Prime-Minister of Serbia, representatives of the Senate of Montenegro, the Irish envoy, leaders of the Armenian-Grigorian Church.

The outcome of B.C. was the signing on July 1(13) 1878 of the Berlin Treaty, comprising 64 articles that modified some terms of the Treaty of San Stefano to the detriment of the interests of Slavic peoples of the Balkan Peninsula and Russia. Under Article 1, Bulgaria constituted itself as a self-governing principality subordinated to the Turkish Sultan whom it was to pay tribute; Bulgaria was allowed to have a Christian government and national militia. Article 2 fixed the frontiers of the new state. Art. 3–12 stipulated (1) election of a head of the principality who could not be a representative of the dynasties ruling in the great European powers and (2) the mechanism of introducing a new constitution, the procedures of mutual relations between the Bulgarian government and Turkey. Provisional government

of Bulgaria remained the responsibility of the Russian Commissioner (provided he was assisted by the Turkish Commissioner and Consuls appointed by the other countries- participants of B.C.); the term of stay of Russian troops in Bulgaria was limited to 9 months (Art. 22). The areas to the south of Balkan Peninsula were to be instituted as East Rumelia Province under a direct political and military power of the Sultan on the principles of “administrative autonomy”, the governor-general of the province, of Christians, was to be appointed subject to the consent of the powers (Art. 13). Turkey was not allowed to keep her troops on the territory of Bulgaria. The governor of East Rumelia was entitled to call up Turkish troops in case the country’s security was threatened. Russia agreed that Austria-Hungary would be entitled to occupation and administrative management of Bosnia and Herzegovina as well as to maintaining a garrison at Novi-Bazaar sanjak (between Serbia and Herzegovina) that remain in possession of Turkey (Art. 25), Serbia (Art. 34) and Romania (Art. 43). Reaffirmed were provisions of the Treaty of San Stefano, whereby Romania gained North Dobrudzha in exchange for Bessarabia it was entitled to under the 1856 Paris Peace; Bessarabia was to be returned to Russia (Art. 45–46). Reaffirmed and broadened were the powers of the Danube Commission in which a Romanian representative was included. Freedom of navigation on the Danube was guaranteed (Art. 52), from the Iron Gates (navigation of naval ships was prohibited).

In Transcaucasia, Russia gained Ardagan, Kars and Batum (Art. 58), a new Russian-Turkish border was determined; Batum was declared a free trading port (porto-franco). Alashkert Valley and Bayazed were again returned to Turkey (art. 60). Turkey undertook to go ahead, without delay, with reforms “called for by the local needs” in the area with Armenian population, and make provisions for the security of such population. Special articles of the treaty proclaimed the principle of religious freedom and equality of civil and political rights irrespective of creed in all parts of the Ottoman Empire, as well s in Bulgaria, Montenegro, Serbia, Romania. Reaffirmed were all provisions of the 1856 Paris Peace and of the 1871 London Convention on the Black Sea straits that were not affected by the new agreement (Art. 63).

Having played a certain role in temporary stabilization of the situation on the Balkans, B.C. not only did not resolve all most acute Balkan contradictions and contradictions between the European powers, Russia and Turkey in respect of the Balkan issue, but produced new knots of mutual rivalry. B.C. failed to elaborate a procedure to control the observance of its resolutions, therefore part of the treaty articles was either ignored or modified. In 1885, Bulgaria and East Rumelia were united in a single state proclaiming full independence of Turkey; in 1886, Russia abolished the status of Batum as porto-franco. As the Balkan wars of 1912–1913 began, the effect of the Berlin Treaty actually ceased.

Bersenev Ivan Mikhailovich (circa 1745–1789) – Russian hydrographer, Captain 2nd rank, graduated from the Naval Cadet Corps in the rank of midshipman in 1765. Upon graduation, until 1770 sailed on various ships in the Baltic and White seas. In 1770, sailed in Admiral G.A. Spiridov’s quadroon from the Baltic to the

Mediterranean Sea. Took part in the Battle of Chesma (1770) during the Russian-Turkish war of (1768–1774). The war over, he sailed on various ships on the Black Sea. Worked at the Admiralty-collegium, mapped areas of the Greek Archipelago (1776–1778). In 1783, B. made his first description of Akhtiar Bay, whereupon the construction of a new port and a city of Sevastopol began there. In 1785–1786, B. explored and described the Crimean coast from the Belbek River to Kinburn Spit and from Sevastopol to the Sea of Azov.

Berthier-Delagarde Alexander Lvovich (1842–1920) – Russian military engineer, General. He was born in Sevastopol in 1842. During the 1870s–1890s, under his guidance, they were building trading ports in Odessa, Kherson, Sevastopol, Yalta and Feodosiya, the first water pipelines in the cities of the Crimea, an admiralty in Sevastopol. In the course of construction work, B.-D. was making archeological observations. Known as an outstanding archeologist specializing in the study of the classical period, researcher of classical cities of the Northern circum-Black Sea area, coin collector, vice-president of the Imperial Odessa Society of History and Antiquities. B.-D. donated over RbIs. 1,000 at the end of the 1890s to finance repairs of the Genoese Fortress in Sudak.

Besikduzu – a town on the coast of the Black Sea, Turkey.

Besleti – maritime climate-balneal health-resort, sited in the valley of the Besletka River, 4 km east of Sukhumi, Abkhazia. The climate is humid subtropical, with very mild, snowless winter and very warm summer. Besides climate, the health-resort resources of B. include ground waters obtained from the drilled water wells.

Bessarabia – historic area, sited between the Black Sea and the Danube, Dniestr, Prut and Rakitna rivers. Until the early nineteenth century, B. referred only to the southern part of the Prut and Dniestr interfluves—Budzhak. During the 1st millennium B.C., it was populated by Frakians, in the 1st millennium A.D., it was invaded by Gots, Hunns, then Avars and other peoples. In the tenth to early twelfth centuries B. becomes part of the ancient Russian state, in the twelfth century—part of Galitsk Principality, in the thirteenth to mid fourteenth centuries—part of Galitsk-Volyn Principality. At the end of the fourteenth to early fifteenth centuries the area of B. adjoining the lower reaches of the Danube was disputed by Moldavian and Valashian hospodars. The Valashian Principality managed to control temporarily the area between the Prut and Danube. Until 1484, B. was part of the Moldavian Principality. As a result of Osman conquest, Belgorod Fortress and Kila with environs became Turkish administrative units (raias), in 1538, a new Turkish raia was formed in the Bessarabian territory with a center at Bendery (Tiginya) alienated from Moldavia. In the southern part of B. Tatars and Nogai people settled: these obeyed the Crimean Khanate. In 1591 and 1621, Turkish raias were set up around Izmail and Reni. After the unsuccessful Prut campaign of Peter I, Khotin raia was established. The Sultan government intended to unite the North and South B. under his authority. The Russian-Turkish wars of the eighteenth to early nineteenth centuries were conducive to liberating B. from Porta. In conformity with the Ainaly-Kavak Russian-Turkish Convention of 1779, part of south B. was annexed

to Moldavia, where Khotarnichi tsynut (County) was established. By early nineteenth century, B. was subdivided into three areas: Moldavian, which was part of the Moldavian Principality, Turkish, governed by Pashas, and Nogaian ruled by Budzhak Khans. After the Crimea was annexed to Russia (1783), part of the Crimean Khanate between the Dniestre and Bug also began to be governed by Budzhak Khans, and until 1791 this territory was called B. During the Russian-Turkish wars of the second half of the eighteenth to early nineteenth century, B. was ruled by the Divan of Moldavia that was headed by Russian administration subordinated to the Commander-in-Chief of the Russian Army. Under the 1812 Bucharest Peace, B. was annexed to Russia. From 1818—region, and from 1873—province of the Russian Empire (center—Kishinev). Under the 1829 Adrianopol Peace, the Danube delta was also annexed to B. In 1856, the southern part that adjoined the Danube and lower reaches of the Prut River was made part of the Moldavian Principality, which was united with Valash Principality as part of the state of Romania. Under the 1878 Berlin Treaty, South B. without the delta was returned to Russia. During WWI, the area of North B. was involved in military operations.

Bessarabian Province – transformed in 1873 from Bessarabian Region (center—Kishinev). Was subdivided into counties: Akkerman, Beltsy, Bendery, Izmail, Kishinev, Orgeevka, Soroka, Khotin. In 1897, the area was 39,000 verst; population—1.9 mln people (Moldavans, Ukrainians, Russians, Jews, Bulgarians, Germans, Turks). Population in 1910—2.4 mln people; highlanders—0.4 mln people; 12 cities, 5 trading quarters. B.P.—agriculture-oriented (early in the twentieth century, nearly 85 % of the population was engaged in agriculture). Basic crops—wheat, corn, barley, oats, potatoes, leguminous). Each year up to 100 mln puds of grain used to be exported from B.P. Stock farming played a significant role. Tobacco growing, vegiculture, fruit cropping, vine-growing and wine-making are practiced on a large scale (in 1908, around 8 mln vedros of wine was produced, 1 vedro = 10–12 l). Cottage industries include wool-cloth making, carpet-weaving, lint- and hemp-spinning, ceramics fabrication and others. Early in the twentieth century there was around 800 factories and plants (mainly small and medium) in B.P. distilleries, sugar-beet processing, tobacco factories, dairy plants, wool-cloth factories, etc. Over 6,000 flour mills, out of this, 58 large ones. Across the territory of B.P. there ran lines of the South-West Railway System, their total length being 800 versts (1911). Steamer traffic on the Danube, Prut, Dniester rivers. Major commodities of commerce—grain, products of stock farming and wine-making.

Bessarabian Region – established in 1818 on the territory of Bessarabia that became a Russian possession under the 1812 Bucharest Peace (center—Kishinev). Originally was divided into these counties: Bendery, Grechany, Kodru, Orgeen (or Kishinev), Soroka, Khotarnichan, Khotin, Tamarov (or Izmail), Yassy (or Faleshty). Under the Regulation on B.R. administration (1828), the region was divided into counties: Akkerman, Bendery, Kishinev, Leov (subsequently, Kagul), Srgeev, Soroka, Khotin, Yassy (subsequently, Beltsy) as well as Izmail Mayorate (subsequently, county). Under Adrianopol Peace of 1829, the Danube

delta was included in B.R. After the Crimean War of 1853–1856, under the 1856 Paris Peace, Izmail County was alienated from B.R. (was made part of the Moldavian Principality, under the 1878 Berlin Treaty—again in the Russian Empire) and the Danube delta was alienated, too. In 1873, B.R. was transformed into Bessarabian Province.

Betta – maritime climatic health-resort and settlement 35 km to the south-east of Gelendzhik, Krasnodar Territory, Russia. Sited in a picturesque valley of a mountain river of the same name. On the south-east, is protected from winds by the offspurs of the Greater Caucasus. B. area exhibits lush vegetation (including epibiotic pine); in the environs, there are vineyards. There is a pebble beach 300 m long.



Betta (Photo by Andrey Kostianoy)

Big fontan (fountain), Cape – sited to the north-east of Ilyichevsk Port. Marks the southern border of Odessa Bay. The shore around the cape is precipitous. The Odessa Lighthouse is installed on the cape.

Big Utrish – a small village on the coast of the Northeastern Black Sea, 15 km southward of Anapa, Russia. Recreation area, beach. Lighthouse and dolphinarium.

Biosphere reserve – (1) The representative landscape unit identified in accordance with the UNESCO Program “Man and Biosphere” for the purposes of its preservation and investigation (and/or monitoring). It may incorporate ecosystems not

affected by economic activities or slightly altered, often surrounded by the lands in use. Such reserves are found in more than 60 countries. (2) Strictly protected large natural site practically not subject to man-transformed local impacts, a surrounding landscape with the century-wise processes which nature enables to reveal the spontaneous changes in the biosphere, including global anthropogenic; (3) Territory on which permanent monitoring of the anthropogenic changes in the natural environment on the basis of instrumental control of bioindicators.

Biryuchii Island – island-spit sited in the Sea of Azov. Of sedimentary and alluvial genesis. There are numerous saltlakes, wide reaches, solonchak-steppe vegetation in the low-lying part of the spit overlooking the lagoon. Birds nestle in the numerous niches on the steep rocky slopes of the island. B.I. is part of the Azov-Sivash husbandry reserve.

Black and Azov Sea Ports Association (BASPA) – international non-governmental organization established in March 1999. The Association is established under the aegis of the international Organization of the Black Sea Economic Cooperation (BSEC). The primary goals of the association—active participation of the Black Sea region ports in formulating the transportation policy of the European Union, the world community and BSEC countries in the Black Sea area as well as promotion of transport routes in the region; development of cooperation between the regional ports and international agencies; active participation of the ports in promoting priority international traffic corridors, above all between Europe and Asia. The Association places great emphasis on matters of collective security in the Black Sea, in particular, on environmental problems.

Black caviar – the roe of the sturgeons. B.C. is produced from the raw roe of great sturgeon, kaluga (*Huso dauricus*), sturgeon, stellate sturgeon, bastard sturgeon and sterlet. This is the highly nutritive, valuable and tasty food product. It contains great quantities of full-value proteins, fats and vitamins. By its calorific value this product is inferior to meat, milk and other foodstuffs. 100 g of caviar gives 280 calories to the organism. The usual caviar portion is considered one ounce (28.35 g). The common stages in production of all kinds of granular caviar, except unscreened roe, include splitting of fish with roe, removal and sorting of roe-in-sac and roe separation, making of roe parcels. The caviar quality depends on the size of roe, their color (light-gray, dark-gray and black) and fat content—the larger and lighter are the roe the higher their quality. The color and size of eggs depend on the age of female fish and its feeding. The following kinds of caviar are distinguished: great sturgeon—its color varies from light to dark gray and it is packed in a jar with a blue cover; stellate sturgeon—it is most often black and it is packed in jars with a red cover; sturgeon—blackish, golden-brown, amber-yellow, it is packed with a yellow cover. Depending on the methods of processing the caviar may granular, slightly salty in tins and strongly salted barrel, pasteurized, pressed, and unscreened. Depending on the production technology the caviar may be low-salty, fresh, low-salty pasteurized or pressed. For its better preservation the freshly prepared caviar is immediately canned. On the world market the prices of the stellate

sturgeon caviar vary up to 1,500 USD/kg, the great sturgeon caviar may cost up to 10,000 USD/kg. The principal caviar producers are Russia, Iran and Azerbaijan. The achuev caviar produced from the A.S. sturgeons was valued high in Russia.

Black mullet (*Mugil cephalus*) – fish of the Mullet (*Mugilidae*) family. Its length is typically 75–80 cm, weight—2 to 3 kg, sometimes to 6 kg. This species occurs mostly in the tropical and moderate zones of the Atlantic, Pacific and Indian oceans, in the Mediterranean, Black seas and Sea of Azov. This is the pelagic fish living in stocks. In the Black Sea three localized stocks are distinguished—Crimean, Caucasian and Balkan. Its lifespan is 7–8 years. It reaches maturity at the age of 2–3 years. It grows quickly: 2-year species may be 17–39 cm in length and weigh 120–950 g, while 3-year species 34–48 cm and 700–1,800 g, respectively. The fish propagates in the coastal and open waters from June to late August. It migrates for spawning, fattening and hibernation. In April (more seldom in March) or in early May the species from the Balkan stock migrates to the Bulgarian shelf and usually to mid-June its stocks occur along the whole western coast of the Black Sea. Some fish settles in the coastal lakes for the whole summer and half of autumn, others stay in bays and freshwater sea areas. In autumn when the water cools down B.M. gradually move southward and till mid or late December it stays in the southern part of the Black Sea near Bosphorus and in the Sea of Marmara. Annually the 1-year species and small stocks of 2- and 3-year fish hibernate in some the Black Sea coastal lakes and in large harbors protected from waves. B.M. has the greatest commercial significance of the whole Mullet family.

“Black Prince” – under this name, the 3,000 tons British sail-screw, iron hull steamer “Prince” went down in history. During the Crimean war, in 1854, the ship carried cargo (regulation uniform, tents and medication) for the British expeditionary corps in the Crimea. During a violent storm the ship together with two dozens other ships and craft was thrown against the sea cliffs, was shipwrecked and sank on the outer road of Balaklava harbor not far from Sevastopol, Crimea. The story of its shipwreck by early twentieth century acquired a fantastic coloring. It was widely believed that there was a huge amount of gold on board the ship—pay for the entire British Army. The steamer got the name of “Black Prince”. The search for the ship began immediately after the war ended. In 1875, the search was conducted by the French, then by Italians. In 1923, a special purpose expedition for submarine works EPRON commenced a search for the steamer. At the end of 1924, some remains of the iron ship were located and part of these was lifted. No gold was found, so the work aimed at lifting the ship was terminated. In summer of 1927, the search was commenced by the Japanese diving firm “Sinkai Kogiossio Limited”. The firm allegedly worked on board the located vessel, yet it too failed to find much gold. In all 7 gold coins were found, of which 4 were handed over to judge, and 3 the Japanese left to themselves. Presumably, there was no gold on board the “Prince” et al., since it had been offloaded earlier at Constantinople. An indication of this is the fact that Britain had never ventured to search “P”. At the same time, France spend half a million, Italy—200,000, Japan—nearly one-fourth of a million rubles

in gold. “B.P.” was the subject of stories written by A.I. Kuprin, S.N. Sergeev-Tsenski, M. Zoshchenko, E.V. Tarle and many other authors.

Black Sea – The Black Sea (together with the Sea of Azov) projecting far into the continent constitutes a most insular part of the World Ocean and is part of the basin of the Atlantic Ocean. B.S. washes the coasts of Russia, Ukraine, Romania, Bulgaria, Turkey, Georgia and Abkhazia. The sea is linked by Bosphorus Strait with the Sea of Marmara, and by Kerch Strait—with the Sea of Azov. The Black Sea area is 423,000 km², the volume of water is 555,000 km³, mean depth—1,315 m, maximum depth—2,258 m, the length of the coastline is 4,340 km.



The Black Sea countries

The coastline, except north and north-west, is slightly dissected. The eastern and southern coasts are steep and mountainous, western and north-western—low and flat, in places precipitous. The only large peninsula is the Crimean one. On the east, the offspurs of the Caucasus mountains come close to the sea, the Pontian Mountains stretch along the southern coasts. Around Bosphorus, the coasts are low, but precipitous. In the south-west, the Balkan Mountains end abruptly right at the seashore, farther to the north there is Dobrudzha Upland, gradually giving way to lowland expanses of the wide Danube delta. The north-western and partly northern coasts are cut by lagoons: Dniester, Dnieper-Bug, separated from the sea by spits. The largest bays are in the north-west: Odessa, Karkinit, Kalamit. Besides these, worthy of mention are Samsun and Sinop Bays on the southern coast, Burgas Bay—on the western coast. Zmeinyi and Berezan islets are in the north-western part of the sea, Kefken is eastward of Bosphorus.

Most of the river runoff (up to 80 %) comes to the north-western part of the sea, where major rivers bring their waters: Danube (200 km³/year), Dnieper (50 km³/year), Dniester (10 km³/year), South Bug (5 km³/year). The Inguri, Rioni, Chorokh

rivers and a lot of rivulets fall into the sea on the Black Sea coast of the Caucasus. Elsewhere on the seacoast, river runoff is insignificant.

Three major structures are distinguished in the seabed relief: the shelf, continental slope and deep-water basin. The shelf accounts for up to 25 % of the seabed total area and, on the average, is confined by the depths of 100–120 m. The shelf's maximum width (over 200 km) is in the northwestern part of the sea, all of which is within the shelf zone. Nearly throughout the mountainous eastern and southern coasts of the sea, the shelf is rather narrow, just a few kilometers, while in the southwestern part of the sea it is wider (dozens of kilometers). The continental slope occupying up to 40 % of the seabed area goes down roughly to the depths of 2,000 m. The slope is quite steep and is dissected by underwater valleys and canyons. The bottom of the basin (35 %) is a flat aggraded plain, whose depths gradually increase centerward.



The Black Sea bottom and land topography (http://upload.wikimedia.org/wikipedia/commons/thumb/8/89/Black_Sea_relief_location_map.svg/2000px-Black_Sea_relief_location_map.svg.png?uselang=ru)

The Black Sea surrounded by dryland has a distinctly continental climate, which is manifest in significant variations of air temperature. Coastal relief has a great impact on climatic peculiarities of parts of the sea. For example, the northwestern part of the sea open to the effect of the air masses from the north is characterized by steppe climate (cold winter, hot, dry summer), whereas the southeastern part shielded by high mountains the climate is that of moist subtropics (abundant rainfall, hot summer and mild winter). In winter, the sea is subject to the impact of the offshoot of the Siberian anticyclone, causing the influx of cold continental air. This is accompanied by north-easterly winds, not infrequently reaching the

force of a storm, by abrupt drops of air temperature, rainfall. Particularly strong north-easterly winds are typical of Novorossiisk area ("bora"). Here, masses of cold air accumulate beyond the high coastal mountains and, having overcome the mountain tops, plunge with great force downward, to the sea. The wind speed during bora reaches 30–40 m/s, bora recurrence is 20 times a year and more, essentially from November to March. When the Siberian maximum offshoot weakens in winter, the Black Sea becomes dominated by Mediterranean cyclones. These cause unstable weather with warm southwesterly winds and temperature fluctuations.

In summer, the effect of the Azores maximum spreads over the sea, dry and hot weather prevails, thermal conditions become uniform for the entire water area. This season is dominated by slight northwesterly winds, the stormy northeasterly winds being generated seldom in the northeastern part of the sea. The lowest mean monthly air temperature in winter is noted in the northwestern part of the sea (under -5°C), while in the east and south it increases to $6-9^{\circ}\text{C}$. Minimum temperatures in the northern part of the sea reach -25°C . . . -30°C , in the south -5 . . . -10°C . In summer, the mean air temperature over the sea equals $23-25^{\circ}\text{C}$, the maximum values being $35-37^{\circ}\text{C}$.

Precipitation on the coasts is extremely non-uniform. In the southeastern of the sea, where the Caucasian ranges block the humid Mediterranean winds, precipitation is maximum (in Batumi—up to 2,500 mm/year, in Poti—1,600 mm/year). On the plain northwestern coast precipitation does not exceed 300 mm/year, near the southern and western coasts and on the SCC—600–700 mm/year.

In the water balance of the sea (km^3/year), the input component is made up of: river runoff—338, precipitation—237, water influx via Bosphorus—175, via Kerch Strait—50; the output component: evaporation for the sea surface—396, runoff to the Sea of Marmara—370, to the Sea of Azov—34. The total value of water input and output averages around $800 \text{ km}^3/\text{year}$.

Seasonal variations of the sea level are mainly produced by the differences of river runoff input during the year. For this reason, during the warm season of the year the sea level is higher, during the cold season—lower. The value of variations is most significant where the impact of river water is maximum—30 to 40 cm. The difference between the levels of the Black Sea and the Sea of Marmara, and the type of winds around Bosphorus determine seasonal variations of the water exchange via the strait. The upper Bosphorus current from the Black Sea (the thickness of its layer at the entrance to the strait is around 40 m) reaches maximum in summer, its minimum being observed in autumn. The intensity of the lower Bosphorus current (directed to the Black Sea) is the highest in autumn and in spring, its minimum is registered early in summer.

Wind-effect fluctuations of the sea level in the Black Sea are maximum: these have to do with the impact of steady winds. Such fluctuations are most frequent during the autumn-winter period in the western and north-western parts of the sea, where they are likely to exceed 1 m. Near the Crimean and Caucasian coasts, the positive and negative surges hardly ever exceed 30–40 cm. Their duration usually lasts 3–5 days, yet sometimes it may be longer. Seasonal density-related (steric)

variations of the sea level are produced by variations during the year of temperature and salinity in water column.

Subject to the nature of winds, considerable wave develops during the autumn-winter season in the north-western, north-eastern and central parts of the sea. Prevalent waves are 0.5–1 m high, but in open water areas maximum height of the wave during very strong storms may be as high as 10 m. The most still are southern areas of the sea, where strong wave is rare, and waves higher than 3 m are hardly ever observed.



Heavy storm in Sevastopol on 11 November 2007 (Photo by Dmytro Solovyov)

Ice in the Black Sea is only formed in the narrow strip of the northwestern part of the sea (0.5–1.5 % of the sea total area). In very severe winters, fast ice along the western coasts stretches as far as Constanta, and ice floes may drift as far as Bosphorus. True, over the last 150 years only five such cases have been recorded. The commencement of ice formation as a rule occurs in mid-December, and becomes quite common in February. Depending on the severity of winter, the length of the ice period varies significantly: from 130 days in severe winters to 40 days when winters are mild. Maximum ice thickness averages 15 cm, in severe winters—up to 50 cm.



Ice cover in Odessa port on 1 February 2012 (<http://regonetolserfot.ru/>)

Water circulation in the upper layer of the sea is directed counterclockwise, with two cyclonic gyres in the western and eastern parts of the sea and with the longcoast Rim Current. There are three areas distinguished in the Black Sea circulation system: coastal, the Rim Current area and open water areas. The nature of currents in the coastal part of the sea is characterized by considerable variability conditioned by mesoscale and smallscale eddies and meanders. The 40–80 km wide Rim Current area is right above the continental slope. The currents inside it are rather steady, the speeds on the surface equal 40–50 cm/s, sometimes exceeding 100 and even 150 cm/s (in the midstream of the flow). In the upper 100-m layer of the Rim Current, the current velocity change little, depending on the depth, and as the depth increases, they tend to slow down. In open areas of the sea, the currents are weak. The mean velocities do not exceed 5–15 cm/s on the surface and 5 cm/s at 500–1,000 m depth. The general circulation of the Black Sea is one of single direction. It is hard to judge on the nature of circulation in the water column deeper 1,000 m. Analysis of numerous satellite images of the Black Sea and hydrological data indicates the presence of diverse vortex structures, their spatial scale ranging from 10 to 100 km: coastal anticyclonic eddies, anticyclones and open sea cyclones, dipole vortex structures. The depth of vortical motions penetration reaches 300–400 m. The velocity of their movement is around 5–20 cm/s, velocity of orbital rotation—20 to 40 cm/s (maximum—45 cm/s). The lifetime of vortical structures—from several days to 6 months. The merging of anticyclones is conducive to their lengthy existence.



Satellite image of mesoscale vortical structures along the coast of the Black Sea (Image courtesy by Dmytro Solovyov)

The temperature of water on the surface of the sea in winter rises from $-0.5 \dots 0$ °C in the coastal areas in the north-west to $7-8$ °C in the central areas and $9-10$ °C in the south-eastern part of the sea. In summer, the surface water layer is as warm as $23-26$ °C. During the warming period, there is formed an abrupt layer of thermocline which limits the spread of heat depthwise. Salinity in the surface layer throughout the year is minimal in the northwestern part of the sea, where the bulk of river runoff comes. In the river mouth areas, saline increases from $0-2$ ‰ to $5-10$ ‰, whereas on most of the water area of the open sea it equals $17.5-18.3$ ‰.

During the autumn-winter season, thanks to sea waters growing cooling vertical circulation develops. By the end of the winter it embraces the layer 30 to 50 m thick in central areas and 100–150 m thick in coastal areas. Water in the northwestern part of the sea are cooled most; from there, spread on the intermediate depths all over the sea and may reach the areas most distant from the focal points of cooling. As a result of winter convection during subsequent summer warming, a cold intermediate layer is formed in the sea. It is located at 60–100 m depth all year round and is distinguished by temperature on its upper and lower boundaries— 8 °C, and in the core— $6.5-7.5$ °C. Convective mixing in the Black Sea cannot spread deeper than 100–150 m due to greater salinity (and, hence, density) in deeper layers. In the upper layer of mixing, salinity increases slowly, then on the 100–150 m depth it increases abruptly from 18.5 to 21 ‰. This is a permanent halocline. Starting with the horizons of 150–200 m, salinity and temperature rise slowly bottom-wise due to the arrival in the deep layers of more saline and warm waters of the Sea of Marmara. At the exit from Bosphorus Strait, the waters have salinity of $28-34$ ‰ and temperature of $13-15$ °C, but change their characteristics quickly, mixing with the Black Sea waters. In the near-bottom layer, there occurs a slight increase of temperature

due to geothermal influx of heat from the sea bottom. Deep waters occupying the water column from 1,000 m to the bottom (over 40 % of the sea volume) are distinguished by great stability of temperature (8.5–9.2 °C) and salinity (22.0–22.4 ‰).

Unlike the other seas, in the Black Sea only the upper, thoroughly mixed layer of about 50 m in thickness is saturated with oxygen (7–8 ml/l). As one goes deeper, oxygen content begins to decline quickly, and at the depth of 100–150 m oxygen content is equal to zero. At the same depth there emerges hydrogen sulfide, its quantity growing with depth to 8–10 mg/l at 1,500 m depth, and farther to the bottom the content grows stable. In the centers of major gyres, where the upwelling of waters is observed, the upper boundary of the hydrogen sulfide zone is closer to the surface (70–100 m) than in the coastal areas (100–150 m). The boundary between the oxygen and hydrogen sulfide zones is occupied by the intermediate layer of their coexistence, which constitutes the lower boundary of marine life. The spread of oxygen to the deep layers is blocked by high vertical gradients of density in the zone of contact of the water masses of the Black Sea and the Sea of Marmara, which restrict convective mixing by the upper layer.

However, water exchange throughout the water column of the Black Sea does occur, albeit slowly. If there were no continuous influx of deep, more saline waters into the sea, then it would have grown fresh a long time ago due to the impact of river runoff. The deep saline waters are replenished with the lower Bosphorus current all the time, they gradually go up and get mixed with the upper layers that are driven out of the sea by the upper Bosphorus current. Such circulation maintains a relatively permanent salinity in the water column.

Different authors stress the following main factors impacting the vertical exchange in the sea: water upwelling in the center of gyres and water downwelling round their periphery; turbulent mixing and diffusion inside the water column; winter convection in the upper layer; wind-effected phenomena and upwelling in the coastal areas. Simultaneously, estimated time of total vertical water exchange in the sea is rather approximate: from dozens to hundreds of years. This matter needs special investigations.

Most authors tend to regard reduction of sulfates during decomposition of organic residues as the main mechanism of hydrogen sulfide formation in the Black Sea. This kind of process is possible in any water body, but hydrogen sulfide formed in it gets oxidized quickly. It does not disappear in the Black Sea due to slow water exchange and inability of its rapid oxidation in the deep layers. During upwelling, as the water reaches the upper oxygen-saturated layer, hydrogen sulfide is oxidized into sulfates. Thus, there exists in the sea the established equilibrium cycle of sulfur compounds, which is determined by the rate of water exchange and other hydrodynamic factors. The data of observations indicate the natural year-to-year fluctuations of the upper boundary of the hydrogen sulfide zone taking place differently in various areas of the sea and in different years.

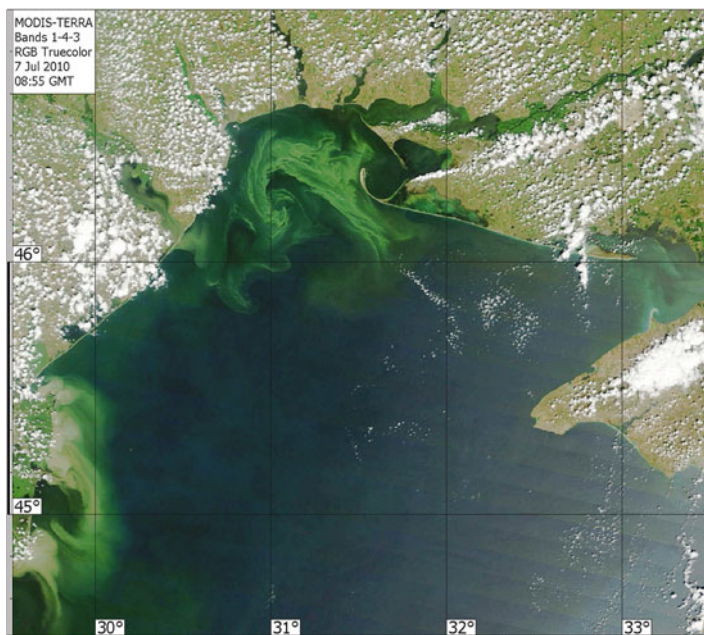
The diverse flora and fauna of the Black Sea is almost entirely focused in the upper layer which is 150–200 m thick and accounts for 10–15 % of the water volume. The deep water mass devoid of oxygen is almost lifeless and is inhabited

by anaerobic bacteria only. Ichthyofauna of the Black Sea used to be shaped up by representatives of varying origin and comprises around 150 fish species. Of the Black Sea food fishes, at present of significance are only anchovy, horse mackerel and sprat as well as dogfish. There dwell three species of dolphins in the Black Sea whose fishing is prohibited. The total dolphin population in the sea is around 400,000 individuals, probably much fewer.

Over the last few decades, the environmental situation in the Black Sea has deteriorated substantially. Due to intensive human activity in the sea basin and on the coast, the sea is increasingly polluted. The input of organic substances in the sea grows; concentrations of hazardous pollutants like oil products, phenols, pesticides and others in sea water have increased. The structure of biological communities has changed: the species composition of plants and animals is on the downgrade, reserves of the fishing grounds are dwindling. These adverse changes are, above all, manifest in the coastal areas of the sea where anthropogenic load is maximum. Since the end of the 1980s, fishing in the Black Sea has declined. The dolphin population is decreasing. Mediterranean seal that used to dwell in the Black Sea is now represented by a few individuals. This species faces complete extinction. All aforesaid factors are closely related to human activity.

The decline of fishing was assisted in the late 1980s by introduction of jellyfish *Mnemiopsis* and jellyfish *Aurelia Aurita*. In the sea, these predators propagated as they never had before. Introduction of the said jellyfish has reduced significantly biomass of zooplankton calorogenic to fishes. This has impaired notably food supply and reproduction of major food fishes: anchovy and sprat.

Adverse environmental changes are manifest most in the northwestern part of the sea. The large amount of biogenic and other organic matter arriving here with continental runoff causes mass development of plankton algae. In the area of Danube runoff impact biomass of phytoplankton has grown 10 to 20-fold. Due to toxic impact of some algae during mass “blooming” destruction of fauna may be observed. Besides, during intensive growth of plankton a large number of mortified organisms settles down on the seabed, whose decomposition required dissolved oxygen. Given pronounced water stratification in summer impeding the arrival of oxygen from the surface layer, there develops deficit of oxygen (hypoxia) in the bottom layers of the sea. This is likely to result in the death of organisms (suffocation) which have been recurring in the northwestern part of the sea virtually each year. The unfavorable environmental situation has led to the mortification of the once extensive field of phyllophora—algae used for the preparation of agar-agar. The areas of mussel grounds have declined considerably, and the state of biological communities has deteriorated in general.



Anomalous algal bloom in the northwestern part of the Black Sea in July 2010 (Image courtesy by Dmytro Solovyov)

The Black Sea is economically important to the countries that surround it. The Black Sea is one of the powerful through-passages. The Black Sea is used for the carriage of a huge quantity of freights of the Black Sea countries, the river waterways linked with the sea are used, too. The Volgo-Don Canal has linked the Black Sea with the Volga River and the Caspian Sea. These water-ways are used for freight and passenger vessels traffic. Grain, coal, ore, oil and salt constitute crucial commodities of domestic traffic. The largest sea ports are: Izmail, Odessa, Ilyichevsk, Nikolaev, Kherson, Kerch, Sevastopol, Feodosiya in Ukraine; Novorossiisk, Tuapse in Russia; Poti, Batumi in Georgia; Burgas and Varna in Bulgaria; Constanța in Romania; Istanbul, Sinop, Trabzon in Turkey. Large freight traffic of the Balkan countries is bound for the Black Sea over the Danube. The Black Sea is a major fishing area for fish, algae and mollusks. The shelf and continental slope hold good prospects for gas and oil recovery.

Its favorable conditions are conducive to the promotion of health resorts and tourism. The major climatic health resorts are: the Southern Coast of Crimea with the center in Yalta—Ukraine; the Caucasian coast—Anapa, Gelendzhik, Sochi—Russia; Gagra, Sukhumi—Abkhazia; Batumi—Georgia; Bulgarian coast—Golden Sands and Sunny Beach; Romanian coast—Mamaya.

Black Sea anchovy (khamsa) (*Engraulis encrasicolus ponticus*) – fish of the anchovy family (*Engraulidae*), has an elongate (up to 17 cm) rounded body covered

with an easily removed scale. The mouth is unusually large. The head is significantly flattened on the sides. Is common in the Black Sea. Forms two schools: western and eastern. Lives 4–5 years. Reaches sexual maturity at 1 year of age. This is a heat-loving fish, most active during warm months of the year, when it can be encountered across the entire water area of the Black Sea in the warm water layer (to the depth of 30 m), feeds, grows and propagates intensively. By the end of June, spreads all over the sea, mainly in its northwestern part. At the end of September—end of November, the western school leaves for the Crimean and Anatolian coasts to winter. Propagates with the aid of the floating fish eggs that is spawned during summer months. Has one of the best ratings in the Black Sea fishing. Is eaten when salted.

Black Sea—Azov Research and Fishing Station – was established in 1919 as a public service in Khersones.

Black Sea—Azov herring (*Alosa kessleri pontica*) – fish of the herrings family (*Clupeidae*). Length up to 40 cm. Common in the Black and Azov Seas, leaves for the rivers to propagate. Winters near the Crimean and Anatolian coasts. Early in spring, herring moves northward along the Bulgarian coast. Above all, it is the schools of mature individuals that migrate. Before mid-May, herring usually leave the Bulgarian waters gradually for the Danube to propagate from May to mid-July at water temperature 16–19 °C. In autumn, it moves southward, closer to the wintering sites. Herring lives approximately 6–7 years. Reaches sexual maturity at age 2–4 years. Herring is of great commercial value in the Black and especially Sea of Azov. Is an object of intensive fishing at sea in April–May, in the Danube—in June. Herring meat has excellent gustatory properties.

Black Sea—Azov sturgeon (*Acipenser güldenstadti colchicus*) – fish of the sturgeons family (*Acipenseridae*). Common in the basins of the Black and Azov seas. Reaches 250 cm in length; mass up to 80 kg. The snout is short, wide, rounded in front. Males reach sexual maturity at age 8–12 years, females—at age 13–15 years. S. propagates in the Danube from April to May. This sturgeon is relatively prolific: one female spawn from 72,000 to 840,000 fish eggs. Sturgeon is a predator, feeding mostly on fishes, crustaceans as well as larvae of insects and worms. Valuable commercial species in the basins of the Black and Azov seas. Used as a food item fresh, smoked or canned.

Black Sea—Azov White Fleet – established in 1919, played an important role in the Crimean epic of 1919–1920 during Civil War in Russia. Took part in operations near Nikolaev, Kherson, Ochakov.

Black Sea benthos – benthos includes organisms attached, freely lying on the seabed, digging in, hovering over the seabed and swimming above the very seabed. Benthic algae comprise green, blue-green, brown, red and two kinds of flower algae—*Zostera* and *Ruppia*. In all, there are 304 benthic species, and the most widespread of these are *Phyllophora* and *Cystoseira*. The former accounts roughly for 95 %, the latter—for 4 % of the entire mass of seabed algae. *Phyllophora* is

concentrated in the northwestern part of the sea, *Cystoseira* is omnipresent, yet it is particularly numerous near the southern coasts of the Crimea. Its thicket is a favorite habitat of the tiny fishes of over 30 fish species. Benthic animals include diverse species of invertebrate: sandhoppers, polychaetes, crawfishes, ascidians, rhizopods, hydroids, actinias and mollusks. Of gastropods—rapa whelk, *Nassa*, *Rissoa*, *Cekum*, *calyptraea chinensis* and others. Of lamellate-branchiate—mussel, deep-sea scallop, venus, thapes and many other species of mollusks. Benthos also includes fishes living at the seabed: skates, plaice, surmullet, scorpionfish, lady-beetle, greater weever. The area of the Black Sea benthos-inhabited bottom equals 95,300 km², or roughly 23 % of all seabed area. There are no living organisms, except anaerobic bacteria, at the depth beyond 200 m. Two regularities of benthos distribution as the depth of the Black Sea increases manifest themselves: the lower boundary of benthos habitation in the Bosphorus area going deeper due to permanent arrival of fresh water from the Sea of Marmara and elevation of this boundary in the northwestern part resulting from the rise of deep waters having a low oxygen content. On the northwestern shelf of the sea, the lower boundary of benthos habitation averages 130 m, near the Caucasus coast—at 140 m, and in the Bosphorus area at 200 m.

Black Sea bibliography – is a compendium of information on literature published in 1974–1994 (volume of 364 pages) compiled in the framework of the Black Sea Environmental Programme (BSEP) under the aegis of the Cooperative Marine Science Program for the Black Sea, CoMSBLACK) funded by Intergovernmental Oceanographic Commission (IOC) of UNESCO. The Bibliography includes works on Black Sea hydrology, geology, chemistry and biology, carried out not only by Black Sea countries, but also by USA, Germany, Sweden, Italy, Great Britain and other countries. The Bibliography was published by UNDP in USA in 1995 as the first volume in the series “Black Sea Environment” edited by V.O. Mamaev (Russia), D.G. Aubrey (USA), V.N. Eremeev (Ukraine).

Black Sea Branch of Lomonosov Moscow State University – established by decision of the MSU Academic Board of March 29, 1999 with the concurrence of the supreme legislative and executive authorities of the Russian Federation and Ukraine in Sevastopol City, supported by Moscow Government and Black Sea Navy. The concept of establishing the MSU Black Sea Branch is based on the understanding of the need for further improvement of Russian-Ukrainian relations, reestablishing the uniform cultural-and-information field in the entire post-Soviet space. The primary tasks and areas of the branch activity are: training subject-matter experts of a range of professional-education and qualification levels (natural sciences, computer math, economics and management, and other fields), educational activity including teaching, methodology, culture-education and upbringing activity; carrying out fundamental, applied and exploratory research. The branch's academic and administrative building is housed in the renovated historic structure of the former Lazarev Barracks.



Black Sea Branch of Lomonosov Moscow State University (<http://www.hist.msu.ru/Photo/sev1.jpg>)

“Black Sea—Caspian Sea” Canal – project that since the end of the nineteenth century has been toyed with on and off as one of the options to stabilize the level of the Caspian Sea. In a most general form, the project is a canal taking off the Black Sea water in an area north of Novorossiisk, run along the eastern coast of the Sea of Azov, on along Manych Depression toward Kizlar Bay of the Caspian Sea. The existing difference between the levels of the Black and Caspian Seas—around 28 m and congenial topography dividing their territories makes it possible to supply Black Sea water to the Caspian Sea by gravity flow. However, implementation of the project may have unwanted consequences to the Caspian Sea fauna.

Black Sea—Caucasus monsoon – Black Sea monsoon—in winter, prevalent northeasterly wind, in summer—winds of westerly directions in the segment of the Caucasus Black Sea coast. Seasonal change of winds is particularly pronounced on the coast between Tuapse and Batumi. In the passes and in gorges during the winter B.S.C.M. becomes similar to bora or foehn.

Black Sea coasts – are distinguished by great diversity and at the same time are only slightly dissected. There is only one large peninsula here—Crimean, and several small bays round its periphery (Karkanitsky, Kalamitsky, Feodosiisky), and on the western coast—Burgas Bay. Generally speaking, the Black Sea is mostly characterized by abrasion shores. This notwithstanding, the eastern and southern parts of the sea, featuring recent mountainous structures of alpine folding, are dominated by high mountainous abrasion shores, in the western part, where hard blocks of the margin of the ancient Russian platform and Baikal folding play the main role, there are level accumulative and abrasion-accumulative shores.

Conducive to the development of abrasion processes in the eastern part of the sea is also the extremely narrow shelf.

The north-western sea coast from the Danube Delta to Sevastopol harbor is not high. Here, the sea is approached by East-European Plain whose heights do not exceed 10 m in the south and increase to 40–50 m in the north. The plain is dissected by balkas, in places is terminated at the sea by precipices and invariable sand strips of dryland—bay-bars, separating large salt lakes and lagoons from the sea. Lagoons are particularly numerous near Odessa. Some of the lagoons are isolated from the sea perfectly, others occasionally communicate with it. Lagoons that were formed in the mouth of plentiful rivers (the Dnieper, Yuzhny Bug, Dniestr) have a permanent access to the sea. Nearly all largest lagoons (Dnieprovsko-Bugsky, Dniestrovsky, Khadjibeisky, Kuyalnitsky, Berezansky) are shallow-water; several hundred years ago, they used to be bays of 20–30 m in depth.

To the east of Sevastopol harbor, the coasts get distinctly higher. Folded structures of the Crimean Mountains stretch from Fiolent Cape to Feodosoya, along the entire SCC, first as three, then two parallel ridges, terminating as almost upright cliffs overlooking the sea. In places, from Cape Sarych to Yalta, the mountains retreat from the coast a little, their slopes become more gentle. Farther to the east, the greater range of the Crimean Mountains retreats from the coastline and gradually decreases in height, yet mountain slopes at the very shore are precipitous here, too. The coasts of Kerch Peninsula are steep almost its entire length.

The north-eastern coast of the Black Sea from Anapa to Sukhumi is predominantly high. Here, the folded spurs of the Greater Caucasus Mountain range come close, in places right up to the sea, forming upright cliffs. Terraces are outlined distinctly, in places. The mountains reach the maximum height near Sochi (up to 3,000 m), then the height is gradually reduced (to 1,000 m), and around the Kodori River the mountains get distanced from the coastline considerably. There is the large accumulative Kolkhida Lowland between the Kodori River mouth and Kobuleti town at the sea. To the south of the Rioni River mouth near to the seashore is the large Paleostomi Lake that used to be a sea bay. South of Kobuleti, the coast become mountainous again, and in Batumi area the height of some ranges exceeds 1,500 m. In the southern part of the coast, mountain spurs, often terraced, are terminated as steep ledges overlooking the sea. The southern part of the coast is dominated by accumulative ledges (Pitsunda, Sukhumsky, Adlersky, Burun-Tabiisky); these are, as a rule, formed by river deposits and are the result of complex evolution. At present, the Caucasian Black Sea coasts are subject to washout over the greater part of their length.

The southern coasts of the Black Sea are steep and upright, formed by high northern, often terraced slopes of the Pontic Mountains, strung along the coastline. Westward, the mountains gradually decrease in height, and near Bosphorus Strait maximum height is 300 m. Nearly all the way, the shores are abrasion and abrasion-washout (in the east), with upright rock cliffs. It is only in small bights that sand-pebble “pocket” beaches are encountered. The main segments of accumulation are confined to the mouth of major rivers: Kizilirmak (length 1,350 km), Sakarya (824 km) and Yesilirmak (418 km). Due to flashflood debris cones of rivers in their mouths there are formed rather significant deltas that almost reach the margin

of the narrow shelf. Under the impact of a strong north-western wave, the alluvial material is partly diverted eastward, which is manifest in the morphology of the deltas, above all in the formation of flank bars this side (the deltas of the Kizilirmak and Yesilirmak Rivers). West of Bosphorus Strait, the shore is relatively low. Here, from Kaliakra Cape, folded structure of the Balkan Mountains (jutting out into the sea in this segment of the Black Sea coast), upright, adjoin the sea.

The western and north-western coast of the Black Sea is more low-lying, not infrequently, slightly hilly plain of varying genesis (alluvial, sea and alluvial-sea) come up to the shore. The delta of the Danube, the largest river of Western Europe is here; the delta has a complex structure. The main runoff of the Danube is currently channeled via the northern Chilia arm. Therefore, in the southern part of the delta accretion of the shore has been somewhat decelerated, in some places the shore is even washed out. Intensive use of the Danube water for irrigation by five countries through whose territories the river runs, augments the washout trend in the southern part of the delta.

Geomorphologically, the Black Sea shores throughout their length are grouped with leveled up, complex shores. These are typically characterized by alternation of accumulative and abrasion segments. Lagoon-type and abrasion-landslide shores are most widespread. The processes of abrasion are characteristic of the seashore in general and are complex. Loess and clayey shores are subject to caving in of large masses of rock, followed by shore erosion by the sea. The wall of a cliff (abrasion precipice, formed by the impact of the surf) in such locations is almost invariably upright and reaches a considerable height. Where the cave-in foundations exhibit outcrops of Pontic limestones and Meothic clays (abrasion terrace), intensive landslide phenomena develop. Maximum number of landslides that damaged the city itself is within the segment between Dniestr Lagoon and Odessa. Landslides used to be common throughout the Caucasian Coast until coast-protection works were built.

Black Sea climate – the western and northwestern air transfer is an essential factor in formation of the climate over B.S. In winter when the anticyclone gets established over Eastern Europe the cold air masses move to the sea from the northeast. In addition, due to the active cyclonic activity over the Mediterranean Sea the warmer air drifts from the southwest to B.S. The sea itself sometimes becomes a zone of regeneration of the cyclones that came here from other regions or a zone of origin of new cyclones. By the geographical location and effect of the surrounding land we may distinguish four climatic areas in B.S.: northwestern, eastern, southeastern and southwestern. The northwestern area of the sea is the coldest. The mean annual air temperature here is about 10 °C. The winter lasts for 3 months during which snowfalls may occur and strong northeastern and north-western winds are blowing. At intrusion of cold air from the continent the temperature may even drop below zero (to –15 °C or –20 °C). The transition from winter to summer is rather quick despite of the fact that in early spring the weather is rather cold and windy. Beginning from April the cloudiness and air humidity tend to decrease and rainfalls occur quite seldom. At the same time the breeze circulation is formed. The summer is sunny, warm, with short rainfalls that sometimes occur during early night. The periods of calm sunny days are most frequent in August and

September and in some years even in October. Only in November when the cloudiness grows, rains become longer and winds stronger the weather turns to winter that usually starts in December.

The eastern area of the sea may be divided into two parts—northern and southern. In winter the northern subarea is more open for invasion of the cold air, thus, the climate here in this season is colder than in the southern subarea that is protected by the Caucasian range, thus, the winter here is very mild. Therefore, in the Novorossiisk area the air temperature in winter may be below -10°C , while in the south the days with negative temperatures are rare. The summer is hot and sunny, and rainfalls are rather short. Of great interest are the climatic peculiarities of the southeastern area of B.S. Here the air is saturated with moisture. Considerable cloudiness, copious rainfalls and frequent dense mists are witnessed here. Rains fall rather evenly throughout a year. Their annual sum exceeds 1,000 mm, in other places even 2,000 mm. Regardless of the practically even distribution of precipitations within a year their sum here in the cold season is also greater than in the warm season. In autumn and winter rainfalls occur every other day, so there about 150–160 rainy days in a year. The summer is hot with the relative air humidity over 80 % which is conducive to formation of the humid tropical weather here.

The southwestern area of the sea covers the southern part of the Bulgarian water area and the adjoining water area of Turkey. Unlike the southeastern area the air humidity here is not so high due to relatively small cloudiness and the low sum of annual precipitations. However, in the southwestern area the climate in winter is also mild and negative temperatures are observed only in rare cases. The summer is sunny and hot, but not humid and the amount of precipitations is less than in the southeast.

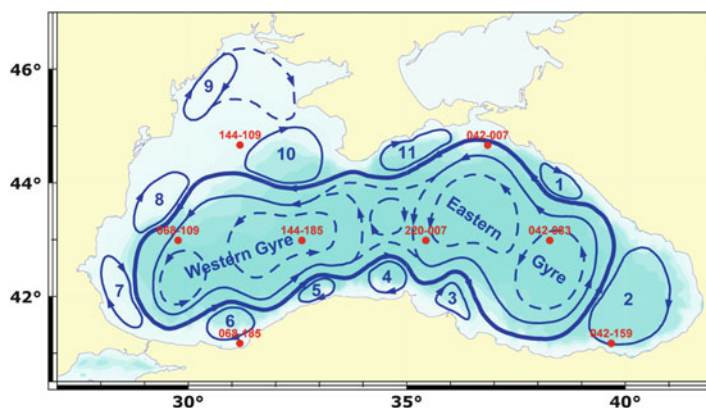
Black Sea Cossack troops – irregular force in Russia. Established in 1787, processed by the Tzar decree in 1788 under the name of “Troops of Loyal Black Sea Cossacks”. Deployed (1787–1792) on the Black Sea coast between the rivers Dniester and South Boug, subsequently in Kuban area. Took part in the Russian-Turkish war of 1787–1791. In 1792, Black Sea Cossacks forwarded a petition to the name of Catherine II, Empress of Russia regarding the allocation of Taman Land Areas “with adjoining environs” for the purpose of settlement with a view to introducing eternal and hereditary possession of the lands. B 1792–1793 гг. by Imperial decree the force was given for subsequent settlement Fanagoria and land areas between the Kuban River and the Sea of Azov (from 25,000, 12,000 were Cossacks) to perform border-guard duty. In the North Caucasus, the Cossack force built the Black Sea cordon line and founded 40 Cossack villages, of which 38 were given the traditional names of Zaporizhye Sich kurens (Kuren—unit of a Cossack troop). The center was the city of Ekaterinodar (currently, Krasnodar). In mid-nineteenth century, the force comprised 12 cavalry regiments, 9 infantry (infantrymen) battalions, 2 guard squadrons, 3 batteries and 1 cavalry-artillery company. 8,000 men were in the active military service. In 1798, a decree was issued regarding the deleting of the word “Loyal” from the force name “Troops of Loyal Black Sea Cossacks”. In 1802, a provision on B.S.C.T. was passed. The

troops performed with distinction in Sevastopol defense of 1854–1855, in Russian-Turkish wars. In 1860, together with part of the Caucasus combat troop, constituted complement of the Kuban Cossack Troops.

Black Sea currents – the general Black Sea circulation is driven by wind stress and buoyancy fluxes. A permanent feature of the upper layer circulation is the Rim Current, encircling the entire Black Sea and forming a large-scale cyclonic gyre, which transports water round the perimeter of the Black Sea. Direct observations of the current velocity from surface buoys suggest that the maximum speed of this stream is usually 40–50 cm/s increasing sometimes up to 80–100 cm/s. The Rim Current is concentrated above the shallow pycnocline and the volume transport of the current is estimated to be 3–4 Sv. The Rim Current is the most intense in winter-spring seasons. Winter circulation shows two gyres but in spring the current jet belts the whole basin along the bottom slope. Summer circulation attenuates significantly and in the autumn season the Rim Current usually breaks on the set of eddies.

In the central part of the Black Sea there are two smaller cyclonic gyres, occupying the eastern and western parts of the sea. Water dynamics there is very low. Outside the Rim Current, closer to the coast, numerous quasi-permanent coastal eddies are formed as a result of interaction of the Rim Current with the coastline and “wind curl” mechanism. The Black Sea circulation also manifests significant seasonal and inter-annual variability, which is controlled by atmospheric and fluvial variations.

Major features of mesoscale variability such as meandering of the Rim Current, mesoscale and smallscale anticyclonic and cyclonic eddies, filaments and jets, dipoles and tripoles, coastal upwellings could be found in the Black Sea.



Basin-scale and mesoscale circulation in the Black Sea. *Thick line* shows the mean position of the Rim Current, *circles* illustrate places of the frequent observations of coastal anticyclonic eddies; *red points and numbers* mark locations of cross-over points of TOPEX/Poseidon satellite tracks and corresponding numbers of these tracks. (Source: Ginzburg A.I., Kostianoy A.G., Sheremet N. A., Lebedev S.A. Satellite altimetry applications in the Black Sea.—In: Coastal Altimetry, (Eds.) S. Vignudelli, A.G. Kostianoy, P. Cipollini, J. Benveniste, Springer-Verlag, Berlin, Heidelberg, 2011, P.367–387).

“Black Sea Day” – on the initiative of the Coordinating Center of the Black Sea Environmental Program the 31st of October was declared the B.S.D. On this very day in 1996 the ministers on environment conservation from six Black Sea countries signed the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea. This Day is usually celebrated in the countries by organizing various campaigns on gathering and removal of wastes from the Black Sea beaches, actions on extension of the population knowledge on importance of keeping clean the sea and its nearby territories, etc.

Black Sea District – was established after the Caucasus war (1817–1864), was subordinated to the Kuban Chieftain assigned by order. Subsequently transformed into a province.

Black Sea dumping center – established in Odessa in 1991 in view of special requirements to environmental protection while carrying out dredging operations and particularly when searching for dumping sites and disposing of dredged materials. The Center develops methods of the dredged soils: their secondary industrial utilization for consolidating the washed out areas of the shores, for construction and agricultural needs.

Black Sea Environmental Programme (BSEP) – established in September of 1993. The program is financed by the Global Environment Facility (GEF), additional resources on the basis of share participation come from the programs of EC (Program of Technical Assistance to East European Countries and Programs of Technical Assistance to CIS countries) as well as on a bilateral basis of the governments of Canada, the Netherlands, Switzerland and France. The program coordination center is in Istanbul (Turkey). The main concept of the program is to determine the existing state of the Black Sea ecological system, identify the principal causes for changes that have occurred in it and signpost the ways of improving the environmental situation. That was a stage of new quality in the process of studying the Black Sea environment because previously there was no so close and businesslike contact between the representatives of all six Black Sea countries in the area of environment.

By early 1994 there was set up in Istanbul a coordination center of the program and national coordinators were assigned (in some cases, those were ministers of nature conservation or their deputies), a working plan was agreed. The program has three main objectives: consolidate and build up the regional potential of Black Sea ecosystem management; develop and pursue the appropriate policy and legal basis for appraising, monitoring and preventing pollution and for conserving and promoting biodiversity; assist obtaining reliable investments in environment. Each of these tasks encompasses a huge sphere of activity and suggests the participation of a wide range of organizations. The BSEP steering committee includes national coordinators, representatives of the donor organizations and of non-governmental organizations. It was decided to set up a number of working groups based on the centers of activity that are national institutions, already having the basic infrastructure and personnel to coordinate work on specific tasks in the region. The

government of each country agreed to accept one of such centers. The working groups themselves have at least one expert from each Black Sea country, and is free to engage more experts as required. These working groups that usually meet twice a year are oriented to practical work.

Centers of activity and their working groups: working group for fast response to emergencies is stationed in Varna (Bulgaria), for monitoring various types of pollution—in Odessa (Ukraine) and Istanbul (Turkey), for coastal zone management—in Krasnodar (Russia), for biodiversity conservation—in Batumi (Georgia), for fishing and living marine resources—in Constanta (Romania). The groups held regular working meetings at which the participants discussed materials obtained and published in various countries. This way, an interchange of information was arranged, on the strength of which experts were able to gain a general idea of the state of the Black Sea environment. Besides, there are three working groups with the headquarters at the coordination center of the program in Istanbul: data management and Geographic Information Systems (GIS); advisory board to agree on criteria of environmental quality, standards, legislation; group of experts on environmental economics.

In June of 1996, a group of experts from 14 countries drew up a resulting document—Transboundary Diagnostic Analysis (TDA). That was a comprehensive scientific evaluation of environmental problems typical of the present-day Black Sea, their causes and the steps that should be made to remedy the situation. TDA was not a political document. It is the result of almost 3 years of thorough investigations carried out by scientists who cooperated within the framework of BSEP. TDA made it possible to draw up the Strategic Action Plan for the Rehabilitation and Protection of the Black Sea. This plan signed on October 31, 1996 in Istanbul by the representatives of six Black Sea countries, namely ministers for environmental affairs, became a landmark document in which the governments of the Black Sea countries in association with broad international community undertook to adopt a pragmatic program of action based on common goals, meaning the rehabilitation and protection of the Black Sea. For the first time ever in its history the Black Sea was issued such “writ of protection”. However, the Strategic Plan says that it may remain a declaration of good intents unless further action in the same vein is taken: the drawing up of Strategic Action Plans in each country and consistent implementation thereof. Including, inter alia, the involvement of broad layers of the population to handle specific tasks that may be discharged more effectively by groups of conscientious citizens and by all society. The latter, however, calls for clear understanding by all of the existing situation and willingness to rectify it. Here, we enter the domain of ecological education, ecological upbringing and ecological ethics.

Black Sea environmental series – a series of publications issued in 1993 at the request of the governments of Bulgaria, Georgia, Romania, Russia, Turkey and Ukraine. Includes studies accomplished within the framework of the Black Sea Environmental Programme. The first work published in the series was “Black Sea

Bibliography (1974–1994)”, edited by V.O. Mamaev, D.G. Aubrey and V.N. Eremeev. This was followed by 5 other volumes.

Black Sea Experimental Research Station (CHENIS) – established in January 1, 1946 by transforming the Gelendzhik Coastal-Marine Expedition as an experimental oceanological station of the Institute of Oceanology of the USSR Academy of Sciences in Blue (Rybatskaya) Bay near Gelendzhik, Russia. The station received one of the first research vessels of the Institute of Oceanology “Forel” (“Trout”) that had been made available by Romania. By the early 1960s, the station focused on the main research topics: first—dynamics of the coasts, study of marine borers and foulings, hydrochemistry, hydrology, seismo-acoustics and marine electronics, and subsequently—geomorphology and lithology, geochemistry of marine sediments, hydrooptics. The station became the main base of the institute for testing new samples of instruments and equipment, for making experimental and methodological studies. In 1967, under the decree of the Presidium of the USSR Academy of Sciences, CHENIS was transformed into the Southern Branch of the P.P. Shirshov Institute of Oceanology of the USSR Academy of Sciences.

Black Sea Fleet agreement – was signed on 9 June 1995 in Sochi. It stipulates creation on the basis of B.S.F. the Russian B.S. Fleet and the Ukrainian Navy with separate basing and deployment of the main Russian B.S.F. base with its headquarters in Sevastopol, transfer to the Russian Federation 81.7 % and Ukraine 18.3 % of ships and vessels from the Russian B.S.F.

Black Sea Fleet sinking – on April 23, 1918 in the face of a threat of the Crimea seizure by the German troops the RSFSR Council of People’s Commissars (CPC) issued an order on relocation of the Black Sea fleet from Sevastopol to Novorossiysk. The Central Committee of the Black Sea Navy that was vested full power from early January 1918 decided to fulfill the order of RSFSR CPC. On April 29–30 Sevastopol was left by 2 battleships, 14 destroyers, 2 torpedo boats, 1 auxiliary cruiser and 10 patrol ships making the battle core of the fleet (in total about 3,500 men of the crew). On May 1–2 they joined in Novorossiysk. In Sevastopol the German troops seized old battleships, cruisers, submarines, some destroyers and other ships that were mostly inoperative. On May 11 the German Commander-in-chief in the East front laid down an ultimatum demanding from RSFSR CPC the return of ships to Sevastopol. In order to keep the Brest Peace Treaty in force RSFSR CPC had to agree and the People’s Committee on Foreign Affairs sent the respective notes on May 13 and June 9. However, not willing to give the ships to the enemies RSFSR CPC decided to sink them about which a respective order was given (the directive signed by V.I. Lenin on May 28). On June 18 the battleship “Svobodnaya Rossia” (“Free Russia”), 6 destroyers and 2 torpedo boats were sunk in the Novorossiysk Bay and one more destroyer was sunk on June 19 in Tuapse. Eight patrol boats were transported via railroad to Tsaritsyn and they made the core of the future Volga Navy. From December 12, 1917 to June 4, 1918 the Black Sea fleet was under command of Admiral M.P. Sablin.

Black Sea International Shipowners Association (BINSА) – was founded in 1993 as a nongovernmental nonprofit association of shipping companies in the Black Sea, Azov, Caspian, Dnieper and Volga basins. Its purpose is to coordinate activities of the BINSА members in elaboration of the shipping policy focused on intensification and improved competitiveness of carriages, rendering assistance to the Association members in addressing the economic, financial, commercial, legal and other issues. Among the tasks of this Association there are: consolidation of the principles of free international shipping, development and strengthening of cooperation with international organizations and associations, development of merchant shipping and enhancement of its security, exchange of information, legal practices, cooperation in environmental safety and protection of the rights and interests of the BINSА members.

Black Sea jack mackerel (*Trachurus mediterraneus ponticus*) – fish of the *Carangidae* family. Reaches 26–52 cm in length. Common in the Black and Azov Seas. Reaches sexual maturity in a matter of 2 years. Lives up to the age of 14 years. Represented by two forms: big and small. The former grows fast, reaches large size, lives longer, dwells primarily in the eastern Black Sea. The small form shapes up two schools: eastern and western. Heat-loving fish, most active during the warm months (May to September), when it is common in nearly the whole of the western Black Sea, eats, grows and propagates intensively. Until late June is distributed along the western coast of the Black Sea, most fishes stay longer in the northwestern part of the sea. Early in September, jack mackerel forms schools that little by little move toward the warmest sea areas (near the southern Crimea, Caucasian and Anatolian coasts, in Bosphorus and the Sea of Marmara). Jack mackerel is of primary importance to the Black Sea fishing.

Black Sea level – year-to-year variations of the Black Sea water level are determined by the correlation between the major components of the water balance: river runoff, precipitation, evaporation and water exchange through Bosphorus and Kerch Strait. In the input part, the role of river runoff is most significant, besides, its year-to-year variability is rather high. However, in the Black Sea variations in the input of river waters are substantially compensated in the output part of the water exchange through Bosphorus. For this reason, as a result (unlike the closed Caspian Sea), the long-term fluctuations of the Black Sea level are low, and during 1923–1995 did not exceed 15 cm, which was the positive interannual water level trend of the period. The well-defined seasonal water level variations are mainly produced by year-to-year differences of the arriving river runoff, atmospheric precipitation and evaporation from the sea surface. Under the impact of these factors, the sea level during the warm period of the year is higher, during the cold period—lower. The value of these fluctuations is most significant (30–40 cm) where the effect of continental runoff can be felt. The highest water level fluctuations in the Black Sea are those produced by wind-induced positive and negative surges associated with the impact of steady winds. These are especially frequent during the autumn–winter time in the western and northwestern parts of the sea, where these are likely to be over 1 m. In the west, strong positive surges are caused by easterly and

northeasterly winds, in the north-west—by southeasterly winds. Strong negative surges in the said parts of the sea are produced by northwesterly winds. Near the Crimean and Caucasus coasts, positive and negative surges hardly ever exceed 30–40 cm. Their duration usually equals 3–5 days, sometimes it may be longer. Seasonal steric water level variations should also be mentioned: these are produced by seasonal variations of temperature and salinity in the sea column. The range of steric fluctuations of the sea level in some areas may reach 20 cm, i.e. significant value in the formation of the general Black Sea level.

Black Sea, names – emerged in hoary antiquity. The earliest of the known names is Temarun as well as the local Scythian—Akhshena, Akhshaina (ancient Iranian “akshaina”—“dark, black”). The ancient Greeks in the first century B.C. rethought this name when they began developing the sea. As a result, they arrived at a Greek name that sounded similarly: Akseinos, Aksin, Aksinos, Aksinsky Pont (“non hospitable sea”), when translated—in the form of “Pontos Melos” (“Black Sea”). Subsequently, as Greek colonization of the sea coasts spread further, the sea began to be called Euxin, Pont Euxenos, Pont Euxinian—“hospitable sea”. During the early centuries A.D., the name of the Scythian Sea is encountered, although the Scythians themselves called it “Tana” (“dark”). During the middle ages, the names Maure Talasa, Fanar-Kara-Deniz (Turkish “fanar”—“evil”, “kara”—“black north”, “deniz”—“sea”). One of the ancient Arabic names “Naitas” Sea (940). This name appears on Italian gloves and is encountered in numerous written sources of the thirteenth to fifteenth centuries. This name “mar Mazor” appears on the pages of the essays by Barbaro and Contarini.

Kagan Iosif used to call the Black Sea “Kustandina, Kustantinia”. It is important to note that the name “Black Sea” came to be used in Constantinople and on the coast of Asia Minor concurrent with the growth of Italian commerce in the capital of the Byzantine Empire. The emergence of the name “Black Sea”—in Greek—may be put to phonetic affinity in the sounds of the words “mare maius” (*maris maioris*, etc.), “mare Maggiore”—“Great Sea” with the Greek “mavros”—“black”. In the “Travelogue” of Ignatius Smolnyanin (1389–1405), the Black Sea is also referred to as Great. In the Russian chronicles, from the “Tale of Bygone Years” the name “Pont’skoe”, “Ponetskoe” Sea is encountered. Prior to the fifteenth to sixteenth centuries the name Russian Sea, Sidatskoe, Surozhskoe, Sugdeiskoe, Sugdep (after the name of the city Sugdep—at present, Sudak) the city through which the Great Silk Way was laid. As far as the name Surozhskoe is concerned, a provision must be made: either the name refers to the Sea of Azov, because the chronicle says that the Prince Mikhail Yaroslavich of Tver set out for the Orda to see Khan Uzbek in 1319, “having reached the Orda. . . in the mouth of the Don River, which flows into the Surozh Sea”; or this refers to the Black Sea, not the Sea of Azov, because, first, Surozh was on the coast of the Black not Azov Sea, and, second, Kerch Strait more often than not was mistaken for the Don mouth, whereas the Sea of Azov was regarded as a widening of the lower Don.

Roughly from the tenth to the twelfth century, following the Russian incursions on Tsarigrad (at present, Istanbul), “because Russians used to trample the city often” the sea was referred to as “Russian Sea”. The name “Terrible Sea” was also encountered. In the thirteenth century the name “Hazar Sea” was used, too, by the name of the people who dwelled on its shores. In the fifteenth century, in the Arabic essay of Ibn Arabshah the Black Sea is unexpectedly referred to as Egyptian Sea: “the boundary of Desht land from the south—Kolzum (Khorasm, Caspian) sea, wicked and wayward, and the Egyptian Sea that came to them (Desht dwellers) from the Romanian (Byzanthian) area. The two sea almost collide, but for the Cherkess Mountains between them ...”.

The origin of the sea name “Black” is related to the common practice of designating the cardinals by color, whereby black color denoted north, i.e. Black Sea—“northern sea”, which correlates well with the name of the Red Sea—“southern sea”. However, there exist some legends concerning the subject. According to one of these, Turkish, the name has to do with the fact that a giant’s sword. As the sea tries to rid itself of the sword, it gets agitated and becomes black. There are some other hypotheses, too. One of these is associated with violent storms, when the water gets dark. Hydrologists relate the name of the Black Sea with the fact that metal objects (e.g. anchors) lowered to a certain depth turn black under the impact of hydrogen sulfide present in the depths of the sea. According to another hypothesis, after the storms there remains black silt on the shores—hence, the name.

Black Sea Naval Cooperation Task Group (BLACKSEAFOR) Agreement – Six Black Sea countries, Turkey, Russia, Ukraine, Romania, Bulgaria and Georgia signed the Black Sea Naval Cooperation Task Group (BLACKSEAFOR) Agreement on 2 April 2001 in Istanbul. For the first time in the international practice the group of states from one region established on the basis of their naval forces the multinational group with flexible functions intended for use in emergency situations on the Black Sea solely for civil needs. Its main goals are search and rescue operations for humanitarian needs, cleaning sea mines, joint action on protecting the Black Sea environment, organizing joint exercises, good will visits and other tasks provided they are approved by all member-states. But BLACKSEAFOR can also cooperate with international organizations like the U.N. and the Organization for Security and Co-operation in Europe (OSCE) for implementation of the above tasks and taking part in peacekeeping operations if these organizations apply to the Black Sea states. The area of action of BLACKSEAFOR is the Black Sea, but this agreement envisages a possibility to go beyond this area upon consent of all member-states. The group shall comprise 4–6 vessels (one from each state) and convened whenever necessary, but at least once a year on the basis of the approved plans on implementation of concrete tasks. Any decisions concerning operational interaction of BLACKSEAFOR shall be taken on the consensus basis. The committee consisting of naval commanders of the Black Sea states (for Russia—the Commander of the Black Sea Fleet) undertakes general guidance of the affairs. The chairmanship of this committee is elected by member-states and is subject to annual rotation. The chairing state will appoint the commander of the group for a term of

1 year. The group activities are not aimed against any third state and are not targeted to creation of a military alliance against any state or a group of states.

“Black Sea Navy Day” – celebrated on May 13. On May 2(13), 1783 eleven ships of the Azov fleet entered the Akhtiar Bay (today Sevastopol) of the Black Sea. Together with the Dnieper fleet that soon joined it they made the core of the Black Sea Navy.

Black Sea Region – the notion widely used, following lapse of the Agreement on the establishment of the USSR, until now has no strict definition providing an exhaustive characterization of then region’s territory. Normally, in its broad geopolitical sense it includes the countries sited on the coasts of the Black Sea: Russia, Ukraine, Romania, Bulgaria, Turkey, Georgia, and Abkhazia. A narrow interpretation is likely to confine the region to the boundaries of administrative units overlooking the Black Sea. The Black Sea is a region of historic rivalry and historic cooperation. At different times, it was a region of antagonism between the local states and a zone of their mutual trade relations. Since 1991, the current political map of the B.S.R. has taken shape; the region is closely related to the European Union, has become the area of geopolitical interests of many countries. The disintegration of the Soviet Union, emergence of globalism as a new system of economic management worldwide, fundamental structural changes of international relations being restructured radically changed the region’s status in the world. The shaping up of the B.S.R. is undergoing the initial stage. Its countries are in the process of developing their statehood, transforming and restructuring the rudiments of their economies, democratizing public life. All these processes are being translated into reality at varying rates, are based on different principles, which preconditions their existing socioeconomic situation. The countries of the B.S.R. that gained independence are recognized internationally, have formed each its own system of mutual ties and relations with the world at large in the spheres of policy, economy and other spheres. The sovereignization of New Independent States (NIS) has changed fundamentally the regional situation in the post-Soviet space and set off the restructuring of international relations, thereby marking the arrival of a new stage of historic development of the B.S.R. The NIS as well as Bulgaria and Romania began forging their regional policy. The geopolitical vacuum was not filled immediately, however. Oil and gas turned out to be the only unifying idea that attracted the attention of each local state to the region; besides, oil and gas proved to be the crucial economic tool in the struggle against the instability of the geopolitical situation. The B.S.R. is the zone of investment interests and at the same time—one of economic and political differences of the countries within and outside of the region. The prospects of B.S.R. growth are in many ways related to the enhancement of relations between the local states, their cooperation in joint handling of problems that are of mutual interest. Such problems as economic, environmental, demographic, political are rather numerous. To Russia and Ukraine, the B.S.R. is one of the foreign-policy priorities. This is a region of their traditional interests, extremely important to economic growth of their southern areas. The trend of rapprochement between the Mediterranean area and the Black Sea area has received

a new stimulus over the last few years as a result of new emphases in the stances of Black Sea Economic Cooperation and EU.

Black Sea Region Association of Shipbuilders and Ship Repairers (BRASS) – set up in October of 1993 as a non-governmental organization. 28 organizations took part in establishing the Association: shipbuilding and ship repair plants, scientific-research institutes, commercial organizations representing the countries of the Black Sea region—Bulgaria, Russia, Romania, Turkey and Ukraine. The Association's strategic task is protection of the interests of shipbuilders and shiprepairers of the countries of the Black Sea region. The Association addresses matters of mutual information support, coordination of the pricing policy of enterprises united by the association with a view to preventing dumping.

Black Sea Regional Activity Center for Environmental Aspects of Fisheries and other Marine Living Resources (AC FOMLR) – established in 1994 on the basis of the Grigore Antipa National Institute for Marine Research and Development, Constanta, Romania. The center coordinates and facilitates the required program support and provides practical technical support for the functioning of the appropriate team of advisers of the Black Sea Commission in the field of marine ecosystem protection and rehabilitation, especially for the conservation and sustainable use of marine bioresources.

Black Sea Regional Committee (BSRC) – it was established in 1995 at the Intergovernmental Oceanographic Commission (IOC) for coordination of research in the Black Sea.

Black Sea Regional Programme in Marine Sciences and Services, IOC – the program was drafted in consonance with IOC Resolution XVIII-17 in 1996, with initial period of 4 years. It is implemented subject to coordination by the Regional Black Sea Committee. The program participants are Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine. Two projects are being implemented within the framework of the Program. The first project—Global Ocean Observing System for the Black Sea—measures aimed at setting up the system of observations and forecast. The object of the project is to improve and promote regional capabilities in the field of operational oceanography, including observations, forecasting and serving the interdisciplinary users; to elaborate a plan of research for the program, a plan of scientific research for the program Black Sea GOOS. The second project—appraisal of sediments arriving in the Black Sea, mechanisms of their formation, transformation and dispersion, importance to ecology. The purpose of the project—integrated study of sediment flows, their transformation in time and space, identification of sediment deposition for appraising the ecological condition of the Black Sea ecosystems; reconstruction of recent geological history as the basis for environmental forecasting.

Black Sea road – main auto road along the Black Sea coast. Runs from Novorossiysk via the cities of Gelendzhik, Tuapse, Sochi, Gagra, Gudauta, Sukhumi, Ochamchira, Kobuleti as far as Batumi. Length 800 km (out of this, in

Russia—380 km, in Abkhazia and Georgia—420 km). Built in 1887–1905, remodeled for auto traffic during 1934 to 1950. Over the last few years, much has been done to flatten particular road segments and broaden the carriage-way. Hotels and boarding-houses for tourists are available. At Samtredia, a motor-road for Tbilisi, Baku, and Erevan branches off. Access road to Ritsa Lake and Pitsunda are available.

Black Sea salmon (*Salmo trutta labrax*) – fish of the salmon family (*Salmonidae*), reaches 90 cm in length. The body is oblong, covered with small-size tight-fitting cycloid scale. The back part is greenish, with a silvery gleam, on the sides—small black spots. Anadromous fish, dwells largely in the rivers of the Caucasus coast, enters in the Black and Azov seas for fattening.

Black Sea shad (*Alosa caspia nordmanni*) – fish of the herrings family (*Clupeidae*), has radial grooves on opercles. There is a dark spot behind the upper edge of the opercle, behind which there may be 5–8 spot more. Reaches 18 cm, rarely—22 cm in length. Common in the western part of the Black Sea. In spring, enters rivers and some brackish lakes for propagation. Has no value as a food item.

Black Sea Shipbuilding Yard – in Nikolaev City (Ukraine). In 1895, a Belgian joint-stock company commenced the building of a shipyard in Nikolaev, which was subsequently called “Society of Shipyards, Mechanical and Foundry Plants”. One of the oldest shipyards. The yard was officially commissioned on October 9, 1897 as “Naval” plant (translated from French, meaning “marine”). The plant was specialized in the manufacture of military ships and vessels, ship engines, mechanisms, boilers, ship equipment, canons and ship’s artillery turrets, railway cars, bridges, cranes. The yard had shops, slipways, piers and workshops with most advanced equipment at the time, and was the foremost plant for the building of steamship metal fleet on the Black Sea. The world’s first submarine mine-layer “Krab” (Crab) was built here, along with the main seaborne machinery of the iron-clad battleship “Potemkin”. Alongside the main orders, the shipyard built barges, ship’s boilers, cranes, tram cars, steam engines, railway bridges. In 1925, the first Soviet tanker “Krasny Nikolaev” was laid down at the shipyard, in 1941, the construction of the ice-breakers “I. Stalin” and “Krasin” was completed. During the Great Patriotic War (WWII), the shipyard was evacuated and turned out products for the front. In 1949, the first postwar vessel—tanker “Kazbek” was laid down. Unique vessels, like the whaling bases “Sovetskaya Ukraina” and “Sovetskaya Rossiya”, vessels for scientific expeditions and research and fishing ships of the type of “Yu.M. Shokalsky”, “Akademik Knipovich” were built at the shipyard. At present, the shipyard is busy building dry-cargo vessels, large refrigerator trawlers, container carrying ships. Also, the shipyard manufactures the newest seaborne machinery and devices, pleasure craft, ship furniture. The ship is decorated with the Order of the Red Banner of Labor (1926), 2 Orders of Lenin (1949, 1977), Order of the October Revolution (1970).

“Black Sea Shipping Company” – the oldest shipping company of the Russian Empire (then of the USSR) in the Black Sea established in 1833 in Odessa. After

World War II, due to the increase in traffic volume, established separate the Black, Azov and Georgian Shipping Companies. In 1964, a tanker compartment of the Black Sea Shipping Company was organized as the Novorossiysk Shipping Company. In 1990 the Black Sea Shipping Company was the largest in Europe and second in the world. It was composed of more than 300 vessels of various types with a total tonnage of 5 mln tons. The Company did the following: organizes optimum operation of vessels, marketing, business-plan, ship's agency service, freightage; commercial operation of vessels, examination and settlement of claims, suits, marine insurance, organization and supervision of ship repair, making ship repair records. Provides legal advice and handles cases in international marine practice of defending ship owners; ensuring the safety of ships' navigation; certification of ship navigators, mechanics, electrical officers according to their positions held; drawing up plans, projects, developments, issue of reports, reviews and expertise statements in the aforesaid spheres of marine business. Since 1991, with the collapse of the USSR, the Company belongs to Ukraine. The number of vessels decreased by 2006, more than 20 times. A total collapse of the Company is observed today.

Black Sea State Biosphere Reserve – established in 1927 in the northwestern part of the Black Sea in Egorlyksky and Tendrovsky bays (USSR, Ukraine) as well as on the adjoining land and islands with a view to protecting the wintering, migratory and nestling birds and their habitats. Sited in an area between Ochakov and Perekop Isthmus, where the Black Sea coast is deeply cut in, forming numerous large and small bays. Near the shore, sand islands of varying sizes and shapes are scattered. Total area is of 63.8 ha. Prohibited in the reserve are the shooting and capture of wildlife and birds, fishing, felling trees and shrubs, hay-making, cattle-grazing, collection of medicinal plants, mushroom picking, collecting flowers, seeds, fruit, driving vehicles and other types of human activity. The strict reserve regime provides for tranquility required for the animals all year round and especially during the propagation time. The main task of the reserve is to conduct by own and invited scientists comprehensive research of the biology of animals and plants in a setting devoid of human impact, search species that may be of commercial value to people's economy, regular recording of the bird and animal population, birdbanding, studying bird migration, etc. Recorded in the reserve are over 280 species of nestling, migratory and vagrant birds. Here winter mute swan and whooper swan (population of up to 13,000 individuals), mallard duck (over 25,000 individuals), wigeon, European teal, pintail, shoveler, golden-eye, pochard and other birds. More than 100 species of birds nestle on the territory of the reserve, among them numerous insectivorous species and song birds as well as stork, heron, birds of prey—red-footed falcon, kestrel, small falcons, black kite, long-eared owl and ever rare osprey. Nestling in grass are European partridge, quail, pheasant, introduced here in 1962 and great bustard that has become quite rare. Nestling on sandy islands are black-headed gull (up to 200,000 pairs) regarded the "symbol" of the reserve, terns, sand-pipers and many other birds.

There are 43 species of mammals in the reserve. These include 7 insectivorous mammals (hedge-hog, shrews), 9 species of bats, 15 species of rodents (sousliks, jerboa, mole rat, murine rodents), 8 species of predators (red fox, raccoon dog, introduced from Ussury Territory before the Great Patriotic War (1941–1945), steppe polecat, ermine, least weasel, marbled polecat, badger). Of the three species of hoofed mammals, sika deer ranks first. 20 deers were brought to the reserve in 1957 from Askania-Nova (the home of these animals is Primorsky Krai, Far-East of Russia). Also encountered are European roe deer and wild boar. The sea shoal within the reserve is the goby propagation ground, young gray mullet, plaice feeding site, plaice.

Black Sea straits – (in international law) the straits of Bosphorus and Dardanelles linking the Mediterranean Sea and the Black Sea via the Sea of Marmara. Geographic position of B.S.S. determines paramount importance of their international regime to the security and economic interests of the Black Sea countries. Prior to the conclusion of the Kuchuk-Kainardzhi Peace Treaty of 1774 the regime of B.S.S. was only established by Turkey. After 1774, numerous treaties and agreements concerning the passage of foreign ships through B.S.S. were concluded (Russian-Turkish Treaties of 1799, 1805 and 1833, London Convention of 1841 and others). In 1936, the Convention on the B.S.S. regime was concluded in Montreux (Switzerland) which was signed by the USSR, Britain, Bulgaria, Greece, Turkey and other countries. This convention established free passage of merchant ships of all countries through B.S.S., procedure of passage of naval ships of the Black Sea and other countries; the convention repealed the resolutions of the Lausanne Convention of 1923 that banned fortifying B.S.S. by Turkey. The need to reconsider the 1936 Convention, whose major drawbacks had been revealed during WWII, was recognized by the Berlin (Potsdam) Convention of 1945, and was on more than one occasion stressed in the notes of the Soviet Government afterwards.

Black Sea Trade and Development Bank (BSTDB) – international non-governmental organization. Was established by 11 countries of Black Sea Economic Cooperation (BSEC): Albania, Armenia, Azerbaijan, Bulgaria, Georgia, Greece, Moldova, Romania, Russia, Turkey and Ukraine pursuant to the resolution of the 1st summit of the BSEC foreign ministers. The bank establishment agreement was signed in 1994. The priority areas of the BSTDB as a crucial tool for promoting multilateral cooperation in the region are: financing the projects that are of mutual interest to the member-countries, in particular, in the field of energy, transport and industry as well as financing the trade operations. The main office of BSTDB is in Thessaloniki, Greece. Greece, Russia and Turkey each hold 16.5 % of the shares, 13.5 % belong to Bulgaria, Romania and Ukraine, 2 %—to Azerbaijan, Albania, Armenia, Georgia and Moldova. The bank establishment agreement was ratified by all 11 countries-participants of BSTDB in 1997 and took effect the same year. As of end of 2011, BSTDB cumulative portfolio in its 11 member countries has reached 265 approved operations in the key sectors of infrastructure, energy, transport, manufacturing, telecommunications, financial sector and other important areas exceeding EUR 2.5 billion.

Black Sea tsunami – The Black Sea is not an area of high seismic activity, but sometimes severe earthquakes do occur here, and these may be accompanied by tsunami waves. Earthquake-induced tsunami used to be observed almost everywhere across the Black Sea areas of the Crimea and Caucasus, the wave height registered at Novorossiisk and Sevastopol was around 0.5 m. Around the Crimean Peninsula severe earthquakes that apparently produced tsunami were observed on 11 October 1869, 25 July 1875, 8 January 1902, 31 May 1908 and 26 December 1919. According to the information available, the earthquake of 1941 caused the flooding of part of the land on the southern coast of the Crimea. Systematic observations of Black Sea seismicity began after the Yalta earthquakes of 26 April and 12 September 1927: these until now are regarded the most severe registered Crimean earthquakes. Both produced tsunami. The data on tsunami caused by the earthquakes near the Caucasian and Turkish coasts are even more scarce than information on the Crimean tsunami. Still, the interesting data on the two tsunami that occurred near the Caucasus coasts did leak to the press. The first tsunami is dated the first century B.C. It destroyed the ancient city of Dioscuria that used to stand where the present Sukhumi is. The second tsunami was caused by Anapa earthquake on 4 October 1905. The waves thus produced in the sea tossed up a steamer easily. In all, they distinguish three earthquakes on the Caucasus coast that caused tsunami waves: Anapa earthquake of 4 October 1905, the earthquake in the eastern part of the Black Sea of 21 October 1905, Anapa earthquake of 12 July 1966. The devastating in its aftermath Turkish earthquake of 27 December 1939 that claimed 23,000 human lives produced tsunami which in some areas reached the height of 1 m. The earthquake epicenter was in the northeastern part of Turkey. The area in which the earth tremors could be felt was of nearly elliptical shape with axes of 1,300 and 600 km. The series of strong shocks continued until 2 January 1940.

Black Sea uprising of French Navy – uprising in April of 1919 on the French Naval Ships that participated in intervention against the Soviet State. The most significant revolutionary action in foreign troops during the period of the Allied Intervention in the Russian Civil War of 1918–1920.

Black Sea whiting (*Odontogadus merlangus euxinus*) – fish of the codfishes family (*Gadidae*). In length, reaches 40 cm, more often 15–20 cm. Common in the Black Sea, enters the Sea of Azov, too. Cold-water, schooling fish. Tends to stay in the shelf zone, closer to the bottom at the depth of 80–90 m. Avoids warm water layers. Lives roughly 10–14 years. Reaches sexual maturity at age 3–4 years. Propagates almost all year round.

Black Valley – stow, 40 km north of Perekop near which in May of 1736 a heavy battle was fought between the vanguard of the Russian army and the troops of the Crimean Khan during the Russian-Turkish war of 1735–1739. When Russian army's vanguard (4,500 men) approached B.V. on May 19 (30), it was unexpectedly attacked by the Tatar cavalry (20,000 men). Having formed an infantry square, the Russian troops for 6 h repelled the enemy attacks. When a 5,000 men force of

the main forces of the Russian army arrived, the Khan's troops wasted no time to retreat to Perekop.

Blavayskiy Vladimir Dmitrievich (1899–1980) – Soviet archeologist, historian and fine art expert, founder of the classical archeology sector of the Institute of the History of Material Culture and the first chief of the sector, one of the organizers of works in submarine archeology, Doctor of History, Professor. In 1917, leaves as a gold medalist the 3rd Moscow Gymnasia (upper secondary school) and enters the Social Science Department of Moscow State University (MSU) from which he graduates in 1923. Works at the State Fine Arts Museum, at the State Academy of Art Sciences (subsequently, the Academy of Art Studies), takes part in a number of archeological expeditions. It is at that time that he publishes his first works, dealing mainly with Greek vase painting. The crucial events in the life of B. of this period of his life were the study at the post-graduate course (1925–1929) and participation in Olvia excavations (1925–1926). In 1929, B. defended a Ph.D. thesis on the subject of “Black-Figure Lecythus Prior to the fifth century B.C. from the Hellenic Cities of the North Black Sea Area”. During the 1930s, B. works at State Academy of History of Material Culture at first, as a part-time staff, then as a senior scientist. It is during these years that he takes up teaching: in 1933–1936, an assistant professor of the post-graduate course at the State History Museum, in 1935–1941—an assistant professor of the Institute of post-graduate studies at the Academy of Architecture, from 1939—assistant professor of the MSU Departments of History and Philology. In the 1930s, B. conducts his first self-sustained archeological expeditions: at Kharaks (1931, 1932, 1935), at Kamysh-Burun (1933), Pantikapei (1934), Fanagoria (1936–1940). His first books are also published during that period. He works hard at the subject he regarded the principal one in his activity—“Classical Sculpture Techniques”. As the Great Patriotic War (WWII) begins, B. joins the people's volunteer corps. After a grave concussion, he returns to Moscow. In 1943, B. defends a doctoral thesis on the subject “Experience of studying the classical sculpture techniques”. That same year, he becomes a professor of the MSU Archeology Chair. In 1944, B. is elected the chairman of the just established sector of classical archeology of Institute of History of Material Culture and a Corresponding Member of the Academy of Architecture. During subsequent years, he heads numerous expeditions that yielded huge new factual material for the study of classical Black Sea and Mediterranean Sea areas: 1945–1949, 1952–1958—studies of Pantikapei, 1950–1951—explorations on Kerch Peninsula, 1950–1954 гг.—explorations and excavations on Taman Peninsula, 1958–1960—Soviet-Albanian expedition.

In 1957, at the initiative of B. the first post-war submarine archeological expedition was organized at the Institute of Archeology of the USSR Academy of Sciences. The expedition worked under his leadership 11 field seasons on the coasts of the Black and Azov seas. All archeologists of the expedition took a training course and were taught how to use aqualungs. In 1957, they explored the seabed of Kerch Strait. In 1959, the first-ever USSR excavations on the Black Sea of the submerged part of the capital, so-called “Asian” Bosphorus—Fanagoria town were

carried out. The expedition also worked at Belgorod-Dniestrovsky—in ancient Tira, Olvia, Khersones, on the Southern Coast of the Crimea, in the vicinity of Taganrog. The procedure of explorations, facilities tie-up to the shore and subsea study thereof was worked through. Concurrent with this, his several monographs are published. In 1962, B. is elected a Corresponding Member of the Hungarian Society of Classical Studies, in 1964—member of the International Council for Submarine Archeology, in 1966—Corresponding Member of the German Archeological Institute and Honorable Member of Archeological Society of Yugoslavia, in 1975—member of the Honorable International Committee of the Society of Mythraic studies. In 1958, B. was elected chairman of the Association of classical history scientists of the USSR Academy of Sciences.

B. has numerous government awards. His main works include: “Architecture of the Classical World” (1939), “The Arts of the North Circum-Black Sea Area of the Classical Epoch” (1947), “The History of Classical Painted Ceramics” (1953), “Arable Agriculture in the Classical States of the North Circum-Black Sea Area” (1953), “Essays on Military Science in the Classical States of the North Circum-Black Sea Area” (1954), “Classical Archeology of the North Circum-Black Sea Area” (1961), “Discovery of the Sunk World” (in co-authorship with G.F. Koshelenko, 1963), “Pantikapei. Essays on Archeology of the Bosphorus Capital” (1964), “Classical Field Archeology” (1967), “Nature and Classical Society” (1976), “Classical Archeology and History” (1985).

Blevaka – one of three mud volcanoes around Anapa. B. is sited on Rotten Mountain, so called because the ground is ripped apart and mud surges out onto the surface. The height of one such burble, in case of large gas accumulation, may reach 32 m. In traveler’s guide-books, B. is named in a more cultured manner: Plevaka or mud volcano. The volcano gushes out a white fluid, fat to the feel, together with hydrogen sulfide and balneal mud. The fluid is called “white oil” used in cosmetics industry. Unlike lagoon mud, mud-cone mud is older. It is gray and contains more useful substances than lagoon mud does.

Blooming of the sea – phenomenon of mass growth of phytoplankton changing the color of sea water. Large zones (spots, stripes) of “blooming” water are observed usually in spring in the waters rich in nutrients, on the shelf, above the submerged uplands, in locations of rising deep waters, in areas of oceanic fronts, and in high latitudes—in ice-clearings and ice-holes among the ice floes. On the Black Sea, in the northwestern part of the sea the large amount of biogenic substances coming here with the continental runoff causes mass growth of plankton algae—“B.” In the area impacted by the Danube runoff, biomass of phytoplankton has grown 10–20-fold. Due to the toxic impact of some algae during mass “B”, destruction of fauna may be observed. During “B.”, the water becomes less transparent, grows turbid, which tells on the distribution of light in the pelagic region. Fishes and other organisms are able to avoid the “B.” zones by congregating near their boundaries as “B.” exerts harmful effect on them.

“Blue Line” – a system of German defense fortifications “Gotenkopf” on the Taman Peninsula during the Great Patriotic War (WWII). According to the Soviet documents, the construction of B.L. was started in January 1943 on the basis of the existing field entrenchment built by the Soviet troops in summer 1942. The main defense strip was to 6 km wide and behind it the well-fortified line extended for 40 km. The left wing of B.L. started near Verbyanaya Bar, passed over the near-Azov mouths, along the banks of the Kurka and Adagum rivers as far as the Kievsky village. Then it turned southward and crossed Varenikovsky, Moldavansky, Crimean, Nizhnebakansky and Verkhnebakansky villages. The southern wing of B.L. passed over mountains from Neberdzhavsky village to Novorossiysk. B.L. was defended by the units of the 17th Army. The total number of the German group on Taman reached 400,000 people. Having moved from the Caucasus to Taman, the 17th Army and a part of the 1st Tank Army shortened significantly the front line and, as a result, they created denser battle lines on the peninsula. Maintaining their presence on the Taman Peninsula, the German command, on the one hand, covered Crimea and, on the other, had a base area for resuming offensive actions on the Caucasus. The German troops on Taman succeeded to draw in the considerable forces of the Red Army that were unable to take part in the spring military actions in Ukraine. On September 1943 the troops of the North-Caucasian front commanded by General I.E. Petrov started a new offensive for liberation of Novorossiysk and Taman Peninsula. In the course of these battles the Soviet troops took hold of B.L. and on October 9 forced completely the German troops from the Taman Peninsula. Liberation of Taman and Novorossiysk improved significantly the possibilities for the Black Sea fleet basing and facilitated the struggle for return of the Crimea.

“Blue Stream” natural gas pipeline – installed at the Black Sea floor at a depth over 2,000 m; the world’s deepest gas pipeline. It was built for gas supply from Russia to Turkey. In March 2002 Italian firm “Saipem” constructed the first and second pipelines. This was the first venture at such depths. Its total length is more than 1,200 km and the under-the-sea stretch (from Dzhubga to Samsun) is 396 km. The annual carriage capacity of this gas transport system is 16 bill m³. The marine stretch of the pipeline takes its origin 7 km to the northwest of Dzhubga on the Black Sea coast (Krasnodar Territory, Russia) and gets out on the Turkish coast 14 km eastward of Samsun. It was commissioned on December 20, 2002. Its official opening was on November 17, 2005. Gas is supplied along two pipelines with the diameter in the marine part being 610 mm and a wall thickness 31.8 mm.

Bluefish (*Pomatomus saltator*) – large predatory fish of the *Pomatomidae* family. It has an oblong body covered with rather small scales. It may reach 110 cm in length and 8–15 kg in weight. B. is a pelagic species living in stocks. It is very active in the warm months (from May to October). During this period B. is found mostly in the northwestern part of B.S. where it feeds intensively, grows and propagates. In autumn when the water gets cooler B. gradually migrates for hibernation to the Sea of Marmara and live there till the second half of May. Its lifespan is about 8–9 years. It reaches maturity by the age of 2 years, seldom 1 year. The spawning period

lasts from the second half of June to early September. It lays eggs mostly in the northwestern part of the sea. B. feeds solely on fish (anchovy, horse mackerel, herring, mullet, mackerel) biting it through and eating only a part of it. In the coastal zone its catches may reach 800 tons, but usually 15–20 tons. For a long time B. was considered a rare species for B.S. But in 1966–1970 B. propagated so extensively that became one of the main fish species in catches. We witnessed the biological “outburst” of its population—the even equally significant and full of mystery. Similar “outburst” of large horse mackerel occurred in B.S. in the 1950s till the early 1960s. Generally, such phenomena may be attributed to a favorable combination of all factors playing a role in formation of population number.

Bogaevskiy Konstantin Fedorovich (1872–1943) – Russian Soviet painter, in whose creativity sea landscapes figured prominently, Honored Art Personality. Graduated from the Academy of Arts in St.Petersburg in 1897. Disciple of I.K. Aivazovsky. Most works of B. deal with painting the nature of native lands: East Crimean sea shore. The early paintings of B. are characterized by stylization of a classical landscape. The sea is an inalienable and mandatory element of his paintings : “Seashore”, “Ancient Fortress”, “Kimmeria”, “Town at the Seaside”, “Rocky Shore”, “Tavroschythia”. Many of his compositions the painter constructed against the background of a wide sea full of light—the water colors “After the Rain“, “The Crimean Campagna”. The creative merit of B. is artistic fixation of numerous historical places and monuments of history and architecture of the Crimea, in particular, of the ruins of ancient cities on the Crimean sea coast.

Bogolyubov Alexey Petrovich (1824—1896) – Russian painter in whose paintings significant emphasis is laid on the marine theme. After graduation from the Naval Cadet Corps, served in the Baltic Navy. During 1850–1853, was a student of St. Petersburg Academy of Arts from which he graduated as a 1st class painter. From 1853, painter of the Chief Naval Staff. During his early years as a painter was under a strong influence of I.K. Aivazovsky. In 1852, was awarded a minor gold medal for several paintings, including “The Battle of the Brig “Merkury” with two Turkish Ships”, in 1853, awarded a large gold medal for 3 views of Revel (currently, Tallinn, Estonia) and the painting “View of offshore in St. Petersburg on a summer night”. In 1854–1860, as a boarder of the Academy of Arts, B. worked at the studios of well-known painters in Paris and Geneva, visited Italy, Turkey, Switzerland and other countries. In 1858, was awarded the title of an academician, in 1861—of a painting professor. The author of a series of patriotic paintings on the subjects of the history of the Russian Navy that illustrated the feats of Russian seamen: “Battle of Sinop on November 18, 1853” (1856), “ Battle of Frigate “Flora” at Pitsunda Cape” (1857), “Battle of Gangut” (1876),“ “Breaking of Russian Galley Fleet through the Swedish One at Gange-Udd Cape (1876), “Blast of a Turkish Monitor” (1871) and others as well as numerous sea and river landscapes. As a grandson of A.N. Radishchev, B. founded in 1885 an art museum named after Radishchev, and in 1897—a drawing school in his home town Saratov.

Boklevskiy Konstantin Petrovich (1862–1928) – Russian, Soviet ship-building engineer. After graduating from the Technical Naval School in 1884, was designing and building armor-clad battleships in Nikolaev for the Black Sea Navy. In 1886–1888, he studies at the ship-building department of the Naval Academy. Took part in the building of the cruiser “Pamyat Azova” (“Memory of Azov”) in St. Petersburg, organized the building of destroyers for the Black Sea Navy, in 1892–1897 supervised the building of the armor-clad destroyer “Tsarevich” (“Prince”) and the Cruiser “Bayan”. Worked as an aide to the Chief Engineer of St. Petersburg Port and the Chief Engineer of the plant under the Department. Took part in the construction of a series of battleships for the Pacific Navy. Made a contribution to the development of motor-boat construction. In 1898, proposed that diesel engines be used on the ships, and in 1903 made a design and built the world’s first motor-vessel “Vandal”. In 1902, organized Russia’s first ship-building department at the St. Petersburg Polytechnical Institute and was its dean until 1923. One of the founders the “Russian Register” Company, the purpose of which was to get rid of foreign surveillance. At the initiative of B. in 1909, training courses for future engineers aerial-navigators were set up within the ship-building department of the institute, Russia’s first aerodynamic laboratory was established. After the 1917 October Revolution, was the Chairman of Technological Council of the USSR Register. Chief of the Specialized Bureau for Merchant Ships Design, worked at the Naval Academy, Sovtorgflot. His main works include: “On Building Mixed-System Destroyers” (1904–1905), “Ship-Building Architecture” (1914) and others.

Bonito (*Sarda sarda*) – the fish of the mackerel family (*Scombridae*). Its body is covered by small scale. The dorsum is of the bluish color, the sides have oblique elongated dark strips. It is found in the Atlantic Ocean near the coasts of North America, Europe and Africa (mostly in the subtropical regions), in the Mediterranean. The Black Sea B. is an individual population. This is a warmth-loving pelagic species. For spawning and fattening it runs to B.S., in winter months—to the Sea of Marmara. It lives for 8–10 years. It grows quickly. At the age of 1 year its length is 40–45 cm; its weight is 1.2 kg. It reaches maturity at the age of 2 years, but some species at 1 year. In spring in late April at the surface water temperature being 11 °C B. migrates from the Sea of Marmara to B.S. By early June B. is usually found in the northwestern, northern and northeastern parts of B.S. where it spawns and fattens. The B. shoal stays in these parts of the sea through the whole summer. By late September B. groups into shoals and by mid- or late December it gradually moved for hibernation to the Sea of Marmara.

Bora—(Ital. *bora*, form Latin *boreas*—“northerly wind”) – local strong, gusty cold wind streaming down onto the Black Sea coast from the adjoining not very high mountain range. More often than not, B. occurs in winter. Is produced, when arctic air encroaches into Russia’s south regions and accumulates in front of the low range, when it begins flowing over the passes at a high downward speed under the impact of the pressure gradient and force of gravity. Sometimes, it exceeds 40 m/s, some of the gusts moving at a speed of over 60 m/s. B. is known best on the Dalmatian coast of the Adriatic Sea, around Novorossiisk (nord-ost), and on Baikal

Lake (sarma), on Novaya Zemlya (mountain), in the south of France (mistral), in Texas (norther), etc.

Borcea Ioan (1879–1936) – outstanding Romanian hydrobiologist who laid down the groundwork of hydrobiology in Romania, Professor of Iasi University. He examined in detail the composition and distribution of Black Sea benthos and fish fauna. In 1926, he initiated the establishment of a Marine Zoological Station at Agigea (Mamaia). The station at Agigea (near Constanta) was named after B.

Border fortifications – a system of fortifications built along the state border. In Rus their construction was started in the ninth century. In the sixteenth to seventeenth centuries they were called check lines. In the eighteenth to nineteenth centuries they consisted of border towns, fortresses and field fortifications (usually earth ramparts). These fortifications were guarded most often by the Cossacks and linear troops that located in towers or earth fortifications behind a rampart. In 1706–1708 following the order of Peter I such fortifications were built on the western border from Pskov through Smolensk to Bryansk where the fortresses were the key structures. Later the Tsaritsyn, Ukrainian, Dneprovsky, Chernomorsky, Kuban, Asov-Mozdok, Samara, Orenburg, Uisk, Irtysh, Zakamsky and other fortification lines were constructed. In the eighteenth to nineteenth centuries the total length of B.F. was about 5,000 km. In late nineteenth century it was replaced with the fortress-based system of frontier guarding that existed till World War I.

Borisov Alexander Ivanovich (?–1810) – Russian Vice-Admiral (1799). Graduated from the Naval Cadet Corps (1761–1768). Every year, participated in a Campaign on the Baltic Sea (1764–1768). In 1769–1773, sent to the Azov Military Flotilla, sailed on the Azov and Black seas. From 1775—representative of the Azov Military Flotilla in St. Petersburg. In 1776, on the frigate “Severny Orel” (“North Eagle”) sailed from Kronstadt to Dardanelles, from there to Livorno, in 1777 on the frigate “Grigory” cruised from Livorno to Constantinople and back, then in 1779 returned to Kronstadt. In 1780, was attached to St. Petersburg ship’s crew, in 1781–1784—to Quartermaster Expedition. In 1784, while commanding the ship “Mecheslav”, sailed in the squadron of the Vice-admiral I.A. Borisov from Kronstadt to Copenhagen, in 1785–1786, commanded the same ship sailing on the Baltic Sea. Commander of the ship “Khrabry” (“Courageous”) (1787–1788). From April of 1788 to 1798, worked as an adviser of the Audit expedition. General-controller (1798–1807) and member of the Admiralty-Collegium. Captain 1st rank (1789), Captain, Brigadier rank (1793), Major-General for Admiralty (1797). From May 1799, manager of the Audit expedition in St. Petersburg. In July of 1807, appointed military governor of Astrakhan Port. In November of 1808, dismissed from service. Awarded orders.

Boristhen, Borisphan, Borysthenes – see Dnieper.

Borodin Nickolay Andreevich (1861–1937) – Russian, Soviet ichthyologist. Upon graduation from the Urals Army Gymnasia (gold medalist, 1879)—entered St. Petersburg University, in 1879–1880—student of the Math Department, from

September of 1880—Dept. of Natural Sciences. From 1880—B. organizer of ichthyological work on the Ural River. In 1884—the first successful experiment in artificial insemination of sturgeon (stellate sturgeon) fish eggs. B.'s doctrine on phased evolution of fishes served the theoretical basis of elaborating the procedure of rearing the young fishes. In 1899, B. moved to St. Petersburg, where he began working as a senior expert in fish farming of the Department of Arable Farming. In 1901, B. published the book "Cossacks of the Urals and Their Fishing Practice", founded the newspaper "Uralets" ("Urals Dweller"), was editor-publisher of the "Urals Review", "Cossack Army Newsletter" (1901–1904), contributor to the "Russkie Vedomosti" ("Russian News") (from 1894) and the "Nasha Zhizn" ("Our Life"). In 1902, was elected Secretary General of the International Congress on Fishing and Fish-farming which was held in St. Petersburg. In 1900–1904, explored such fishing areas as the Azov-Don, Black-Sea—Kuban, Amy-Darya, Caspian. Exploration of the Black Sea on the principles of scientifically-based fishing was commenced by B. who headed in 1902 an expedition on the steamship "Klopachev", the launch "Druzhny" and a sail boat; the expedition explored the coast from Kerch Strait to Sochi. Studied were the conditions of fish (mainly, herring) migration from the Azov to the Black Sea and back.

Bosporan Kingdom – came into being in the fifth century B.C. on the eastern and western coasts of Bosporus Cimmerian, currently Kerch Strait, with the capital in Pantikapei. That was the largest and mightiest kingdom of all that existed on the coasts of the Black Sea in ancient times. At the time of Archeanactides and Spartakoides, B.K. was transformed into a monarchy-governed city-state that maintained trade relations with Miletian commercial centers on Meotide (at present, the Azov Sea) and in the Greek center of the empire as well as controlled grain export from the circum-Don plain areas and threatened the neighboring Scythian territories. In 107 B.C., B.K. was conquered by Mitridat VI the Evpator, who, however, was soon defeated, too. Later B.K. extended its boundaries, despite its dependency on Rome, as far as the Don River (Tanais). From the end of the first century to the early third century, B.K. was subject to invasion of the Gots; in the fourth century it was invaded by the Hunns.

Bosporus – (obviously, a Frakian name; the Greek folk-ethymological interpretation: "*bull's ford*", "*cow's ford*"). (1). Frakian B., strait between Europe and Asia, linking Propontida (the Sea of Marmara) with the Black Sea. (2). Cimmerian B. (currently, Kerch Strait) between Khersones of Tavria (the Crimea) and Taman Peninsula, linking the Black and Azov seas.

Bosporus – strait (Turkish Karadeniz Bogazi, Greek Bosporos) between Europe and Asia, links the Black Sea and the Sea of Marmara, Turkey. The ancient Greek "*Bosporos*"—"animal ford", "*bull's ford*", "*cow's ford*". It is possible that the animals were capable of swimming over across the strait because it was so narrow. According to another version, fording was paid for with cattle. The ancient Greek myth elates the name of the strait with Io, the daughter of the god of the rivers: the legend insists that the girl assumed the look of a cow and swam across the strait.

Subsequently, the name came to denote a “narrow strait” in general and be used with an appropriate attribute: in Herodot’s writings (fifth century B.C.) the strait is called Bosphorus Frakian. The existing Turkish names: Bogazichi (“Internal Strait”), Istanbul-Bogazi (“Istanbul Strait”), Karadeniz-Bogazi (“Black Sea Strait”), Marmara-Bogazi (“Strait of Marmara Sea”) failed to gain popularity: in some countries, the name of “Bospor” is accepted; in Russia, France and Poland the form “Bospor” has been in common use. Length 30 km, width from 0.7 to 3.7 km. Mean depth—65 m, maximum depth—120 m. The depth of the port on the side overlooking the Black Sea—up to 59 m, on the side overlooking the Sea of Marmara—up to 40 m. B. shores are high, steep, picturesque, with numerous bays. Many fitting natural harbors, the best of which is Golden Horn near the European coast, close to the exit to the Sea of Marmara.



Bosporus and Istanbul: View from space (NASA, 2004) (<http://ru.wikipedia.org/wiki/Bosphorus>)

Istanbul lies on both the shores of the strait. B. has been produced by erosion; the strait is a river valley flooded with sea water during the Quaternary Period. There are two currents in B.: the upper from the north to the south, and the lower one having a reverse direction. The upper current brings to the Sea of Marmara an average of $370 \text{ km}^3/\text{year}$ of the Black Sea water with salinity 17–18‰, water temperature in winter 5–8 °C, in summer 23–26 °C; the cause for the current is positive fresh-water balance of the Black Sea. The lower current brings around

170 km³ of Mediterranean Sea water per year (salinity 37–38‰) to the Black Sea. Water temperature in winter 10–11 °C, in summer 19–20 °C. The current is produced by the different water densities in the seas. Water exchange via the strait may change significantly due to different forcing and hydrometeorological conditions. Both the currents were for the first time studied by the Russian scholar Admiral S.O. Makarov. B. is extremely important in terms of economy, policy and military strategy not only to Turkey, but to all the Black Sea states.



Bosporus Strait: View on the Black Sea (Photo by Andrey Kostianoy)

Bosporus blockade (1914–1917) – combat actions of the Russian Black Sea Navy during WWI with a view to prohibiting passage of enemy battle ships via Bosporus Strait and deranging enemy shipments in the south and south-western areas of the Black Sea; part of the overall sea blockade of the Turkish coast. Began in the early months of the war. In 1914, the Navy planted 847 mines near Bosporus, on which the German battleship cruiser “Geben” and a Turkish mine-layer were blasted on December 13(26). In 1915-early 1916, squadrons of the Black Sea Navy operated in the southwestern part of the sea, shelling the Bosporus fortifications and coal mines at Eregli and Zonguldak. For the first time ever, the subsea mine layer “Krab” was used for laying a mine-field, on which the light German cruiser “Breslau” was blasted on July 5(18), 1915. From February of 1916, the blockade was mainly effected by means of submarines. In July of 1916, the command of the Black Sea Navy organized mass mine laying on the approaches to the strait by means of destroyers, minesweepers and the subsea mine-layer “Krab” under the cover of battleships, cruisers, destroyers. In all, 14 mine-fields (2,187 mines) were laid at Bosporus in 1916, the mine-fields were under the surveillance of the blockade reconnaissance patrol. In the course of B.B., for the first time ever, sea aircraft were

used for reconnaissance and bombing Turkish facilities. Despite being full of zip actions of the Black Sea Navy, Bosphorus was never blockaded completely as the depth and density of mine-laying proved insufficient. Besides, the mine-fields had no antiminesweeping devices.

Bosphorus bridge – also called the First Bosphorus Bridge is one of the two bridges in [Istanbul, Turkey](#), spanning the [Bosphorus Strait](#) and connecting [Europe](#) and [Asia](#) (the other one is the [Fatih Sultan Mehmet Bridge](#), which is called the Second Bosphorus Bridge). It was opened on 30 October 1973. Its length is 1,510 m. At present, it is the 19th longest suspension bridge span in the world. The width of the cable-stayed bridge is 39 m. The bridge height over the Bosphorus is 64 m. The bridge was designed by the renowned British civil engineers Sir [Gilbert Roberts](#) and [William Brown](#). A.B. is one of the symbols of Turkey.



Bosphorus bridge (Photo by Andrey Kostianoy)

Bosphorus Campaign – trek of the Black Sea Naval squadron to Bosphorus in May of 1915. The battleships “Tri Svyatitelya” (“Three Prelates”) and “Panteleimon” shelled the shore fortifications of Bosphorus. On May 4, the battleship “Rostislav” opened fire on the fortified area of Iniade (north-west of Bosphorus) which was also attacked by seaplanes. Bosphorus campaign culminated in a battle at the entrance to the strait between the battle cruiser “Geben”, the flagship of the German-Turkish Navy on the Black Sea, and four Russian battleships. In this exchange of fire, the Russian battleship “Evstaphy” distinguished itself: its two accurate hits rendered

the cruiser inoperative. That was the end of the story of single combat with Russian battleships. The trek enhanced the superiority of the Russian Navy on the Black Sea.

Bosporus Cimmerian – ancient name of the existing Kerch Strait named after the local tribe—Cimmerians. In Genoese time, used to be called Cafian Passage, derived from the Italian name of Caffa (Feodosiya) or Saint Joann Mouth—after the name of the Church of John the Forerunner in Kerch that stood on the seashore. The Turks used to call it Taman-bogaz. An unknown author has saved this legend for us: there used to live Helios, a titan-petty thief who lived and robbed people around Kerch Bay. He owned huge herds of bulls and kept enlarging these with animal he stole from the locals. Once, seeing to flee from the pursuers on the back of a stolen bull, Helios realized that this time he would be unable to escape. Once he did, he used his thumb to “cut” a passage that separated Meothide (Greek “Mother of the Seas”)—the Sea of Azov from Pont. The road to Cimmerian shepherds was thus blocked by the miraculously created Kerch Strait, named B.C. to commemorate the happily concluded Titan’s theft operation. Even though they say that this is one of the 200 names known to scientists. In ancient times, there used to lie Greek (Miletian) region on the coasts of Bosporus Cimmerian, with the capital of Bosporus State Pantikapei (in Byzantine time—Bosporos) on the European and Fanagoria (Theos’s colony) on the Asian coast of the Strait. B.C. was crucial to the development of trade relations with the circum-Don grain-growing areas in the Black Sea region.

Bosporus Frakian – ancient Greek name of the existing Bosporus Strait.

Botkin Sergey Petrovich (1832–1889) – Russian physician, scholar, public figure. Graduated from the Medicine Department of Moscow University (1855), underwent probation at the medical institutions of Germany, France and Austria (1855–1860). During the Crimean War of 1853–1856, worked under the guidance of N.I. Pirogov at the Bakhchisaray Sick Quarters. From 1860, therapy professor of Moscow Academy of Surgery, from 1870—Academician of Moscow Academy of Surgery and a physician-in-ordinary. The founding father of research in the development of Russian clinical medicine. Author of works on clinics and pathogenesis of cardio-vascular diseases, infectious diseases, etc. Founded Russia’s first clinical and experimental laboratories.

Botkin made the first scientific substantiation of the Crimea curative factors. The dwellers and visitors of the Southern Coast of Crimea (SCC) are aware of the Botkin path in Livadia and a street in Yalta of the same name, named so to commemorate Botkin’s visit to the place. Botkin visited the Crimea for the first time in 1855, when the Crimean War was in high gear. B., a recent student-turned graduate with distinction of Moscow University, he eagerly joined a group of doctors formed by N.I. Pirogov. The young physician underwent practice at the military hospitals and in typhoid barracks of Simferopol and Bakhchisaray. One of the buildings of the Crimean Medical Institute features a memorial plaque to perpetuate the stay in Simferopol of N.I. Pirogov, S.P. Botkin and the first medical

nurses. In 1870, B. was awarded the title of an Academician and was the first Russian physician ever to be appointed a physician-in-ordinary of the Tzar family. His duties included escorting the Empress every summer to Livadia, the Crimea. He was one of the first to discover excellent climatic conditions of the SCC, particularly appropriate for the treatment of TBC patients. He regarded the location in Ereklík and Livadia the best. On B.'s recommendations, a sanatorium for the Empress was built at Ereklík: at present, it houses the facilities of the anti-TBC sanatorium "Mountain Health Resort". Also at B.'s initiative, a hospital was laid down on Polikur Hill, currently occupied by the I.M. Sechenov Research Institute (for climatology and climotherapy). One of the structures is until now called Botkinsky. The outstanding physician wrote: "I feel that the Crimea has a great future as a hospital station. . . In future, its rating is bound to be much higher than that of Montreux".

B. is the author of many priority ideas and lines of development (established the infectious nature of viral hepatitis, the so-called "Botkin disease"). The founding father of field-army therapy. Chairman of St. Petersburg Society of Russian Physicians (1878–1889), member of 43 other Russian and foreign institutions and scientific societies.

Bottlenose dolphin (*Tursiops truncatus*) – the largest Black Sea dolphin. Its length is approximately 2.3 m on the average (from 2 to 2.8 m), some species may reach 3.1 m. Its weight is 130–300 kg. They live for 25–30 years. The upper part of the body, head and fins are nearly black with a blue and dark-brown tint of different intensity; the belly is white. The eyes are circled by a dark strip reminding of glasses. The nose looks like a blunt beak. B.D. lives mostly in the coastal parts of oceans and seas in the Northern and Southern Hemispheres. In the Black Sea it is met more seldom than common dolphin. At exhaling they, like whales, jet out a fountain, but it is much smaller. They often jump out of water. It dives to greater depths than common dolphins. They are able to hold their breath for 10 and even 15 min. They usually move by small groups comprising several dozens of animals with a speed of 30–50 km/h. Their speed may reach 60–70 km/h. B.D. feed mostly on bottom fish, but may eat even sea fox, flatfish, ruff, not passing by the invertebrates—shrimps. The daily fish ration is 20–30 kg. Possessing the excellent acoustic sounder it can feel its "food" at a distance to 3 km. The reproduction starts from the age of 6 years. A female gives birth to one child once in 2 years; the pregnancy period—10–11 months. B.D. are easily trained and adapt easily to living in dolphinariums and oceanariums. These dolphins are most widely used by scientists over the world for various scientific experiments. They are also the gifted actors and participate in many performances.



Bottlenose dolphin (<http://true-wildlife.blogspot.ru/2011/02/bottlenose-dolphin.html>)

Bozkurt – a town on the coast of the Black Sea, Turkey.

Boztepe, Peninsula – sited in the central part of the Turkish Black Sea coast. The height 212 m, devoid of vegetation. Its northern shore is upright, and the eastern one—cliffy. Linked with the continent by an isthmus, on which Sinop City lies. Boztepe Cape is the southeastern termination of Boztepe Peninsula.

Brander—(from German “brand”—“fire”) – (1) At the time of sail fleet, the vessel loaded with combustible and explosive substances and intended for setting the enemy ships on fire. As a rule, they used small ships and carriers as B. When Peter I reigned, there were specially built B. in the Russian fleet. B. would be directed enemy-wise before the wind or with the stream, more often than not in foggy conditions or at night. Before B. was leaned on a different ship, the crew would set it on fire, themselves escaping in sloops. From the sixteenth century henceforth, B. was a crucial means of waging war at sea. For example, the British used B. in 1588 as they defeated the Spanish “Invincible Armada”; likewise, the Russian squadron destroyed the Turkish fleet in the Battle of Chesma of 1770.

(2) When there arrived steamships, the name of B. would be given to old vessels loaded with ballast that used to be sunk in a narrow fairway so as to block it; for example, shut down entry to a port and exit from it to the enemy ships.

Bredal Petr Petrovich (1681–1756) – Russian Vice-Admiral (1737). A Norwegian by birth. In 1703, admitted for Russian service in rowing fleet in the rank of a non-commissioned lieutenant on the recommendation of the Vice-Admiral K.I. Krujs. Participant of the Great Northern War (1700–1721). In 1705, promoted to Lieutenant. In 1710, sent to the Azov flotilla, commanded the brigantine “Lebed”, while cruising from Taganrog to Kuban. In 1712, transferred to the Baltic

Sea. In 1715, commanding the frigate “Samson”, seized, while cruising in the vicinity of Vindava Port for 6 days, three Swedish privateer vessels. Was sent to Britain to take delivery of two ships bought there and brought these to Copenhagen. In 1720 was sent to Danzig, Copenhagen, Lübeck and Memel for hiring marine officers and navigators. In October of the same year was in Hamburg for purchasing ships at the shipyard of the company. In 1721–1722, sent to Spain with the news of the peace with Sweden. Then became commander of the ship “St. Alexander” that was in the vanguard of the fleet, flying the flag of Peter I. In December of 1723, was acting chief commander of the Kronstadt Military Port, on December 9, 1724, appointed director of the St. Petersburg Admiralty Office. Commander of the ship “St. Alexander”, flying the flag of General-Admiral F.M. Apraksin. In 1728, took part in auditing Sestroretsk Plants, and in January of 1730, appointed Chief Commander of the Revel (Tallinn) Military Port. In January of 1732—member of the Army Marine Commission “to review and bring the fleet in due order”, from April of 1733, chief commander of the renewed Archangel Port, from September of 1735—chief commander in Tavrov. In 1736, formed the Don Flotilla and brought it to Azov town area, took an active part in seizing the city, that same year, he fortified Voronezh shipyard and laid down a new one in Bryansk. Participant of the Russian-Turkish war of 1735–1739. In 1737, sent to the Don expedition as the flotilla chief, participated in the Crimean Campaign and in July beat off two attacks of the Turkish fleet near Genichi and Odessa Spit. Made a map of Taganrog Harbor with measurements. In 1739, the war over, was recalled to St. Petersburg. In July of 1740, appointed member of the Admiralty-Collegium—Commander of Archangel Military Port. In 1742, commanded a squadron of ten ships during passage from the White Sea to the Baltic Sea for use in combat actions against the Swedish Fleet. Awarded the order of St. Alexander Nevsky (1741).

Brill (*Scophthalmus maeoticus maeoticus*) – (Black-Sea Turbot or Kalkan) a species of flatfish of the turbot (*Bothidae*) family. It has a rhomb-shaped body. The eyes are on the left side of the body; the coloring of the body is variable—it is usually yellow-gray or gray-brown. Its length may reach 1 m. It is widespread in the Black Sea, Bosphorus and the Adriatic Sea. B. lives for 12–16 years. It reaches maturity at the age of 3 to 4 years. Its spawning period is from April through mid-June. The fish makes local migrations for fattening and growth. In March it migrates from open sea to the coastal waters and till late April stays here at depths 10–40 m. After spawning it goes to the places 60–80 m deep. In autumn it often moves to the coast for fattening. It spends the winter months at depths 70–100 m forming commercial fishing communities at depths between 70 and 80 m. In Black Sea fishery B. is the valuable fish species.

British Military Memorial Complex – monument of the period of the Crimean war. Sited on Sapun-gora (Mt. Sapun) Cathcart Hill so named in memory of the British division commander Lieutenant-General George Cathcart (1794–1854) who was killed in the Battle of Inkerman on October 24 (November 5), 1854 and was buried here. During Sevastopol siege, there was one of the British cemeteries on the hill, which, according to some data, comprised 450 common and personal graves,

where the bodies of nearly 22,000 British soldiers and officers are laid to rest. There are several British generals among those who are buried here. The cemetery was established in 1882, financed by the government of Great Britain. During Sevastopol defense of 1941–1942, the cemetery was severely damaged, and after the war was in a state of utter neglect. In February of 1945, during the Yalta Conference, the cemetery was visited by the British Prime-Minister W.Churchill. In 1966, the Memorial was visited by the successor to the British throne Prince of Wales. In 1993 the first stage of the renovated cemetery was commissioned. In 2002, the “Crimean War Memorial” was opened.

Bruce Jacob Vilimovich (1670–1735) – Russian General-Field Marshal (1726), associate of Peter I. A descendant of a noble Scottish family, from 1647 his ancestors lived in Russia. Began service in “poteszny” (boy-soldier) troops (1683). Took part in the Crimean campaigns of 1687, 1689 and in Azov campaigns under Peter I (1695–1696). Was a member of Grand Embassy of 1697–1698. During Great Northern War of 1700–1721, helped Peter I in organizing the army (of artillery, mostly). Distinguished himself in seizing Narva (1704), in battles near Lesnaya Village (1708), near Poltava (1709) and in other battles. Escorted Peter I during the Prut Campaign of 1711. From 1711, General Field Armoury Master. Took an active part in restructuring field, siege and fortress artillery. From 1717, senator and president of Berg- and Manufactur-Collegiums that were in charge of Russian industry. B.—one of the best educated military figures of his time. Had encyclopaedic knowledge in the field of math, astronomy and physics. Mapped lands from Moscow to Asia Minor (1696), equipped an observatory at the School of Navigation in Moscow (1702), took part in developing Service regulations of 1716. Translated the book by the Dutch physicist and astronomer Christiaan Huygens “Cosmotheoros” and wrote the foreword to it, edited a number of works on math, astronomy and geography. Was making astronomical observations.

Brunnov Philipp Ivanovich (1797–1875) – Russian count, diplomat. Graduated from Leipzig University (1818), served at the State Collegium for Foreign Affairs. Participant of several congresses of the Holy Alliance of 1815–1833. From 1823, was in the service of Novorossiisk Governor-General M.S. Vorontsov. In 1826, took part in Akkerman Conference. In 1828–1829, chief of the diplomatic office of the Manager of Danube Principalities. Was in charge of the office of Russian representatives when the 1829 Adrianopol peace was being signed. In 1835–1839—advisor to the Minister of Foreign Affairs. In 1839–1840, envoy extraordinary and minister plenipotentiary in Stuttgart and Hessen-Darmstadt. B. was commissioned to settle differences with the British Government that arose following the conclusion by Russia of the Adrianopol and Unkar-Iskelesi Treaties. In 1840–1854—envoy to London, in 1860–1874—Ambassador to Britain. Russia’s representative at the London Conference that canceled the articles of the 1856 Paris Peace Treaty on “neutralization” of the Black Sea. Resigned in 1874.

Brusilov Lev Alekseevich (1857–1909) – Russian Vice-Admiral (1908). Graduated from the Naval Junkers’ Classes in Nikolaev City (1875). From 1875 to 1899,

served in the Black Sea Navy. In 1876–1878, sailed on various ships in the Black and Azov seas. Participant of the Russian-Turkish war of 1877–1878. In 1878–1879, sailed on the steamship “Nizhny Novgorod” of the Volunteers’ Fleet from Odessa to Sakhalin and back under a war flag. In 1879, promoted to a midshipman. Subsequently, served on the Black Sea naval ships, fulfilling the tasks of making a strategic description of the Black Sea coasts and ports. In 1890–1895, Flag-officer of the Commander-in-chief of the Black Sea practical squadron, Aide-de-camp and Flag-officer of Commander-in-chief of the Black Sea Navy and ports. In 1898, mine cruiser commander, sailed in the Black Sea. Awarded numerous Russian and foreign orders.

Bubyr (*Pomatoschistus minutus*) – sand goby (also known as a polewig or pollybait), marine bottom fish of Gobidae family, the head and front part of the back almost up to the first dorsal fin have no scale. Their abdominal fins are swept backwards, reach the anus. The body color is pale gray or gray-brown. B. reaches 7 cm in length. Exhibits common occurrence near the Atlantic coast of Europe, in the North, Baltic, Mediterranean seas and in parts thereof. Can be encountered near the Black Sea coasts at the depths of up to 60 m, mostly on a sandy or sand-silt seabed.

Bucharest Peace Treaty of 1812 – completed the Russian-Turkish war of 1806–1812; signed in Bucharest on 16(28) May 1812. The treaty comprised 16 open and 2 secret articles. Russia was enlarged with Bessarabia with the fortresses Khotin, Bendery, Akkerman, Kilia and Izmail (Art. 4), the Russian-Turkish border was established along the Prut River as far its confluence with the Danube, then along the Likian channel as far as the Black Sea. Moldavia and Valakhia were returned to Turkey. The boundaries from the Asian side were restored as they were prior to the war, i.e. Russia returned to Turkey all lands and fortresses seized in action. Russia remained in possession of all regions of Transcaucasia that joined Russia voluntarily as far as Arpachai, the Adjaria Mountains and the Black Sea; the only city returned to Turkey was Anapa. This way, Russia for the first time received marine bases on the Caucasian coast of the Black Sea. On the strength of a separate secret article, Russia was to be handed over a segment of the Caucasian coast “as a harbor to provide for and facilitate the delivery of military supplies and other required hardware”, while the other secret article stipulated demolition of some fortifications. As a result of B.P.T., Russia provided for the autonomy of Danube Principalities by reaffirming the resolutions of the Kuchuk-Kainarji (1744) and Iasi (1791) treaties as well as the Russian-Turkish agreement on Valakhia and Moldavia of September 24, 1802. The consequence of B.P.T was that Russia retained its influence in the Danube principalities. Russia acquired the right of trade and navigation throughout the Danube stream, of military influence as far as the Prut River mouth. The treaty and some secret articles thereof were ratified by the emperor Alexander I on June 11(23), 1812 in Vilno, 1 day before the invasion of Napoleon I. The Turkish Government ratified the treaty only, but refused to ratify the secret articles (hence, the latter failed to take effect). The treaty ensured the neutrality of Turkey during the Russian Patriotic War of 1812 and enabled Russia to

focus all forces on beating off the invasion of Napoleon I. The main provisions of B.P.T. were reaffirmed by the Akkerman Convention of 1826.

Bukhhhta (bight) (form Germ. “bucht”) – small part of the ocean, sea, lake isolated from open waters by the outline of the shore or islands; small bay, protected from the wind, open for the sea, lake or storage reservoir from one side. Local conditions determine the specific hydrological regime of B. which differs from that of the waters adjoining B. As a rule, B. is a convenient place for the berthing of ships. There are several convenient B. on the Black Sea: Tsemes, Balaklava, Sinop, etc.

Buckler skate (*Raja clavata*) – fish of the *Rajidae* family. It has a flat rhomb-shaped body covered with small and large thorns. Its body length may reach 120 cm. In the adult species there are 24–32 thorns along the body midline. This species is widespread near the European coast of the Atlantic Ocean and in the Mediterranean. In the Black Sea it is found in the shelf zone. It keeps at depths from 20 to 90 m. In spring (May–June) it migrates towards a shore where it spawns at a depth of 20–50 m. It lays eggs one-by-one on aqueous plants or other substrates. It feeds mostly on shellfish and bottom fish.

Budak Liman – sometimes referred to as Shabov Liman, sited 18 km to the north-east of Burnas Cape, to the south of the entry in Dniester Liman. Separated from the Black Sea by a narrow strip of land. The north-western shore of the lagoon is elevated, precipitous and is gradually descending toward Dniester Liman. Mean salinity of the lagoon equals 26‰. It is only in the northern part of the liman (Akembet Bay), where a considerable amount of ground water arrives, salinity is perceptibly lower. Medicinal hydrogen sulfide saturated silt is deposited on the bottom of the liman.

Budishchev Ivan Matveevich (?–1828) – In 1792–1809, served on the ships of the Baltic and Black Sea Russian Navy. In 1797–1799, served as a midshipman and lieutenant. Took part in making a reconnaissance marine description of the Black Sea northern coasts and of the Kuban River lower reaches. In 1801–1802, while commanding ships, made a description of the western sea coast from Odessa to Bosphorus Strait. On the strength of all materials available, made a map of the western part of the Black Sea coast in Mercator’s projection. In 1809–1826—Lieutenant, Captain-lieutenant and Captain 2nd rank. Was in charge of the depot of Black Sea naval charts and continued participating in hydrographic works. During this period, drew up an “Atlas of the Charts and Plans of part of the Black Sea” (1807) and the “Azov and Black Seas Marine Guide-book”.

Bug Cossack Army – irregular army, stayed on the banks of the Yuzhny Bug River and guarded Russia’s south-western borders. The army was initiated by the regiment formed in Turkey in 1769 of Moldavians, Valakhs and Bulgarians to fight against Russia, but subsequently the regiment took the Russian side during the Russian-Turkish war of 1768–1774. The war over, the regiment with the families settled in Russia along the Yuzny Bug River, where it served as border guards along

the Dniester River Participated in the Russian-Turkish war of 1787–1791, being part of the Ekaterinoslav Cossack Army (1787–1796). In 1800, was disbanded, but in 1803 at the request of the Cossacks was reinstated in the form of B.C.A (up to 7,000 men). Three cavalry regiments were detailed to guard the borders along the Dniester. The army was under the order-appointed chieftain of the Don Cossack Army. After the Russian-Turkish war of 1806–1812, in view of Bessarabia being annexed to Russia, B.C.A. was, in December of 1817, included in the military settlements and, together with two Ukrainian regiments, formed the Bug Lancers Division.

Bug-Dnieper-Liman Canal – sometimes referred to as Nikolaevsky sea approach canal. Begins at Berezan Island and stretches 80 km as far as Nikolaev Port. The canal comprises 13 bends: of these, 6 bends are in Dnieper Liman (liman = lagoon), the rest are in the Yuzhny Bug River. Canal width—100 m, depth—10.6 m (1967).

Bulgarian Riviera – the so-called Bulgarian Black Sea coast.

Bulancak – a town on the coast of the Black Sea, Turkey.

Bulgakov Yakov Ivanovich (1743–1809) – Russian diplomat, writer and translator. On diplomatic service from 1761. From 1764—a staff member of the embassy in Warsaw. In 1781 appointed the extraordinary envoy and minister plenipotentiary in Constantinople. Despite the Turkish urge to reconsider the Kuchuk-Kainarji Peace Treaty of 1774, B. succeeded in persuading Porta to sign the act of the Crimea, Taman and Kuban annexation to Russia. In 1783, B. made provisions for Russia to be granted the status of a most-favored nation as far as its commercial relations with Turkey were concerned. After Russia declined the ultimatum of Turkey insisting on return of the Crimea, B. was imprisoned, where he, none-the-less, managed to get hold of the planned Turkish military operations. In 1789—Ambassador to Warsaw. After the death of Catherine II, Empress of Russia, B. held no diplomatic posts.

Bulganak mud volcano field (Crimean Tatar “*bulaganak*”—“*mudy, turbid*”) – sited on Kerch Peninsula 8 km north of Kerch near Bondarenkovo Village (formerly, Bulganak). The largest in the Crimea group of 7 volcanoes, the most prominent of which are Andrusov Volcano, Vernadskogo and Obrucheva volcanoes—natural monuments of local significance.

Bulgaria, Republic of Bulgaria – state in the south-eastern part of Balkan Peninsula, in the south of Europe. Borders: on the north with Romania, on the west with Serbia and Macedonia, on the south with Greece and Turkey, on the east is washed by the Black Sea. Territory: 111,000 km². Population: 7.4 mln people (2011). Capital: Sofia (1.2 mln people in 2011). Other major cities: Plovdiv, Varna, Burgas. Official language: Bulgarian. Dominant religion: Christianity (orthodoxy). Monetary unit: Lev = 100 Stotinkas. State system: presidential parliamentary republic. Head of state: president, elected for 5 years. Legislative body: one-chamber parliament National Assembly (240 deputies elected for 4 years). A new administrative structure was adopted after 1999 in parallel with the decentralisation of the

economic system. It includes 27 provinces and a metropolitan capital province (Sofia-Grad). All areas take their names from their respective capital cities. The provinces subdivide into 264 municipalities.



Bulgaria. Physical map (<http://www.ezilon.com/maps/images/europe/Bulgaria-physical-map.gif>)

The first people emerged on the territory of B. as we know it today over 500,000 years ago, and in the fourth century B.C, there were settlements of ancient Aryans. One of the tribes, Frakians, settled on this land in the fifth century B.C., created an independent state that was the homeland of the legendary leader of gladiators Spartakus. Attempts to conquer the state were made by Greek colonizers, Scythians, Persians and Macedonians; in the first century A.D., the state was seized by Romans and fell into their bondage for 400 years. From the end of the fourth century, incursions of the neighboring tribes resumed which affected the ethnic composition of the population. The Slavs who came from beyond the Danube in the seventh century assimilated the local population and from the second half of the seventh century made a union with a small group of proto-Bularians (part of the Turk-Language people who had been driven from the lower reaches of the Kuban River by Hazars). That was how the First Bulgarian Kingdom came into being in 681, which attained its highest might in the ninth to tenth centuries, being in possession of nearly the entire Balkan Peninsula. However, as early as in mid-tenth century, the Bulgarian-Slavic state entered a grave crisis and early in the eleventh century lost its independence, being subordinated to Byzantium. The resurrection against the oppressors headed by Petr and Asen was a success and

managed to regain the country's independence. Thus, the Second Bulgarian Kingdom came into being. The invasion of Mongolian Tatars that followed, competition with Serbia and Byzantium on the Balkans, internal strife resulted in the collapse of the Kingdom which was conquered by the Turks at the end of the fourteenth century.

This way, muslim yoke arrived, which lasted almost 500 years and was destroyed after Turkey was defeated in the Russian-Turkish war of 1877–1878. In 1908, the Third Bulgarian Kingdom came into being. But then Germany drew it into WWI on its side. Orientation to Germany continued, which eventually led to a union with Hitler. After WWII, a republic was proclaimed, and the power passed over to Communists. After the USSR collapsed early in the 1990s, B. began building a democratic society.

Natural conditions of B. are diverse: mountain relief and seashore, plains and hill country with fertile soils are convenient for arable agriculture; there are medium-height mountains covered with woods and grasslands. The mountains occupy one third of the country's territory, while two thirds is below 500 m above mean sea-level, which in the conditions of south-eastern Europe is most convenient for the arable agriculture belt. Bulgaria's latitudinal axis is the mountain system Stara Planina (Balkan Mountains) under 2,000 m in height in the west and going down to 600–800 m in the east. The mountains divide B. into two parts: northern, with the forest-free and ploughed up Danube Plain, and southern, more mountainous into which the Upper Frakian Lowland wedges. The mountain massif is dissected in two places by the deep valleys of the Iskyr and Kamchia Rivers that form gorges. There are several passes in the main mountain range of which the best known is Shipka. The middle part of Stara Planina is adjoined in the south by the Stara-Gora range. The most mountainous is the south-eastern part of the country with the Rila-Rodopi mountain massif, which includes the highest mountains and ranges of B.: Rila (the highest mountain top of B.—Musala, 2,925 m), Pirin and Rodopi. The relief of Rodopi Mountains, forest-covered on the west, is particularly diverse.

The country's climate is temperate continental, succeeded by Mediterranean climate in the extreme south. South-westerly winds cause droughts. Mean temperature of January is from -2 to 2°C , of July up to 25°C . Precipitation in lowlands falls in the amount of 500–600 mm/year, in the mountains 1,000–1,200 mm/year.

Chernozems account for around 3 mln ha of land, which favors the development of arable agriculture. 30 % of the territory (mountains) is covered with woods (beech, oak, hornbeam, pine, fir, spruce, filbert). The major rivers are the Danube and Maritsa. There are several national parks: Vitosha, Golden Sands, Ropotamo, Steneto and others. Encountered in the woods are red deer, fallow deer, roe, chamois, boar; in the mountains—polecat, weasel, badger, wolf, fox, squirrel, European hare, small rodents; forest-free northern area feature: polecat, hamster, mole; the species composition of birds and reptiles is quite rich. In the Black Sea near Bulgarian coast common commercial fishes are mackerel and flatfish, in the Danube River—stellate sturgeon, pike perch and carp.

The country does not have enough useful minerals, of greatest value being iron, lead-zinc and copper ores. Also available is hard and brown coal, marble, quartz sand and around 500 springs of medicinal mineral water.

Bulgarians account for 85 % of the country's population. Other nationalities include Turks (around 9 %), Greeks, Gypsies (3.4 %), Armenians, Russians and other peoples who have been integrated in the country lately. The Bulgarian Language belongs to the Indo-European family and South-Slavic group of languages. B. has very low natural growth rate of population: only 2 persons per 1,000 of inhabitants.

The culture of the Frakian period is in many ways similar to that of the Mediterranean peoples, yet it is original and has contributed to the development of classical and world civilization. The ethnonym "Bulgarians" in the ninth century used to suggest Slavic nationality, different from ancient Slavs who came from beyond the Danube. In 865, Christianity was introduced. Creation of the Slavic script by the monks from Solun (Thessaloniki) the brothers Cyrill and Methodius assisted the growth of the medieval Bulgaria. During the period of Osman yoke, national traditions were mainly kept up by monasteries that were the foci of education and script, temples of art and monuments of architecture. It was in these centers that the old Bulgarian literary school emerged, alongside the Trnovo and Kilifar Schools of Painting; these centers gave birth to writers, historians, translators, pedagogues. The unique manuscript of the list of "Interpretations of Iov" is currently kept in the Church of the Holy Sepulchre in Jerusalem. The names of Kh. Botev, Elin-Pelin, I. Vazov, G. Karaslavov, N. Vaptsarov, D. Dimov and other authors are well known in literature. Music is represented by folk ritual and worker's songs, church psalms in the ancient Bugarian Language, epic songs. Higher education progresses along the lines of adhering to the European academic tradition. The [Bulgarian Academy of Sciences](#) (BAS) is the leading scientific institution and employs most Bulgarian researchers in its numerous branches. Principal areas of research and development are energy, [nanotechnology](#), [archaeology](#) and medicine. There are around 300 museums and art galleries, over 9,000 libraries in the country. Cinema industry is at an advanced stage of development.

B. is an industrial-agrarian country. Best developed is machine-building (agricultural and other machines, equipment for light and food-processing industry, computers, machine-tools, hydraulic turbines, etc.). The country is distinguished by advanced light, especially food-processing (tobacco, canned fruit) and textile industry. Ferrous and non-ferrous metallurgy, petrochemical and chemical, wood-working industry. 80 % of active population is engaged in material production. Prevalent in agriculture is plant growing: grains, leguminous crops, tobacco, gardening, grape-growing and horticulture, oil-bearing crops (ranks world's first in production and export of rose oil, Kazanlyk). B. is among the world's leading producers of canned fruit and vegetables per capita of the population. Over half of B. export is the products of industrial production (machine-tools, non-ferrous metals and ore concentrates, items of electrical-engineering, chemical, textile and other industries). 80 % of agricultural production is exported in the form of

manufactured goods. B. imports are dominated by industrial raw materials, machines, equipment, ferrous metals, oil and oil products, cotton, rubber, etc.

Fishing is developed very well. Motor-road and railway transport is at an advanced stage of development in B. A ferry service between Varna and Ilyichevsk (Ukraine) has been established. The country derives good revenue from foreign tourism as a matter of tradition. Navigation with the continental countries of Europe is arranged by the Danube River. Foreign economic relations of B. with the countries of EU and worldwide are effected through the sea ports, the principal of which are Burgas and Varna. Both the ports are joint-stock companies, 100 % of their shares are owned by the state. The prospects of Bulgarian ports development (they are 24) are related to leasing the ports on concession, which will make the services market accessible to the private sector.

Bulgarian Black Sea coast – The Black Sea is around 380 km long natural eastern frontier of the country. B.B.S.C. is subdivided into two subareas: northern and southern. The northern subarea stretches from the border with Romania to Emine Cape, the southern one—from Emine Cape to the border with Turkey. Each subarea comprises several dozens of micro-areas and dozens of health-resort and tourist locations. White and golden sandy beaches occupy approximately 130 km. The region is an important center of tourism during the summer season (May–October), drawing millions of foreign and local tourists. There are plenty resources for promoting international and domestic tourism: beaches of varying size, clean coastal waters, woody hills, large plains, cozy valleys, stony slopes, picturesque river estuaries, numerous historical monuments. The characteristic feature of the coast are health-resort complexes that meet most up-to-date requirements, are located outside human settlements so as to guarantee one's full-value rest in open air with as little noise as possible. Naturally, alongside these health-resort complexes there are old health resorts, too that are still quite attractive to holiday-makers. The climate is restful, characterized by mild winter and not very hot summer. The temperature of sea water at the coast during the hottest summer months is 24–25 °C. Sun-induced water warming secures sea bathing during 5–6 months a year. One can get to B.B.S.C. by convenient auto, rail, air and water ways. Parallel to the entire sea coast, there runs a highway which is included in the all-European road network. The highways Sofia-Sliven-Burgas and Ruse-Varna link the Black Sea area with the country's internal parts as well as with foreign countries.

Bulgarian Ship Hydrodynamics Centre – sited in Varna, one of the most up-to-date hydrodynamic centers in Europe. Established in 1976. It is a national research and development Institute of the Bulgarian Academy of Sciences, performing fundamental and applied research, tests, numerical modeling and analysis in the field of the ship hydrodynamics, aerodynamics, ocean and coastal engineering, environmental protection, water transport, defence, etc. Has two towed reservoirs, each 200 m long and 16 m wide: deep-water (6.5 m) and shallow-water (1.5 m). Reservoir trolleys provide for model towing velocities of up to 6 m/s. The deep-water reservoir is furnished with a trolley capable of moving with a speed of up to

20 m/s. There is also a sea-going maneuverable reservoir sized 64×40 m for testing self-sustained models and a cavitation tunnel, with the cross-section of the working segment 0.6×0.6 m. Centre also has coastal hydraulics basins with wave generator and aerodynamic tube, as well as special open water area for ship model tests.

Bulgarian Shipping Company (Navigation Maritime Bulgare) – main shipping company of Bulgaria (Varna). Has 110 ships of 1.7 mln tons combined tonnage (1983). Established by resolutions of the Sixth People's Assembly in 1892 as "Bulgarian Steamship Company". In 1894, the first Bulgarian ships "Boris" and "Bulgaria" arrived in Varna. In 1944, when socialist revolution emerged in Bulgaria, the company only had a few small fishing vessels and large boats of 1,450 tons in total. In June 1947 the Bulgarian Steamship Company merged with the coastal navigation enterprise under the name "Navigation Maritime Bulgare", which performs foreign-trade shipments of Bulgaria, exports commercial services, takes part in the international freight market, pursues an active sea policy. At present, regular traffic lines to the countries of CIS, Mediterranean Sea, Western Europe and the Far East use up-to-date regular-line ships. Tramp ships are used to carry import and export cargoes from the ports of West Europe, America, Japan and other countries. The steamship company also has a tanker and ferry-boats. Today NAVIBULGAR employs over 2,000 qualified staff, administration and crew.

Bulgarians – nation, dominant population of Bulgaria. There is 7.25 mln (2011) B. in Bulgaria (85 % of the population. There exist considerable groups of B. outside Bulgaria, mainly resettlers of the eighteenth century, these people live, for the most part, in the south of the Ukraine and Moldavia, Greece and Turkey; some groups of B. are typical of border areas with the former Yugoslavia. Macedonians of Bulgaria tend to merge with B., being close to them by language and culture. B. as a nationality took shape mainly in the eighth century A.D. Their name stems from the Turk-language tribe of Bolgars (Bulgars) that moved to the West Black Sea area from the North Caucasus and merged with local Slavic tribes. The Bulgarian Language belongs to the southern subgroup, Indo-European language family. Most believers among B. adhere to orthodoxy. They adopted Christianity in the ninth century. Late in the fourteenth century B. fell under the power of the Turks; part of the population was converted to Islam and was under a strong influence of Turkish culture; these B.—"Turk-affected" (Pomaks), living mostly in the Rodope mountains, were not infrequently looked upon as a special people; at present, they constitute an ethnic group of B. At the end of the eighteenth century, there began the process of Bulgarian nation taking shape. The liberation struggle of B. against the Turkish yoke played a great role in this process.

Bureau of the Black and Azov Seas Weather Forecast – Ukraine's oldest Hydrometeorological Center for the Black and Azov seas. Established in 1865. In 1924, the Hydrometeorological Center was restored in Feodosiya, at which the Weather Forecast Bureau was organized. After that, the program of observations at the meteo stations and gauging posts was enlarged. The Bureau focused on

servicing the marine and fish industry that operated in the Black and Azov seas and in the oceans worldwide. Hydrological sea weather forecasts, warnings of hazardous weather phenomena were prepared by the Bureau which was to relay on-line on a regular basis.

Burgas – second largest city of Bulgarian Black Sea area, a port sited far inside of Burgas Bay. The city emerged in the seventeenth century, inherited the name of the ancient Greek city-fortress Pirgos (Greek “*tower, castlen fortress*”), whose ruins are on the shore of Mandren Lake. Siten on the peninsula between Burgas Bay and surrounding three lakes: Burgas, [Atanasovsko](#) and [Mandrensko](#). Population—200,300 people (2011), is the fourth largest city of Bulgaria. Important seaport. Commodities exported via Burgas Port are tobacco, fresh fruit, canned fruit and vegetables, rolled metal, machines. Imported commodities include oil, coal, iron ore, ore concentrates to meet the needs of the iron-and-steel plant being set up nearby at Kremikovtzi, the Bulgaria’s largest metalworking company. The port is currently being expanded through building new piers south of the old port. Major industrial, commercial and cultural center. “LUKOIL Neftochim Burgas”, based in [Burgas](#), is the largest [oil refinery](#) in [Southeastern Europe](#) and the largest industrial enterprise in Bulgaria. Owned by [Russian](#) oil company [LUKOIL](#), the [refinery](#) has the biggest contribution among the privately owned enterprises to the country’s [GDP](#) and to the [state budget](#) revenues. “LUKOIL Neftochim Burgas” is the leading producer and supplier of over 50 types of [liquid fuels](#), [petrochemicals](#) and [polymers](#) for Bulgaria and the region and one of the leading companies in its field in [Europe](#). Oil for the refinery comes from Russia via the oil port “Druzhba”, built south of Burgas. Major base of Black Sea and oceanic fishing. Food industry, in particular, fabrication of canned fish. The [Burgas Airport](#) is the second most important in the country. The city has several museums, opera and drama theaters, several hotels, many restaurants and other tourist institutions.

Burgas-Alexandroupoli – oil pipeline planned for construction for transportation of Russian and Caspian oil from Burgas (Black Sea, Bulgaria) to Alexandroupoli (Aegean Sea, Greece) to bypass Bosphorus Strait due to its being congested with ships. Pipeline length is 280 km, its carrying capacity in 35–40 mln tons of oil per year. The pipeline project was proposed in 1993–1994 by several Russian and Greek companies. In 1994, for construction of the pipeline Greece and Bulgaria signed a bilateral agreement, followed by a [memorandum](#) of cooperation, signed by Greece and Russia. In February 1998, a Greek [consortium](#) for pipeline construction named “Bapline” was established, and in May 1998, a memorandum of creation of the “Transbalkan Oil Pipeline Company” was signed. In 2000, a technical specifications and an economic evaluation of the project were prepared by the [German](#) company ILF. The agreement establishing the international project company was signed in Moscow on 18 December 2007 and the company—“Trans-Balkan Pipeline B.V.” was incorporated in the Netherlands on 6 February 2008. Construction of the pipeline was scheduled to start in October 2009, and was estimated to be completed by 2011. However, in December 2011 the project was terminated by the Bulgarian government due to environmental and supply concerns.

Burgas Bay – the largest and deepest on the Bulgarian Black Sea coast: 31 km in length, 41 km in width and 25 m deep (maximum values). Its area west of the Pomorie town meridian equals 174 km². The bay is between Capes Emine and Maslen nos. The southern shore of the bay is elevated and precipitous, while the northern one is largely low-lying and gently-sloping. The bay shores are heavily dissected with narrow and deep bights, going in far between the jutting out capes.

Burgas Lake (Lake Vaya) – sited at the western coast of Burgas Bay, Black Sea, Bulgaria. The lake is separated from the shore by wide strips of beaches. The wide and very shallow lagoon, into which the Aitoska River and small rivers Synyrdere and Chukarska flow. Length of 9.6 km and a width of 2.5 to 5 km, area—27 km²—the country's largest sea lake. Prior to construction of the canal linking the lake with the sea, in summer its salinity was very much like that of the sea and even exceeded it. After the control locks were built and fresh water from Mandren Lake-Storage Reservoir was supplied, in summer, the water and chemical regime of B.L. improved. Carp is common in the lake. It is one of the most productive lakes.

Burgas Province (Oblast Burgas) – administrative-territorial unit in the south-east of Bulgaria. It is the largest province by area, embracing a territory of 7,750 km² that is divided into 13 municipalities with a total population of 422,319 inhabitants (2009). Administrative center—Burgas City. B.R. in the north is curbed by the mountain system Stara-Planina, in the south—by the Strandja Mountains bordering with Turkey; in the east, the region is washed by the waters of the Black Sea. Major branches of industry (significant to the Republic as a whole): petrochemical, machine building (railway cars, fishing vessels, ventilators, radiators, cable fabrication), food industry (dairy, flour milling, sugar production, wine-making). Production of brown coal, copper ores, sea salt. Around 1/3 of B.R. area is arable land, the main crop cultivated is wheat; of cash crops—sunflower, sugar beet, cotton. Grape growing is advanced in the northern part. Sheep-breeding and pig-rearing are common, as well as fishing (the region accounts for 80 % of the country's sea fish yield). Burgas sand beaches are special: with dark sand, rich in iron that is heated quickly, which makes it suitable for sun-tanning from early spring to late autumn.

Bushnitsa F. – Corresponding Member of Romanian Academy of Sciences, one of the active initiator and organizer of Hydrobiology for both marine and fresh water for fish farming and fishing, was the best specialist in the field of fisheries and especially in the Romania Danube. With his direct participation a lot of research and economic measures for the integrated development of the Danube Delta was performed.

Butakov Grigoriy Ivanovich (1820–1882) – Russian Admiral (1878), naval commander, the founding father and creator of the tactics steam-powered armor-clad navy. Graduated from the Naval Cadet Corps in 1837, served in the Baltic Navy, and from Deember of 1837—in the Black Sea Navy under the command of M.P. Lazarev. In 1846–1850, while commanding the ship “Pospeshny”, was attending to hydrographic work and, together with I.A. Shestakov, drew up the first systematized book on Black Sea Sailing Directions. During the Crimean war of

1853–1856, distinguished himself in Sevastopol, when defending the Malakhov Mound. At the time of Sevastopol defense of 1854–1855, commanded a group of steam-powered frigates that provided an artillery-fire support of ground troops, commanded the steamer-frigate “Vladimir” which captured in combat the Turkish steamship “Parvaz-Bakhri”, made a number of successful operations on board the steam-powered frigate “Khersones”. When the Vice-admiral V.A. Kornilov was killed in action, B, became Chief of staff of the Black Sea navy. In 1856, promoted to Rear-admirals and appointed the Chief Commander of the Black Sea Navy and military governor of Nikolaev and Sevastopol (until 1860). In 1860–1862, served in the Baltic Sea Navy. In 1863, published his work “New Grounds of Steamship Tactics” which gained recognition by the navies worldwide. In 1863–1867, military attaché in Britain, France and Italy. In 1867–1877, commanded a squadron of armor-clad battleships in the Baltic Sea Navy. From 1881—Chief commander of St. Petersburg Port, from 1882—member of The State Council. Developed a new school of thought based on the use of armor-clad screw-propelled ships with bolt-type guns and other technological innovations; introduced advanced methods of combat training. Awarded Russian and foreign orders. In 1863 B. was a Demidov Prize winner. His main works: “Code of Sea Signals”, “Evolutionary Signals Book”, “New Grounds for Steamship Tactics” (1865). A mountain of Sakhalin Island is named after B.

Bychok-Blanket (Transparent goby) (*Aphia minuta*) – marine bottom fish of *Gobiidae* family, has a glassy, semitransparent, pinkish body of up to 5 cm in length. Sometimes, it is referred to as crystal goby. This is the only representative having no attachment to the bottom (deposits fish eggs on aquatic plants only) and leading coastal-pelagic life. Feeds mainly on plankton. Common near the Atlantic coast of Europe, in the North, Baltic and Black seas. Dwells in small shoals, largely in bays.

Bychok-Kruglyak (Round goby) (*Neogobius melanostomus*) – marine bottom fish of *Gobiidae* family, the head is oval-shaped, the width slightly exceeding the height. The color of body usually from gray-brown to gray. On the first back fin, behind the fifth somactid there a big black spot, distinguishing it from other species of goby. Reaches 24 cm in length. Common in the Caspian, Azov and Black seas. Besides the sea, is encountered in nearly all coastal lakes and in the lower reaches of most Black Sea rivers—in the Dnieper and Dniester. Of all the gobies, this species is most valuable commercially. Of interest to those engaged in sport fishing.

Bychok-Kruglyash (Giant goby) (*Gobius cobitis*) – marine bottom fish of *Gobiidae* family, the head is oval-shaped, its width slightly larger than the height. The color of body is usually gray-brown or brown-yellow. Length up to 25 cm. Common near the Atlantic coast of Europe, in the Mediterranean Sea its parts thereof. Omnipresent near the Bulgarian coast, its population is greater around Maslen Nos—Michurin.

Bychok-Martovik (Knout goby or Toad goby) (*Mesogobius batrachocephalus*) – marine bottom fish of *Gobiidae* family. They call it Martovik because males

usually approach the shore at the end of March. The head is large, wide and compressed from the top down. Hindhead without scale. The color of body more often than not gray-brown or brown-yellow. The body and fins (except the abdominal cupula and the anal fin) are all covered with brown spots of diverse shapes that form a marble pattern. The largest goby dwells in the Black Sea. Reaches 37 cm in length (normally, 25–28 cm). Common in the Black and Azov seas. Encountered everywhere. Hardly ever enters brackish waters. Favorite target of sporting fishermen.

Bychok-Ryzhik (Mushroom goby) (*Neogobius cephalarges*) – marine bottom fish of *Gobiidae* family, the head is large, its width larger than height. The color of body usually ranges from brown-gray to brown-yellow. Length up to 25 cm. Common in the Black and Azov seas.

Bychok-Travyanik (Grass goby) (*Gobius ophiocephalus*) – marine bottom fish of *Gobiidae* family, the body and head are slightly compressed on the sides. The abdominal cupula is underdeveloped and does not reach the anus. The body color ranges from gray-green to brown-green, sometimes is green-yellow. The back, pectoral and tail fins are covered with lengthwise, zig-zag, brown and light stripes. Reaches 25 cm in length. Common near the Atlantic coast of Europe, in the Mediterranean Sea and parts thereof, enters the Sea of Azov.

Bychok-Tsutsik (Tubenose goby) (*Proterorhinus marmoratus*) – marine bottom fish of *Gobiidae* family, the head is slightly compressed on the sides, its height greater than width. The color of body gray-brown, length up to 11 cm. Common in the Caspian, Azov and Black seas. Encountered in nearly all lakes, in estuaries and lower reaches of some rivers, and hardly ever in bays. Along the Don River. It penetrated as far as Voronezh City and even reached the Sea of Marmara, where salinity is 2 times larger than that of the Black Sea.

Byzantine Empire (Fourth century—1453) – the Medieval feudal state. It has got its name from the Antique city of Byzantium where the capital was transferred and the city was named Constantinople. This was the eastern province of the Roman Empire comprising Greece, Central and Eastern Balkans, Asia Minor, Syria, Palestine and Egypt. During the reign of Diocletian (284–305) the Byzantine was ruled independently and in 395 it separated completely from Rome, first, as the Eastern Roman Empire and later on as B.E. It had the largest territory in the reign of Justinian I in the sixth century when B.E. turned into a powerful state in the Mediterranean. Seizure in 1204 of Constantinople by the participants of the Fourth Crusade led to the downfall of B.E. that was restored in 1261 under Michael VIII. Finally, B.E. lost all its lands and covered the territory a little bit larger than Constantinople. In 1453 the Ottomans conquered Constantinople that meant the end of B.E.

Byzantium – a city founded on the coast of Bosphorus (presently Istanbul). It played a great political, trade and strategic role. It was founded about 660 B.C. as the Megara colony. From the end of the sixth century to 478 B.C. B. belonged to the

Persians. From the mid-fifth century B.C. it entered into the Athens Marine Union. Three times it left the union. In 378 B.C. Byzantium became the member of the Second Athens Marine Union and in 340 B.C. it successfully stood the siege of the troops led by Philipp II. After the battle at Kheronea it retained its autonomy. The climax of the city was in the fourth century B.C. In the first century B.C. Byzantium was included into the Roman Empire where it acquired great significance as a center of trade and crafts. In 330 it was renamed by Constantine I into Constantinople (the city of Constantine) and was given the status of the capital of the Byzantine Empire that was retained till its conquering by the Ottomans in 1453 who gave this city their own name—Istanbul.

Bzyb (Bzypn River) – river in Abkhazia, flows in the mountains of the West Caucasus, flows into the Black Sea. Length 110 km. Catchment area 1,410 km². River alimentation is mixed, snow and glacial, in the lower reaches, even rain alimentation. Ice regime is not stable. There are 10 glaciers in the basin. The volume of annual runoff (at Dzhirkhva Village 22 km from the mouth) is around 3 km³/year. The annual march is dominated by spring (38 %) and summer (33 %) runoff. Maximum runoff is noted in May, minimum—in February. A auto road to Ritza Lake runs along the river valley.

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