The Impact of the Sea on the Black Sea Coast

Elene Chichaghua[1],

Nika Metonidze[2]

Department of Geography, Faculty of Exact and Natural Sciences, Ivane Javakhishvili Tbilisi State University, Chavchavadze Avenue 3, Tbilisi, 0179, Georgia

[1]Email: elene.tchitchagua424@ens.tsu.edu.ge

[2]Email: nikoloz.metonidze901@ens.tsu.edu.ge

The Black Sea is a geographically and ecologically unique aquatic body, creating an important natural, economic, and recreational zone for Georgia. Since the 1960s, coastal erosion along the Black Sea has reached alarming proportions. Several significant areas of Georgia's coastline — including recreational zones such as Gonio-Sarpi, Makhinjauri, Ureki, and others — are under particular threat. In these regions, coastal degradation affects not only ecosystems but also tourism infrastructure and the social well-being of the local population.

Abrasion and ecological processes along the Black Sea coast in Georgia have reached a critical stage. In September 1993, with the initiative and support of the United Nations Environment Programme and the World Bank, the Black Sea Environmental Program was officially approved. Coastal degradation, water pollution, biodiversity loss, and the impacts of climate change have created a complex ecological situation, directly threatening regional stability, tourism, and the welfare of local communities.It is also important to consider the unique characteristics of the Black Sea — such as the hydrogen sulfide-saturated deep layer, specific water circulation patterns, and the decline in biological diversity. The current analysis presents the main problems, the necessity of international cooperation, and modern coastal protection approaches, including artificial coastal engineering techniques.

Protecting the Black Sea is not just a challenge for Georgia — it is a part of a global effort. Preserving the sea's unique ecosystem requires coordinated actions on both regional and international levels. It is essential to rehabilitate beaches using modern technologies and to develop integrated coastal management policies. Education, scientific research, and public participation in environmental decision-making will ensure sustainable development.

Particular attention must be paid to studying abrasion characteristics, analyzing shoreline transformation trends, identifying the main causes, and developing effective protection strategies to ensure the sustainable development of coastal zones and preserve natural resources for future generations.