



BLUE ECONOMY: a Path for Krasnodar Krai

The World Bank
Europe and Central Asia Sustainable Development Practice Group
Environment, Natural Resources and Blue Economy Global Practice

Policy Note

August 2020

BLUE ECONOMY: **a Path for Krasnodar Krai**

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Acronyms

BBSEA	Bluing the Black Sea Program
BE	Blue Economy
BRICS	An association of five major emerging national economies: Brazil, Russia, India, China, and South Africa
CMA	The Common Maritime Agenda
EMBLAS	Project on Improving Environmental Monitoring in the Black Sea
EPR	Extended Producer Responsibility
EU	European Union
GDP	Gross Domestic Product
ITQ	Individual Transferable Quota
IUUF	Illegal, Unreported and Unregulated Fishing
JRC	Joint Research Center
KK	Krasnodar Kray
RF	Russian Federation
SDGs	Sustainable Development Goals
SSED 2030	Socio-Economic Development Strategy 2030
SUP	Single-Use plastic
USD	United States Dollar
VNIRO	Russian Federal Research Institute of Fisheries and Oceanography
WBG	World Bank Group
WHO	World Health Organization

Introduction



The Russian Krasnodar Krai’s Black Sea coast stretches over 470 kilometers and covers a total land area of 8,015 square kilometers from the Taman Peninsula to the city of Adler in the Krasnodar Krai. The coast is home to 1.4 million people, which is 25 percent of the total population of Krasnodar Krai. The Black Sea supports a vibrant coastal and marine economy that contributes roughly 30 percent to the gross regional product.¹ Administratively, there are following coastal municipalities: Temryuk district, Anapa, Novorossiysk, Gelendzhik, Tuapse district and Sochi. The current and future economic prospects of Krasnodar Krai are uniquely linked to the Black Sea, with an emphasis on recreational tourism as one of the pillars of the regional economy.

Figure 1. Administrative Structure of Krasnodar Krai’s Black Sea Coast



Source: O. Klimanova, using the Open Data Commons Open Database License (ODbL).

The coastline of Krasnodar Krai offers a unique combination of terrestrial and marine features. It boasts vast seascapes, forested foothills, attractive mountain ranges, and a mild subtropical climate. Important economic sectors, such as tourism, fishery, food processing, and shipping, are supported by these resources. Tourism is one of the main stakes of the regional economy, with a total value added of rubles 114 billion, or 5.3 percent of the regional GDP.² Fisheries and aquaculture

¹ “Economic Zones: Krasnodar Krai,” Investment Portal of Krasnodar Krai, <https://investkuban.ru/investmap/> (in Russian).

² The law of Krasnodar Krai on the Strategy for the Socioeconomic Development of Krasnodar Krai until 2030, approved on December 11, 2018. Ministry of Economy of Krasnodar Krai.

are a relatively small contributor, with a value added to the economy of around rubles 9.52 billion, or 0.4 percent of the regional GDP, and have room to grow.³ Combined, these two sectors employ 10 percent of the total workforce of the region.⁴

In recent years, there has been an increase in anthropogenic pressures on the natural environment of Krasnodar Krai, driven by the scale of economic activity and population growth and leading to a deterioration in environmental quality. The average and maximum concentrations ($\mu\text{g}/\text{dm}^3$) of iron (Fe) and lead (Pb) in the coastal waters of the Adler-Sochi area significantly increased between 2003 and 2018.⁵ Roughly 10 percent of all major point source polluters are located in the coastal areas. Air quality in Novorossiysk has also deteriorated, posting steady exceedances of the maximum allowable concentrations of key air pollutants, including sulfur dioxide (SO₂), nitrogen dioxide (NO₂), carbon oxide (CO), ammonia (NH₃), particulate matter (PM), methane (CH₄), and volatile organic compounds (VOC). Emissions from the transport sector have reached 70 percent of total emissions, a figure that is expected to increase even further if the critical threshold of 300 cars per 1,000 inhabitants is reached.⁶ Fifty percent of agricultural fertilizers and pesticides used in farming are carried out by the Kuban river to the Black Sea. Runoffs, rich in nutrients, have changed the biological parameters of the coastal waters near Adler, causing persistent eutrophication. These are just some of the indications that in the coastal areas of Krasnodar Krai, the principles of sustainable development are not working in optimal equilibrium to the full and mutual benefit of the economy, the environment, and society.

The Black Sea area of Krasnodar Kray offers unique development and investments opportunities that can bring about positive changes if based on sustainability principles. According to Krasnodar Krai's Social and Economic Development Strategy to 2030 (SSED 2030),⁷ the Kray is divided into the Northern, Central, Eastern, Black Sea, Taman and Predmont Economic Zones, including the Greater Sochi and Krasnodar agglomerations. This zoning implies the creation of common economic spaces that will allow municipalities to develop the territory in an integrated manner, taking part in large-scale programs and directing their joint efforts toward achieving strategic goals and objectives depending on the specialization of these zones. Adding a sustainable "blue economy" dimension will help ensure that the economic development of the Kray contributes to true prosperity, today and long into the future.



³ Ibid., 2.

⁴ Ibid., 3.

⁵ Krasnodar Krai Ministry of Natural Resources, "State of the Environment Report at the End of 2018" (Krasnodar: Ministry of Natural Resources, 2019), 83, 116; part 3, 255.

⁶ Ibid., 4.

⁷ The law of Krasnodar Krai on the Strategy for the Socioeconomic Development of Krasnodar Krai until 2030, approved on December 11, 2018. Ministry of Economy of Krasnodar Krai.

What is the focus of the policy note?



The untapped blue economy opportunities of two of the economic zones, defined in the SSED 2030 as the Black Sea Economic Zone and the Sochi agglomeration, are the central focus of this policy note. It concentrates on the specific aspects of Krasnodar Krai's coastal and maritime economy that have the potential to strengthen the region's leadership role among other regions of the Russian Federation by transitioning to a "blue" development path. It also highlights the challenges to, and opportunities in, unlocking the benefits of blue economic development in the coastal-marine interface of the Black Sea. Sector challenges and opportunities are discussed through the lens of sustainability and development prospects.

The policy note focuses on the well-established coastal- and marine-based sectors, such as recreational tourism and fisheries, that make a significant contribution to the economy of Krasnodar Krai and where challenges and unsustainable patterns could undermine their growth ambitions and translate into missed economic opportunities. It also discusses the critical importance of protecting the coastal and marine ecosystem from marine litter as well as ways to preserve the substantial economic opportunities that could be derived from a healthier coastal and marine space. Information on pollution in the Black Sea that stems from other sources, such as untreated effluents and oil spills, is intentionally limited in order to expand the focus on plastic litter as a global and regional challenge that needs country-specific measures.

The COVID-19 pandemic has revealed just how profoundly a region's economy, businesses, and livelihoods are reliant on access to natural resources. Although the crisis poses significant challenges to both the public and private sectors, it also offers an opportunity to shift from the "business-as-usual" approaches in the fisheries and tourism sectors and look for smarter and more sustainable development avenues. This policy note therefore highlights additional steps that could



be taken to strengthen the post-pandemic recovery effort in three blue economy areas – fisheries, coastal tourism, and protection of the sea scape from marine plastic pollution – and to involve the public, businesses, and municipalities in the process.

The World Bank has recently launched the “Blueing the Black Sea” (BBSEA) program aiming to reduce pollution in the Black Sea through a set of complementary activities that include a thorough analysis of the sea’s current contaminants. The BBSEA will support the Black Sea countries in the implementation of the Common Maritime Agenda (CMA) for prioritizing and catalyzing blue economy investments in the Black Sea basin. More specifically, the program aims to strengthen economic, technical, and communication tools to promote regional collaboration and private sector engagement in pollution prevention in the Black Sea. However, the ambition of the BBSEA is to progressively include all the Black Sea countries in this World Bank initiative beyond the initial four – Turkey, Georgia, Ukraine, and Moldova – through additional resources. For Krasnodar Krai, there are multiple opportunities for learning and knowledge exchange in the technical assistance format of the BBSEA that could help support the implementation of the specific recommendations in this policy note.

Why care about the blue economy?



The blue economy concept emphasizes a shift from the management of a single sector to holistic, multisector-linked development. It focuses on environmental and material stewardship, social responsibility, accountable governance, and greater transparency. Importantly, the blue economy concept highlights the coastal and marine ecological systems that provide essential services and inputs to the ocean economy as underlying and sometimes invisible natural capital. Taking a blue economy path will mean factoring in this natural capital asset base in economic decision making, thereby ensuring effective governance of the use of the marine space and resources and the application of inclusive methods and a “whole ecosystem” approach. The World Bank’s definition of the concept emphasizes sustainable care of the resource itself – the ocean – as a critical part of economic growth:

The Blue Economy is sustainable use of ocean resources
for economic growth, improved livelihoods and jobs,
and ocean ecosystem health.

The blue economy concept is premised on an integrated and participatory approach that includes the sustainable use and management of marine resources for societal progress. Its origin can be tracked back to the sustainable development principles of the United Nations Agenda 2030 and Sustainable Development Goals (SDGs). For example, recognizing that fisheries can

Text Box 1. The World Bank has defined seven goals for the blue economy

- ▶ Identify clear policies and objectives that combine consideration of economic, social, cultural, and environmental needs in the ocean area.
- ▶ Provide better guidance and clarity to decision-makers and greater certainty to the private sector.
- ▶ Understand how the marine environment is currently being used, the needs of different activities, how new technologies are emerging, and how the nature of activities is changing.
- ▶ Protect valuable ecosystem services and natural resources and better understand and manage the cumulative effects of different marine activities, both on the ecosystem and each other.
- ▶ Make more efficient use of available marine space, striking a considered balance between competing pressures, and consider how diverse activities can be better integrated in a shared space for mutual benefit.
- ▶ Anticipate the predicted impacts of climate change on the marine environment and address how marine activities contribute to it and how they are likely to be affected.
- ▶ Ensure that the views of all those with an interest in the marine environment (including women) are considered in deciding how ocean resources are to be used.

Source: World Bank and United Nations, “The Potential of the Blue Economy: Increasing Long-Term Benefits of the Sustainable Use of Marine Resources for Small Island Developing States and Coastal Least Developed Countries” (Washington, DC: World Bank, 2017).

drive sustainable development, the SDGs set several targets toward the objective of conservation and sustainable use of marine resources. SDG 14 is relevant to blue growth and includes specific targets that countries should collectively or individually pursue in order to protect and sustainably use the oceans.

The blue economy creates economic opportunities beyond the business-as-usual approach by changing development patterns based on the three core elements of sustainability. It seeks to separate socioeconomic development from environmental degradation by incorporating the real worth of natural capital (ocean values and services) into all aspects of sea-based economic activity. Rather than simply “doing no harm,” the blue economy aims to shift business patterns toward positive and long-term impacts on the health of the marine space and livelihoods of people who depend on coastal and marine resources. This includes tackling multiple issues, including pollution, land development pressures, overfishing, depreciation of ecosystem services, and so on, all of which require more accurate resource valuation and better sectoral coordination in development planning and investments and enforcement of blue economy policies.

The blue economy could drive transformative change by addressing the underestimated value of natural capital⁸ in the economy. Many goods and services⁹ provided by the oceans and seas and not supplied by private firms through markets, such as carbon sequestration, coastal protection, waste disposal, and the biodiversity of coastal and marine space, are neglected by economic policies and investment decisions that rely solely on market prices, even though these assets significantly contribute to valuable economic and other human activities. Traditional methods of using GDP to measure outputs in the ocean economy do not fully account for changes to the underlying natural stocks and the future benefit streams that they provide.¹⁰ Conversely, valuation methods that measure the economic value of blue assets could overcome this limitation by fully taking into account the contributions of the non-market goods and services provided by natural systems.

Countries that pursue strategies for blue growth use tailored approaches adapted to their specific contexts. This points to the complexity of the blue economy concept as well as the variety of entry points that countries can use to promote novel strategies and policies that ensure the balance of growth and sustainability of the marine space ecosystem. A glimpse of the blue economy visions of selected BRICS countries (Brazil, Russia, India, China, and South Africa) illustrates these different approaches.

In **China**, the State Council has published a White Paper on the Chinese Maritime Economy emphasizing scientific innovation in the marine industry. China established six national marine economic innovation and demonstration development areas and seven industrial innovation bases for the rejuvenation of the marine industry, involving science and technology and strategic cooperation among marine parks. Several successful blue economy projects have achieved laudable results. For example, the Shandong Peninsula Blue Economic Zone Development Plan established the Shandong Blue Economic Zone as a modern marine industrial cluster with strong international competitiveness. It is now a leading educational center for marine science with a demonstration zone for marine ecology and the related land environment. Scientific innovation and

⁸ Natural capital is made up of non-financial, non-producing assets. It is the extension of the economic notion of (produced) capital to the natural environment, i.e., the “stock” of natural (eco-)systems that yields a flow of valuable (ecosystem) goods or services into the future.

⁹ Within a wider economics context in the absence of market prices, businesses, governments, and individuals have a tendency to overuse and under supply environmental public goods. For example, air quality may be poor if people do not pay when they pollute it, or outdoor recreation may be under supplied because it is difficult for landowners to earn a return on its provision. Sometimes even the goods that are provided by publicly regulated private firms may face prices that only poorly reflect the full value of the goods concerned. For example, the regulated price of water supply and treatment services may be only weakly related to the value of those services. Valuation methods may be needed to provide information to allow policy makers to make decisions or regulate prices in such situations.

¹⁰ P.G. Patil and others, “Toward a Blue Economy: A Promise for Sustainable Growth in the Caribbean” (Washington, DC: World Bank, 2016).

achievements in marine science research and education are incubated in the “China Qingdao Blue Silicon Valley” to support the country’s sustainable utilization of marine resources and contribution to global marine science and research.

The Chinese government is attaching great importance to the prevention and control of pollution in the marine environment. The Action Plan for the Comprehensive Governance of the Bohai Sea aims to achieve ambitious targets: the share of Bohai Sea coastal waters with good water quality will reach 73 percent; the natural coastline retention rate will remain approximately 35 percent; the coastal wetlands rehabilitation scale will be no fewer than 6,900 hectares; and coastline rehabilitation will increase by roughly 70 kilometers. The plan has four key areas where results will be pursued: land-based pollution control, marine pollution control, ecological protection and restoration, and prevention of future environmental impacts. China has organized marine debris control, monitoring, and evaluation in more than 50 areas of public concern along the coast.

India has declared the blue economy to be a political vision. However, the full-fledged concept has yet to be developed. The strategy will facilitate coordination among the 17 different agencies whose mandate includes issues involving the maritime economy, coasts, and ocean-scapes.

South Africa has developed an Integrated Maritime Strategy until 2050 that provides a comprehensive plan to “foster more wealth creation from the Africa’s oceans, seas and inland water ways by developing a thriving maritime economy and realizing the full potential of sea-based activities in an environmentally sustainable manner.”¹¹ It is estimated that the ocean’s economy has the potential to contribute up to ZAR R 177 billion to the GDP by 2033 (compared to ZAR R 54 billion in 2010) and create approximately 1 million jobs (compared to 316,000 in 2010).¹² The plan includes two strategic enablers for realizing the targets: a) skills and capacity building, and b) research, technology, and innovation that support marine transport and manufacturing, offshore oil and gas exploration, aquaculture marine protection services and ocean governance, small harbors, and coastal and marine tourism. The estimated investments (public and private) are planned in infrastructure development (ports), marine manufacturing (boatbuilding), aquaculture, and seismic surveys in the oil and gas sector.

¹¹ “Operation Phakisa – Oceans Economy,” Department of Environment, Forestry and Fisheries, Republic of South Africa, <https://www.environment.gov.za/projectsprogrammes/operationphakisa/oceanseconomy>.

¹² The South African rand (ZAR R) equals US\$0.060.

**Why should things
change?**



Krasnodar Krai has considerable untapped opportunities associated with the rich coastal and marine resources provided by the Black Sea. The SSED 2030 envisages a regional annual economic growth rate of between 4.2 and 5.5 percent and an increase in industrial sector productivity of no less than 5 percent year-on-year. Its specific growth objectives are premised on the inherent natural richness of the coastal and marine space. For example, the SSED 2030 plans for tourism's potential to be developed by offering diverse recreational products based on the abundance of coastal assets already under extensive use. At the same time, the strategy underscores the alarming fact that anthropogenic impacts have reached unsustainable rates and that the regional economy is not functioning according to sustainable development principles. Additional economic and population growth without a plan to address the multiple user conflicts may lead to a shortage of land resources in economic turnover. An increase in the anthropogenic load on the coastal and marine environment is already harming the wider environment, with negative effects on the quality of life of the population and the competitiveness prospects of the area's leading industries.

A renewed emphasis on regional cooperation in the Black Sea Basin could provide additional opportunities for Krasnodar Krai to capitalize on the blue economy potential. The CMA for the Black Sea, the latest sea basin initiative, was coordinated and signed in May 2019 by all the littoral countries, including Russia. The CMA will be implemented in synergy with other regional cooperation initiatives. It is also a follow-up commitment to the 2018 Burgas Ministerial Declaration, "Towards a Common Maritime Agenda for the Black Sea," in its focus on areas related to the blue economy that can contribute to the region's sustainable economic development, especially its coastal zones: maritime affairs, fisheries and aquaculture, research and innovation, connectivity, environment



protection, tourism, education, and the development of job skills required for a maritime economy. The participating countries—Bulgaria, Georgia, Romania, Russia, Turkey, Ukraine, and Moldova—agreed to contribute to the goals and implementation of the CMA’s priorities and actions and to work on joint sustainable blue economy projects aligned with its goals .

The blue economy could be the pathway for rebuilding Krasnodar Krai’s coastal and marine economy to become both stronger and more sustainable, particularly after the economic decline caused by the COVID-19 pandemic. As elsewhere, the extent of the economic crisis in the wake of COVID-19 is varied and widespread across the blue economy’s sectors and activities. Tourism, fisheries, and aquaculture are among the well-established blue economy sectors where the pandemic’s initial impacts have been especially damaging and the recovery is expected to be slow.

The crisis overall is estimated to have caused an economic decline in Russia of almost 6 percent in 2020 and a drastic rise in the unemployment rate. The country’s GDP is also expected to contract at a pace not seen in the previous 11 years. Based on these estimates the crisis induced poverty rate is projected to increase from a baseline projection of 12.0 percent to 14.8 percent in 2020. The Russian government has implemented a number of social protection measures to compensate for the increase in crisis-induced poverty. A preliminary assessment¹³ of the social mitigation measures announced by the Government such as changes to child allowances, maternity capital, and social security contributions to SMEs, finds that such measures can partly compensate for the increase in poverty rate, bringing it down to 12.2 percent in 2020. Throughout the world, COVID-19 has exposed just how deeply economies and well-being are linked to the oceans and other water sources. The full effects of the pandemic on the economy of Krasnodar Krai have yet to be measured, but the way that the territory’s coastal- and marine-based sectors are viewed is likely to change.

The global COVID-19 crisis revealed the need of new framing of economic development that do not erode natural capital upon which it depends. Blue economy assets are one of Krasnodar Krai’s most important assets and a source of growth. WWF estimated that Krasnodar Krai contains a great deal of the South Federal district’s biocapacity including 80 percent of its forest land, half of its fishing ground, and a third of its cropland¹⁴. Unsustainable patterns of use of these resources would continue to deplete the natural capital of the region. The Blue Economy offers an alternative path that would allow growth to resume post COVID 19 and even accelerate, while preserving and even enhancing the natural capital of the region. But it will take some bold policy interventions to correct the course.

¹³ World Bank. Russia Economic Report I N° 43. July 2020

¹⁴ WWF Russia. Ecological Footprint of the Russian Regions – 2016 / edited Pavel A. Boev and Dmitry L. Burenko – Moscow, 2016.

What is needed for change?



The many economic interests in Krasnodar Krai, as well as the potentially irreversible changes to the coastal and nearshore ecosystems, make it critically important to advance the blue economic possibilities for holistic and integrated planning and management. This includes more comprehensively defining the policy and legal basis of the threefold management of coastal and marine resources: planning, protection, and the regulation of economic activity. Rational and balanced development of the Black Sea coast of Krasnodar kray means factoring in the interests of multiple users and efficiently managing and protecting the resources of the marine environment. The articles of Law No. 249-KZ, “On the Coastal Zone of the Black and Azov Seas in the Krasnodar Territory,” which were adopted by the Legislative Assembly of Krasnodar Krai in 1998, contained the legal and economic basis for the rational use and protection of the coastal zone and the sea and the protection of the interests of the region’s population. They have unfortunately been repealed, and as a first step, they should be reinstated.

High-level policies and development concepts in Krasnodar Krai refer to the sustainable development, conservation, and management of aquatic resources. There are purported “sustainability” references attributed to businesses, industry, and infrastructure in the SSED 2030. However, with regard to fisheries, aquaculture, and tourism, the development emphasis is on increasing sectoral output and expanding trade and investment, rather than balancing development pressures and reducing the risks to the ecosystems. These policies should be strengthened with a valuation of the region’s natural capital as a way to support sustainable tourism development, protection of coastal resources, conservation of biodiversity in protected areas, and pollution prevention—the foundation of Krasnodar Krai’s blue economy vision and pathway. In addition, fully understanding the relationship between economic development and the health of the coastal and marine environment and ecosystems will potentially enhance Krasnodar Krai’s efforts to realize its blue economy potential. Development policies that foster crosscutting sector synergies and resolve the conflicts between resource users create an enabling environment for sustainable private sector growth.

The coastline of Krasnodar Krai is under intensive urbanization pressure and is already far more economically developed than the region’s inland areas. The pressures are further aggravated by the effects of urbanization and development, as well as the impacts of climate change (e.g.,



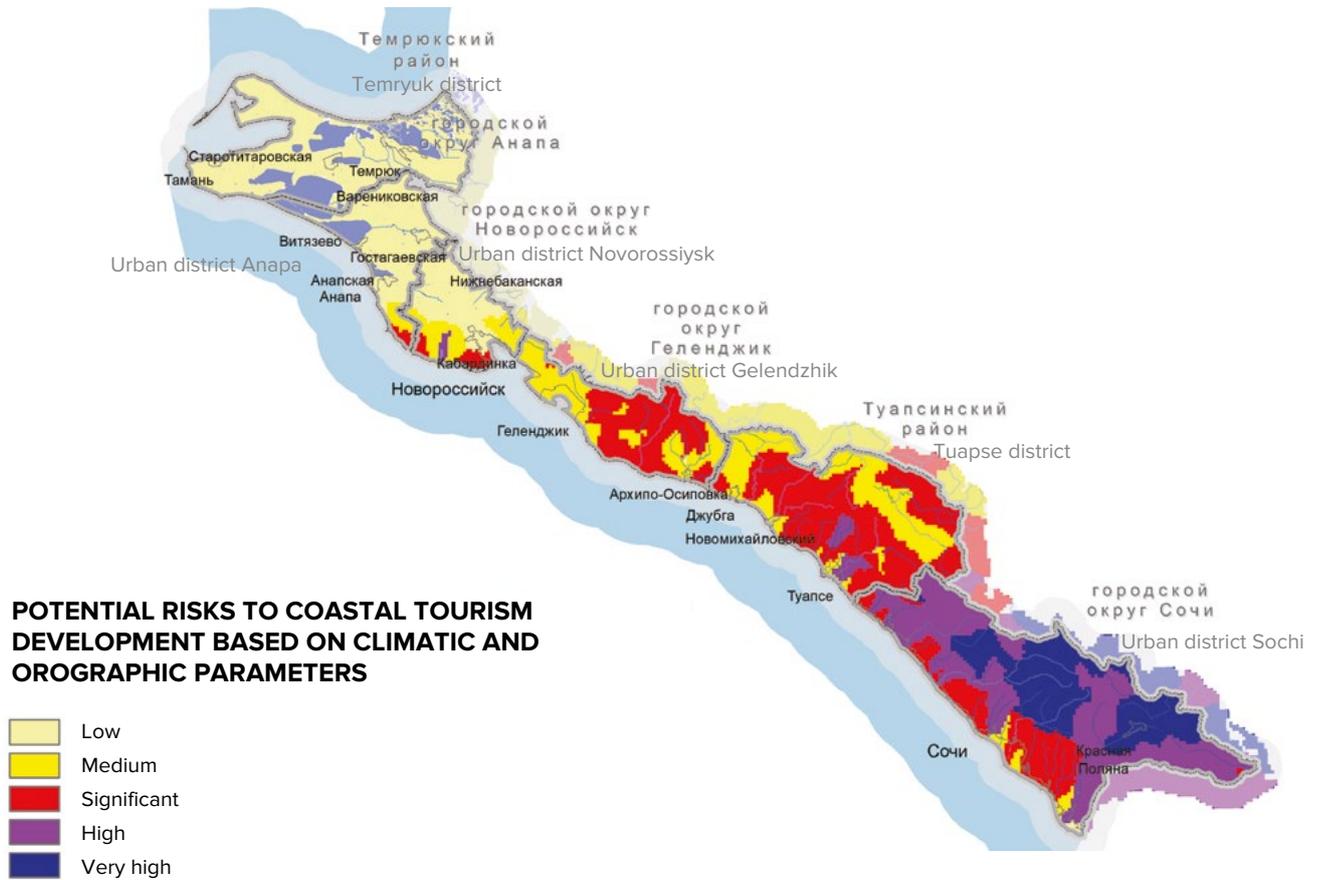
Figure 2. Increasing Urbanization of Krasnodar Krai's Coastal Areas

Source. O. Klimanova, using the geoportal, "River Basins of European Russia," <https://kpfu.ru/ecology/nauchno-issledovatel'skaya-rabota/rechnye-bassejny-evropejskoj-rossii>.

floods, heat waves, erosion), on the relatively narrow coastal strip. About 10 percent (900,000 hectares) of Krasnodar Krai's valuable agricultural land and tourism areas is under risk of flash floods. Urbanization has changed the coastal landscapes significantly. The city of Sochi is among the most affected by intensive development in the Sochi-Khosta-Adler segment (figure 2). Krasnaya Polyana is also distinguished as a highly urbanized area, as is the Gelendzhik Bay, one of the poles of tourist infrastructure in the region, and its environs, although a significant area is forested and thus less affected. Critical levels of urbanization are also observed in the districts of Novorossiysk (the highest level in the Central Districts).

Transitioning to development policies that are informed by integrated coastal and marine spatial planning, a whole ecosystem approach, and social inclusion could facilitate multiple blue economic opportunities and unlock new investment avenues in different segments of the coastal economy. This could be achieved by investing in the capacity to strengthen cross-sectoral dimensions of the economy and by planning and monitoring an environmental assessment that could spearhead a comprehensive change in governance, technology, markets, and access to finance. The development plans under SSED 2030 outline an ambitious and multifaceted economic development agenda. They also provide an opportunity to take a deeper look at the impacts of economic and

Figure 3. Climate Change Risks to Coastal Tourism



Source: O. Klimanova, using the ArcMap based on the Open Data Commons Open Database License (ODbL).

human activities on coastal and marine ecosystems through the lens of the blue economy and to determine ways to transition to more sustainable patterns of resource use. Among other positive outcomes, coastal areas with a cleaner and greener environment may be better positioned to attract highly skilled labor and to make even greater contributions to regional economic growth.

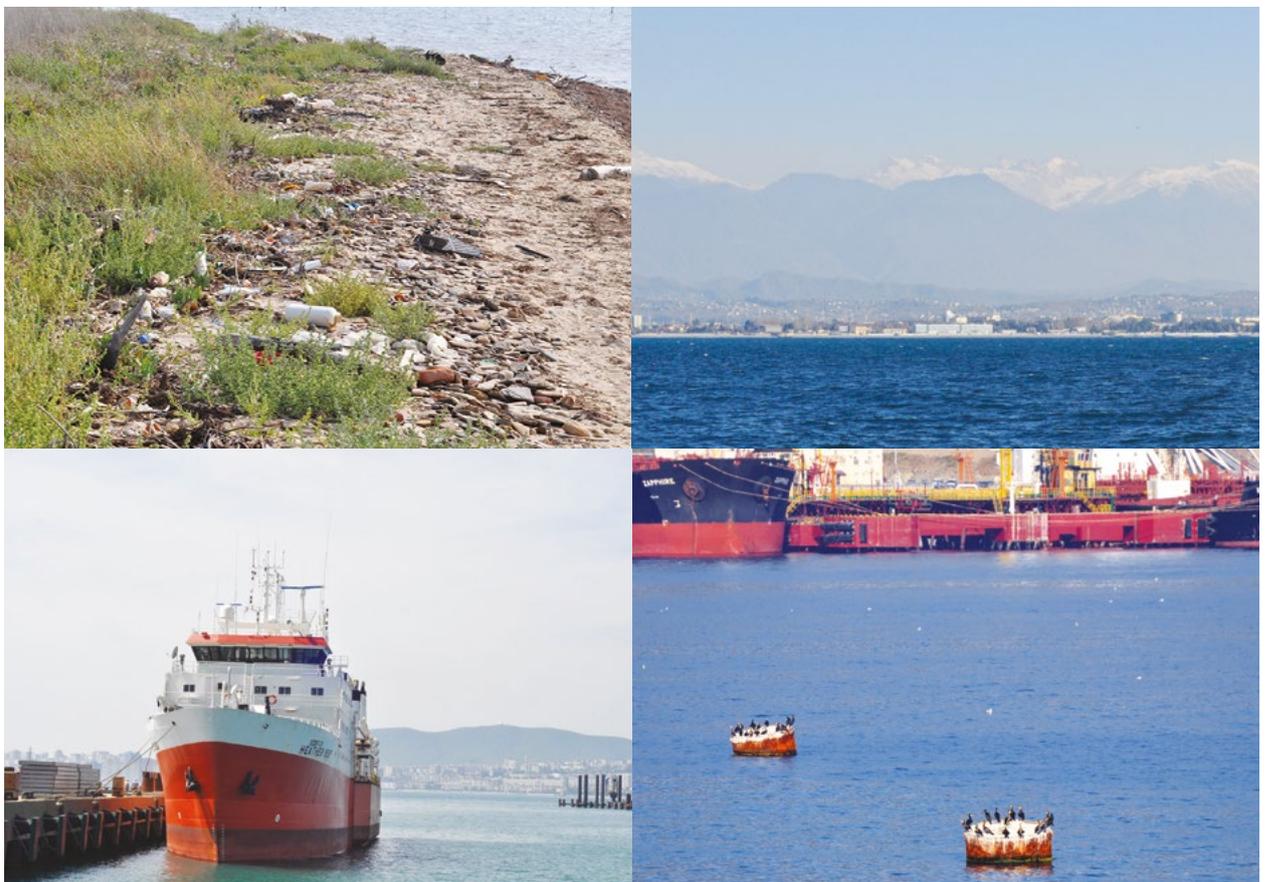
Shifting spatial and economic planning to a more sustainable path by integrating natural capital valuation holds multiple promises. This is particularly important for sectors using coastal and marine resources. Considering marine spatial planning, a blue economy tool that promotes synergy between sector management and sustainable use of marine resources, could help address the current challenges to the Black Sea coastal zone and reduce user conflicts. Revisiting the General Territorial Development Plan of the Black Sea coastal belt with these considerations in mind might significantly increase the prospects of sustainable growth inputs to the region’s economy.

As noted above, Krasnodar Krai’s coast is prone to the impacts of climate change, with significant flash flood risks in areas of high recreational value and dense population. A particularly acute problem is in the mountainous rivers in the coastal areas near Sochi, where the frequency of flooding has increased by 70 percent in recent decades. Many of the existing flood protection engineering

facilities are in disrepair or even crisis conditions, thus further increasing the risk of significant physical and economic damage in the future. Flood protection measures will be specifically needed in the urban area of Sochi, including the preservation of upstream forest cover in the city's watershed that would involve the strict regulation of new development and construction in flood-prone areas. Equally important are the areas around Krasnaya Polyana, Gelendzhik, and the Tuapse Rayon that are also exposed to a naturally high flood risk. Addressing these climate-related risks in the coastal areas will both help protect coastal tourism assets and save lives.

Numerous opportunities exist in the blue economy for promoting growth and optimizing human benefits without compromising the health of the coastal and marine ecosystem. The challenge is to grow in a way that is sustainable and that protects the coastal and marine environment by breaking sector management silos and instead looking holistically to ensure that management decisions are based on the best available science. This approach, which is at the heart of the blue economy, could open opportunities for more private sector investment and job creation. It can boost public-private partnerships in such areas as research, innovation, and product expansion; infrastructure development; exchange of intellectual property; and financial and human resource development. In short, the blue economy way forward is to break with the conventional approach in the fisheries and aquaculture and tourism sectors and take advantage of more sustainable and inclusive solutions and tools, such as marine spatial planning and natural capital accounting, to inform future sector investment plans.

Removing the constraints to sustainable growth by reforming fisheries and aquaculture management, promoting unique tourism products, and reducing marine litter is a good starting point for Krasnodar Krai's blue economy priority actions. This way, Krasnodar Krai could set the stage for realizing the blue economy opportunities and at the same time contribute to the Black Sea's regional efforts to protect the coastal and marine environment. Specific challenges and opportunities in these three priority areas are summarized in the following sections.



FISHERIES AND AQUACULTURE

Krasnodar Krai Blue Economy Opportunities



BLACK SEA FISHERIES UNDER STRESS



FISH STOCK IS EXPLOITED UNEVENLY
HIGH-VALUE SPECIES UNDER MAJOR DECLINE DUE TO
REDUCTION OF COASTAL WATERS AREA SUITABLE
FOR NATURAL SPAWNING.
DEPLETING STOCK IN THE TERRITORIAL WATERS OF
RF'S ECONOMIC ZONE DUE TO ILLEGAL, UNREPORTED
AND UNREGULATED FISHING (IUU)

KRASNODAR KRAI SECTOR STRATEGIC OBJECTIVE

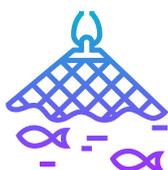
**IMPROVE STOCK MANAGEMENT AND SECTOR
PRODUCTIVITY BY:**

**Restoring and stabilizing fish stock of high value
species**

**Increasing the natural spawning and feeding areas in
the Kuban lagoons to 140,000 ha**

**Increasing the volume of aquaculture production to
35,000 t/y and Black Sea fish catch to total 70,000 t/y**

Increasing marketable fish products to 80,000 t/y



MARINE CAPTURE FISHERIES

MARINE CAPTURE FISHERIES WILL CONTINUE TO
UNDERPERFORM DUE TO BLACK SEA STOCK DECLINE

AQUACULTURE - MARKET OPPORTUNITIES

**The Black Sea's commercial aquaculture
products are in high demand in the
Russian domestic market.**



**Around 75% of fish
for sale in the Krasnodar region is from
freshwater aquaculture farms in diked
natural
water bodies and rivers**

HIGHLIGHTS OF REALIZING FISHERIES' BLUE ECONOMY POTENTIAL

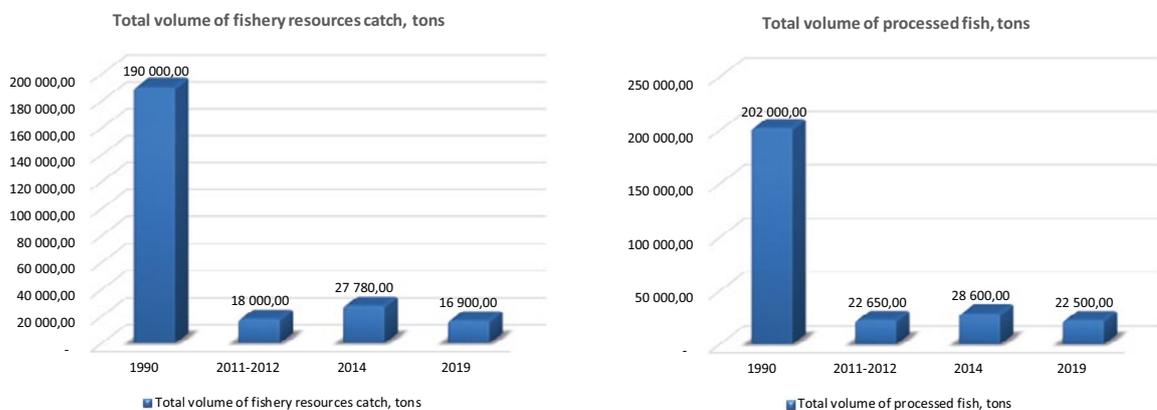
- REFORM SECTOR POLICY AND INSTITUTIONAL FRAMEWORK FOR EFFECTIVE FISHERIES MANAGEMENT AND STOCK RECOVERY
- IMPLEMENT SHORT-TERM RESTRUCTURING AND LONGER-TERM MANAGEMENT OF THE FISHERY FLEET
- DEVELOP AQUACULTURE POLICIES WITH GREATER EMPHASIS ON INCENTIVES TO STIMULATE SUSTAINABLE AND RESPONSIBLE AQUACULTURE DEVELOPEMENT
- ENHANCE SCIENTIFIC AND RESEARCH CAPACITY FOR BREEDING OF FISH SPECIES OF HIGH VALUE

Fisheries and aquaculture

An important source of nutrition, fisheries and aquaculture will remain essential to food security and coastal tourism and are a mainstay of any coastal economy. Krasnodar Krai has aligned its fish consumption goals with the Russian Federation’s Fishery Sector Development Strategy 2025. To meet its food security objective by 2025, Krasnodar Krai aims to substantially increase people’s fish protein intake from the current 10 kg per capita per year to 22 kg per capita per year. The Krai’s government has set ambitious goals to expand the fisheries sector’s potential through a set of reform measures that include: creating conditions for sustainable sector development; increasing the sector’s investment attractiveness; restoring and stabilizing the fish stock of high value; expanding the mari-culture production based on science and best practice; increasing sector management efficiency; and stimulating entrepreneurship in regional fisheries.

Marine capture fisheries will continue to face challenges due to the slow recovery of fish stocks in the Black Sea. Of the 250 fish species in the Azov-Black Sea basin, 60 are subject to commercial fishing, of which 35 are in the Black Sea. With the current declines in major Black Sea fish stocks, especially of high-value species, it is likely that marine capture fisheries will continue to underperform across the Black Sea region. Multiple factors have caused a similarly dramatic change on Krasnodar Krai’s fisheries over the past three decades. The total catch volume declined from 190,000 tons in 1990, of which 150,000 came from the Atlantic Ocean, to only 16,900 tons in 2019 (according to the Russian Federal State Statistics Service, or Rosstat). Of this marine capture, the fish volume was 11,600 tons, or 80.6 percent of the total catch. Processed fish food, including canned food, declined from 202,000 tons in 1990 to its lowest point of 22,500 tons in 2019 (figure 4).

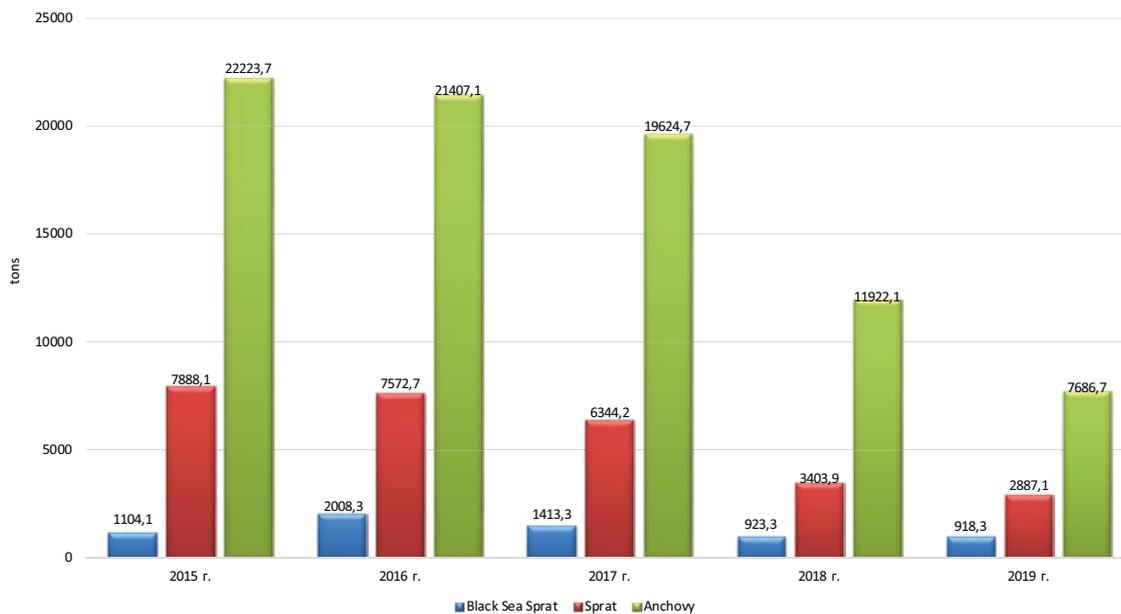
Figure 4. Krasnodar Krai: Total Volumes of Fish Production and Processed Fish (data 2020)



Source. O. Klimanova using Open Data Commons Open Database License (ODbL)

Due to the decline in fish stocks, some economically valuable species in the Black Sea are near depletion. Figure 5 shows the dynamic changes in catch volumes of sardines (Black sea sprat), sprat, and anchovies. The declining volumes recommended by the Federal Agency for Fishery (Rosrybolovstvo) for the Azov-Black Sea basin for the 2014–20 period for commercially harvested fish species also indicate the diminishing sea catch, as well the need and importance of aquaculture development to sustainably grow the sector and meet seafood demand and government fish consumption goals.

Aquaculture, both inland and mari-culture, holds significant potential for generating multiple socioeconomic benefits. Due to the slow marine stock recovery, Krasnodar Krai’s capture fisheries sector is unlikely to operate at full potential. Yet, the Krai’s natural settings nevertheless offer a significant untapped opportunity for aquaculture development. Compared to other southern regions

Figure 5. Krasnodar Krai: Dynamics of High-Value Fish Catch

Source: Authors, based on information from Rosstat.

of Russia, Krasnodar Krai has the best conditions for developing aquaculture, and if fully developed, it could produce 35,000 tons of marketable fish by 2025, including 6,700 tons of pond fish, 18,300 tons of fish from canals and ponds, and 10,000 tons of fish from industrial fish farms. Increasing the number of fish farms, including small-scale farms of individual entrepreneurs on their own land, could create more jobs through the value chain, multiplied by the ancillary services (construction, equipment, and fish feed) and by the need to grow input crops, such as wheat, sunflower, and soy. Future demand of the fish farms for fish feed could be satisfied by utilizing the capacity of regional feed concentrate plants. According to the Russian Federal Research Institute of Fisheries and Oceanography (VNIRO),¹⁵ the Krai's potential for cultivating 20,000 tons of bivalve mollusks in the Black Sea could be an important input for the food industry of Black Sea resorts and potentially for regional export. The demand in particular for mussels and oysters from Black Sea coastal waters, as high-value products, is high and could be increased significantly.

Currently, fish farms operating in the region can produce roughly 20 million fish seeds to meet approximately 30 percent of the total demand of regional fish farms. Stocks to replenish herbivorous fish, such as white carp, bighead carp, and white grass carp, were reared from larvae brought from China at the initiative of Krasnodarryba in 2007. Given the natural conditions and enormous potential for aquaculture development, investments in brood stock rearing for replacing and enhancing the fish population could be another value proposition for improving the efficiency of culture-based fisheries in Krasnodar Krai and the entire southern region. According to data from 2014, fish for sale by fish farms in Krasnodar Krai was 7,200 tons, a drastic decrease from the 28,000–30,000 tons produced in 1990. The region's aquaculture farms produce approximately 1,000 tons of salmon annually, with the Adler trout farm making the largest contribution.

Strengthening sector policy and institutional frameworks at the national and regional levels will be essential to the effectiveness of fisheries management. Ongoing challenges include a reduction in natural spawning areas, fewer inland fisheries, and depleted stock in coastal waters and in the exclusive economic zone due to illegal, unreported, and unregulated fishing (IUUF).

¹⁵ V. Sklyarov and others, "Aquaculture of the South of Russia: Development Trends" (Moscow: VNIRO, 2013), http://www.vniro.ru/files/trydi_vniro/archive/part4.pdf (in Russian).

These could be addressed through policies that more effectively manage the fishing capacity and proportion of overfished stocks, reduce bycatch and discards, improve aquatic ecosystems and habitats, and expand incentives for aquaculture sector development. Implementation of regional strategies for aquaculture development requires legal provisions and guidelines for siting and developing aquaculture farms as well as environmental, sanitary, and safety stipulations aligned with international standards to stimulate responsible fish farming. The relevant authorities may consider providing incentives and targeted support to fish farmers for access to capital to steer private sector investment uptake. Expanding scientific and research capacity would be critical to breeding fish species of high value. Establishing a Stock Breeding Research and Methodological Center for applied scientific research could provide the necessary methodological help to fish farmers, ensuring that they use the best international practices for aquaculture development.

The Fishery Sector Development Strategy foresees upgrading the aging Black Sea fishing fleet by 2025, planning a replacement of a minimum 10 medium and small-size fishing vessels. As part of the national program for fleet capacity management, the Russian Federation aims to limit the use of existing capacity by imposing catch or fishing quotas. In order to allow stock recovery, a complementary measure would be both short-term restructuring and longer-term management of the fishery fleet. Given the current distress of the Black Sea fish stock, efforts to control catches through input management (i.e., effort) would be a more effective than output management (i.e., quotas). The latter works only when the fleet capacity is appropriate to fishing opportunities. Krasnodar Krai has established management regimes by target stock. To ensure sustainable fishing levels, it would be necessary to better characterize the fishing fleet based on good information about fishing effort and practices and to exercise good monitoring and control. Iceland provides a useful example of the responsible management of fishing capacity (see box 2).

Fisheries are subject to the indirect impacts of the COVID-19 pandemic expressed through changing consumer demand, reduced market access, and numerous logistical problems related to lockdown, transportation, and border restrictions. Countries around the world have yet to estimate the full effect on the livelihoods of fishermen and the reduced food security and nutrition for the populations that rely on fish produce. According to a preliminary assessment of the European Union based on the information available in early April, fisheries are among the sectors expected to suffer greater impacts and have a slower recovery. With fishermen forced to stay in port and fish farmers facing the prospect of having to dispose of unused products, the public sector's role in crisis mitigation and targeted support will be central to providing much-needed relief. Similarly, financial compensation to aquaculture farmers and processing enterprises, as well as support to producer organizations for the storage of fishery and aquaculture products, could reduce the pressure from the temporary cessation of activities in the sector.

Text Box 2. Iceland Fishery Fleet Restructuring: Introduction of the Individual Transferable Quota (ITQ)

In the late 1980s, Iceland's rich marine resources were being depleted at an unsustainable rate. To restore dwindling stocks, "the government introduced a comprehensive system of individual transferable quotas (ITQs)... The ITQ system gives fishers permanent quota shares which they can also lease or sell, providing an incentive to take a long-term view on the harvesting and management of the resource... Less efficient vessels can opt to leave the industry and receive compensation through the sale of their quotas, thus helping to encourage a more efficient and profitable sector... The Icelandic ITQ system is seen as a success in terms of economic efficiency and as a way of drastically reducing fishing effort to safeguard the sustainability of fish stocks... Currently, none of the commercially harvested species in Iceland is considered threatened due to overfishing."

Source: OECD, "Sustaining Iceland's Fisheries through Tradeable Quotas," Environment Policy Paper 9 (Paris: OECD, 2017), 2.

Krasnodar Krai

BLUE ECONOMY OPPORTUNITIES

Coastal and Nautical Tourism

THERE ARE MANY UNTAPPED OPPORTUNITIES IN KRASNODAR KRAI FOR MORE ENVIRONMENTALLY FRIENDLY ACTIVITIES

Resorts and health tourism contribute 17.3% of the regional GDP and employ 19% of the population. Recreational tourism has an extensive network of accommodation facilities. During 2015-2018 accommodations facilities in Sochi, Gelendzhik and Anapa more than doubled. Only 25% of the coastline is suitable for beach tourism, but only 10% of that is being employed for beach use.



In 2016 15.8 million tourists, 6% increase from 2015

In 2024 projected tourist growth is to reach 18,0 million

9 functional marinas with a total of 600 berthing places are insufficient

ECOTOURISM ATTUNED TO SUSTAINABLE DEVELOPMENT AND PART OF THE REGION'S BLUE ECONOMY PRESENTS MULTIPLE OPPORTUNITIES

SOCHI NATIONAL PARK AND IN THE CAUCASIAN BIOSPHERE RESERVE

Actual visitors in

2018: 1,086,738
2019: 1,220,753

NAUTICAL "BLUE" TOURISM AS A STRATEGIC PRIORITY HAS ROOM TO GROW THROUGH FOCUSING ON HIGH-SPENDING ADVENTURE TOURISTS AND ATTRACTING DEMAND

Black Sea Coastal and Marine Ecosystems could contribute significantly to wealth generation and the well-being of Krasnodar Krai's coastal communities



Coastal and nautical tourism

Recreational tourism is the largest contributor to Krasnodar Krai's economy and a major employer. In 2014,¹⁶ the value added of health and resort tourism was 3.13 percent to the gross regional product. If the multiplicative contribution of other sectors (such as agriculture, trade, transport, catering, paid services, cultural services, art, sports, and so on) is included, the input share increases to 17.3 percent. The sector employs roughly 19 percent of the population and accounts for 24.2 percent of the region's investment. The biggest share of outputs and value added is generated by hotels and restaurants (65.1 and 62.8 percent, respectively, in 2015) and by services related to recreation and entertainment (22.7 percent) and culture and sports (24.5 percent).

Traditionally, the tourism sector in Krasnodar Krai has a strong emphasis on mass beach tourism. "Sun, sand, and sea" tourism is accompanied by large-scale resort developments, road construction, a significant use of land resources, the generation of waste, and population pressure during high seasons. The expansion of mass beach and recreational tourism is currently underway around Anapa and is already raising concerns about the potential anthropogenic impacts on ecologically sensitive areas, particularly in the absence of an assessment of the carrying capacity of, and potential impact on, the Abrau Durso-Anapa axes. Mass tourism attracts high volumes of visitors but with a relatively low average spending potential. It is also limited by seasonality, has high risks of environmental damage, and is generally unsustainable.

Krasnodar Krai's Government Program for the Development of Health and Recreational Tourism until 2024 includes ecotourism and nautical tourism as strategic priorities. Both offer niche tourism products that typically include small-scale and low-impact activities, focusing on the promotion of local communities and the conservation of natural resources. Located at the interface of land and sea, the Black Sea coastline has high natural and biodiversity value and could contribute significantly to wealth generation and the well-being of coastal communities. The Krai boasts an impressive combination of natural monuments, archaeological sites, and protected areas that create contrasting sea- and landscapes. Ecotourism could add substantially to wealth-generating opportunities and the welfare of the coastal populations. In the western area, the Temryuk district and the resort town of Anapa are dominated by salt lakes, mud volcanos, sea cliffs, and wetlands. In Novorossiysk and Gelendzhik, lower mountain ridges touch the sea and create striking seascape vistas. The town of Tuapse, with its mountain passes, valleys, and rivers flowing into the sea, offers opportunities for attractive ecotourism. Similarly, in Sochi, mountain belts range from the subtropical coastal rainforest to alpine altitudes. All of these examples of potential coastal ecotourism have room to grow by focusing on high-spending adventure tourists and by attracting demand for environmentally friendly tourism. As an alternative to mass beach tourism, ecotourism has the potential to make coastal areas more appealing precisely when they are in the proximity of attractive nature sites.

Currently, there is no coherent maritime tourism policy and legal framework to support the growth of the blue tourism niche in Krasnodar Krai. Yachting and boating are regulated by bylaws, regulations, decrees, and agency guidelines that are inconsistent and occasionally contradictory. Moreover, responsibilities and mandates, including those for security and border control of tourism vessels entering Russia's territorial waters, are currently vested in multiple agencies and institutional functionaries. At a regional level, a variety of policy tools acknowledging the impact of maritime activities on the vulnerable coastal and marine ecosystems will be required if this type of tourism is to be managed sustainably. These could include such widely used policy tools as green and tourist taxes; plans for infrastructure sites based on the carrying capacity of the coastline; ecological footprint indicators; life cycle assessments; and sustainable tourism indicators. Promoting sustainable business practices by private and public actors through support mechanisms, corporate social responsibility strategies, environmental management schemes, and environmental, social,

¹⁶ Socioeconomic Diagnostic of Krasnodar Krai, "G1. Markets. Resorts and Tourism Complex," 24, <http://kuban.lc-av.ru/wp-content/uploads/2017/03/Kuban-30.-Diag-G1.SKTK.pdf> (in Russian).

and governance reporting, as well as monitoring and ecolabeling, could demonstrate compliance with international standards—and be used as a marketing tool. Some of these labels, such as the Blue Flag label, which is awarded to beaches, marinas, and sustainable boating tourism operators in recognition of their compliance with stringent environmental, educational, safety, and accessibility criteria, are specific to the blue tourism sector.

Ongoing plans for new marinas with a capacity of approximately 3,300 berths from Gelendzhik to Anapa are not supported by analysis based on comprehensive market data on anticipated activity levels in yachting and boating tourism. To address this gap, and as a priority to support competitive boating and yachting tourism, the public sector needs to develop a nautical tourism policy with the active engagement of all stakeholders, performance standards, and the availability of accurate data. At that point, with adequate access to finance, the business will potentially adapt to market requirements and create the underlying logistical boating infrastructure necessary to develop products that combine multiple activities along the coast and locations within single holiday itineraries.

Coastal ecotourism and marine tourism will both benefit from stronger government involvement and support. The primary reasons to revisit the existing tourism development priorities are: the direct competition between mass and niche tourism for the use of common property resources; the higher degree of risk to people and coastal property from natural hazards; and the complex and dynamic nature of coastal and marine environments that make impacts difficult to predict. A full set of understandable, clearly written coastal policies and supporting environmental regulations that are uniformly and firmly enforced is an essential element of comprehensive public sector support. Better planning of tourism density in areas of concern (without a reduction in the volume of total tourism) and the use of new products to increase the value of niche tourism to the regional economy will also be part of government support to ensure sustainability.

The yachting industry is also an opportunity for value added to the regional economy. For Krasnodar Krai to become an attractive blue tourism destination, this industry needs to be supported by a forward-looking Nautical Tourism Road Map for the next 10–15 years. Current plans indicate a significant effort to increase the berthing capacity through private sector investments plans for the expansion of nautical infrastructure. These plans should be informed by a thorough market analysis that identifies the opportunities, challenges, and associated risks for soft as well as hard infrastructure investments by both the public and private sectors. An analysis of market demands and the competitiveness of the various options (all-weather marinas versus seasonal mooring facilities to meet the demand) could support more realistic boating infrastructure development plans. Conversely, a lack of accurate information on demand could inhibit strategic planning, result in poor decision making, encourage overcapacity, and deter potential reputable investors.

Plans for the expansion of marinas need to consider the regulatory and planning challenges in a holistic manner before venturing forward with added marina capacity. This may entail revisiting the General Territorial Development Plan of the Coastal Belt to integrate the principles of environmental sustainability and social equity. Including sustainability indicators in planning the land-sea interface and future development efforts could help to diversify the products of the tourism sector and ensure long-term sector growth. Integrated planning that emphasizes conservation could also take Krasnodar Krai a long way toward enhancing the climate resilience of the coastal areas and achieving one of the SDG's 14 targets for conservation of at least 10 percent of the coastal and marine areas by 2020.

According to its Tourism Development Strategy 2035, Russia plans to double the flow of cruise tourists by 2035. Based on the estimates of the Black Sea Economic Cooperation Organization's Assembly, regional cruise tourism receives 129 million tourists annually, which is 10 percent of the European market. Although this may indicate a favorable potential for regional cruise tourism, such prospects are in close correlation with the political stability of the Black Sea basin region and the bleak prospects for growth in the cruise industry in the post-COVID-19 operational environment.

The consequences of the pandemic will push cruise companies to invest in modern technologies, hospital-level sanitation standards, expanded onboard medical centers, improved air filtration systems, and routine reservation systems for both dining and entertainment venues. As cruise liners move to comply with these arrangements as well as stricter capacity limits, the cost of operations will undoubtedly increase and change the market outlook.

Russia's demand as a travel destination has declined by 20–25 percent due to the COVID-19 pandemic.¹⁷ The growth prospects of ecotourism and nautical tourism depend on recovery policies and investments that work to maintain a healthy balance between beach tourism and other alternative uses of the region's natural endowment. This will include factoring in a valuation of ecosystems that is likely to result in prioritizing ecotourism and reaching more balanced growth projections of other products. Spatial development plans for waterfront development and ports and marinas need to consider the impacts on coastal and marine environments based on an assessment of carrying capacity. Expanding blue ecotourism that is attuned to sustainable development and in line with the blue economy concept therefore presents a promising opportunity to overcome the pandemic's impacts on the sector.

The post-COVID-19 growth of the tourism sector will also depend on the ability of the private sector to access know-how in new operating modalities and to meet the requirements of the World Health Organization. Access to new inputs to diversify will be critical for tourism establishments to strike a healthy balance between beach and recreational tourism and other alternative uses of the region's natural endowment. Timely public sector guidance to the tourism industry for its business plans and access to finance will also be crucial. Tourism recovery requires planning, policy making, and investment in three key areas: managing the crisis and mitigating the impacts; providing stimulus and accelerating the recovery; and preparing for the future.

In a post-COVID-19 world, tourist attractions need to change the ways they operate. This is particularly important for indoor venues and attractions that have a high density of visitors. Since the concentration of people in any one area will have to be managed to allow for physical distancing in public places, venue capacity will likely have to be reduced. Digital platforms where tourists can pre-pay online to avoid queuing and handling cash, as well as other new virtual reality technologies, should be used to enhance the tourist experience before, during, and after a visit. Tour operators will need to change their product offerings in response to post-COVID-19 travel trends. It is likely that tourists will be much more interested in adventure tourism, preferring destinations that are less crowded and activities that allow them to be outside and maintain a social distance. Coastal ecotourism and boating tourism products are ideally suited to meet the post-COVID-19 preferences, but tour operators will require support to re-orient their businesses and effectively promote the new activities.

The pandemic is likely to change the appeal of ecotourism and nature-based tourism from moderate to significant. Although the total number of tourists would decline, the proportion of tourists wanting adventure and ecotourism products will increase, given the perception of less exposure to diseases in an open air natural environment. Krasnodar Krai can capitalize on this trend by presenting coastal parks and protected areas as unspoiled, natural destinations offering a broad range of appealing, high-quality tourism products. Strengthening the region's environmental credentials will therefore not only make the nature-based tourism industry more sustainable, but also create a powerful tourism marketing tool.

¹⁷ "Impact of the Coronavirus (COVID-19) on the Tourism Industry in Russia in 2020, by Indicator," Statista (online), <https://www.statista.com/statistics/1104796/russia-tourism-sector-loss-from-coronavirus/>.

KRASNODAR KRAI BLUE ECONOMY OPPORTUNITIES

MARINE LITTER PREVENTION

SIMPLE STEPS WITH HUGE IMPACT



INTEGRATED MANAGEMENT OF MARINE LITTER INCLUDES PREVENTION, REGULATION, INCENTIVES, TECHNOLOGY AND INVESTMENTS



KRAI'S SOLID WASTE GENERATION

Total of 3.8 million tons of solid and liquid household waste, and industrial waste was generated in Krasnodar Krai in 2019. Generation increases at a rate of 3-5% annually. Waste generated in active tourist season is 50% higher in Sochi, Adler and other tourism centers.



WASTE MANAGEMENT STRATEGIC TARGETS

BY 2030, DECREASE LANDFILL USE TO 59.5% FROM 89.8 % (2019)
BY 2030. INCREASE THE UTILIZATION OF WASTE FROM 4.6% (2019) TO 15%



SINGLE USE PLASTIC IS A GROWING PROBLEM



300 RIVERS FLOW IN THE BLACK SEA BASIN POTENTIALLY CONTRIBUTING TO MARINE LITTERS

KRASNODAR KRAI'S BEACHES ARE CLEANED BUT PLASTIC POLLUTION IS NOT REGULATED



Knowledge gaps in assessment of marine litter pollution in the marine space of Krasnodar Krai relate to the absence of regular marine litter monitoring

WHAT IS NEEDED TO ACHIEVE 2030 TARGETS?

A holistic set of measures to prevent and reduce the use of plastics and move toward a circular economy across the production and consumption value chains

Policies, legal and regulatory framework for reducing the use of plastic packaging through a system of incentive schemes and economic instruments



Marine litter prevention

Although less systematic than desirable, available data indicate that plastic litter is the most prevalent pollution source in the coastal and marine environment of Krasnodar Krai. The main source of litter in coastal waters is from waste washing ashore and flowing from rivers. The most frequent litter items are cigarette butts, plastic packaging, and plastic fragments involving single-use plastic (SUP). Regular monitoring activities, with a harmonized approach and wider temporal and spatial coverage, would provide a more complete picture of beach litter pollution on the Krasnodar Krai coastline and also help in developing preventive measures. There are serious knowledge gaps in the assessment of marine litter pollution in Russian territorial waters, including Krasnodar Krai, that are related mostly to the absence of regular marine litter monitoring programs.

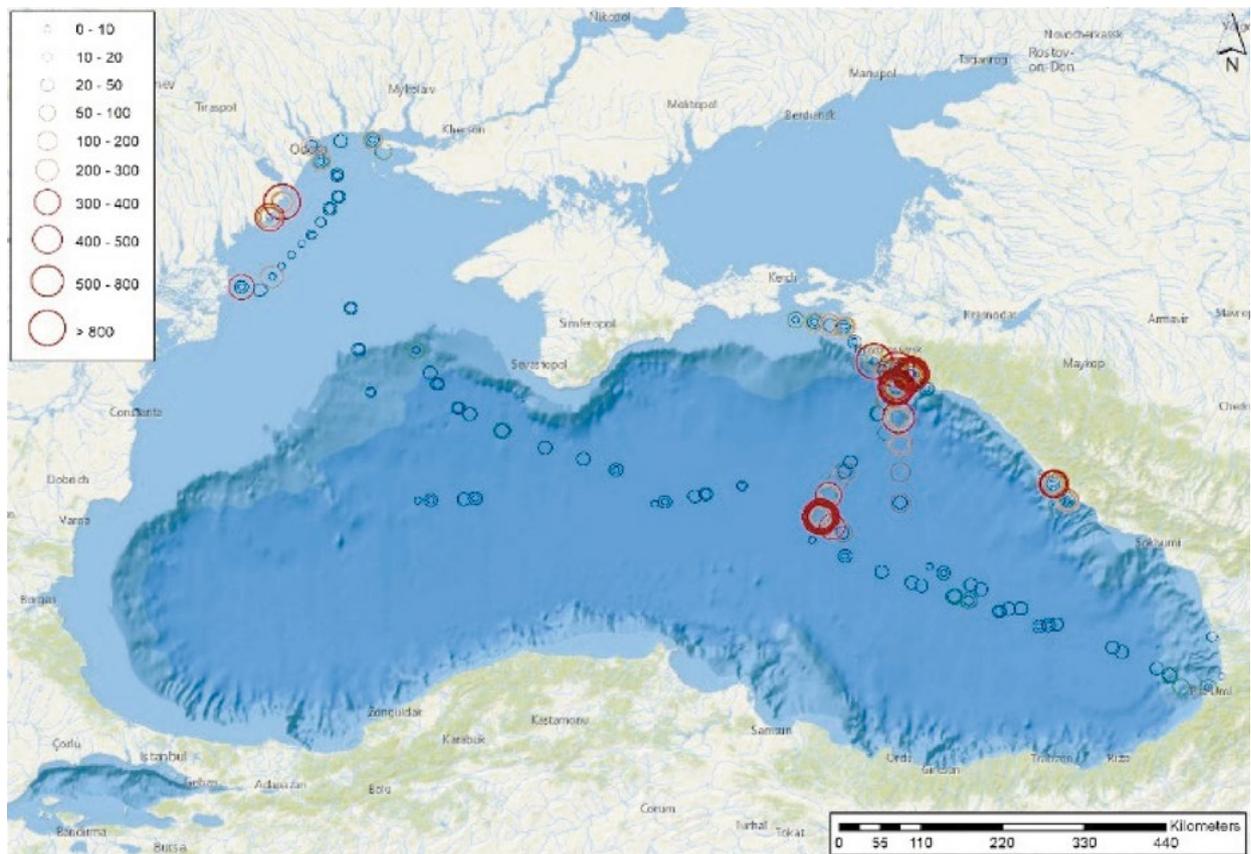
Landfills are by far the most common way of handling waste in Krasnodar Krai. There are 326 officially registered landfills in the region, 135 of which are active, 111 inactive, and 80 closed. There is no information in the region about the volume of recyclable plastic waste. Krasnodar Krai would benefit from a comprehensive set of measures to prevent and reduce the use of plastics and move toward a circular economy approach across production and consumption value chains. Better separation, collection, sorting, and reducing at landfills could transition Krasnodar Krai's path to a circular economy, a long-term solution to marine litter and to better stewardship of valuable marine resources.

Potential impacts on the marine environment from the production, use, and disposal of anthropogenic polymers and their products can be direct but also indirect, for example, through the impact of CO₂ emissions and the non-sustainable use of natural resources. Likewise, economic sectors that rely on clean and healthy seas as a resource for production, harvesting, and recreation suffer negative direct and/or indirect impacts.

Several sources provide observation data on marine pollution along the Black Sea coast of Russia. Marine litter surveys¹⁸ conducted in 2016–19 located several stretches with a high density of floating litter, with the most significant concentrations in the Russian sector of the Black Sea near Novorossiysk, Sochi, and some open sea spots (figure 6). Large accumulations near Novorossiysk were registered along the anchorage zones where numerous ships are waiting to enter the harbor. In Sochi, high litter densities coincided with enormous rainfall the day before the survey. Commercial vessels are another likely source of floating litter in the coastal zone. However, it is difficult to determine the primary source of floating litter observed in the open sea due to its transboundary nature and ability to drift with the currents. Nonetheless, some permanent accumulation zones of floating litter in large patches were registered in this area in all three years that were monitored.

Krasnodar Krai's Law On the Production and Consumption of Waste establishes the responsibilities for the regulation, collection, accumulation, neutralization, transportation, and disposal of solid waste, including the production and consumption of waste. Most local waste regulations focus on the management of household waste, sanitary cleaning of urban areas, allocation of land for landfills, and landfill maintenance. The region lacks a robust system for waste registration and management.

¹⁸ The surveys were conducted as part of a project entitled, "Environmental Monitoring in the Black Sea" (EMBLAS), which was co-financed by the European Union and the United Nations Development Programme. For more information, see <http://emblasproject.org>.

Figure 6. Floating Marine Macro-Litter Density (EMBLAS)

Source: M. Pogozheva, EMBLAS Project, 2020, <http://emblasproject.org>.

The current legal and regulatory framework for waste management should be improved to include policies for reducing the use of plastics as well as incentive schemes and economic instruments to prevent the leakage of plastic waste. As a first step, and to stimulate actions at the regional level, Russian authorities could develop a list of regulated SUP items, plastic containers, and food packaging. Regional action plans to reduce SUP use and packaging and improve collection and recycling could be the next major step to reduce plastic waste, including extended producer responsibility (EPR) schemes, deposit programs, and the promotion of non-plastic packaging alternatives. Regular, more extensive monitoring and wider temporal and spatial coverage would provide a more complete picture of beach litter pollution along the coastline and help in developing preventive measures. As noted above, there are knowledge gaps in the assessment of marine litter pollution in the Russian territorial waters and Krasnodar Krai that are related mostly to the absence of regular marine litter monitoring schemes.

The waste management sector and waste and recycling infrastructure can play a pivotal role in keeping plastic and other materials out of waste streams. Current policy measures are not sufficiently focused on the prevention of plastic leakages. The management of marine pollution needs to include a precautionary principle. A shift to sustainable solutions to marine litter and plastics will require a long-term multi-pronged strategy. The improved systematic monitoring of marine litter and prevention of plastics pollution would be a good, “no-regret” start.

Due to its transboundary nature, addressing marine pollution requires comprehensive and large-scale policy frameworks at the regional, national, and global levels. The CMA reinforces the need to safeguard the Black Sea from marine litter, namely, “to address the emerging challenges, which are driven by a range of human-induced and natural drivers, such as pollution, maritime transport, eutrophication, climate change, and coastal hazards.” It is an obligation of all Black Sea countries to put in place effective management strategies, regulations, and protection measures to prevent marine litter in line with international conventions.¹⁹ However, it is at the subnational level (districts and regions), where there is particular concern about maintaining the health and productivity of coastal and marine resources as vital inputs to the local economies, that local efforts to prevent marine litter have to be scaled up.

The devastating impact of COVID-19 and extraordinary sanitary measures taken by the authorities raise tough questions about plastic pollution. Managing increased volumes of SUP waste would become a bigger challenge in the absence of a system to prevent leakage into rivers and seas. Hospital plastic waste from personal protective equipment contaminated with the coronavirus is not recyclable and could cause an exponential increase in the generation of plastic waste for incineration. The need to enforce measures to collect and safely treat/decontaminate used plastic is an imminent concern. Regional authorities may need to make targeted efforts to develop new medical and hazardous waste management practices, given the impending increase in plastic waste. Strengthening the medical and hazardous waste management policy framework should become a priority. Working with the recycling industry—specifically, plastic collectors and recyclers—would help prevent leakages. Although there is no silver bullet, a combination of interventions focusing on the following could be helpful:

- ▶ Within the solid waste management system deployed at the coast, identify priorities for preventing and reducing the plastic flow to the coastal and marine environment. Design investment interventions that support prevention and recycling versus adding to landfills.
- ▶ Sequence policies, regulations, enforcement, and investments in a mutually reinforcing timeline to augment the transformational impacts of the measures that are introduced.
- ▶ Combine policies with economic instruments (EPR and deposit-refund schemes, eco-design, and so on) to encourage a stronger private sector role in reducing plastic pollution.

¹⁹ A. Vişne and L. Bat, “Evaluation of Marine Litter on the Marine Strategy Framework Directive and Current Status in the Black Sea,” *Journal of Aquaculture Engineering and Fisheries Research* 1, no. 3 (2015): 104–15 (in Turkish).

Conclusion



Although the blue economy is a relatively new concept in Russia, taking advantage of the opportunities it offers will help Krasnodar Krai to invest in institutions, policies, and strategies for sustainable development. It will also help it to: catalyze investments to restore and protect coastal habitats; scale up aquaculture and modernize fisheries; explore new sectors and markets; and facilitate public participation in marine resource management and planning. Numerous investments and interventions to promote growth are currently being planned or implemented by the regional government and the private sector. It will be essential to complement the post-COVID-19 economic recovery and revitalization of the coastal economy with policies and measures that are focused on integrating natural capital and ecosystem services. Failure to do so runs the risk of undermining the very development goals those policies and investments seek to achieve and jeopardizing future prospects for sustained, equitable, and effective development. Moreover, improving governance in the management of marine ecosystems through the promotion, regulation, and monitoring of their health and productivity will be an important contributor to curbing unsustainable practices, protecting coastal physical assets from the impacts of climate change, and protecting livelihoods and jobs. Addressing the issues and challenges in this policy note in a timely manner and at a systemic level is important to the development of a comprehensive approach that will facilitate the successful, long-term engagement of Krasnodar Krai in the blue economy.



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BLUE ECONOMY: a Path for Krasnodar Krai

