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War and Environmental Security in the Black Sea

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Abstract

Russia's full-scale invasion of Ukraine in 2022 has transformed the Black Sea into one of Europe's most contested and imperilled spaces. This paper examines the dual crisis unfolding in the region: a strategic standoff between Russia and the West, and an accelerating environmental catastrophe driven by contamination. Drawing on a number developments—from Ukraine's success in pushing back Russia's Black Sea Fleet to the December 2024 Kerch Strait tanker disaster—the paper argues that security and ecology are inseparable dimensions of the Black Sea challenge. Effective responses require both military vigilance and robust multilateral environmental governance, with the EU playing a central coordinating role.

This paper brings the security and the environmental dimensions together. It surveys the strategic landscape of the Black Sea following the invasion, assesses the toll fighting has had on the marine environment, and makes the case for a coordinated multilateral response that treats security and ecology as two faces of the same problem. The EU, NATO, Turkey, and the Black Sea littoral states all have critical roles to play – in both the short and the long-term. There are already some welcome initiatives such as the Mine Counter-Measures (MCM) Task Force set up by Turkey, Romania, and Bulgaria (Küçükgöçmen and Hayatsever, 2024). The lessons learned from tackling the immediate fallout of the war could be applied to responding to environmental challenges too. The question is whether the stakeholders can summon the political will, allocate sufficient resources, and devise and pursue institutionalised cooperation, pulling their collective weight.

The Strategic Landscape in the Black Sea

The Black Sea has seen a fair share of cooperative initiatives, especially in the immediate aftermath of the Cold War, concerning both the security and the environment domains. However, by the mid-2000s and clearly with the 2008 war in Georgia, the maritime space shifted from being a shared commons for the littoral states to an arena of confrontation (Aydın, 2009). The Russian bid to assert its primacy over parts on the former Soviet Union has in turn limited the scope of cooperation on cross-border issues.

Russia's seizure of Crimea in 2014, putting it on a collision course with Ukraine, marked a pivotal moment. It appeared to seal Moscow's dominance over the Black Sea, at the detriment of Turkey and the rest of NATO (Hodges, 2021). The peninsula's ports and air bases extended Moscow's reach across the entire basin, threatening Ukraine's coastline (especially in the adjacent Sea of Azov), NATO's southeastern members, and the vital shipping lanes that carry grain, steel, and hydrocarbons to global markets. When the full-scale invasion began in 2022, the expectation in many quarters was that Russia would rapidly consolidate that advantage—capturing Mykolaiv and Odesa, completing the conquest of the Sea of Azov's northern coast begun with the fall of Mariupol, and reducing Ukraine to a landlocked rump.

That scenario did not materialise. Ukraine held Mykolaiv while Odesa, battered by missiles and drones but unoccupied, continues to function as the country's principal maritime gateway. Russia was evicted from the city of Kherson on the right bank of the Dnipro River and from Snake Island located close to the delta of the Danube River. Most significantly, Ukraine developed a new generation of unmanned sea-based weapons systems—maritime drones capable of striking warships, bridges, and port infrastructure deep inside Russian-controlled waters. The Moskva, the flagship of Russia's Black Sea Fleet, was sunk by Ukrainian missiles in April 2022. By mid-2023, Russia's naval assets had retreated to Novorossiysk, their Crimean bases rendered too vulnerable by the threat of deep strikes. The Kerch Strait bridge, symbol of Russia's annexation of Crimea, has been hit repeatedly. As of June 2026, the corridor connecting Crimea to the occupied parts of Kherson oblast – including bridges traversing the chain of saline lagoons north of the peninsula – has come under sustained attacks by Ukrainian drones. Crimea is at its most vulnerable since the 2014 annexation which is a source of leverage for Kyiv (Institute for the Study of War, 2026).

The changing course of warfare at sea has effects on commerce and transport. The economic consequences of the Russian Black Sea Fleet's eviction from the western parts of the Sea and the pressure on Crimea have been substantial. Odesa's regional administration reports that grain exports now exceed pre-war levels, despite the occasional strikes by Russia on port facilities. Odesa handles roughly 60 percent of Ukraine's total exports, which grew by 15 percent in value and 30 percent in volume in 2024. So long as Ukraine access to the high seas through Odesa via the Black Sea, the

country is economically viable (Interfax-Ukraine, 2025). The city's growing significance as a regional hub was underlined by a summit it hosted in June 2025 with Southeast European partners, including EU member states Bulgaria, Croatia, Greece, and Romania (RKS News, 2025).

While Ukraine's success on the battlefield and in retaining access to trade networks are positive stories, there is no shortage of concerning developments to do with the Black Sea too. The fighting in and around the sea has had negative environmental fallout on the marine space and coastal areas alike. The following sections explore the main episodes thus far where the ecological balance has been put at risk as well as the challenges the episodes in question highlight.

The War's Environmental Fall-Out

The environmental consequences of Russia's full-scale invasion of Ukraine in February 2022 have transformed the Black Sea into one of Europe's most vulnerable ecological zones. Long before the war, the sea suffered from pollution (including microplastics), overfishing, eutrophication, habitat loss, and declining biodiversity. However, the conflict has made things even worse. It introduced new forms of environmental degradation linked directly to military activities, including damage to critical infrastructure, marine pollution from sunken vessels, drifting naval mines, oil spills, disruption of environmental monitoring systems, and contamination caused by the destruction of the Kakhovka Dam in June 2023.

The Breach of the Kakhovka Dam

On 6 June 2023, the dam close to Nova Kakhovka, a city on the Dnipro River in the Kherson region, was breached, releasing an estimated 14.4 billion cubic meters of water from the Kakhovka Reservoir (serving a 357megawatt hydroelectric power plant) along with debris, sediments and unknown volumes of toxic substances, causing catastrophic flooding downstream. The disaster inundated dozens of settlements, forced large-scale evacuations, disrupted water supplies, damaged agriculture, and triggered grave environmental consequences that extended into the Black Sea ecosystem (Stone, 2024; United Nations Environmental Programme, 2023).

How the breach occurred remains politically contested. Ukraine and most Western governments argue that the dam was deliberately destroyed while under Russian military control. The New York Times wrote that "the most likely cause of the collapse was an explosive charge placed in the maintenance passageway, or gallery, that runs through the concrete heart of the structure" and that "the evidence clearly suggests the dam was crippled by an explosion set off by the side that controls it: Russia" (Glanz et al., 2023). Predictably, Russia blamed Ukrainian attacks. Independent engineering assessments, seismic data, satellite imagery, and later investigations concluded that the collapse was most likely caused by an internal explosion within the structure rather than by external shelling or natural failure, supporting Kyiv's version.

What is undisputed however is that the damage caused. The Kakhovka breach constitutes one of the largest environmental disasters in European history. According to research published in the journal *Science*, the subsequent flooding and toxic spillage dealt a death blow to the brackish estuary ecosystems near the confluence of the Dnipro and the Black Sea. Ukrainian authorities estimate total damages at close to $14 billion, nearly half of which is attributable to chemical pollution destroying coastal and marine ecosystems (Stone, 2024). The collapse of the dam released enormous volumes of freshwater, sediments, pollutants, agricultural chemicals, and industrial waste into the Dnipro River system and eventually into the northwestern Black Sea. Scientists documented major changes in salinity, nutrient concentrations, and water quality, while extensive algal blooms emerged across large sections of the sea. The broader Kherson and Mykolaiv regions—already ravaged by fighting—saw agricultural land contaminated by unexploded munitions, fuel spills, shell fragments, human remains, and landmines, all of which leach into river systems and ultimately into the Black Sea. The dam's destruction also disrupted the freshwater supply for southern Ukraine, including the water infrastructure serving Crimea. Its cascading consequences—for drinking water, irrigation, ecosystems, and the sea—will take decades to reverse, assuming the conflict ever ends and reconstruction becomes possible.

A scholarly article published in 2025 makes the following assessment:

> "The Kakhovka Dam explosion is an example of the far-reaching environmental consequences of warfare. The resulting dam collapse released some 14.4 billion cubic meters of water, flooding downstream environments and flushing unknown quantities of debris, pollutants and sediments into the north-western Black Sea. With a combined satellite and hydrological modelling approach, supported with in situ data, we assessed the short-term impact on the north-western Black Sea. The dam breach impacted more than 50% of the area of the north-western Black Sea, experiencing over 50 times the ambient Chlorophyll-a and suspended sediment concentrations. Significant increases of nitrate and phosphate were also observed in the Odesa coastal environment. This environmental shock triggered severe algal blooms within one week, that persisted for a further 20 days. This event may have impacted the biodiversity of the north-western Black Sea and its ecosystem response. Continued monitoring is required to assess the longer-term impacts." (Jiang et al., 2025, p. 3)

In other words, the full effect of the Kakhovka Dam breach is still to manifest itself. In the fullness of time, it will be seen across coastal Ukraine and beyond. Once hostilities in the Black Sea cease addressing the consequences of the environmental disaster will be addressed. While Ukraine bears the heaviest brunt, its neighbours have been affected too – and will need to be involved in future efforts to mitigate or, hopefully, reverse the consequences of the breach.

Overall, the destruction of the Kakhovka Dam marked a turning point in policy thinking about multilateral governance. The disaster highlighted the transboundary

nature of environmental threats in the Black Sea, where pollution generated in one area can rapidly affect ecosystems hundreds of kilometres away. It also reinforced concerns about the vulnerability of critical infrastructure during wartime and the potential long-term consequences for fisheries, biodiversity, and coastal communities.

The Kerch Strait Oil Spill

The Black Sea is also vulnerable because of its role as a major conduit for fossil fuels. The war has had a negative impact due to the Black Sea's oil and gas exports from Russia, the Caspian and Central Asia to Europe cross the sea. Strikes have affected hubs like Novorossiysk where tankers load crude and petroleum products and underwater gas pipelines connecting Russia and Turkey. TurkStream is currently the only route for exporting natural gas from the Russian Federation to European customers, other than liquefied natural gas (LNG). The energy trade is vulnerable to both strikes and to the indirect impact of Western sanctions.

The Kerch oil spill, one of the largest environmental disasters ever to take place in the Black Sea, is a case in point. In mid-December 2024, a severe winter storm struck two Russian oil tankers—Volgoneft-212 and Volgoneft-239—in the Kerch Strait. The former sank, releasing approximately 4,300 metric tons of mazut (a low-quality heating fuel and crude oil by-product with high viscosity and tar-like consistency). The latter ran aground, leaking a further 2,000 tons (Meduza, 2024; Bartosiewicz and Rudnik, 2025). Mazut is exceptionally toxic to marine mammals and birds and notoriously resistant to conventional clean-up techniques: much of the remediation has to be done by hand. Putin's personal intervention and the declaration of a federal state of emergency in the coastal Krasnodar region and in Crimea mobilised substantial resources, but long-term degradation is likely to be severe (Babanina, 2025; Meduza, 2025).

The spill was not incidental to the war. Both vessels were part of Russia's shadow fleet —the flotilla of ageing, poorly maintained, and underinsured tankers assembled by Moscow to circumvent the $60-per-barrel price cap imposed by the EU and G7. Western shipping companies, unable to provide standard insurance coverage to vessels carrying sanctioned Russian exports, have largely withdrawn from the trade; their place has been taken by operators with minimal regard for safety or environmental regulation. As the European Parliamentary Research Service noted, the shadow fleet poses acute environmental, maritime safety, and security risks (Caprile and Leclerc, 2024). Thus, the Kerch Strait disaster was, in retrospect, only a matter of time.

It is worth noting that the spill was not an isolated event. Rather, it was part of a broader pattern of oil pollution in the Black Sea. Previous major incidents include the 2007 Kerch Strait spill, when a Russian tanker broke apart during a storm and

released more than 1,000 tonnes of mazut, as well as spills associated with export terminals near Novorossiysk, including incidents in 2021 and 2025. Together with chronic pollution from intensive tanker traffic and oil transshipment operations, these accidents highlight the environmental risks posed by the Black Sea's role as a major energy-export corridor and underscore concerns about maritime safety, aging vessels, and inadequate regional spill-response capacity.

The Campaign Against Infrastructure

The war has caused damage of infrastructure along the Black Sea coast, including energy storage and transit facilities. This in turn leads to the discharge of toxic material in the sea and the atmosphere.

The Russian port of Novorossiysk and the area around provides a striking example. Since 2024, its infrastructure and storage facilities which handle up to 30% of Russia's sea-borne oil exports have become a major target in Ukraine's campaign against Russian energy infrastructure in the Black Sea.[1] The campaign became systematic in late 2025 with Ukraine targeting Russian commercial vessels, mostly tankers from the shadow fleet. Novorossiysk oil-export facilities have been particularly vulnerable to drone strikes, including the Sheskharis terminal and infrastructure associated with the Caspian Pipeline Consortium (CPC). The nearby Tuapse oil refinery and oil terminal, some 100 kilometres south from Novorossiysk, have suffered repeated strikes too. A series of attacks in April 2026 were particularly damaging (Reuters 2026). Such actions by the Ukrainian armed forces and military intelligence (HUR) caused temporary suspensions of loading operations, damaged storage and pumping facilities, and disrupted exports from the strategic oil hub.

In parallel, Russian forces have been carrying out missile and drone strikes, fromland-based launchers in occupied Crimea and the Krasnodar region, from sea platforms as well as from the air - against the port of Odesa, the city itself, and its region. To point at recent examples: on 26 June, Russian forces struck energy and civilian infrastructure in the Vylkove community. The attack caused fires, left Vylkove and nearby settlements without electricity, and injured one person. On 19 June, a Russian strike in the Bilhorod-Dnistrovskyi district killed one person and injured four others. The attack ignited major fires involving fuel tankers and damaged infrastructure. The ports of Chornomorsk and Pivdennyi (or Yuzhnyi in Russian) were hit in January and Izmail on the Danube in March (Dysa and Hunder, 2026).

Beyond their immediate economic impact, such strikes underscore the growing vulnerability of infrastructure and illustrate how the Black Sea has become a key arena of economic warfare, with oil terminals, ports, and shipping routes increasingly integrated into the broader conflict between Russia and Ukraine.

[1] There had been precedents, to be sure. On 5 August 2023, a Ukrainian naval drone hit the Russian chemical/product tanker SIG, about 17 km south of the Kerch Bridge (Agence France-Presse, 2023). https://www.themoscowtimes.com/2023/08/05/russian-tanker-hit-by-ukrainian-drones-russian-media-a82064

Loose Naval Mines

Apart from pollution from oil spills, industrial waste and other toxic material, the Black Sea littoral has been reached on multiple occasions by detritus resulting from the war. That includes various unmanned systems, or parts thereof, along with loose naval mines.Strictly speaking this is a separate challenge not connected to environmental degradation per se. Mines pose a graver and more immediate threat to national security and civilian life compared to contamination resulting from the release of toxic substances into the sea. But precisely because of that, they have been galvanising collective response. In that sense, there are lessons to be learned with respect to Black Sea ecology.

From the earliest days of the invasion, both Russia and Ukraine laid mines in the approaches to Odesa and along contested stretches of the Ukrainian coast. The Black Sea's counterclockwise currents have since distributed some of these devices unpredictably, with floating mines surfacing in Bulgarian and Romanian waters. Since 2022, there have been five recorded incidents involving vessels in Black Sea waters. The problem will persist long after any ceasefire: naval mines are notoriously difficult to clear and may remain active for years (Boșneagu, 2024).

In January 2024, the defence ministers of Turkey, Romania, and Bulgaria signed a joint agreement to clear floating mines from the Black Sea ("MCM Black Sea"), establishing a naval task force and a committee of their respective naval chiefs to oversee operations. It is a promising initiative, not least because it demonstrates that three NATO allies with sometimes divergent positions can coordinate on a concrete security task. Once the war ends and naval passage through the Turkish Straits resumes, the initiative could be expanded to include additional participants from outside the Black Sea.

Responses

Stakeholders such as the EU, NATO, Turkey, Romania, and Bulgaria have grappled with the interlinked issues of security, containment, and environmental protection. They have all come up with ideas and strategies.

The EU Strategy

The EU has responded through a combination of environmental monitoring, scientific assessment, and maritime governance initiatives. Satellite-based observation systems, particularly the Copernicus Earth Observation Programme, have played a central role in tracking ecological changes resulting from the war. European institutions have

used satellite imagery to monitor oil pollution, changes in coastal morphology, sediment flows, algal blooms, and damage to ecosystems. The European Maritime Safety Agency (EMSA) has expanded surveillance of maritime pollution risks and supported member states in detecting oil spills and hazardous discharges. Through Horizon Europe and other research programmes, the EU has funded scientific studies examining the environmental impacts of military activities and the ecological consequences of the Kakhovka disaster.

Brussels has also increasingly linked environmental degradation to broader questions of security and resilience. Environmental restoration has become an important component of discussions concerning Ukraine's future reconstruction. European policymakers have argued that ecological recovery must accompany economic and infrastructural rebuilding if long-term stability is to be achieved. This approach reflects a broader shift in EU thinking, whereby environmental protection is no longer viewed solely as a conservation issue but as a matter of strategic importance affecting food security, economic development, and regional stability.

The EU has paid particular attention to the growing risks associated with Russia's "shadow fleet". The Kerch Strait disaster reinforced fears that aging vessels operating in sensitive marine environments could cause severe ecological damage. EU institutions have advocated stronger monitoring, stricter enforcement of maritime regulations, and enhanced cooperation among Black Sea states to address pollution risks.

In May 2025, the European Commission and the High Representative for Foreign and Security Policy adopted a new Black Sea strategy, committing the Union to a greater security and stability role in the region (European Commission and High Representative for Foreign and Security Policy, 2025). The strategy reflects a belated recognition that the Black Sea is not a peripheral concern but a central arena of European interest. EU member states Bulgaria and Romania are directly affected by every dimension of the crisis—military, environmental, economic. Other member states with significant Black Sea interests, including Greece and Croatia, have also been drawn closer to regional dynamics through Ukraine's growing role as a hub for Southeast European connectivity.

The strategy creates an opportunity that should not be squandered. Brussels can offer what individual coastal states cannot: sustained financial resources, regulatory frameworks, and the political convening power to bring together disparate actors. In the environmental domain specifically, the EU has experience with multilateral regional initiatives—the Barcelona Convention for the Mediterranean, the HELCOM framework for the Baltic—that could be adapted to Black Sea conditions. The EU could fund joint monitoring and risk assessment, support the rehabilitation of contaminated agricultural land, and invest in the restoration of river and coastal ecosystems damaged by the war.

Turkey's Strategy

Turkey has similarly emphasised maritime security alongside environmental protection. As the state controlling access to the Black Sea through the Bosporus and Dardanelles Straits, Turkey occupies a unique strategic position. Since 2022, Ankara has increasingly viewed environmental risks through the lens of maritime governance and regional stability. Turkish authorities expanded monitoring of coastal waters following the Kakhovka Dam breach, seeking to assess the movement of pollutants and ecological changes across the basin. Research institutions and government agencies intensified water-quality monitoring and ecological observation programmes to evaluate potential impacts on fisheries and coastal ecosystems (Savaşan, 2025).

One of Turkey's most significant initiatives has been its leadership in addressing the threat posed by drifting naval mines. The war generated unprecedented maritime hazards as mines released from Ukrainian and Russian waters entered shipping lanes and coastal areas. The MCM task force led by Turkey is a response to the challenge. Although primarily a security initiative, the programme also has important environmental dimensions. Floating mines pose risks not only to commercial shipping but also to fisheries, coastal habitats, and offshore infrastructure. By reducing these threats, mine-clearance operations contribute to the protection of marine ecosystems and coastal economic activities.

Turkey has also strengthened emergency preparedness for oil spills and maritime accidents. Concerns about increased tanker traffic, military activity, and shadow-fleet operations have encouraged greater investment in surveillance capabilities and contingency planning. At the diplomatic level, Ankara has continued to support existing regional environmental frameworks, including the Istanbul-based Black Sea Commission (BlackSeaComission.com) and the Bucharest Convention, despite the severe deterioration of political relations among some Black Sea states.

On the strategic level, Turkey has been pushing for an agreement between Russia and Ukraine to abstain from striking commercial shipping. In December 2025, Foreign Minister Hakan Fidan called for a regional security mechanism aimed at protecting navigation in the Black Sea and preventing escalation, echoing the so-called "grain deal" from 2022-23 (TRT World, 2025).

Romania

Romania has emerged as one of the countries most directly affected by the environmental consequences of the war. Located on the northwestern Black Sea coast, Romania lies close to the areas most heavily impacted by pollution originating from the Dnipro basin. Romanian research institutes rapidly expanded monitoring activities after the Kakhovka disaster, conducting extensive assessments of water quality, nutrient concentrations, salinity changes, and ecological conditions. Scientific

studies documented significant environmental disturbances linked to the influx of pollutants into the Black Sea (Micu et al., 2025).

Romania has also played an important role in strengthening maritime security cooperation. Participation in the MCM Black Sea task force reflects Bucharest's recognition that environmental and security challenges are increasingly interconnected. Romanian authorities have emphasized that mine clearance protects not only shipping and trade but also marine ecosystems and coastal communities. The country has also worked closely with European institutions to improve maritime surveillance, strengthen emergency response capacities, and enhance monitoring of pollution risks associated with increased shipping activity.

At the policy level, Romania has advocated greater European engagement in the Black Sea and supported efforts to integrate environmental concerns into regional security strategies. Romanian policymakers increasingly argue that ecological degradation, maritime security, and geopolitical stability should be treated as interconnected issues requiring coordinated responses. This perspective reflects the broader evolution of Black Sea governance since 2022.

Bulgaria

Bulgaria has pursued similar objectives, although on a smaller scale. Bulgarian authorities have increased environmental monitoring along the country's Black Sea coast and participated actively in regional maritime security initiatives. The Bulgarian Navy has contributed to mine-detection and mine-clearance efforts, while national agencies have expanded surveillance of coastal waters and pollution risks. Bulgaria has also worked with EU institutions and neighbouring states to improve information sharing and emergency response mechanisms.

For Bulgaria, the environmental consequences of the war have reinforced the importance of regional cooperation. The country has supported efforts to strengthen the implementation of existing environmental agreements and has emphasized the need for greater coordination across the littoral. Bulgarian policymakers have argued that challenges such as oil spills, marine pollution, biodiversity loss, and wartime contamination cannot be effectively addressed through national policies alone. They have raised concern about the risks from vessels damaged because of drone strikes – e.g. the shadow fleet tanker Kairos hit by Ukraine in November 2025.[2]

Taken together, the responses of the EU, Turkey, Romania, and Bulgaria reveal an important transformation in Black Sea governance. Before 2022, environmental policy

[2] On 28 November 2025, Ukrainian Sea Baby naval drone struck Kairos, approximately 28 nautical miles off the Turkish coast. Its 25 crew members were evacuated by Turkish rescue services while the ship drifted into Bulgarian waters and eventually ran aground at the port of Ahtopol, across Bulgaria's border with Turkey. Another Russian vessel, Virat, was likewise damaged in Turkey's exclusive economic zone, en route to Novorossiysk. The incidents resulted in Fidan's call for a regional deal on commercial shipping (Zadorozhnyy 2025).

in the region focused primarily on long-term issues such as pollution reduction, biodiversity conservation, fisheries management, and climate adaptation. Since the outbreak of the war, however, environmental degradation has become closely linked to questions of security, resilience, and geopolitical stability. Environmental protection is increasingly understood as an essential component of maritime governance and regional security.

Legacy of Multilateralism

In addressing the Black Sea environmental predicament, policymakers may draw on past experience. Even at the height of the Cold War, Black Sea countries cooperated on cross-border environmental issues, as historians such as Taylor Zajicek (2023) have shown. Shared ecosystems created shared problems. Pollution, overfishing, invasive species introduced to the sea thanks to international shipping, radioactive contamination (e.g., after Chernobyl in 1986), and water management issues crossed national boundaries as well as the faultline between NATO-affiliated Turkey and the Warsaw Pact countries, making unilateral solutions ineffective. Scientific cooperation often survived political tensions. Soviet, Turkish, Balkan, and other Black Sea scientists exchanged knowledge, participated in joint research, and sought common approaches to environmental management despite ideological divisions. Yet even back then, environmental diplomacy depended on institutions. Cooperation was not automatic. It emerged when scientists, policymakers, and interest groups recognized common ecological challenges and built institutions capable of sustaining collaboration across borders. No multilateral body emerged but there was a spaghetti-bowl of institutions (USSR-Turkey, USSR-Romania/Bulgaria, Romania-Bulgaria etc.) doing the job in tandem with UN agencies and legal vehicles such as the Intergovernmental Oceanographic Commission (IOC) of UNESCO and the United Nations Environment Programme (UNEP) as well as cooperation mechanisms within COMECON (the Soviet camp's economic cooperation platform).

The end of the Cold War created a brief high point for regional environmentalism. During the 1990s, Black Sea states signed agreements, created regional organizations, and pursued cooperation on pollution control and fisheries management. It was in that moment when environmental concerns helped underpin a broader vision of Black Sea regionalism. In 1992, littoral nations signed the Convention on the Protection of the Black Sea Against Pollution (Bucharest Convention) and established the Black Sea Commission tasked with overseeing the convention. UNEP and UNDP launched the Black Sea Environmental Programme (BSEP) whose job was to assess and monitor environmental degradation. Those developments went hand in hand with the progress scored by economic regionalism epitomised by the Black Sea Economic Cooperation (BSEC) organisation.

This legacy is becoming relevant because littoral countries are coming to terms with the challenge of environmental degradation in the Black Sea. Stakeholders such as

the Black Sea Commission and the World Bank are playing key role in monitoring and driving multilateral action (World Bank, 2025).

The Way Forward

The Black Sea is a microcosm of Europe's broader strategic predicament: a region where the threat of Russia's aggression intersect with long-standing environmental fragility, where the United States remains indispensable but whose commitment is uncertain, where Turkey is powerful but unpredictable, and where the EU has substantial interests but has been slow to develop commensurate capabilities.

Despite these challenges, the war has accelerated the emergence of an ad hoc policy framework in which ecological risks are addressed through a combination of environmental monitoring, maritime surveillance, emergency preparedness, and international cooperation. While significant challenges remain, particularly given the continuing conflict and the weakening of some regional institutions, the responses of the EU, Turkey, Romania, and Bulgaria demonstrate a growing recognition that the future of the Black Sea depends on the ability to manage multifaceted policy challenges simultaneously. The long-term priorities would be to institutionalise cooperation in order to make it sustainable and effective.

The first step in the process is to mainstream ecological concerns in security policy. The standard tendency is to treat the Black Sea's strategic and environmental challenges as separate dossiers—one belonging to defence ministries and NATO planners, the other to environment agencies and international conservation bodies. This separation makes sense in conceptual terms but the two crises are deeply intertwined. Policies should reflect that.

We can consider the shadow fleet. It is both a sanctions-busting mechanism that funds Russia's military machine and an environmental liability of the first order. Tightening enforcement of the oil price cap reduces Russia's revenues and removes ageing tankers from sensitive waters. Similarly, naval mine clearance is simultaneously a security operation and an environmental one: mines that threaten shipping also damage marine ecosystems when they detonate near coastlines or in shallow waters. The reconstruction of Ukraine's water infrastructure—a humanitarian and economic priority—is inseparable from the restoration of the Black Sea's river-fed ecosystems.

Policymakers who understand this interlinkage will be better placed to mobilise the political support, institutional frameworks, and financial resources needed to address both dimensions. Framing the issue as one of integrated Black Sea resilience—strategic, environmental, and economic—also helps to include stakeholders (environmental NGOs, scientific communities, coastal tourism industries) who might not otherwise be engaged on questions of European security. The case for treating the security and environmental dimensions of the Black Sea challenge together is

both practical and political. Practically, the two crises share common causes and demand overlapping solutions. Politically, a broader framing expands the coalition of actors who can be mobilised to address them—and makes it easier to sustain public and governmental attention over the long arc of recovery and stabilisation that the region requires.

There are furthermore questions about the interplay between security and the environment. Firstly, what sort of a framework would emerge to facilitate coordination between the EU and NATO in the Black Sea. Post-conflict reconstruction, the restoration of regional cooperation on infrastructure and the environment and other issues where the EU is likely to play a leading role have security dimension and therefore fall into the purview of NATO. Inter-institutional relations are therefore key.

Second and related to the above comes the indispensable role Turkey would play in a future multilateral cooperative framework tasked with protecting the Black Sea and controlling the environmental balance. Ambivalent relations with the EU will be a hurdle but there is also space for engagement, notably on the side of funding. Turkey will be a major player in the EU-NATO dialogue on the Black Sea too, considering its position in the Coalition of the Willing.

Thirdly, there are issues concerning Georgia, another candidate country in the Black Sea which has nonetheless lagged behind on its accession path in comparison to Ukraine and Moldova. Still, water and marine policy is one of the areas where cooperation between EU and Tbilisi functions relatively well. EU funding supports river basin management, improved water quality monitoring, nitrate pollution control, wastewater management, and Black Sea environmental cooperation.

Of course, the elephant in the room is Russia. Keeping Russia out—which would be likely in light of the standoff with the West—would leave a gap in the multilateral regime. Engaging the Russian authorities at a low, technical level might be possible at some point, but even that would not be feasible in the short run. In the longer term however, some interaction on marine protection issues could add to confidence building across the new Cold War-style divide. Turkey will be well positioned to play the intermediary. Ankara will likely be supported by the sitting Bulgarian government headed by Rumen Radev who favours selective re-engagement with Russia. In addition, the EU could use a Black Sea initiative to reach out to Georgia’s Russia-occupied region of Abkhazia, a move consistent with Brussels’s policy of nonrecognition and engagement toward the territory.

Ukraine's war with Russia will not last forever. When it ends, the Black Sea will need to be rebuilt—militarily, economically, and ecologically. The institutions and coalitions needed for that reconstruction should not be improvised after the fact. They need to be built now, while the urgency is apparent and the political will, however fragile, is present. The EU's new Black Sea strategy is a start; it must be the foundation for something more durable and more ambitious.

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SecureBlackSea

The Black Sea region has long been a focal point of geopolitical competition, shaped by historical rivalries, strategic interests, and evolving security dynamics. In recent years, the region has witnessed growing instability due to escalating tensions, hybrid threats, and the ongoing war between Russia and Ukraine. These developments have not only disrupted regional security but have also posed broader challenges to the European and transatlantic security order. Given NATO's strategic interest in the region, a comprehensive reassessment of security frameworks is necessary to address emerging threats and enhance regional stability.

SecureBlackSea seeks to examine and propose a future security architecture for the wider Black Sea region, aligning with NATO's evolving strategic priorities. Through an in-depth analysis of existing security structures, regional conflicts, and cooperation mechanisms, it aims to provide evidence-based insights into key threats and potential policy responses. A particular focus will be placed on the intersection of conventional military threats, hybrid warfare, economic security, and geopolitical rivalries, recognizing the complex and multi-dimensional nature of regional security challenges.

The project activities include expert workshops, field research, and data-driven assessments. It will evaluate the effectiveness of existing regional security frameworks and NATO's role in shaping stability in the region. In collaboration with policymakers, security experts, and academic institutions, the project team will facilitate policy dialogues and strategic foresight discussions to identify pathways for strengthening regional security cooperation. These efforts will result in the development of comprehensive policy recommendations aimed at enhancing institutional resilience and fostering a more cooperative security environment.

The expected outcomes of this initiative include a thorough assessment of regional security threats, a set of actionable policy recommendations, and strengthened dialogue between NATO and regional stakeholders. By producing analytical reports and policy briefs, the project will contribute to an informed security discourse and provide practical solutions for mitigating risks in the region. By fostering collaboration between academic and policy communities, it will support long-term strategic planning and resilience-building efforts.

SecureBlackSea aspires to provide a timely and in-depth examination of the evolving security landscape in the Black Sea region. It will offer insights that can guide NATO's strategic engagement in the region. Thus, it aims to contribute to a more stable, secure, and cooperative Black Sea security environment in the face of emerging geopolitical complexities.

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