

SYNERGING



ENERGIES

# BLACK SEA SECURITY

№1 (44) 2026

**THE 20TH  
ANNIVERSARY  
OF THE BLACK SEA  
SECURITY JOURNAL!**



**CRIMEA  
IS UKRAINE**

**IN FOCUS:**

WAR AT SEA

BLACK SEA ENERGY

CRIMEAN PENINSULA

CHINESE EXPANSION

RUSSIA IN AFRICA

**10<sup>th</sup> YEAR BEHIND THE SCENES OF THE PUTIN REGIME!!!  
THEY WARNED ABOUT RUSSIAN AGGRESSION AGAINST UKRAINE.**

**As of November 2025 and since the beginning of the occupation of Crimea, the number of people prosecuted in politically motivated criminal cases, has reached 477 people. Among them are THREE OF OUR COLLEAGUES.**

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**OLEKSII BESSARABOV**, journalist, deputy chief editor of the Black Sea Security Journal in Center "Nomos", political prisoner of the Kremlin. The sentence in the "saboteurs' case" is 14 years in a maximum security colony. In May 2021 year Oleksii Besasarabov with Russian prisons addressed to U . S . State secretary: "Not considering on that my name, as and names dozens others political prisoners, there are in lists such human rights organizations, as Freedom House, "Memorial", we are almost forgotten. Only our relatives friends, colleagues remember us. We are forgotten...Oleg Sentsov is already free, but the "Sentsov list" remains, moreover, it is constantly replenished with new names of prisoners," wrote Oleksii a year before the full-scale Russian invasion. The repressions of the occupation authorities in Crimea are still ongoing. Moreover, they are expanding.

Oleksii Bessarabov, April 2011: "Today, Russia does not apply military-political pressure on Ukraine, providing advantage to the seizure of its strategic assets and economic absorption... Such a course of events does not exclude the possibility of the situation developing into a conflict, including with the use of force."

"Black Sea Region: An Explosive Mixture with Multiple Detonators", Razumkov Center collection "Crimea, Ukraine in the coordinates of Black Sea security"

On December 5, 2025, Oleksii turned 49. We cherish hope for the good news of his return to Ukraine!

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**DMYTRO SHTYBLYKOV**, head of international programs in Center "Nomos", journalist, member of the editorial board of the Black Sea Security Journal, political prisoner of the Kremlin, sentence in "saboteurs case" – 5 years colonies of strict regime. On November 8, 2021, Dmytro Shtyblykov was to be released due to the completion of term punishment in "saboteurs case". On the same day, he was transferred from the FSB Lefortovo detention center to the Southern District Military Court in Rostov-on-Don. Accused of "espionage" and "state" betrayal. New term of the punishment for political prisoner Russian by "court" – 14 years and 6 months.

Dmytro Shtyblykov, December 2012: "...It turns out, that militaristic moods in Russian citizens directed against the nearest neighbors. I want hope that it is not so! Russian military-political leadership more actively uses the topic of external enemy and possible military conflict for justification any ways to maintain internal stability in Russia, consolidate the population and distract it from acute social problems... Will they be able to extinguish inflated today fire militarism?.. Do the Russians want war? Ask you in "Silence"... SSK-1 "Silence" – Russian silent small arms and grenade launcher complex". "Military threats of Russia or with whom may Russian Federation fight ", Black Sea Security Journal , No.4 (26), 2012



On November 8, 2025, Dmytro turned 55! We wish him strength, endurance, and hope!

---



**VOLODYMYR DUDKA** – military pensioner, former commander of the Ukrainian Navy ship "Simferopol", sentence in the "saboteurs' case" – 14 years in a strict regime colony.

Volodymyr Dudka did not publish the Black Sea Security Journal, he simply was a friend of Oleksii and Dmytro since their service in the Ukrainian Navy. This it turned out enough, that become third participant in "saboteurs case" and get severe sentence on counterfeit case.

On September 30, 2025, Volodymyr turned 61!

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Surnames Bessarabova, Shtyblykova and Dudka are in lists of Ukrainian human rights defenders organizations, and also «Freedom House» (USA), "Memorial" (Russian Federation) and resolutions European Parliament as political prisoners.

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Members of the editorial board Oleksii Bessarabov and Dmytro Shtybylykov are political prisoners of the Kremlin. Since 2016 they have been kept in prison by the FSB on the fabricated charges.

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## Dear readers,

Twenty years ago, the first issue of the Black Sea Security Journal was published. Here you see the surviving, rare first issue. Over the past two decades, many events have occurred that have changed the world, changed the very concept of international order, changed the destinies of countries and people. It all started in 2005, when a group of like-minded experts from the Sevastopol think tank Center “Nomos,” inspired by the Orange Revolution, decided to launch a periodical that would cover complex, ambiguous, often incomprehensible not only to the general public, but also to politicians of the new generation, civil servants, the problems of the Azov-Black Sea-Caspian space, their impact on the national security of Ukraine. The country chose the course “Away from Moscow, straight to Europe”. Sevastopol, Crimea, Ukraine are Europe, the real Europe of its far east, behind which is the Russian Mordor of Asia.

The need for such a publication was obvious. The Black Sea region at that time, as now, was a “hot spot” on the geopolitical map. However, despite the growing importance and influence of the region on the processes of global security and the formation of Ukrainian statehood, information on this issue was scattered across various publications, mass media, and speeches at various reputable but small conferences and forums. The publication of such a journal was an attempt, and as the past 20 years have shown, a successful one, to bring the issue of security of the Black Sea region as a whole, Crimea and Sevastopol in particular, out of the information shadow, to unite all those who have studied the above-mentioned issues, to provide an opportunity to convey to the general public their views, assessments, possible scenarios of events, problems of the region and ways to solve them.

The Journal provided its pages not only to researchers, experts, high-ranking officials, venerable politicians, but also to young authors – students, postgraduates, representatives of civil society – not only domestic, but also foreign. The Journal acted and acts as an independent platform where topical geopolitical problems of national, military, energy, economic, political security are discussed. The issues of the presence of the Russian Black Sea Fleet in the



territory of Ukraine, the problems of the Crimean Tatar people, “frozen” and active conflicts were not ignored. The Journal introduced readers to new literature on this issue, publishing reviews of them. Understanding that the present is impossible without knowledge of the past. Here we published historical explorations of our authors, which to one degree or another concerned the region.

In a short time, the Black Sea Security Journal gained recognition, became well-known and popular. More than two dozen books, scientific articles, academic theses, including those by foreign authors, contain references to materials published in the Journal.

Members of the Editorial board of the Journal – Oleksii Bessarabov, Pavlo Lakiichuk and Dmytro Shtybylykov – were admitted to the Union of Journalists of Ukraine upon the recommendations of well-known Crimean and Sevastopol journalists, which was an illustrative example of recognition of their professionalism. They not only edited the Journal, but also published themselves both in the

## FOREWORD

Black Sea Security and in other media.

Oleksii Bessarabov's publications covered socio-political topics, economics, international relations and were distinguished by their relevance. Many of them caused a wide public resonance. The author became recognizable both in Ukraine and far beyond its borders. Oleksii's successes in the professional field were facilitated by obtaining a basic higher education in journalism at one of the leading universities in the country – the Institute of Journalism of the Taras Shevchenko National University of Kyiv.

Pavlo Lakiichuk has been in journalism since 2004. He continues to be a member of the editorial board of the Black Sea Security, actively publishes his researches in Ukrainian and foreign media. His analytical articles are distinguished by a deep assessment of the issues raised, well-structured and straightforward content.

Since 2004, Dmytro Shtybylykov has actively worked with a number of Ukrainian magazines: Arsenal-XXI, Aktsent, Defense Express, Marine State, Scientific Notes of the Kyiv School of the Staging, etc. His encyclopedic knowledge, sharp pen, and unique style of presenting the material made his articles on international relations, military-political, inter-ethnic, and economic problems analytical, vivid, and his forecasts realistic.

Since the registration of the Black Sea Security Journal, he has been an active member of the editorial team, the author of topical articles that aroused interest and lively discussion among readers.

After the occupation of Crimea and Sevastopol in 2014, the activities of the Nomos Center and the publication of the Black Sea Security Journal became impossible. The occupiers could not forgive the journalists for their pro-Ukrainian patriotic activities, systematic defense of Ukrainian statehood and objective coverage of the situation in Crimea and Sevastopol, focusing readers' attention on the destructive influence of Russia in the region. First, moral pressure, blackmail, and then the fabricated "case of the Sevastopol saboteurs". Today, our comrades Oleksii Bessarabov, Dmytro Shtybylykov, and Volodymyr Dudka have been behind the walls of the Putin regime for the tenth year.

Given the impossibility of publishing the Journal under occupation, our colleagues and comrades from the Centre for Global Studies "Strategy XXI" continued publishing the Journal in Kyiv. After a short break, necessary to resolve legal and organizational issues, readers once again have the opportunity to see the updated Black Sea Security Journal. The updated editorial board, updated design, updated content of the publication – now the scope of coverage is no longer limited to the Black Sea region, but touches on a wide range of foreign policy problems – from Brussels to Beijing. But the fundamental principles that were laid down from the beginning of the publication – statehood, patriotism, objectivity, analytical skills, versatility of assessments, accessibility of pages for young and venerable authors, the breadth of topics covered – have remained.

The Journal celebrates its 20th anniversary. It was not possible for the Journal to exist actively and fruitfully, to win the affection and gratitude of readers, as well as the anger of enemies without the people who have supported it all these years with author's materials, kind words, advice and financially. For this, sincere gratitude to V. Bezkorovainy, M. Gonchar, V. Horbulin, O. Volovych, N. Belitser, M. Mayorov, G. Perepelytsia, A. Ryzhenko, Y. Tryndyuk, R. Chubarov, as well as our foreign authors H. Kyrymly (Turkey), E. Nasyrov (Azerbaijan), R. Mamedov (Azerbaijan), N. Chitadze (Georgia), D. Shakhnazaryan (Armenia) and many others.

Among the authors of the Black Sea Security of the Sevastopol period are the Chief of the Main Staff – First Deputy Commander-in-Chief of the Navy of the Armed Forces of Ukraine, Vice Admiral Ihor Kabanenko, Deputy Chief of the Navy Staff, Captain 1st Rank Andrii Ryzhenko, Head of the Intelligence Department of the Navy Staff, Captain 1st Rank Andrii Hrytsenko, political scientist, postgraduate student of the National Institute of International Security Problems under the National Security and Defense Council of Ukraine, Captain 1st Rank Ivan Shablynskii. Unfortunately, Shablynskii's star faded prematurely... I remember the sharp materials, now they are called "author's investigations", about the "murky hydrography" of the head of the "Sarych" lighthouse, Yurii Leshchenko. Among our frequent contributors was also the famous Ukrainian political

## FOREWORD

scientist, philosopher, columnist, Sevastopol resident Ihor Losev. His article “Crimea as a geopolitical problem of Ukraine at the turn of the 20th and 21st centuries”, written in 2006, turned out to be prophetic. Another article, first published in the 7th issue of our Journal in 2007 (!) – “Main Kampf “Vladimir Putin or on the issue of bilateral zoological relations” by the then director of the Institute of Russia, Vasily Laptiichuk, had the effect of an exploding bomb in Putin’s Mordor. It cost the author and us dearly – Moscow was already sharpening its teeth at that time...

In this essay-memories, I once again cannot help but mention our friends and colleagues – editors of the first issues of Black Sea Security Oleksii Bessarabov and Dmytro Shtyblykov. Oleksii was an incredible investigative journalist, his “specialty” was investigating Russia’s violations of the terms of the Black Sea Fleet’s stay on the territory of Ukraine. Dmytro is a military analyst. Already in No. 10 of Black Sea Security for 2008, immediately after Russia’s invasion of Georgia, Dmytro published an analysis under the telling title “Russian–Georgian conflict. Is Ukraine the next?,” in which he argued for the inevitability of a Russian–Ukrainian conflict and considered possible scenarios of Russian aggression against Ukraine and the occupation of Crimea. The forecast turned out to be frighteningly prophetic in detail. Dmytro did not foresee only that the Ukrainian Crimea would not be enough

for Moscow – it would crawl further. But here his mistake was clear – the graduate of the Kyiv Higher Military School could not have predicted that in response to the Russian invasion, dispatches like “hold on and do not provoke” would be sent from Kyiv to Simferopol and Sevastopol. Dmytro was sure that the enemy, if he dared to attack, would get a punch in the teeth. Ukraine had enough forces to repel aggression from the east in Crimea. Only in 2014 did it turn out that force is not everything – Kyiv lacked determination...

Special thanks to Oksana Ishchuk, Andrii Chubyk, and Igor Losev, through whose efforts the journal was and is published in English. I sincerely hope that through its analytical, research, informational, and publishing activities, the analytical journal Black Sea Security will continue to contribute to the establishment of a constructive dialogue and exchange of views between experts, scientists, politicians, state and public figures of Ukraine and the world, thereby ensuring the security of Ukraine and maintaining a just international world order.

I hope that in the near future our comrades – Oleksii Bessarabov, Dmytro Shtyblykov, Volodymyr Dudka – will be released from Russian prisons and join the editorial team. I wish Journal’s staff reader’s recognition, creative inspiration, endless ideas and, most importantly, health to realize everything they have planned.

*Kind regards,*

**Segii Kulyk**, *Editor-in-chief of the Black Sea Security Journal in 2005–2014*

**Mykhailo Gonchar**, *Editor-in-chief of the Black Sea Security Journal in 2017–till today*

**Stepan Yakymyak,**

*PhD in Military Sciences, Associate Professor, Captain 1st Rank, retired,*

*Expert at the Center for Defense Strategies*

## Maritime security of Ukraine: Problems and Prospects

“ *In the context of the ongoing war of the Russian Federation against Ukraine, it is extremely important to effectively use all possible resources and factors to defeat the enemy. One of these factors is the successes of the Defense Forces of Ukraine in the fight against the enemy at sea in 2022–2025. They create the prerequisites for the liberation of Crimea and other southern regions, which can ultimately ensure a turning point in the war and victory over the enemy. At the same time, it should be understood that the neutralization of the danger to the independence of Ukraine, which arose back in 2014 as a result of the seizure of Crimea, was and remains now, already in the context of the enemy’s invasion since 2022, the most important task of the Ukrainian nation in the modern historical period. The vital interest of the nation’s survival in war conditions, the preservation of the sovereignty and territorial value of the state requires comprehensive protection in all dimensions and areas, including at sea.*

On September 24, 2025, Ukraine once again reminded the Russian Federation of its place in the Black Sea region: for the first time in the war, a combined and practically simultaneous strike was carried out by unmanned surface and unmanned aircraft complexes simultaneously on the two largest Russian ports on the Caucasian coast – Novorossiysk and Tuapse. Port facilities and other objects were hit, as a result of which, according to some sources, the operation of pumping complexes and loading of oil products onto tankers was suspended. It should be noted that in the context of the ongoing war, this combat episode testified to the intensification of actions by the Defense Forces of Ukraine aimed at weakening the military-economic potential of the enemy and its capabilities. Ukraine continued to exhaust the enemy and systematically undermine its capabilities to continue the war, including at sea. However, returning to the broader spectrum of issues of ensuring national security at sea, it is worth emphasizing that the above-mentioned episode largely illustrates the acuteness of Ukraine’s ongoing struggle for independence, sovereignty, and territorial integrity at sea.

When considering the issue of maritime security of the state, a number of initial conditions and limitations should be taken into account. First, it is necessary to bear in mind the integration of the

maritime security system into higher-level systems, namely, national and international security systems, including regional security. The mutual influence is obvious and necessitates the consideration of changes in interacting systems. Secondly, the author relies on the basic concepts and terms of the theory of maritime security, formulated and published in the standard [11] and the Maritime Security Strategy of Ukraine [2]. Ensuring maritime security is based on a well-founded definition of the content of Ukraine’s national interests at sea, which in turn are based on and logically follow from the national maritime idea as a component of the national idea and national values at sea [11]. Understanding these basic categories and their use ensure the fundamentality and logical consistency of the formation of a list of priority national interests.

Also, given that it is impossible to fully present the results of the analysis of all components of maritime security and existing problems in this area within the framework of one article, only those that are decisive in the conditions of the ongoing war are considered below. That is, the main attention will be paid to the issues of Ukraine’s defense at sea and providing the Defense Forces with the necessary resources, analysis of the implementation of the Maritime Security Strategy of Ukraine in 2024–2025, analysis of the enemy’s capabilities, the

impact of the international security situation in the Black Sea region on ensuring Ukraine's security at sea and the end of the war, identification of the most important problems in ensuring Ukraine's maritime security and ways to solve them.

### 1. STATE OF MARITIME SECURITY IN UKRAINE

To assess the state of maritime security, as is known, it is necessary to have a clearly defined essence of this concept, the structure and components of this security, there must be statistical data on the state of its partial components, as well as, of course, substantiated indicators and methods with which such an assessment can be objectively carried out. It is important to consistently consider the losses inflicted on Ukraine in the security sphere at sea, as well as, of course, the achievements achieved.

Considering that in wartime, the priority element of maritime security of any state is the state of protection from encroachments on the state's independence, sovereignty, and territorial integrity at sea, we will first consider this component of maritime security, as well as those components that determine the state's stability in wartime and the ability to restore and meet defense needs.

In general, during the ongoing armed aggression of the Russian Federation against Ukraine, starting in 2014 and during the full-scale invasion that began in 2022, Moscow seized the Ukrainian Crimea, parts of the Zaporizhia and Donetsk regions in the northern Azov region, and parts of the Mykolaiv and Kherson regions located on the Black Sea coast. As is known, the invasion of the Russian Federation created an existential threat to the sovereign and independent state of Ukraine. Moscow tried to seize the initiative and key objects and regions with quick strikes from various directions, including from the south. During the armed aggression of the Russian Federation, Ukraine suffered significant losses at sea. Despite the successes achieved in the struggle at sea, Ukraine has not yet regained control over:

- more than **70% of the width of Ukraine's direct access strip to the two adjacent seas** — the Black and Azov seas;

- **96.9% of the area of the territorial sea, internal sea waters and exclusive (maritime) economic zone** of Ukraine in the Black Sea and Ukrainian internal waters of the Sea of Azov, temporarily occupied by the enemy, i.e. 123 thousand sq. km out of their total volume of over 127 thousand sq. km;
- **50% of Ukraine's seaports** (9 out of 18), namely those located in Crimea and other occupied territories;
- **100% of offshore gas production complexes** (platforms, pipelines, special equipment) and other elements of maritime economic infrastructure captured by the enemy in the Black and Azov Seas.

It is also important to emphasize that the enemy has been illegally **stealing the natural marine resources** of the Ukrainian sections of the Black and Azov Seas 24/7 for more than three and a half years, significantly **reducing the volume of sea exports** of Ukrainian agro-industrial grains and other goods, and illegally using other elements of Ukraine's maritime potential that it has seized.

The enemy continues to inflict damage on Ukraine at sea. A full accounting of the losses is certainly still ahead, as is compensation for these losses by the Russian Federation in accordance with existing and future decisions of international courts regarding the aggressor state.

In the conditions of war, in particular, as a result of the enemy's seizure of Crimea and parts of other coastal regions, the loss of socio-economic facilities and Ukraine's access to the Sea of Azov, the issues of maritime security have become critically acute. After all, this is a loss of economic and other resources. They significantly reduce the capabilities of the Ukrainian nation now in the fight against the enemy and its descendants in the future. Therefore, Ukraine is fighting at sea to return its maritime spaces. There have been great successes, but the matter is not yet complete: Crimea, the Ukrainian part of the Azov and Black Seas, and the adjacent coastal parts of the territory of Ukraine have not been liberated. Despite the enemy's forces being forced to retreat to the eastern part of the Black Sea, significant areas of Ukraine's national maritime space in the Azov-Black Sea region remain a "gray zone".

### Ukraine's successes in warfare at sea and ensuring its own maritime security

The analysis of the Russian–Ukrainian war in 2022–2025 shows that Ukraine has achieved significant successes in the fight against the enemy at sea [12–14]. Thus, starting in April 2022, the Russian offensive from the south and the enemy's strikes from the Black Sea sea direction were neutralized by the actions of the Defense Forces of Ukraine at sea. Their subsequent naval operations created the prerequisites for the liberation of Crimea, other temporarily occupied coastal territories and an increase in the level of maritime security of Ukraine. Changes in the nature of armed fight at sea during 2022–2025 led to the division of the entire period of military operations at sea into the following stages:

**Stage 1** (24.02 – 01.04.2022) – conquest and maintenance of dominance at sea by Russian forces during the initial period of operations;

**Stage 2** (02.04 – 21.07.2022) – disruption of the dominance of Russian forces at sea and the withdrawal of its main forces to the coast of Crimea as a result of strikes by Ukrainian coastal missile systems on the enemy's main attack ships;

**Stage 3** (July 22 – October 28, 2022) – actions of the parties' forces at sea with limited goals in the context of concluding and implementing hybrid agreements on the export of grain by sea;

**Stage 4** (10/29/2022 – 08/04/2023) – transition to large-scale use of marine robotic systems and loss of control over their own waters by Russian forces as a result of a complex strike by unmanned surface and unmanned aerial vehicles in Sevastopol;

**Stage 5** (08/05/2023 – 07/14/2024) – interception of the initiative by the Defense Forces of Ukraine in the Black Sea, partial blocking of maritime communications and combat activities of Russian forces, forcing them to withdraw to the eastern part of the sea;

**Stage 6** (July 15 – December 5, 2024) – complete withdrawal of the main Russian surface and underwater forces from Crimea as a result of Ukrainian strikes and their blockade in the Novorossiysk area;

**Stage 7** (06.12.2024 — present) — transition to the systematic use of Ukrainian naval robotic systems to strike Russian forces and facilities at sea, in the coastal zone, in the air, and on land.

The Russian Federation's increased efforts to create naval robotic systems in 2024-2025, which is associated with the appointment of the Russian President's aide, Patrushev, as the head of the Russian Naval Collegium and its direct subordination to Putin, leads to the potential for changes in the nature of armed conflict at sea. Whether the fact of the defeat of a Ukrainian ship on the Danube River by a Russian unmanned surface vehicle on August 28, 2025, will mark the beginning of a new stage in the war at sea is still unknown [15]. After all, as of now, there is not enough information about the real capabilities of the Russian Federation's new naval robotic complexes and there is uncertainty about their potential impact on the situation at sea.

To assess the impact of the consequences of military operations at sea on the state of maritime security in the war, it is possible to use a partial indicator that reflects the level of dominance of the forces of each of the parties in the area (zone) of combat operations and, accordingly, their ownership of the initiative. For a direct assessment of the area within which one of the parties controls the situation, and the other can or has the opportunity to deploy its forces, there is a **certain percentage of the area (zone) of combat operations that can be used by the parties to perform tasks**. The results of the assessment showed that at the first stage of the war at sea, the Russian Federation controlled and had the opportunity to deploy its forces on 90 percent of the area of the area of combat operations, which was located only in the northwestern part of the Black Sea, north of the Danube-Crimea line [16]. However, as a result of the Neptune missile strikes on Russian ships in April 2022, this area was reduced to 10 percent, namely to a coastal strip 10–15 kilometers wide along the western coast of Crimea (Fig. 1, top row of diagrams and histogram).

## IN FOCUS: WAR AT SEA

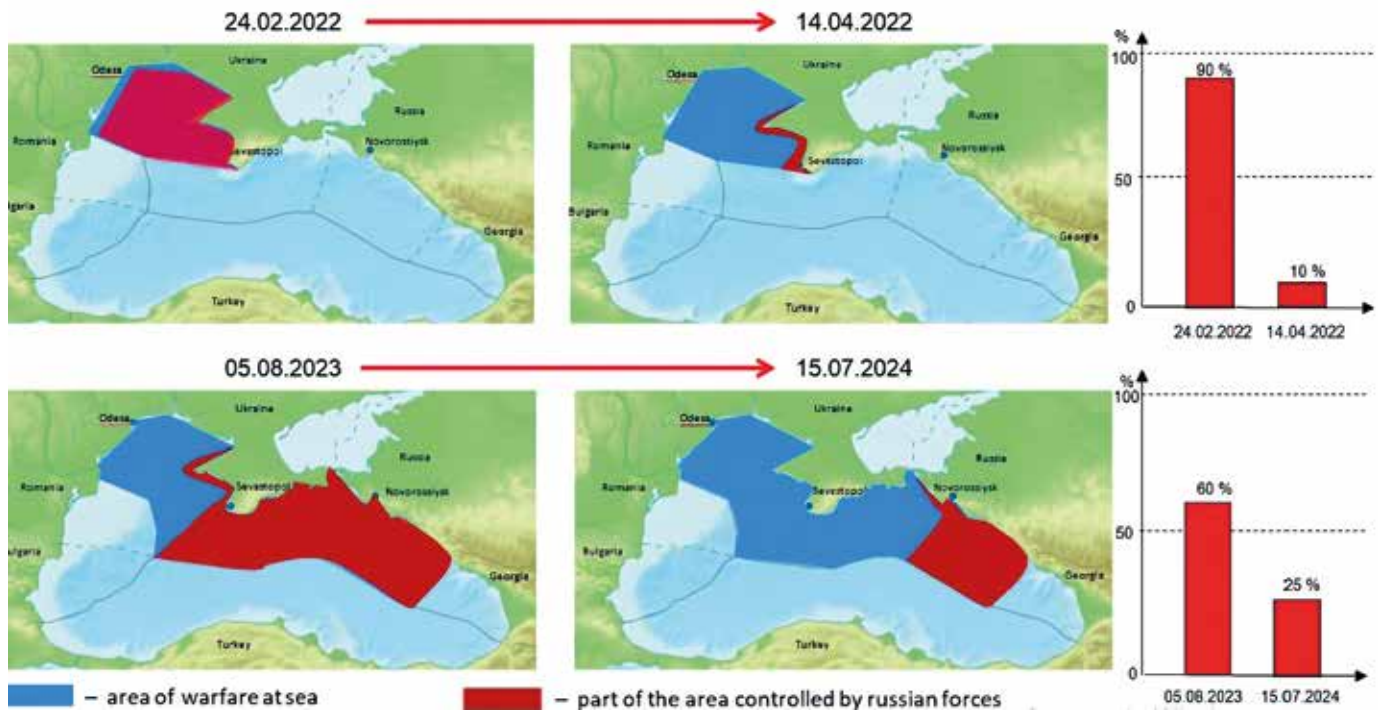


Fig. 1. Reduction in the area of the Black Sea combat area controlled by Russian forces (2022–2024), [16].

It was in this area that the main Russian warships were deployed after April 14, 2022. Later, when the area of naval combat operations as a result of strikes by the Ukrainian defense forces on Russian ships and other objects spread to the central and eastern parts of the Black Sea, Russian forces controlled about 60 percent of the area, namely from Crimea to Georgia.

However, as a result of strikes on ships and other objects in the period from August 2023 to March 2024, the Russian Federation withdrew its ships from Crimea to Novorossiysk, and the area of their operations decreased to approximately 25 percent (Fig. 1, bottom row of diagrams and histogram). That is, the Russian Federation can relatively safely deploy its forces in a strip up to 20–25 kilometers wide along the Caucasian coast from Novorossiysk to the sea border with the state border of Georgia. Thus, this indicator characterizes the areas in which Russian forces can be deployed at sea. And in the remaining water area, which currently makes up more than 60 percent of the area of combat operations, Ukraine has an advantage. That is, this is part of the area where the Ukrainian defense forces dictate conditions to Moscow and successfully use their own forces at sea.

An analysis of the results of military operations at sea and their main stages showed that **the main achievements of Ukraine**, obtained thanks to the successful use of security and defense forces at sea and from maritime directions, primarily include the following [17, 18]:

- Disruption of the dominance of the Russian Federation’s superior forces at sea by strikes on enemy ships in April 2022;
- preventing a naval landing operation and a strategic offensive from southern Ukraine on Kyiv;
- successful and long-term deterrence of the Russian Federation’s actions from the sea;
- seizing the initiative in military operations at sea;
- forcing the Russian Federation to withdraw the main strike and amphibious forces of the fleet from the northwestern part of the Black Sea to the coast of Crimea, and later to the eastern part of the sea and block them in the Novorossiysk area;
- creating favorable conditions for the liberation of Crimea and a general turning point in the war.

## IN FOCUS: WAR AT SEA

Also, thanks to the successful actions of the Ukrainian Defense Forces at sea, important economic, foreign policy, and security goals were achieved, in particular:

- favorable conditions have been created for the functioning of the maritime “grain corridor”;
- port activities have been resumed in the three largest ports of Ukraine (Odesa, Chornomorsk, Pivdennyi);
- a significant and vital economic effect was ensured during 2023–2025, and as of the beginning of summer 2025, strategic economic transportation by sea (export of agricultural products and other cargo) in the volume of over 125 million tons was carried out.

The above achievements, despite their uniqueness and significant positive impact on the course of the war, currently only create conditions for the restoration of Ukraine’s maritime security, because full control over Ukraine’s access to the seas has not yet been restored, the coastal territories occupied by the enemy and adjacent sea spaces have not been liberated, and proper protection of individuals and citizens, society and the state has not been ensured in the context of the norms of national security of Ukraine at sea.

### **The impact of Ukraine’s successes at sea on international security in the region and the world**

At the same time, successes in military operations in the Black Sea allowed Ukraine to achieve not only certain strategic military goals, but also significant economic and political successes, which provided a positive impact on international security in the region.

In the context of foreign policy and international security measures, thanks to Ukraine’s successes in the war at sea and the creation of the Ukrainian “grain corridor”, international commercial shipping in the western part of the Black Sea has been partially restored.

In addition, due to the undeniable success in operations at sea, the state’s foreign policy activities were supported and partner countries were assured of Ukraine’s resilience in war. Thus, favorable conditions were created for further support for Ukraine, providing it with military, financial,

humanitarian and other assistance.

Information and psychological impact on various audiences on a regional and global scale (dimensions) was also ensured. In particular, thanks to victories at sea, Ukraine gained a positive rating among the population and target groups of foreign states and a psychological advantage over the Kremlin. A psychological impact was exerted on the leadership and population of the Russian Federation as a result of the death of the flagship of the fleet, the cruiser “Moscow,” the destruction and damage of a significant number of enemy warships, hydraulic structures and other important objects at sea.

By reducing the Russian Federation’s potential on the Black Sea, Ukraine contributed to increasing the level of international security and the security of NATO and the EU in the Black Sea and Mediterranean regions, in particular in Syria, and the level of national security of the Black Sea states, including NATO member states Romania, Bulgaria, and Türkiye.

The positions of NATO, the United States and other leading powers in the Mediterranean and other regions of the world have been strengthened in the context of military-political confrontation with the Russian forces. This was achieved due to **the weakening of the strike capabilities of the Russian armed forces at sea**, namely: a 33% reduction in the total strike missile potential of the Russian Navy to counter aircraft carrier groups of the US, UK and French navies due to the destruction of a missile cruiser carrying 16 anti-ship missiles with a firing range of up to 1,000 km. A reduction in the capabilities to strike land targets from the sea was also achieved by destroying three ships (2 missile ships and 1 submarine) – carriers of 20 missiles of the “Caliber” complex with a firing range of up to 1,500 km in conventional equipment, and up to 2,500 km in nuclear equipment, as well as due to the significant consumption of these missiles from the operational and strategic reserves of the Russian Federation, intended for the fight against NATO and other leading powers of the world.

**general conclusions** can be drawn :

- Having carried out armed aggression against Ukraine and launched a full-scale invasion, the Russian Federation was unable to maintain its

dominance at sea and achieve its goals in the military operations in the Black Sea;

- Thanks to successful actions at sea, Ukraine significantly weakened the capabilities of the enemy fleet, seized the initiative in the war at sea, blocked the enemy’s main strike and amphibious forces near the Caucasian coast of the Russian Federation, and created the prerequisites for the liberation of Crimea from the sea;
- Despite significant achievements in the fight against the enemy at sea, the level of maritime security is such that it does not meet the requirements, as the average total loss of Ukraine’s maritime potential, primarily maritime spaces and sovereignty in them, is over 70–80%.

Only by achieving victory in the war and ensuring the full return of temporarily occupied territories and maritime spaces of Ukraine, and the restoration of all lost resources, can a state of maritime security be achieved that will ensure proper protection of Ukraine’s national interests at sea.

**2. ANALYSIS OF FACTORS AFFECTING UKRAINE’S MARITIME SECURITY IN WAR CONDITIONS**

The main factors affecting Ukraine’s maritime security in the context of the ongoing war include, first of all, the level of capabilities and the predicted nature of the Russian Federation’s actions at sea, as

well as the development of Ukraine’s capabilities to combat the enemy at sea and ensure the maritime security of the state.

**Military capabilities of the Russian Federation in the Black Sea and coastal areas**

The biggest negative factor affecting Ukraine’s maritime security is the threat of further expansion of the Russian Federation’s armed aggression, including at sea. In view of this, it is important to study the enemy’s existing capabilities for conducting combat operations in the Black and Azov Seas, as well as in the adjacent coastal territories.

An analysis of the capabilities of Russian forces to **strike with long-range cruise missiles from sea-based carriers**, in particular with Kalibr missiles, showed that the total conditional missile salvo (the remaining number of launchers on surface ships and submarines that remain operational) decreased from eighty to sixty, i.e. by twenty-five percent (Figure 2) [16].

**Strike capabilities using anti-ship missiles** decreased from fifty-two to thirty-two missiles in a conventional missile salvo, that is, by thirty-eight percent.

The most significant decrease was in the Russian Federation’s **landing capabilities** in the Black Sea, namely by forty-two percent, which is associated with the destruction, decommissioning and long-term repairs of seven out of twelve landing ships (Fig. 2)

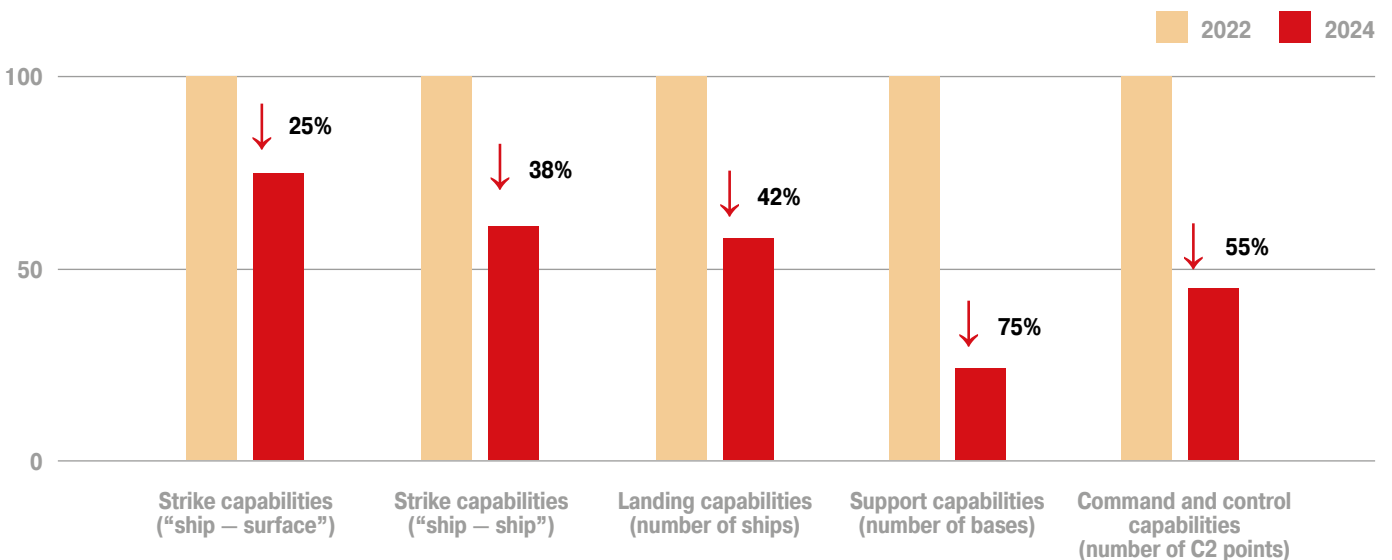


Fig. 2. Reduction of the capabilities of Russian forces in the Black Sea (2022–2024), [16].

**Supply capabilities** have been significantly reduced. They are now able to use only one of the four main naval bases in the Black Sea to base their forces.

**The command and control capabilities of the forces** have also been significantly reduced, which is associated with the destruction of the command and control points of the Russian forces in Crimea and the abandonment of the command and control points of the formations on the territory of Crimea after the redeployment of forces to Novorossiysk. At least five command and control points at the strategic and operational levels were destroyed or abandoned (Figure 2).

Thus, the losses in the **overall capabilities** of the Russian forces on the Black Sea by their various types amounted to an average of twenty-five to seventy-five percent. It is clear that the Russian Federation will try to restore certain capabilities. However, both now in operations at sea and in the future, in particular in 2025–2026, the existing capabilities will not allow the Russian Federation to successfully complete the necessary tasks. In addition, it should be emphasized that some of the capabilities, in particular the ability to strike with anti-ship weapons, cannot be used by Russian forces due to the lack of large warships in the Ukrainian defense forces. After all, Ukrainian forces operate using robotic systems, and not traditional methods and means of conducting armed combat at sea.

To provide a more complete assessment of the Kremlin's capabilities for operations at sea and support for its troops on land, it is necessary to take into account the **defense capabilities of the Crimean peninsula**. After the occupation of Crimea in 2014, the Russian Federation formed the 126th Coastal Defense Brigade within the Black Sea Fleet, and later the 32nd Army Corps. A number of units of the Russian Guard, other Russian law enforcement agencies, and branches of the armed forces were also deployed in Crimea. As evidenced by messages from participants in the Ukrainian resistance movement in open sources, an echeloned defense system has been created in both areas connecting Crimea with the southern regions of Ukraine (Perekop and Chongar) in order to prevent the breakthrough of Ukrainian groups of troops into Crimea. Elements of the peninsula's anti-landing defense system have been created in landing-dangerous areas on the Crimean

coast, designated beach and other areas. As a result of the strikes by the Ukrainian Defense Forces on the bridge in 2022–2024, the volume of transportation on it has significantly decreased and, despite the repair work carried out and large-scale measures to increase its protection against air and sea attacks, it has become the most critical element in the system of measures to contain Crimea. In the event of its final cessation of operation and the complication of passage through the Isthmus of Perekop and the Chongar Bridge, as well as in the event of the final interruption of sea communications, Crimea may be completely isolated from the continental coast.

However, the raids carried out in 2022–2024 by the special operations forces of the Armed Forces of Ukraine and units of the Main Intelligence Directorate of the Ministry of Defense of Ukraine from the sea in certain areas of the Crimean peninsula indicated the presence of weaknesses in the defense system of Crimea created by the Russian Federation. It is also important to emphasize the constant decrease in the capabilities of the air defense forces involved in protecting the Black Sea Fleet, other forces and troops, and important facilities in Crimea, as a result of systematic strikes by the Defense Forces of Ukraine. However, the military leadership of the Russian Federation regularly carries out measures to restore the air defense system of Crimea, but with each subsequent time, the number of air defense forces and equipment sets coming from other directions is likely to decrease. Summing up the analysis of the Russian Federation's capabilities for the defense of Crimea, it should be noted that these capabilities require careful study and assessment, since possession of Crimea and the adjacent maritime spaces and their protection is one of the key priorities of the Russian leadership in implementing its own expansionist neo-imperial policy in the region and the world, in particular in the ongoing war against Ukraine.

### **Future scenarios and options for the Russian Federation's actions in the war and during a truce at sea**

Currently, as is known, the main goals of the Russian Federation's actions at sea are to disrupt Ukraine's economic activity in the Black Sea in order to weaken the state's military-economic potential in the war and to facilitate the actions of groups of troops operating in coastal areas and defending Crimea [19].

To achieve these goals, the Russian Federation is trying to carry out the following tasks: ensuring air superiority over the sea as a condition for carrying out other actions; disrupting Ukraine's strategic economic maritime transportation in the Black Sea and on the Danube River, reducing Ukraine's export and port potential in the Black Sea, striking ports and other critical infrastructure facilities; participating in striking targets deep inside the country using sea-based cruise missiles; controlling the situation at sea from the air; destroying important military facilities on the coast; participating in protecting the Crimean peninsula from the actions of the Defense Forces of Ukraine, in particular missile and aviation strikes, actions of special operations forces and reconnaissance groups, to ensure its stability and defense in the event of an attack from land and sea; conducting reconnaissance operations at sea; creating unfavorable conditions in the areas where ships sail along the Ukrainian "grain corridor"; creation of a mine hazard in the interests of anti-landing defense of the Crimean coast and defense of Novorossiysk; defense of Crimea and the Crimean Bridge as important elements of the military and civil logistics of Crimea and groups of troops supplied from the territory of Crimea; export (stealing) of grain and property, cultural and other valuables from Crimea to the Russian Federation, evacuation of troops and material resources in the event of operations by the Defense Forces of Ukraine to liberate Crimea. An important task of the enemy in operations at sea remains the preservation of the main surface and other forces of the Black Sea Fleet from strikes by the Defense Forces of Ukraine for their possible further use in combat operations at sea and in the event of actions against NATO.

In the Sea of Azov, taking into account its importance for the functioning of maritime logistics hubs and transit routes, the Russian Federation forces perform the following tasks: protection of maritime communications; conducting systematic actions to control the situation; carrying out maritime transportation. There have also been repeated attempts to use the Sea of Azov to deploy naval strike groups there. In response, the Ukrainian Defense Forces have launched successful strikes on ships deployed in the sea [20].

A significant part of the enemy's tasks is related to the defense of Crimea as a logistical hub in the ongoing war. An analysis of the goals and objectives of the Russian Federation in operations in southern Ukraine and the Black Sea region shows that the main centers of gravity and critical objects, the influence on which can ensure the success of the Defense Forces of Ukraine, at the strategic level, include Crimea as the basis for the geopolitical advancement of the Russian Federation in the Mediterranean-Black Sea region and as the basis for the defense and offensive actions of the Russian Federation in southern Ukraine. At the military-operational level, Crimea is a logistical hub that ensures the stability of the groups of troops and the defense of the peninsula.

Based on the results of the forecasting, the following three main options for conducting Russian military operations at sea in the future are considered possible.

**The first option** assumes that in the event of a delay in hostilities on land and a transition to a long campaign with low-intensity operations, the enemy will continue to carry out the tasks currently being carried out and will try to seize the initiative in operations at sea. In the event of a ceasefire, reconnaissance and surveillance tasks in the areas will be carried out, and certain forces will be on duty in readiness for use.

**The second option** involves actions in the event of the success of the Ukrainian Defense Forces in repelling the offensive of the Russian Federation troops and moving on to the liberation of the occupied territories. In operations at sea under this option, the Russian Federation forces, in addition to the tasks listed above, will perform tasks to ensure the evacuation of troops and military and non-military material assets from Crimea by sea.

**The third option** assumes that in the event of the success of the offensive actions of the Russian troops in the east and south of the country, in addition to the tasks at sea that are currently being carried out, they will probably perform the following tasks: landing tactical marines in the Dnieper-Bug estuary, on the coast of the Mykolaiv and Odessa regions, fire support for the actions of troops on the coast, carrying out sea transportation in the interests of supporting the troops advancing along the coast, etc.

The most complex and difficult for the Defense Forces of Ukraine option of the Russian Federation is the third. At the same time, at the present time, in the conditions of the transition to a protracted war (war of resources), in the course of planning actions, it is necessary, first of all, to focus the efforts of the Defense Forces of Ukraine at sea on working out the first option, which should provide for actions at sea precisely under these conditions. It is necessary to plan actions at sea that would contribute to: ensuring the stability of the defense of our forces on land, diverting the enemy's resources from the most difficult land areas, creating logistical problems for him, making it impossible for the Russian Federation to attack from the coastal areas, destabilizing the situation in Crimea and other captured coastal regions, aggravating the situation in the war with the "opening of a new front" and disrupting the functioning of the Russian Federation's defense system in the south of Ukraine as a result of the operation to restore control over Crimea. To ensure the success of subsequent actions, in particular in the event of the liberation of Crimea, it is necessary to plan in parallel the formation and preparation of appropriate resources. Therefore, the strategy of actions at sea must include goals, objectives, and methods that are relevant in modern conditions, and take into account changes in the situation according to the specified options for the enemy's actions.

Analysis of the experience of war at sea has shown significant problems faced by Russian forces. First of all, these include the inability to quickly adapt to symmetrical actions and technological changes in war at sea. The Russian Federation also lacks the capabilities to combat the strike missile weapons used by the Ukrainian Defense Forces to destroy surface and ground targets from the sea. Among other things, a significant problem is the use of the Russian Federation's own marines for purposes other than their intended purpose. They are constantly destroyed during operations on land as ground units and cannot be used for amphibious operations. Another significant problem for the Russian Federation is the lack of capabilities to combat naval robotic systems and the actual lag in the development of these systems.

In conclusion, it should be emphasized that the low level of the Russian Federation's ability to resist

asymmetric actions and a significant reduction in its overall capabilities create the opportunity for the development of success by the Ukrainian Defense Forces at sea in future actions, the formation of conditions for the implementation of the peace plan and ensuring a sufficient level of maritime security for Ukraine.

### **Development of Ukraine's capabilities to combat the Russian Federation at sea and ensure its own maritime security.**

To ensure further success in the fight against the Russian Federation at sea and to ensure its own maritime security, the military-political leadership of Ukraine is taking measures to develop the necessary capabilities and implement them. As is known, in addition to the measures envisaged by the State Defense Plan, put into effect in 2022 [21], and situational decisions taken in response to changes in the strategic situation at sea during the war, it is also envisaged to solve a set of tasks to ensure national security and defense at sea in accordance with the Maritime Security Strategy of Ukraine, put into effect in July 2024 [2]. It is worth recalling that the most important goals of activities to ensure maritime security in the Strategy include the following: "... 2) deoccupation of temporarily occupied coasts, areas of internal waters, territorial sea, exclusive (maritime) economic zone and continental shelf of Ukraine; 3) ensuring state sovereignty, sovereign and other rights in the maritime spaces of Ukraine...".

To achieve the above goals and the corresponding tasks defined in this strategic document, the Government of Ukraine approved and put into effect in November 2024 an action **plan for the implementation of the Maritime Security Strategy of Ukraine** [22]. The specified plan, among other things, stipulated that during 2024–2025, the following measures should be implemented: ensuring the Defense Forces' needs for **Neptune anti-ship cruise missiles; adopting high-speed "patrol boats with strike capabilities"** into the Navy; concluding agreements with leading Western manufacturers and ensuring the joint production of **naval unmanned and unmanned aircraft systems** for various purposes in accordance with the identified needs.

Also planned for implementation during this period were: increasing the capabilities of the defense-

industrial complex of Ukraine to produce products to meet the needs of the Security and Defense Forces in naval armaments; implementing measures to create a state integrated information system for covering the surface and underwater situation in the waters of the Black and Azov Seas and the Dnipro and Danube river basins, etc.

As we can see, the developers of the action plan for the implementation of the Strategy relied on the experience of military operations already conducted at sea. The revealed advantage of Ukraine over the enemy was recognized and analyzed thanks to the latest models of missile weapons, which include the Neptune missile system, and marine robotic systems, namely unmanned surface and unmanned aviation systems. Therefore, the Strategy implementation plan emphasized their development.

It is clear that in the absence of detailed information on the implementation of the specified plan and taking into account the restrictions on the dissemination of such information, it is impossible to conduct a full analysis of the implementation of the above measures. At the same time, certain conclusions can be drawn based on the analysis of military operations at sea, in particular regarding the use of certain types of weapons.

Regarding the Neptune missiles, in particular the so-called “long” variant, it can be assumed that their production has increased significantly. During 2025, the Defense Forces repeatedly used this model to destroy various targets, both surface and ground, including in Crimea.

As for the adoption of new boats, indicated in the action plan as “patrol boats with strike capabilities,” without a clear definition of their type, it does not seem possible to state whether they have been received and whether they have been accepted into the Navy. It is only worth noting that any boats armed with strike weapons should be called strike or missile or other depending on the type of strike weapon. If the boats have several functions in their purpose, they can be called multi-purpose. In addition, patrol boats are more inherent in the maritime (coastal) guard. The boats that are part of the Navy have a purpose and the corresponding subclass names in accordance with the typical tasks performed in combat operations at sea, for example:

missile, artillery, anti-submarine, anti-sabotage, anti-mine, etc. In any case, from the open data on the experience of warfare at sea in 2025, there is no information about the successful use of such boats.

At the same time, it is worth emphasizing that the experience of war at sea in 2024–2025 showed a further **increase in the role of naval robotic systems**. Their acquisition of the qualities of carriers of anti-aircraft missile, jet, small arms and FPV-type UAVs, which was confirmed by successful strikes on helicopters, gas production platforms, manned aircraft and ground-based anti-aircraft missile systems and other coastal objects of the enemy in the period from December 2024 to September 2025, again introduced revolutionary changes in armed struggle at sea. In view of this, the issue of providing naval robotic systems certainly requires clarifications in the plan for the implementation of measures of the Maritime Security Strategy of Ukraine. It should also be noted that, on the one hand, the Ukrainian leadership in September 2025 declared a “surplus” in the production of naval drones [22], that is, an excess of such weapons, and on the other hand, judging by the analysis of publicly available video materials, in the strikes on the ports of Tuapse and Novorossiysk on September 24, 2025, there was no mass use of unmanned surface vehicles and no achievement of such a degree of destruction of important objects as destruction. In addition, enemy surface ships and submarines, which are carriers of Kalibr missiles, continue to go to sea and strike Ukraine, the Novorossiysk naval base also continues to function, as does the Kerch bridge. Therefore, there are still quite a lot of important enemy objects at sea for the use of Ukrainian unmanned surface vehicles. At the same time, it is known that the composition of the armament of naval unmanned surface vehicles and the tactics of their use are changing. Given the dynamics of such changes, in the author’s opinion, it is still worth returning to the issue of conducting a larger-scale study of promising concepts for the use of marine robotic systems and substantiating and implementing a comprehensive concept for equipping the Defense Forces with such complexes.

In addition, the experience of using marine robotic complexes in 2022–2025 indicates the need to determine appropriate ways to counter such weapons. After all, the Russian Federation can massively use

them against ships and boats of the Ukrainian Navy, civil shipping, important hydraulic structures, in particular ports. Therefore, it is necessary to ensure proper organization of the production and supply of anti-drone defense means at sea.

Analysis of open data on military operations at sea in 2024–2025 also indicates the absence of facts of successful use of naval unmanned underwater complexes by Ukraine. Repeated declarations in the media of intentions to create such samples of naval weapons have not been confirmed in practice. At the same time, it is the covert deployment and defeat of the enemy from under water that could become a new quality and success in the fight against the enemy at sea. Such means would be most in demand to ensure reliable defeat of enemy submarines and surface ships, which continue to strike deep into the territory of Ukraine using missiles of the “Caliber” complex. The complexity of creating successful underwater technologies, in particular, in terms of ensuring data transmission and achieving underwater speed significantly exceeding 30 knots, is a well-known problem. Therefore, it is quite clear that the creation of such samples of underwater robotic equipment requires not only completely new technologies, but also a lot of time and resources.

To ensure the maritime security of the state in the conditions of a war that has become protracted, an important issue is the constant accumulation of defense resources and the creation of operational and strategic reserves of naval weapons and military equipment, various naval property, as well as the development of defense-industrial complex enterprises involved in the creation of such material resources. In the conditions of the constant threat of enemy strikes on the coastal territories of Odesa and Mykolaiv regions and the shipbuilding and ship repair plants located there, the urgent issue should be the preservation (restoration) of Ukraine’s shipbuilding capabilities in other regions, in particular in Kyiv. However, at the Kyiv shipbuilding plant “Kuznya na Rybalskomu”, which already during the invasion completed the construction of a series of armored artillery boats of project 58155, according to available information, no new order for the construction of combat ships (boats) in the interests of the Defense Forces is being fulfilled. At the same time, it is clear that in the context of the transition

to robotic warfare at sea, the state’s shipbuilding complex must gradually transform to meet the needs of creating unmanned systems (complexes).

In addition to issues related to the development of maritime weapons, an important component of the development of Ukraine’s capabilities to ensure maritime security, including the defense of the state at sea, is the constant renewal of existing and creation of new formations of the Defense Forces for operations at sea, as well as the improvement and development of their support and management systems. The analysis of these components deserves a separate study.

For a more detailed study of the issue of the achieved level of capabilities of the Defense Forces to perform tasks at sea in 2024–2025, it would be advisable to analyze the results of the implementation of the action plan for the implementation of the Maritime Security Strategy of Ukraine, which should be submitted by the Cabinet of Ministers of Ukraine together with proposals in accordance with the requirements of paragraph 33 of the Strategy every six months to the National Security and Defense Council of Ukraine for consideration and clarification of previously made decisions.

### **Providing international assistance and forming security mechanisms in the interests of Ukraine’s maritime security**

In addition to measures to ensure the maritime security of Ukraine, which are planned to be implemented at the expense of the state’s own resources, a number of measures are also being implemented using international assistance. Thus, according to the plan of measures to implement the Maritime Security Strategy of Ukraine [23] in 2024–2025, it was envisaged to conclude agreements with leading Western manufacturers and ensure joint production of marine unmanned and unmanned aircraft systems for various purposes. It should be noted that such work, judging by the statements of official representatives of Ukraine and foreign states, was indeed carried out during this period and it can be assumed that these measures have been implemented.

Thus, to meet the needs of the Defense Forces, in particular, to perform tasks at sea using UAVs, the Turkish company Bayraktar has launched the

construction of an enterprise for the creation of unmanned systems in Ukraine [24].

Regarding the provision of the Defense Forces with other types of naval weapons that were offered to Ukraine by foreign partners, it is worth recalling the bilateral agreement with the United Kingdom on the construction of missile boats for Ukraine. In early 2025, the British leadership announced the start of work on the creation of unmanned combat platforms up to 9 meters long in the interests of providing Ukraine with support. It is likely that the project is ongoing, but at this stage there are no such deliveries yet. It was also planned to complete the construction and transfer to Ukraine from the United States eight multi-purpose high-speed combat boats of the Mark VI type by March 2025 [25]. At present, there is no confirmation of the transfer of these boats.

To increase the capabilities of the Defense Forces to conduct operations at sea, in December 2023, at the initiative of the United Kingdom and Norway, the Maritime **Capability Coalition was established** [26]. In the following period, Belgium, Bulgaria, Greece, Denmark, Estonia, Spain, Italy, the Netherlands, Germany, the United States, France, Sweden, Portugal, Poland, Romania, and Türkiye joined the coalition. Some states, in particular, Canada, Iceland, and Finland, although not officially part of the coalition, provide their means to increase Ukraine's naval capabilities. Australia and Japan are studying possible areas of cooperation with the coalition. It is important to emphasize that in the interests of increasing the capabilities of the Defense Forces for operations at sea, resources from other coalitions may also be involved, as needed, namely: aviation, integrated air and missile defense, artillery, drones, information technologies, etc.

According to the Ministry of Defense of Ukraine, within the framework of the maritime coalition, Ukraine receives: ships, boats, naval strike weapons, surveillance and reconnaissance equipment, mine countermeasure systems, etc. Coastal anti-ship missile systems and Harpoon missiles for them have already been provided, more than 70 small combat boats, of which the most powerful in terms of combat potential are SV90 boats, and dozens of marine robotic complexes for various purposes. Technical support for the operation and use of means, strengthening of amphibious capabilities, training

of crews and system operators, training of marines and personnel of the sea and river flotillas are also provided. On January 9, 2025, during a meeting of the contact group on the defense of Ukraine, the coalition's roadmap for the period until 2035 was adopted [27].

Analysis of the resources supplied by partner countries shows that the necessary means of destruction for conducting active operations at sea are provided in limited quantities and not regularly enough. Given current trends, anti-ship and cruise missiles with a firing range of 500 to 1,500 km, as well as self-destructive autonomous underwater vehicles, are needed to develop success in naval warfare. However, as of the end of August 2025, such means of destruction are not provided to Ukraine by partners.

An important external resource for increasing the effectiveness of ensuring Ukraine's maritime security is the activities of the international community, foreign partner states in the security sphere, and specific international security mechanisms.

As is known, after the announcement of the Joint Declaration of the Group of Seven (G7) countries on July 12, 2023, 28 security agreements were concluded with foreign states and the EU in support of Ukraine [28]. Among these states are such leading maritime powers of the world as the USA, Great Britain, France, Germany, etc. At the same time, from the Black Sea states there is an agreement only with Romania. At the moment, there are no agreements with Bulgaria and Türkiye.

The concluded agreements, among other things, provide for various measures of cooperation in the field of maritime security and the development of Ukraine's naval capabilities. At the same time, in the event of further escalation of the ongoing aggression and a new attack by the Russian Federation on Ukraine in the future, the agreements only provide for the provision of support and assistance in the field of security. However, they do not contain provisions similar to Article 5 of the Treaty establishing NATO (North Atlantic Treaty Organization), when an attack on one of the states is considered an attack on all members of the organization and each state is obliged to provide assistance, including the use of armed force. Thus, the provisions of Ukraine's

bilateral security agreements with foreign states do not guarantee the complete security of Ukraine, including at sea, that is, these agreements are not full-fledged security guarantees.

Despite the fact that for twenty years since the declaration of independence in 1991, Ukraine has been actively trying to implement international security cooperation, with the beginning of the armed aggression of the Russian Federation against Ukraine, it turned out that no international security mechanism created in the Black Sea region is effective. Thus, in 2001, six regional states began to implement the Agreement on the Creation of the Black Sea Naval Force (BLACKSEAFOR) [29], which was to be involved not only in search and rescue, mine action and similar operations, but also in the performance of other tasks, in particular security ones, by agreement of the parties. As a result of the long-term work carried out since the mid-1990s within the framework of the so-called Vienna Document on Confidence- and Security-Building Measures in the Black Sea, on April 25, 2002, Ukraine, together with other Black Sea littoral states Bulgaria, Georgia, Romania, Russia, and Türkiye, signed the aforementioned document [30]. On April 21, 2005, Ukraine joined the “Active Endeavour” operation in the Mediterranean Sea, which began after the terrorist attacks on the United States in September 2001 and was conducted under Article 5 of the North Atlantic Treaty Organization [31]. In addition, in 2007, responding to the needs of regional security, Ukraine joined the Black Sea Operation Black Sea Harmony [32]. The participation of the Russian Federation in the security mechanisms created in the Black Sea region leveled their effectiveness in the event of aggression against Ukraine.

The naval mine countermeasures group, established in 2024 under a memorandum signed by Bulgaria, Romania and Türkiye [33], currently has only one purpose and is limited to operations in the waters of these countries. However, there are already initiatives to expand its functions and entrust the group with some security tasks in the region [34].

The security activities of the leading “centers” of power, in particular the USA, NATO, and the EU, could potentially have a positive impact on maintaining stability in the Black Sea region. However, their influence in the region did not stop

the aggression of the Russian Federation in 2014 and the full-scale invasion in 2022. No attempts to forcefully counter the Russian Federation and restore freedom of international navigation were demonstrated. An analysis of the maritime security strategies developed (refined) by them and recently put into effect, in particular in the part related to activities in the Black Sea region [35–40], indicates the lack of effective formats and measures that would ensure an adequate response to changes in the security environment, form collective resistance to the Russian Federation’s aggressive actions at sea, and, thanks to this, compliance with security regimes in accordance with the norms of international maritime law.

Leading foreign and domestic experts propose more decisive steps and much more effective formats for ensuring international security in the region [41–43], which would certainly also strengthen Ukraine’s maritime security from the outside. However, the approaches they propose are not currently reflected in the official strategies of the US, NATO and the EU. Taking into account the revision of the principles for the distribution of security efforts in the Euro-Atlantic region, it is the EU that should be primarily interested in strengthening its military capabilities, including in the Black Sea region. The candidacy of Türkiye for the role of security leader in the Black Sea region proposed by some experts does not stand up to criticism, because this, albeit strong, regional state applies multi-vector and double standards in relations with the Russian Federation, not recognizing its aggressive actions, violations of the UN Charter and other requirements of international law.

The above analysis of the state of Ukraine’s maritime security and the main factors affecting it in wartime conditions indicates the presence of a number of problems that exist in the practical activities of ensuring Ukraine’s national security and defense at sea.

### **3. PROBLEMS OF ENSURING MARITIME SECURITY IN UKRAINE**

The danger of losing the sovereignty and territorial integrity of Ukraine, in particular with regard to the territorial sea and the exclusive (maritime) economic

zone around Crimea in the Black Sea and Ukrainian waters in the Sea of Azov, is decisive for the maritime security of Ukraine. It is exacerbated by existing and potential threats and challenges that arise in the course of the defense of Ukraine, including at sea. The combination of these dangers, threats, challenges and dynamic changes taking place in the security environment necessitate a prompt response to them, a review (clarification) of the goals and objectives of ensuring the maritime security of the state. The effectiveness of this activity, in turn, depends on the timeliness and quality of decisions made in the field of ensuring the maritime security of Ukraine, including defense at sea, the measures and actions taken, as well as on the proactive identification and successful resolution of problems that arise in practical activities. The main problems that currently exist in ensuring the maritime security of the state should primarily include the following.

**1. The problem of ensuring the priority of protecting national interests at sea and liberating Crimea, forming and involving effective security mechanisms in the region.** This problem is crucial in the context of Ukraine's maritime security and is caused by the danger of losing sovereignty and territorial integrity at sea. Similar to the danger of losing sovereignty and territorial integrity on land, it remains the most complex and its solution depends on the overall capabilities of stopping the enemy and achieving Ukraine's victory in the war. However, without defining a clear priority for the liberation of Crimea, the Ukrainian Sea of Azov and the adjacent maritime spaces of Ukraine both during the strategic planning of the state's defense and within the framework of any negotiations to end the war, Ukraine risks losing access to the seas and not creating conditions for a breakthrough in the overall course of the war. This priority is unconditional and requires clear adherence by the state leadership during the ongoing war.

Added difficulties are the absolute inability of international organizations, in particular the UN, to force the aggressor to make peace and the inconsistency in the actions of Ukraine's most powerful partners, primarily the United States, especially considering the approaches to a peaceful settlement that have been proposed by the American administration until recently.

In addition, the security mechanisms in the Black Sea region that existed before the Russian aggression turned out to be ineffective, new ones are not being formed, and security guarantees for the protection of Ukraine, including at sea, similar to the provisions of Article 5 of the NATO Treaty, are absent in the existing security agreements. Any security guarantees and peace agreements should include provisions for the restoration of Ukrainian control over Crimea, the Ukrainian Azov Sea and other occupied territories, as well as the Ukrainian maritime spaces adjacent to them. However, at present, the consolidation of such provisions still requires further elaboration.

The problem is exacerbated by the fact that during the occupation of the maritime spaces of Ukraine, losses of marine resources continue and it is impossible to use them in the interests of Ukraine's defense, strengthening economic capabilities in wartime. First of all, we are talking about the use of natural resources, in particular energy, and elements of maritime infrastructure. Solving the problem is impossible without returning the maritime spaces to the control of Ukraine and further restoration of the infrastructure.

**2. The problem of concentrating efforts in actions at sea on weakening the enemy's military-economic potential and disrupting his attacks from the sea on energy infrastructure and other important objects deep in the territory of Ukraine.** At present, the operation of the enemy's sea communications in the Black, Azov and other seas has not been stopped, which ensure the export of oil and oil products, grain and other goods, as well as the transportation of important cargoes by sea to the Russian Federation, thanks to which the conduct of the war and the strengthening of the capabilities of the Russian Federation are ensured. At the same time, the history of both world wars and military conflicts testifies to the significant, and sometimes decisive, role played by the struggle on sea communications in achieving victory in the war. For example, during the so-called "Tanker War", which was part of the Iran-Iraq War of 1980–1988, the main objects of influence of both sides were oil tankers and oil terminals of these countries. In total, 192 ships under the flags of various countries were damaged in the "Tanker War", of which 7 were sunk.

Also, the enemy's missile strikes from the sea on important objects deep in the territory of Ukraine using surface ships and submarines carrying Kalibr missiles have not been thwarted to this day. Solving the problem requires changing priorities in the selection of targets for strikes at sea and from the sea, focusing efforts on those that will ensure the greatest losses to the enemy in military and economic potential and make it impossible for the enemy to launch missile strikes from the sea deep into the territory of the state.

**3. The problem of forming and implementing a new naval strategy that would take into account changes in the strategic situation and be adaptive to the conditions of the ongoing war.** One of the important problems in ensuring the maritime security of the state, in particular the defense of the state from the sea directions, remains the problem of forming substantiated strategic goals, tasks and methods of conducting military operations at sea, which would take into account significant changes in the strategic situation in the conditions of the transition to a war of attrition. Despite the significant successes of the Defense Forces at sea, the enemy continues to strike from the sea using cruise missiles of ship and coastal complexes, aircraft missiles, UAVs at sea and river ports of Ukraine, other elements of the maritime infrastructure. Damage is being caused to port and other activities at sea, and the threat of damage to civilian vessels, including those sailing under the flags of foreign states, remains. In addition, the determining factors in the war at sea are the growing importance of the liberation of Crimea for ensuring a general breakthrough in the war and the intensification of competition for technological superiority. The impact of all the above factors requires clarification of the goals, tasks and methods of action of the Defense Forces at sea.

**4. The problem of insufficient resources to ensure the maritime security of Ukraine.**

In the context of permanent underfunding of the Defense Forces in the previous period and significant losses in Ukraine's resources during the invasion, a significant burden in ensuring the maritime security and defense of Ukraine fell on volunteers and private enterprises. Subsequently, international assistance largely ensured the provision of the necessary resources. At the same time, there are risks of

unreasonable redistribution of resources, misuse, and subjective distribution between departments. In addition, in the context of rapid progress in the development of naval weapons in wartime, priorities in certain models and military technologies are changing. Robotization of warfare at sea is changing the perception not only of tomorrow's confrontation on the Black Sea, but also of medium-term and long-term priorities.

Failure to take these changes into account may lead to the loss of technological advantage over the enemy today and will have a negative impact on actions to ensure victory in the war. Spending money on means of combat at sea that cannot be used immediately in the ongoing war and are outdated in comparison with naval robotic systems is unacceptable and borders on treason. The unreasonableness of such plans and spending is due to the failure to take into account the experience of war and the subjective views of certain officials. The scientific justification of the prospects for the use of certain means, which is necessary for making appropriate decisions, is not required, and the development and revision of promising concepts, according to available information, is not being carried out. Then a logical question arises, on the basis of what justifications are funds being spent now, in war conditions, on those forces and means that are outside the Black Sea and will definitely not be used in war, and in future actions their effectiveness is questionable given the large-scale and unalternative development of robotic means? We are talking about corvettes under construction and other ships, the construction and procurement of which is provided for in the action plan for the implementation of the Maritime Security Strategy of Ukraine.

Indirectly, certain problems with financial resources to meet the priority needs of providing the necessary number of naval weapons are evidenced by the periodic announcement of fundraising both on the United24 platform and within other formats, for the creation and purchase of naval unmanned systems for the SBU and the GUR. Donations have already become a familiar mechanism for meeting the needs of the Defense Forces of Ukraine, and at the same time, questions arise about the effectiveness of planning and distribution of funds received to replenish the state budget and as part of international assistance.

In addition, situations where large amounts of state budget and non-state funds are spent on the construction of new expensive fences near government buildings and on massive repairs to the exterior facades of buildings and buildings at the educational institution of the Ministry of Defense of Ukraine are completely unacceptable. And all this is happening in conditions of war and a lack of resources for direct defense of Ukraine from the enemy.

In addition, in the conditions of a protracted war, there was a need to find various kinds of resources for the large-scale restoration and development of the capacities of the defense-industrial complex and military infrastructure, and to carry out work on creating the latest models of weapons for the future.

**5. The problem of restoring and improving joint management of operations at sea.** Insufficient effectiveness of activities to use the successes achieved by the Defense Forces at sea in 2022–2024 did not allow to provide the required level of assistance to the defense of the state in the south of Ukraine and the liberation of Crimea. The lack of concentration of efforts on massing forces and means during strikes on enemy facilities in Crimea and other coastal areas, the non-simultaneity and incoherence of strikes by various components of the security and defense forces allowed the enemy to regularly renew the affected elements of the air defense system and neutralize the means of destruction in the event of their sequential, rather than simultaneous, use. This is the problem of unity in the management of security and defense forces and their joint use in operations at sea.

There are facts not only of incoordination of actions at sea by units of different components of the security and defense forces, but also of unintentional interference with each other while performing tasks at the same time in the same area. As a result, the effectiveness of the Defense Forces is reduced, the pace of their actions is reduced, and there is a risk of losing the initiative in actions at sea and its interception by the enemy, in particular due to the likelihood of their interception of technological advantage.

At the same time, the enemy is taking systematic measures to develop and implement military

technologies, in particular to scale up activities by involving broad state capabilities and resources.

In addition, the scaling up of technologies for the creation and implementation of the latest models of naval weapons in Ukraine does not receive systematic organizational support due to insufficient professionalism and dispersion of personnel due to subjective, and sometimes even anti-state actions of individual representatives of the leadership at various levels. There are dozens and possibly hundreds of examples of unjustified dismissal of trained and experienced personnel in the conditions of an ongoing war (?!), attempts to transfer them to positions that are lower than the requirements, disbanding units in order to release a person.

In addition, most of the tasks still fall on the shoulders of volunteers and enthusiasts of their work. Greater access to resources, including opportunities to use general donations, in some departments compared to other structures creates not only injustice, but also the threat of underfunding the needs of some structures due to giving preference to others. Ultimately, this creates precedents for the disintegrated use and development of various components of the security and defense forces, reducing the effectiveness of security activities and defense of Ukraine at sea.

**6. The problem of improving the management of maritime security in Ukraine.** The level of responsiveness to changes in the security and military-strategic situation that affects the state of maritime security in Ukraine, including the defense of the state at sea, is determined by the professional level of personnel when monitoring the activities of the enemy and its own forces, conducting analytical work, identifying existing problems and preparing proposals for the leadership to solve them. At the same time, Ukraine still does not have a collegial advisory body at the state level with the necessary analytical unit that would act in a timely and professional manner to ensure the maritime security of Ukraine. Despite the proposals submitted to the draft Strategy for Maritime Security of Ukraine, the approved version of the Strategy does not include a requirement to create such a body. Even despite the positive experience of the USA, Great Britain and other states, the creation of such structures was ignored.

The enemy, on the contrary, has increased the requirements for the management of the sphere of ensuring the maritime security of the state. In July–August 2024, the President of the Russian Federation reformatted a similar body that existed in Moscow. He created a maritime board under the President of the Russian Federation instead of a maritime board under the government of the state. Moreover, he appointed the person closest to him, his assistant and former Efesbeshnik Patrushev, as the head of the newly created board. Over the year, the Russian Federation has managed to create elements of a national ecosystem for the production of the latest marine robotic systems. Thus, the examples given indicate the need to create a similar collegial advisory body under the President of Ukraine. The creation of such a body will ensure the efficiency, systematicity and validity of the development and implementation of decisions to ensure the maritime security of Ukraine, including the conduct of state defense at sea.

In addition, for effective management of the system of ensuring the maritime security of the state, it is necessary to have an appropriate scientific and methodological apparatus, which will provide the opportunity, first of all, to conduct a comprehensive and objective assessment of the effectiveness of ensuring the maritime security of the state. This problem has a broader nature, because the development of the theory of maritime security and the corresponding methodology is still ongoing. Various approaches to assessing the effectiveness of measures to ensure this type of security are being developed and implemented.

At the same time, in Section VII of the current edition of the Strategy for Maritime Security of Ukraine, for “assessment of the implementation of the Strategy” it is proposed to use as evaluation indicators “... 1) quantitative (indicative) and qualitative indicators of implemented measures provided for in the plan of measures for the implementation of the Strategy...; 2) the effectiveness of measures and programs implemented by state authorities...; 3) the effectiveness of adopted regulatory legal acts...; 4) indicators of operational (combat) capabilities of forces and means of the Naval Forces of the Armed Forces of Ukraine and the Maritime Guard of the State Border Service of Ukraine; 5) the number of

jobs created in the domestic maritime industry...” and some other similar “indicators”. However, it should be noted that, according to the views of leading foreign and domestic specialists in the field of evaluating the effectiveness of complex systems, a number of requirements are put forward for the indicators of such evaluation, in particular regarding the compliance of the effectiveness indicator with the system’s purpose, its relevance, measurability, etc.

Usually, a main or generalized indicator, partial and additional indicators are determined. The absence of a main (generalized) indicator, which, in the author’s opinion, should reflect the degree of protection of national interests at sea [44], does not allow assessing the general state of the state’s maritime security. Indicators for assessing the effectiveness of each of the tasks defined in the Strategy are also important. To assess the level of resource expenditure required to achieve a certain degree of protection of national interests at sea, it is necessary to have a corresponding indicator, which is additional. Only at a lower level should indicators be used to assess the implementation of specific measures during the implementation of tasks and the achievement of the goals of ensuring the state’s maritime security, that is, the implementation of the Strategy. Incomplete or incorrect definition of the indicator system does not allow ensuring the reliability of the results when assessing the effectiveness of activities to ensure maritime security.

**7. The problem of ensuring the appropriate level of training and advanced training officials in the field of maritime security of the state.** As is known, one of the most important factors affecting the effectiveness of the management of the maritime security system is the level of competence of the involved personnel, the totality of knowledge, skills, and experience of employees. Therefore, the question immediately arises: how effective is the system of training and advanced training of specialists involved at the state level in monitoring the state of maritime security of the state, conducting analytical studies, forming substantiated solutions, and comprehensive control and analysis of their implementation?

Analysis of the existing system of training, retraining and advanced training of specialists of state and military administration indicates the absence of a

specialized subsystem for training specialists in the field of maritime security and defense of the state at sea. At one time, the National Defense University of Ukraine, taking into account more than twenty years of experience in developing a system for ensuring national security at sea in Ukraine, the author's personal experience in involving in the development of the Maritime Doctrine of Ukraine, and the current needs for protecting national interests at sea in the conditions of armed aggression of the Russian Federation and the conduct of the ATO (Joint Operation), developed a number of measures to conduct scientific research and launch training specialists in national security at sea.

First of all, scientific research was carried out to substantiate recommendations for improving activities to ensure the national security of Ukraine at sea. In 2016, the annual International Scientific Forum "Maritime Strategy of the State" was launched, which is still held at the university. Also in 2019, the author of the article developed a training course that was included in the training of students of the Institute of Public and Military Administration in the format of a separate academic discipline "Fundamentals of the Maritime Strategy of the State". The following year, a textbook "Fundamentals of the Maritime Strategy of the State" was developed, published in 2021 [44]. It contains a separate section entitled "Fundamentals of Ensuring National Security at Sea", as well as a version of the draft Maritime Security Strategy of Ukraine in the format of an appendix to the manual.

To improve the skills of specialists of state and military management bodies, a separate course was developed on ensuring national security at sea and developing and implementing the state's maritime strategy. However, the Ministry of Defense of Ukraine did not identify a specialized department as the customer for training specialists on the topic of this course. As can be seen, the failure to implement projects to improve the skills of specialists in this field is one of the reasons for the insufficient timeliness and quality of decisions made at the state level regarding the development of a new edition of the Maritime Doctrine of Ukraine, put into effect in 2018 instead of the planned deadline in 2015, and the development of the Maritime Security Strategy of Ukraine, started in 2021 and completed in July 2024. But the main thing is the quality and timeliness of

actions in practice to ensure national security at sea, especially now in the conditions of an ongoing war.

#### 4. WAYS TO SOLVING THE PROBLEMS OF MARITIME SECURITY IN UKRAINE AND PROSPECTS

To address the identified problems in ensuring Ukraine's maritime security in the context of the ongoing war, the following recommendations are offered.

1. When making strategic decisions in the war on issues of ensuring the national security of Ukraine, in particular the maritime security of the state, conducting defense at sea and discussing issues of ending the war, **one of the priority goals to determine the liberation of Crimea, the Ukrainian Sea of Azov and the adjacent maritime spaces of Ukraine**, which will allow: significantly weaken the enemy's defenses in southern Ukraine; create the prerequisites for the strategic defeat of enemy groups in other directions; preserve and restore Ukraine's full access to the Black and Azov Seas and the use of their resources.

2. To increase the level of national security of Ukraine, in particular at sea, to intensify the formation of effective international security mechanisms in the Black Sea region. **To create effective security mechanisms**, and not only those that will be used after the end of the war and to neutralize subsequent actions, but primarily those that are needed now in the conditions of war — not consultations, money and resources, but joint actions to protect Ukraine at sea.

3. Taking into account the strengthening of common threats from the Russian Federation and the growing interest in the energy and other resources of the region, conduct a strategic dialogue with the USA, NATO and the EU with the aim of developing common regional strategies and clarifying existing security strategies (the US Black Sea Security Strategy, the NATO Maritime Strategy, the EU Maritime Security Strategy and the EU Strategy for the Black Sea Region). When clarifying the above strategies, provide for the inclusion in them of provisions on the introduction of security guarantees for Ukraine and collective defense measures similar to Article 5 of the NATO Treaty.

4. During the formation of international security mechanisms in the Black Sea region, it is advisable for Ukraine to offer partners the exchange of experience gained in successful military operations at sea using the latest technologies and robotic systems, as well as the placement of advanced elements of coalition force bases, elements of support and control systems on the territory of Ukraine and in its waters. Coalition naval forces should be formed with an emphasis on robotic surface, underwater and air systems (complexes). The key element of coalition forces and means should be robotic groupings of the Navy and other components of the Defense Forces of Ukraine deployed on the front lines relative to the Russian Federation. This will require priority provision of such forces by both Ukraine and partner countries, effective training and ensuring constant readiness of a certain component of forces.

5. To ensure targeted influence on the enemy at sea, consistent with strategic goals in the war, provide for early development and adaptive refinement of the naval strategy (for a specified period of the war, the proposed term is one year), which will define the strategic goals, tasks and methods of action of the Defense Forces at sea. In the conditions of the transition to a protracted war, the main efforts in actions at sea, in addition to the priority goal of liberating Crimea, should be focused on weakening the enemy's military-economic potential at sea and from the sea, in particular, the destruction of critical and other elements of the enemy's maritime communications and coastal infrastructure, as well as on disrupting enemy strikes from the sea deep into the territory of Ukraine using Kalibr missiles. When planning the methods of performing tasks, provide for the massing of robotic and other means in strikes, the delivery of preliminary strikes on enemy forces involved in the defense of the objects being attacked, in the main strikes — a simultaneous approach to the targets of marine unmanned surface, underwater and unmanned aerial vehicles, missiles. In the combat order of robotic groups of surface vehicles, in addition to strike ones, deploy unmanned support platforms with anti-aircraft missile systems, electronic warfare means, anti-tank means and machine guns, UAVs, etc.

6. To ensure success in conducting operations and strikes at sea, exclusively joint use of forces

and means of the components of the Defense Forces should be carried out. In advance, a joint set of forces and means should be formed, joint planning and management of the joint force group should be carried out. For this purpose, a joint commander of the force group should be determined, deputies from the involved components of the Defense and Security Forces should be appointed to him, and the specified forces and means of the components of the Defense Forces should be promptly subordinated.

7. In the development of technologies and means of warfare at sea, the main priority should be the development of robotic, autonomous, unmanned (unmanned, unmanned) systems (complexes). Focus the main resources on the creation and supply of those means that are directly used in warfare at sea. Limit the financing and provision of those forces and means that are located outside the Black Sea region. Review long-term planning documents, programs and plans for the development of AME for the medium term, taking into account the trends of the transition to robotic warfare, excluding the creation of large, expensive platforms (ships, aircraft, etc.) that are controlled by crews.

8. Continue the process of developing the maritime security system of Ukraine, taking into account domestic experience in wartime and best foreign practices, primarily the standards of the EU and its member states. In order to increase the efficiency of management of the maritime security system of the state, provide for the creation of a collegial advisory body under the President of Ukraine — the Maritime Security Council of Ukraine. To collect and summarize data on maritime security monitoring, study problematic issues, prepare analytical reports and proposals for solutions, form an analytical unit on maritime security within the Apparatus of the National Security and Defense Council of Ukraine. To ensure the proper level of justification of decisions on ensuring the maritime security of the state, provide for the development of a specialized scientific and methodological apparatus, paying special attention to determining a system of indicators for assessing the effectiveness of ensuring the maritime security of Ukraine. As the main indicator, have the degree of protection of national interests at sea, which fully corresponds to the goal of ensuring the maritime security of the state. Taking

into account the above recommendations, work out and make amendments to the Maritime Security Strategy of Ukraine. To implement the acquired experience and ensure the proper professional level of officials of state and military administration bodies involved in activities to ensure the maritime security of Ukraine, introduce advanced training courses on ensuring national security at sea and the state's maritime strategy, which should be conducted in a one-two-week format, taking into account the needs and requirements of martial law and warfare at sea.

### PROSPECTS

If the above recommendations are implemented, it is expected that the timeliness and quality of solutions submitted to the state leadership on issues of ensuring the maritime security of Ukraine will increase. This will be achieved through better monitoring and awareness, deeper scientific and analytical support, substantiated assessments of the state of maritime security, and proposals for improving the functioning of the system for ensuring this type of national security.

In the future, thanks to the creation and successful functioning of the State Maritime Security Council under the President of Ukraine and the analytical unit to ensure this activity, the efficiency and quality of work on making collective decisions on ensuring

maritime security will increase. In the conditions of the ongoing war, taking into account the dynamics of changes in the situation, the analytical unit will prepare options for decisions to be made at the Council meeting on a monthly or ad-hoc (if necessary) basis.

The most pressing issues that will require the greatest attention of the leadership of the state and the Defense Forces during the ongoing war will be the following: ensuring the priority of considering decisions on protecting national interests at sea, primarily the liberation of territories that provide Ukraine with access to the seas, and the liberation of Crimea; defining (clarifying) the strategy of military operations at sea (naval strategy) and organizing its implementation; ensuring the unification of the management of the operations of the Defense Forces at sea with the mandatory definition of a leader (commander) who is responsible for responsibility and management, as well as the operational subordination of officials of the leadership and forces from other components of the Defense and Security Forces; systematic (and as needed) determination of directions for the development of forces and means of conducting operations at sea, taking into account current trends in armed conflict at sea and the development of new technologies, as well as resolving issues regarding their timely supply to the troops (forces) in order to get ahead of the enemy and ensure Ukraine's victory in the war.

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## Revolution of Ukrainian Unmanned Surface Drones

“ During the Russian–Ukrainian war, Ukraine relies on quick thinking, agility and technological superiority to exhaust the enemy’s forces. Ukrainian naval drones, also known as sea drones or unmanned surface vessel (USV), which in naval parlance are called unmanned surface boats (USBs), have enabled Ukrainian defenders to successfully confront the Russian Black Sea Fleet. The use of UMBs is a new format for warfare at sea, where a stronger enemy will not have an advantage in military operations. Naval drones are the weapons that became part of the turning point in the Russian–Ukrainian war at sea. According to preliminary assessments by naval experts, the use of drones during the national liberation war can quite possibly be called successful.

### They became the first

Since the beginning of the Russian full-scale invasion in 2022, the Russians have undisputedly dominated the Black and Azov Seas. The Ukrainian Navy has been outnumbered by the Russian Black Sea Fleet by a ratio of approximately 12 to 1. After the spectacular destruction of the Black Sea Fleet flagship, the cruiser Moskva, Ukraine has still not been able to effectively counter the enemy’s aggression against cargo shipping, especially grain ones, which has cost us billions in losses.

According to the Security Service of Ukraine, the idea of creating surface strike drones was proposed by a brigadier general of the SBU under the pseudonym “Hunter”, who, during a visit to the training ground, saw the installation of Starlink terminals on UAVs and decided that it was possible to install these terminals on a naval drone and maintain satellite communication. After that, he and the head of the SBU Vasyl Malyuk turned to the commander of the Ukrainian Navy Oleksii Neizhpapa, who provided a team of specialists for consultations on the creation of boats and their piloting.

The first experimental models were created on the platforms of civilian jet skis of the Canadian company Sea-Doo, namely the GTX or Fish Pro models, which are quite common on the market. This approach has significantly simplified and reduced the cost of drone production. According to official statements from the Ukrainian side, the cost of one unit is about



Sea-Doo jet ski of GTX model. Website of Sea-Doo

250 thousand US dollars. The USV is powered by a water jet engine in the stern of the hull, which works in conjunction with a powerful three-cylinder Rotax gasoline engine, which is capable of accelerating the jet ski to 70 mph. The attack sea drone turned out to be a small, fast and highly maneuverable, remotely piloted vessel. Judging by the equipment on board, the drone is controlled using satellite geolocation systems, as well as via a video channel, in which the signal from the camera is transmitted via the Starlink satellite communication system to the control panel in the command post.

Another feature of the first-generation sea drone is the warhead initiation system. The explosive, installed in the middle of the hull, is activated by two impact detonators located in the bow. The latter were probably taken from Soviet aviation ammunition,

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*The first model of the unmanned surface vessel (USV). Photo credit: V. Zablotskyi*

specifically the warhead of the FAB-100 or FAB-250 high-explosive aviation bombs. In practice, this is a kamikaze drone. The hull of the sea drone was made of aluminum, replacing the original fiberglass hull that was used in the jet ski. According to Hunter, the first samples were tested in July 2022.

The newly created naval strike drone had a length of 5.5 m, a full weight of up to 1,000 kg, an operational radius of action of up to 400 km, a range of up to 800 km, autonomy of up to 60 hours, a combat load of up to 200 kg, a maximum speed of 80 km/h, navigation methods — automatic GNSS, inertial, visual, transmission of video information up to three HD video streams, cryptographic protection — 256-bit encryption. The cost of the complex is 10 million hryvnias.



*Reconstruction of the naval drone attack on Sevastopol.*

On September 21, 2022, off the coast of Sevastopol, the Russian occupation authorities discovered an unidentified unmanned surface vehicle and blew it up at sea. Since then, the Russians have retreated to the protected harbor of Sevastopol and reduced the number of warships in the outer roadstead.

On October 29, 2022, the first large-scale strike by naval drones on ships of the Russian Black Sea Fleet

In addition to the drone itself, equipped with an autopilot system, video subsystems, including night vision, backup communication modules and a warhead, the complex also includes a ground autonomous control station, a transportation and storage system, and a data processing center.

### Combat use

The Security and Defense Forces of Ukraine first attempted to strike an enemy ship using naval drones on the night of September 17, 2022, when the Ukrainian newest USV unsuccessfully tried to attack the Russian frigate Admiral Makarov in the Sevastopol Bay. The operation was commanded by the head of the SBU Vasyl Maljuk and the commander of the Ukrainian Navy Oleksii Neizhpapa, the head of the Ministry of Digital Affairs Mykhailo Fedorov also participated. However, the attack was foiled due to the fact that Starlink, which was the main means of communication for the drones, did not have coverage in the Sevastopol area (however, the participants in the operation claim that Musk deliberately turned off the connection) — and to an urgent request to turn on the coverage, SpaceX CEO Elon Musk refused, citing his reluctance to participate in the operation against the Russian fleet and the escalation of the war.



*The damaged minesweeper "Ivan Golubets". Archive KVIT*

in Sevastopol Bay took place. The enemy ships were attacked using 9 aerial UAVs and 7 autonomous naval unmanned vehicles, as in September. The Russian occupation authorities claim that the attack was allegedly carried out by the military of the Ukrainian 73rd Naval Special Operations Center in cooperation with the British Navy, which the British resolutely rejected. As a result of the attack, several ships of

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the Russian Navy were damaged, in particular the naval minesweeper of project 266M “Ivan Golubets” and the flagship of the Russian Black Sea Fleet, the frigate of project 11356R “Admiral Makarov”, as well as a fuel and lubricants storage facility.

In November 2022, the United24 platform announced a fundraising campaign for a flotilla of naval drones and published their specifications. Officially, Ukrainian officials confirmed that Ukrainian-developed strike drones were used to attack the Sevastopol Bay. Ukraine planned to create a fleet of such drones to protect the Black Sea and ensure the activities of merchant vessels, in particular the “grain corridor”. During the week, about 250 million hryvnias (the cost of ~25 complexes) were collected, in particular, the Ukrainian blogger Igor Lachenkov, who was one of the first to collect 40 million hryvnias, Lithuanian blogger Andrius Tapinas, who collected 750 thousand US dollars, as well as various companies and public figures, joined the fundraiser.

### Further development and prospects

After the first attacks, communications were improved, speed and combat load were increased. The company that originally created USV continued development for the Main Intelligence Directorate of the Ministry of Defense of Ukraine. These drones have been known since at least July 2023, they were called “Magura” (or Magura V5). The basic and currently most successful in combat use model Magura V5 is an abbreviation of the English Maritime Autonomous Guard Unmanned Robotic Apparatus V-type (unmanned robotic apparatus of maritime autonomous guard, type V).

Magura V5 has a length of 5.5 m, a width of 1.5 m and a displacement of 1000 kg. Cruising speed is 22 knots, and the maximum speed is 42. Range is 833 km. Payload is 320 kg, autonomy is up to 60 hours, and automatic satellite GNSS, inertial and visual channels are used for navigation. On-board equipment provides transmission of up to three HD video streams.

The project was developed in November 2022 by the company “SpetsTechnoExport”. In addition to the strike mission, the boat can carry out surveillance, reconnaissance, patrolling, search and rescue operations, mine countermeasures, etc. Among the advantages of the platform are also stealth and high

maneuverability. The simplicity and originality of the design of these drones was highly appreciated even by the enemy, who, under various circumstances, obtained two such boats in November 2023 and May 2024.

Following the GUR (Main Intelligence Directorate), the Security Service of Ukraine also began to develop drones independently, which led to the creation of devices known as Sea Baby, which later became a multi-purpose platform. The multi-purpose USV Sea Baby is distinguished by its slightly larger dimensions (length — 6 m) and displacement of up



*Sea Baby USV with MLRS. SBU's Archive*

to 5 tons. The mass of the warhead is 860 kg. There are also versions of this platform with four Rocket-Propelled Grenade Launcher RPG-16 flamethrowers, with six guides for the Grad MLRS, with a remotely controlled 12.7 mm machine gun, with devices for transporting and setting two non-contact bottom sea mine barriers, etc. The control and navigation systems are similar to the Magura V5.

The SBU also created the high-speed USV “Kozak Mamai,” known since August 2023. “Mamai” is 6 m long, with a body made of bulletproof material and a warhead of 450 kg. It can also serve as a relay for reconnaissance or as a platform for other means of destruction.

In early June 2024, information was released about the new USV Stalker 5.0. It has a length of 5 m, a width of more than 1.2 m and a 60 hp engine. The maximum speed is 40 knots, cruising speed is 30. The range is 600 km. The mass of the warhead is 150 kg. It can serve as a logistics platform for delivering weapons, equipment and provisions in a special compartment, as well as for reconnaissance and patrolling the coastal zone and rivers. The model is somewhat inferior in performance characteristics to

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the Magura V5, but it is almost five times cheaper (270 thousand US dollars).

Magura naval drones were armed with missiles. As the commander of the special unit of the Ukrainian Defense Ministry's GUR "Group 13" with the call sign "Thirteenth" said, they were equipped with R-73 air-to-air missiles, a naval modification with an infrared homing system. Magura drones equipped with them have already been used during combat operations in the Black Sea.

Sea Baby also has the world's first successful remote mining at sea. According to SBU General Hunter, this was done by a single unmanned boat specially converted into a minelayer, which took two bottom mines on board. Sailing at night between its own base and the Crimean coast, it covertly mined the approach fairways and even the outer roadstead of Sevastopol (later four Russian ships were blown up by these mines).



Unmanned platform "Avdiyivka". SBU's Archive

On March 6, 2024, General Hunter presented a new universal reusable unmanned platform "Avdiyivka", which was distinguished by its larger size and the ability to accommodate various weapons options, the composition of which is not disclosed. The drone's payload is over 1,000 kg, and the range is over 1,000 km. It cannot be ruled out that this is a drone-carrier of FPV drones, which was shown in a video from the Ukrainian Navy in December 2024. According to experts, such a "pocket aircraft carrier" ("drone carrier") can carry 4 FPV drones, which are stored in a hangar equipped in the central part of the hull.

Folding hatches allow the copter-type UAV to take off directly from the hangar and return after

completing the mission. In the stern there is a special compartment for placing powerful explosive charges or naval mine barriers. Such a platform can also serve as a kamikaze drone.

Among the latest developments, experts note the multi-purpose strike sea drone "Katran" developed by the Ukrainian company Military Armored Company HUB. It is capable of destroying targets at sea, on land and in the air. The drone is equipped with torpedoes on the wings, a multi-barreled machine gun in the bow, a machine gun and Piorun anti-aircraft missile systems installed on the combat module. The Browning machine gun, in the module with a firing angle of 180 degrees, is designed for air targets. It is capable of covering a distance of more than 1,000 kilometers, performing strike and reconnaissance operations. The drone develops a speed of up to 130 km/h. "Katran" does not require a separate electronic warfare system; it has a built-in system for automatically recognizing threats and shooting traps.

In April 2025, the Ukrainian defense-industrial complex presented a new development — the Alligator 9 unmanned naval boat, designed to perform a wide range of combat missions at sea. Alligator 9 is a universal naval platform capable of carrying various types of weapons. In particular, it can be equipped with the Trident 90 laser combat system, which allows it to effectively destroy cruise missiles, aerial bombs and strike drones at a distance of up to 3 km, as well as reconnaissance drones and helicopters at a distance of up to 5 km. In addition, the boat can be used as a carrier of Alligator 5 ToD torpedo drones to destroy surface or underwater targets. In the electronic warfare (EW) configuration, the Alligator 9 is capable of carrying from 3 to 5 specialized Alligator 5 EW UAVs equipped with EW and electronic reconnaissance (ER) capabilities.

In parallel with the development of surface marine drones, another Ukrainian company is working on the development of underwater drones. As part of the project, in April 2024, at the Brave1 defense cluster conference, one of several drone models was presented – Toloka TLK 150. This is a small drone-torpedo with a warhead of 20–50 kg of explosives, equipped with an electric motor. The drone has a range of 100 km. It is equipped with a mast equipped with an antenna and a rotating camera for targeting

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and maintaining communication. The underwater complex should automatically scan the space in search of targets using 3D sonar and hydrophone, or in manual mode by an operator using a camera. The guidance system uses a GPS signal and an inertial navigation system in the absence of GPS (underwater) or during signal jamming.



Underwater drone “Marichka”. Photo Credit: V. Savchenko.

Earlier, in August 2023, the autonomous underwater drone “Marichka” was tested by the AMMO Ukraine company. It is expected that “Marichka” will be used as a kamikaze drone for attacks on enemy targets underwater, where ships are less protected. Main characteristics: length 6 meters, width 1 m, range up to 1000 km. The cost of the drone is approximately 16 million hryvnias (430 thousand US dollars). The developers also note that the underwater drone can operate at depths where standard detection means are not reachable. Developments in the development of promising underwater drones continue...

### Russian sea drones ...

Ukrainian naval drones have become a real nightmare for the Russian Black Sea Fleet. At the same time, we see that the Russian aggressor is also actively working on creating its own unmanned boats. According to Ukrainian intelligence, as of July 2025, the Russian Federation already has 7 types of naval drones.

The first mentions of the development of naval strike drones in Russia appeared back in 2023. At that time, the commander-in-chief of the Armed Forces of Ukraine Valerii Zaluzhnyi officially confirmed that the Russian military had begun using such systems

against targets in Ukraine, noting that Russian surface drones pose a danger to civilian shipping in the Black Sea. In February 2023, a video of an attack on a railway bridge in Zatoka appeared — it was probably attempted to be blown up by a controlled surface drone with explosives on board. On December 15, 2023, Russian media reported on the presentation of a new Dandelion (Oduvanchik) attack marine drone created by the Kingisepp Machine-Building Plant in St. Petersburg. Most likely, “Dandelion” was intended for strikes on stationary targets — bridges, ports, coastal infrastructure. According to the developers, the drone is capable of carrying up to 600 kg of explosives or other payload. For comparison, the Ukrainian Sea Baby, which attacked the Crimean bridge in the summer of 2023, had up to 850 kg of explosives on board. The maximum speed of the Dandelion is 80 km/h, and the range is up to 200 km. This is enough to attack Odesa if launched from the territory of Crimea. It is also possible that such drones can be launched directly from sea vessels.

In early May 2025, it became known that Russia is developing naval drones “Katran” (not to be confused with the Ukrainian “KATRAN” — author’s note), which can be equipped with large machine guns and FPV drones. And the Russian Navy has begun the formation of specialized regiments of unmanned systems. New units should appear in all fleets and will be equipped with various types of robotic equipment – from air and ground drones, to marine unmanned boats and underwater vehicles.

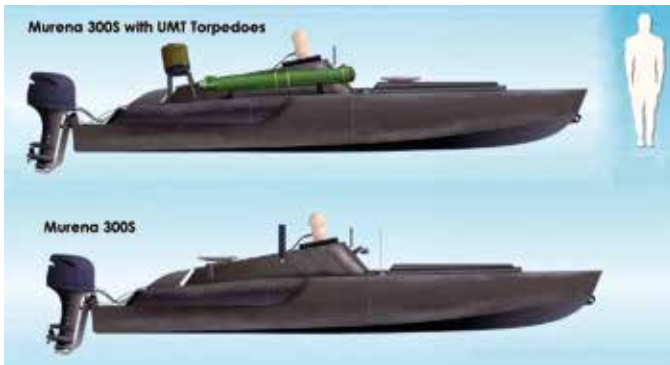


Russian Katran Uncrewed Surface Vessel. Infographics by H I Sutton

The Russians are still only copying Ukrainian robotic combat systems, because they cannot keep up with the achievements of our designers. They are not very successful in this. For example, during the unsuccessful attack on the city of Pivdenne, Odesa region in early June 2025, Russia probably used experimental models of unmanned boats (USB) of the “Murena-300” type. They detonated in some

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strange way when approaching our territorial waters. The Main Intelligence Directorate of the Ministry of Defense of Ukraine noted that there is still a high probability that the Russians will complete the development of unmanned attack boats, which in turn will pose a significant threat to the civilian population of coastal settlements and maritime infrastructure.



USV “Murena-300”. Infographic by H. I. Sutton

According to intelligence data, the USV “Murena-300” has the following tactical and technical characteristics: dimensions (length/width), m — 5.5/1.4; displacement, t — up to 1000; hull material — composite; cruising speed, km/h — 45; maximum range, km — 500; communication and navigation channels — satellite communication channel, inertial navigation system; combat load weight, kg — up to 500; payload — camera with 40x optical zoom, infrared camera, thermal imager.

The first information about the “Murena-300” became known back in 2024. Then in the summer, the “Army-2024” military equipment exhibition was held in Russia, during which a new drone was presented. We suspect that the Russian “Murena-300” is a chaotic attempt by Russia to respond to the success of Ukrainians in the field of military technology. Time will tell. But the fact that the craving for “gigantism “ in the case of the Russian “Murena” indicates an inability to modern innovative solutions. We must also closely monitor the developments of the enemy. In particular, a semi-submersible or submersible strike drone may have interesting technical solutions that will not prevent us from improving our unmanned naval boats/platforms.

Be that as it may, Russian unmanned developments still pose a certain threat to us from the sea. Perhaps

no less than air missile strikes from the sea. We must be ready to repel naval drone strikes or torpedo attacks, develop systems for actively searching for unmanned attack boats and destroying them.



Ukrainian Navy reconnaissance ship “Simferopol” Photo credit: MIL.IN.UA

And so, while the material for this article was being prepared, an event occurred on August 28, 2025: the Russians struck the Ukrainian reconnaissance ship “Simferopol” at the mouth of the Danube. Moreover, they struck it with the help of a naval drone, but which one is not yet known (USV “Murena-300”?). The strike is also confirmed by the Ukrainian Navy. This is really a big problem that needs to be solved immediately!

### Naval drone combat activities in 2023

During 2022–2023, Ukrainian forces increased their ability to strike Russian ships at sea and military facilities in occupied Crimea. This was made possible by the mass production of unmanned surface vehicles and the supply of Western cruise missiles. Innovative tactics using unmanned kamikaze drones allowed them to strike Russian ships at a considerable distance from the coast, all the way to Novorossiysk.

On March 22, 2023, the Sevastopol Bay was attacked for the second time by three naval drones. The third attack occurred on April 24, 2023. The consequences of the two attacks are unknown for certain.



USV’s attack on Russian Ivan Khurs reconnaissance ship. SBU’s Archive.

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On May 24, 2023, the Russian Project 18280 reconnaissance ship Ivan Khurs was attacked by three naval drones 74 km north of the Bosphorus Strait. One drone was destroyed by fire from the ship, while another managed to get close to the ship and damage its stern.

On June 11, 2023, it became known about the attack by 6 USV naval drones and the damage to the Project 864 reconnaissance ship “Priazovye” 300 km southeast of Sevastopol.

On July 17, 2023, at 03:04 and 03:20 local time, explosions occurred on the road part of the Crimean Bridge, destroying the bridge support and span. The operation was carried out by the SBU and the



*The damaged large amphibious assault ship “Olenegorsky Gornyak” and the oil tanker “Sig”. Photo by A. Goncharov*

On August 4, 2023, Russian officials announced a night attack on the Novorossiysk port. The Project 775 Olenegorsky Gornyak, which was located near the shore, was damaged. The Project 21980 P-349 Suvorovets anti-sabotage boat was also destroyed during the attack. The Russian side announced damage to the port infrastructure (oil terminal) in Novorossiysk. This attack was carried out by the SBU’s new high-speed USV Mamai.

On the night of August 5, 2023, 32 miles from the Kerch Bridge, southern approach to the Kerch Strait, an attack by unmanned naval drones was recorded on the Russian Project 52 oil tanker “Sig”, which received a hole on the starboard side in the engine room area. The Ukrainian side admitted that the attack on the tanker was a joint operation of the SBU and the Ukrainian Navy.

In August 2023, the 385th separate brigade of special-purpose maritime unmanned systems was formed as part of the Naval Forces of the Armed Forces of Ukraine. On August 24, President Volodymyr Zelensky presented the newly formed brigade with a battle flag. This brigade became the first unit of this type in the world. Also in August 2023, the Russians

Ukrainian Navy with the help of Sea Baby surface drones.

On July 24, 2023, two naval drones attacked the Project 22160 patrol ship Sergei Kotov 370 km from Sevastopol. The ship was hit, detailed information is not available.

On the morning of August 1, 2023, the Russian Ministry of Defense reported an alleged unsuccessful attack by three naval drones on the Project 22160 patrol ships Sergey Kotov and Vasily Bykov 340 km from Sevastopol. However, intercepted radio messages indicated that a helicopter had been called to evacuate Russian sailors. The specific ship affected and the extent of the damage are unknown.



created a barrier of flooded barges near the Crimean Bridge to protect against Ukrainian unmanned fireboats, however, at the end of November, the barrier partially sank!

On August 17, 2023, 237 km southwest of Sevastopol, SBU Sea Baby naval drones attacked the Project 1135M patrol ship Pytlivy (hit, no detailed information available) and the Project 22160 patrol ship Vasily Bykov. The Russian Ministry of Defense reported that the drones were destroyed by the ships’ onboard weapons.

On September 13, 2023, three naval drones attacked a detachment of ships of the Black Sea Fleet during a sea crossing. According to the Russian Ministry



*Unmanned platform “Sea Baby”. SBU’s archive.*

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of Defense, they were destroyed by the patrol ship Vasily Bykov. At the same time, Russian public forums wrote that there were actually 6 USVs and one of them was able to approach the ship and damage the hull.

On September 14, 2023, the Ukrainian Defense Forces announced an attack by the SBU Sea Baby naval surface drones on two patrol ships of project 22160 “Sergey Kotov” and “Vasily Bykov” and the patrol ship/frigate of project 11356R “Admiral Makarov”. The Russian ships were damaged. Also on that day, a small missile hovercraft of project 1239 “Samum” was probably hit by naval drones, which hit the starboard stern and was towed to Sevastopol.

On October 6, 2023, the Sevastopol Bay was attacked by two USVs. At about 03:30 in the morning, air defense was operating in Sevastopol — approximately over the Sevastopol or Southern Bay.



*Boat pr. 23040 G “Vladimir Kozitsky”. Archive KVIT*

On October 11–13, 2023, the patrol ship of project 22160 “Pavlo Derzhavin” (two attacks within two days) and the rescue tug of project 22870 “Professor Nikolai Muru” were damaged in the Sevastopol roadstead by attacks by Sea Baby naval drones (according to another version, the ships were blown up by naval mines that had been placed the day before by naval drones-barriers).

On October 27, 2023, a large hydrographic boat of project 23040 G “Vladimir Kozitsky” was blown up by a sea mine. The mines were laid by naval drones-barriers.

On November 10, 2023, in the waters of the western coast of temporarily occupied Crimea, the village of Chornomorske, Vuzka Bay — 2 small landing craft of project 1176 “Akula” and project 11770 “Serna” were destroyed. The defeat occurred as a result of a combined attack using several USVs and UAVs.

November 22, 2023, the western coast of temporarily occupied Crimea, Lake Donuzlav area, Novozerne village – USV attack. At night, residents reported loud explosions or gunshots, and in the morning, Russian Telegram channels spread a message about the detection of two Ukrainian USVs near the shore in this area.

On December 30, 2023, the Sevastopol Bay was attacked by USVs (information needs clarification). In the morning, residents of the center of Sevastopol heard a powerful explosion, and local occupation authorities reported the destruction of a Ukrainian naval drone near the Sevastopol Bay.

However, by the end of 2023, the situation in the region had changed dramatically. Most of the surviving Russian military ships were evacuated from Crimea to distant Novorossiysk, and most importantly, the Ukrainian “grain corridor” on the Black Sea resumed its operation.

### **Naval drone combat activities in 2024**

On February 1, 2024, the Main Intelligence Directorate of the Ministry of Defense of Ukraine recorded a strike by Magura V5 drones on the Russian corvette “Ivanovets”. The defeat occurred on the roadstead of Lake Donuzlav, on the western coast of temporarily occupied Crimea.

On February 14, 2024, in the temporarily occupied Crimea, near the city of Alupka, GUR operators sank the large Project 775 landing ship “Caesar Kunikov” with the help of 5 Magura V5 unmanned sea drones.

And already on March 5, 2024, in the temporarily occupied Crimea, in the Kerch Strait area (Cape Takil), the Magura V5 unmanned sea drones sank the Project 22160 patrol ship “Sergey Kotov”.



*Destroyed patrol ship “Sergey Kotov”. Photo by R. Latyshev*

## IN FOCUS: WAR AT SEA

On May 6, 2024, in the waters of the western coast of temporarily occupied Crimea, the village of Chornomorske, Vuzka Bay — two special-purpose speedboats “Rif-75” were destroyed by Magura V5 sea drones.

On May 30, 2024, in the waters of the western coast of temporarily occupied Crimea, the village of Chornomorske, Vuzka Bay and in the Kerch Bay area, 4 transport and landing boats of the project KS 701 (code “Tunets”) and the pilot boat of the project 1459 “Mechta” were destroyed by Magura V5 sea drones.

On June 6, 2024, in the temporarily occupied Crimea, in the waters of Lake Panske, a raid tug (name unknown) of project 498 (codename “Saturn”) was destroyed by Magura V5 sea drones.

On July 19, 2024, in the temporarily occupied Crimea, Magura V5 naval drones hit the project 498 (codenamed Saturn) raid tug “Gousan-5”.

On July 20, 2024, at the roadstead of Lake Donuzlav, on the western coast of Crimea, a transport and landing craft of the KS 701 project (codename “Tunets”) was destroyed by SBU Sea Baby naval drones.

On August 9, 2024, in temporarily occupied Crimea, Magura V5 naval drones destroyed a transport and landing craft of the KS 701 project (codename “Tunets”) and three high-speed motor boats.

On the night of December 6, the SBU used a Sea Baby with a combat module equipped with a large-caliber machine gun. It fired at a Russian helicopter, damaging it and injuring the crew on board. According to the Russian side, the drones were supposed to attack the Crimean bridge, but after the battle they turned around and successfully retreated.

On December 7, 2024, the Ukrainian Navy demonstrated the destruction of three Russian-occupied gas platforms in the Black Sea, causing fires to break out on them. Several naval drones played the role of UAV carriers: the use of a drone was demonstrated both for recording the consequences and as an FPV strike drone.

On December 9, 2024, in the temporarily occupied Crimea, in the Kerch Bay area, a dry cargo barge (name unknown) was destroyed by SBU Sea Baby naval drones.



*“Magura V5” naval drone. Archive of the Defence Intelligence of Ukraine*

On December 26, 2024, in the waters of the western coast of temporarily occupied Crimea, near the village of Chornomorske, Magura V5 naval drones hit the C4236 project tug “Fedor Uryupin”, a former Ukrainian tug captured by the Russians in 2014.

On December 31, the Group 13 special forces unit hit an air target for the first time in history using an MBEC. During a battle in the Black Sea near Cape Tarkhankut, a Magura drone shot down a Russian Mi-8 helicopter using an R-73 missile.

### **Naval drone combat activities in 2025**

On January 5, Ukrainian unmanned drone-carrying boats, which act as “aircraft carriers” for delivering drones, destroyed two Russian Pantsir-S1 anti-aircraft missile and gun complexes and an Osa anti-aircraft missile complex near Skadovsk.

On February 25, Ukrainian naval drone carriers with aircraft-type drones hit the 48Ya6-K1 “Podlyot” radar and the “Pantsir-S1” anti-aircraft missile system on the territory of the occupied Crimean peninsula.

On March 7, unmanned naval boats of the Ukrainian Navy delivered FPV drones by sea to the site of the operation in the occupied south of the country and struck the Strela-10 and Osa-AKM air defense systems.

On April 1, Ukrainian naval drone carriers with aircraft-type drones, in the waters of the occupied Crimean peninsula, struck 2 boats of project 02510 “BK-16”, a boat of project 03160 “Raptor”, and a “Tor-M2” anti-aircraft complex.

On May 2, Ukrainian Sea Baby surface drones attacked a Russian-captured gas rig in the Black Sea using guided missiles and FPV kamikaze drones.

On May 3, Ukrainian Magura V7 naval drones destroyed two Russian Su-30 multi-role fighters near the city of Novorossiysk in the Krasnodar Territory of the Russian Federation with AIM-9 Sidewinder

## IN FOCUS: WAR AT SEA

infrared-guided air-to-air missiles. This was reported by the Main Intelligence Directorate of the Ministry of Defense of Ukraine.



*Magura V7 with AIM-9 Sidewinder missiles. GUR Archive*

On May 19, a combined attack by naval drones using FPV strike drones on gas platforms captured by the Russians (“Boyko drilling rigs” – author’s note ) in the Black Sea.

June 3 The SBU struck the Crimean Bridge for the third time, this time underwater. “Also, the appearance of naval drones in the area of the bridge may indirectly support the version that the Crimean

Bridge supports were blown up by an underwater drone, and not by a conventional overhead charge.”

On June 6, a combined naval drone attack using FPV strike drones on Russian-occupied gas platforms in the Black Sea.

On July 3, a combined attack by naval drones using FPV strike drones in the area of Cape Tarkhankut. The RLM-M from the 1L119 “Nebo-SVU” complex, the RLM-D from the 59H6-E “Protyvnik-GE” station, and the control point of the KU-RLK complex were hit.

On July 6, a combined attack by sea and air drones on Novorossiysk, the base of the Russian Black Sea Fleet.

On August 6, Ukrainian intelligence sea and air drones of the “Ghost” unit struck Russian military infrastructure in occupied Crimea. The strike drones hit a high-speed landing craft of project 02510 “BK-16”. Several radar stations were also hit, in particular, the “Nyebo-SVU” radar, the “Podlyot K-1” radar, and the 98L6 “Yenisey” radar.



*Damaged landing craft pr. 02510 “BK-16” and the corvette pr. 21631 “Buyan-M”. KVVIT Archive*

On August 28, 2025 for the first time, a warship was successfully hit with the help of FPV drones — the Russian corvette (small missile ship of project 21631) “Buyan-M”, which is a carrier of Kalibr cruise missiles. Until now, drones have already attacked boats and ships, but not warships of this rank. Most likely, the strike was carried out by Rubaka and/or UJ-26 “Beaver” drones. As a result of the strike, the ship’s radar was disabled and its side was hit. This happened in the Sea of Azov in the Temryutsk Bay thanks to the skill of the fighters of the special unit of the GUR of the Ministry of Defense of Ukraine “Prymary”. It should be noted that the strike distance was over 350 km. And it

was at this range that both control of the means of destruction and target designation were ensured.

On September 1, another result of the systematic combat work of the special unit of the GUR of the Ministry of Defense of Ukraine “Prymary” in the territory of temporarily occupied Crimea: FPV drones struck the air base of the Rashtists in Gvardiyske, near Simferopol – two enemy Mi-8 helicopters were successfully hit. In addition, the GUR hit the Rashtist tugboat “BUK-2190” pr. 04690 in the bay of Sevastopol.

The war against the Russian invaders continues. Next will be...



*A hit BUK-2190 of the Russian Black Sea Fleet. Photo by A. Brichevsky*

### Strengths and weaknesses of USVs

DataDriven analysts note that the experience of using unmanned surface vehicles has revealed a number of their strengths and weaknesses. Strengths and weaknesses manifest themselves differently depending on the type of maritime unmanned vehicle.

The strengths include the following:

1. **The main advantage:** the possibility of remote control, which opens up new tactical applications due to the safety of the crew.
2. **High maneuverability:** naval drones demonstrate a high level of survivability under enemy fire, although they are relatively effectively engaged by enemy helicopters and dense barrage fire from ship-based small arms.
3. **Low visibility:** Ukrainian MBEC attacks often came as a surprise to the enemy, who did not have time to notice their approach in time. It was thanks to the surprise factor that about a third of the Black Sea Fleet ships were destroyed.

The weaknesses include the following:

1. **The need to maintain control:** to change coordinates, the drone must be constantly monitored by a central command post. Loss of communication due to the operation of electronic warfare means makes the drone uncontrolled and unable to hit a moving target.
2. **The need to constantly change the coordinates of targets:** surface naval drones need approximately 5–6 hours to move from Odesa to Sevastopol and beyond. During this time, a naval target may change its location several times.
3. **Not very high speed:** although the speed of naval drones is up to 40 nautical knots (almost 72 km/h), this is clearly not enough when it comes to the mobile ability to hit fast-moving targets.

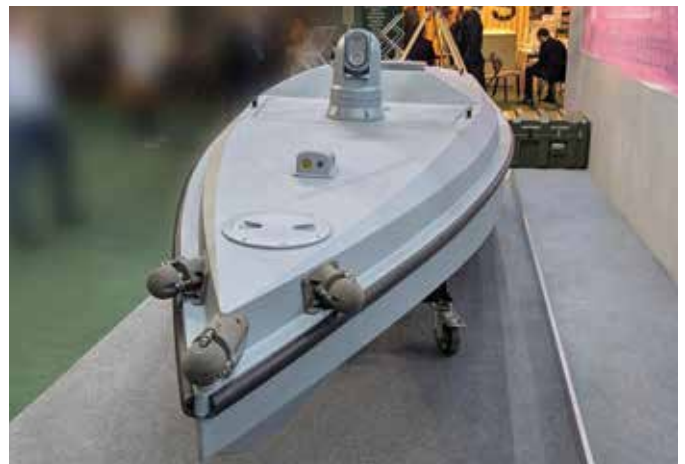
Further development of naval drones as a new effective type of weapon makes it possible to maximize the effectiveness of their use on the battlefield.

### Conclusions

Naval drones are a development that completely changed the situation on the Black Sea in favor of Ukraine and the idea of modern naval warfare. Ukrainian development was ahead of its time, and that is why the methodology for its use is now being studied by leading intelligence agencies, navies and armies around the world. Successful attacks on the Crimean bridge and dozens of Russian ships have proven the effectiveness of our strategy and tactics.

So, Ukraine has created a sophisticated unmanned complex for fighting at sea. Some of the unmanned boats are kamikaze drones. And these are models with both an enlarged warhead for destroying port infrastructure and a regular one for attacking ships. Such drones were used to attack the bases of the boat forces in Western Crimea, the Boyko drilling rigs, etc. Also, some of our USVs carry air defense delivery vehicles capable of landing not only helicopters, but also airplanes. Some carry FPV drones and now the targets are communication nodes, radars and air defense complexes. Some carry unguided rockets. In fact, this is an unmanned Grad. Destruction of barracks and warehouses from the sea is an important matter. There are also auxiliary tasks: this is the distribution of electronic warfare, the laying of obstacles, mines, and the destruction of enemy auxiliary vessels near the Kerch Bridge. In the summer of 2025, the achievements of the Magura naval drone project to destroy air targets were entered into the

Ukrainian book of records.



*The warhead of the USV "Magura V5". Photo by Yu. Kushchenko*

## IN FOCUS: WAR AT SEA



*“Magura” – in the Ukrainian Book of Records. Photo from the diploma award ceremony on July 1, 2025. From left to right: officers of Group 13, representative of the Defence Intelligence of Ukraine Andriy Yusov, president of the Centre for Global studies “Strategy XXI” Mykhailo Gonchar, Lieutenant General Kyrylo Budanov.*

Another interesting thing is the very name of the unmanned boats. How to “baptize” them, said military analyst, researcher of Ukrainian history Sergii Shumsky. He suggested giving our USVs a good generic name – **unmanned fireboats** ... Maybe it will catch on!

During these more than three and a half years of brutal bloody war, Ukrainian defenders have come a long way: from the first unmanned “boats” thrown into shallow water that lost control, to a group attack of a dozen USVs, hunting for helicopters and destroying “Pantsyrs”, “Os” and other “junk” with the help of “unmanned aircraft carriers”. In essence, the Security and Defense Forces of Ukraine have made a revolution at sea — of course, not without Western technologies, communication channels, target designation, British, German and American developments. But the ideas and their practical implementation are entirely ours — Ukrainian!

Ukrainians were, are and will be a maritime nation! Because we are worth it! Glory to Ukraine!

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organization “Kyiv Military Historical Society”. Author and co-author of the books “Hunting for the cruiser “Moscow” (2025), “Chronicle of the war in the Azov and Black Sea operational zones. 2024” (2025), “Chronicle of the war in the Azov and Black Sea operational zones. 2023” (2024), “Chronicle of the war in the Azov and Black Sea operational zones. February–December 2022” (2023), “Dnieper river monitors of the “Zheleznyakov” type, order SB-37” (2020), “Monitor “Smolensk” (“Krakow”) three fates” (2018) and a number of monographs and articles on military history.

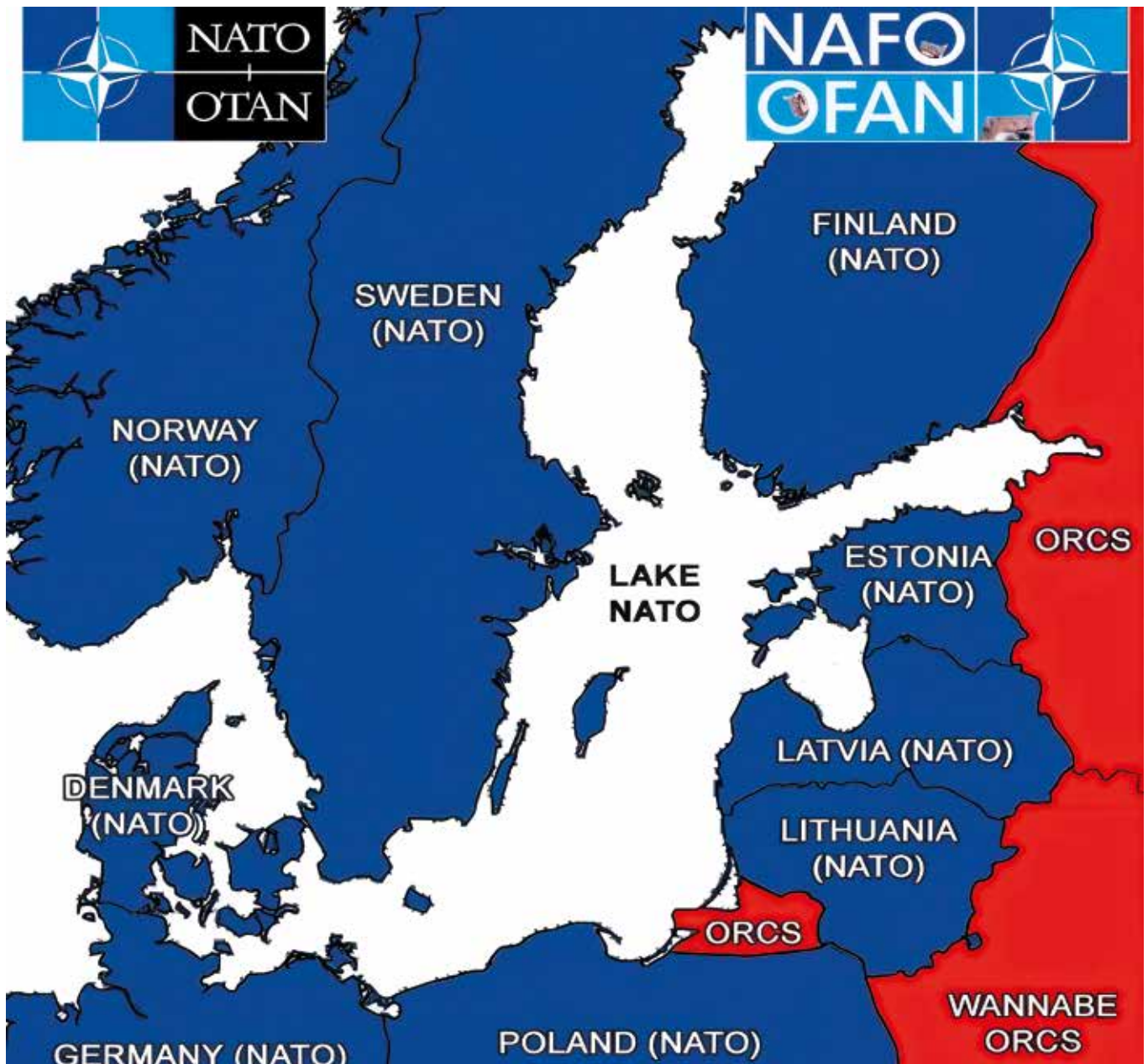
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***Volodymyr Zablotskyi,***

Captain 1st Rank ret., Defense Express magazine columnist,  
Researcher at the National Military History Museum of Ukraine

## The Baltic Theater of Operations: Who will Defeat Whom?

“ When in the current expert discourse the possibility of Russian aggression against the Baltic states and/or Poland are discussed, it usually refers to a large-scale invasion of the Russian army from the territory of Belarus into the territory of Lithuania and Poland (“Suwalki Corridor”) under the cover of the “West” series of exercises. Or about the capture of the Estonian city of Narva by the “little green men” like what happened in Crimea in the spring of 2014. Meanwhile, such an invasion will also have a maritime component, which is due to a number of factors, primarily the isolated location of the Kaliningrad exclave, sandwiched between Poland and Lithuania.



The Kremlin's main tool in the maritime direction is the Baltic Fleet (BF), the operational-strategic unit of the Russian Navy in the Baltic Sea. In the military-strategic dimension, the shallow Baltic Sea, elongated from south to north and east, with its numerous islands, is an isolated theater of operations. This means the possibility of effective use of surface ships, submarines, mine weapons, aviation and coastal missile systems.

### History in retro style

The Baltic Sea has always played a significant role in the development of maritime trade, fishing and the economy of coastal countries as a whole. During wars, it was the scene of naval battles, troops were transported by sea, landings were made, etc. An important role in this has always been played by the possession of a number of key islands by the parties, primarily Gotland and the Åland Islands.

Russia, whether tsarist, Soviet, or post-Soviet, has always viewed dominance in the Baltic Sea as a prerequisite for strategic success in land wars. For hundreds of years, the Russians have sought to control the Baltic, which is vital to them economically, militarily, and for security reasons, and today also for securing critical energy routes.

Moscow's aggressive policy in the region from the very beginning was based on the seizure of key territories, blockade and neutralization of the fleets of its opponents. In historical retrospect, Russia fought 11 times in the Baltic Sea against Sweden, gradually seizing its territories, including the island of Gotland.

***For reference: Gotland is the largest island in Sweden with an area of 2994 sq km, located 100 km from the mainland of the country. It has belonged to Sweden since 1679. The geographical location of Gotland in the middle of the Baltic Sea determines its strategic importance as a key island in the event of a potential military conflict or war in this region. Its importance can be compared to Crimea on the Black Sea, that is, whoever controls Gotland controls the Baltic.***

The first to capture the island in 1717 was Count Fyodor Apraksin, the future Admiral-General and a famous embezzler during the reign of Peter I. The Russian army's presence on Gotland was

accompanied by incredible cruelty and violence towards the local population. Having plundered and burned everything of value, the Russians headed for other Swedish territories.

A coastal defense battleship of the Imperial Navy, which on May 15, 1905, together with the remnants of the Russian squadron defeated in the Battle of Tsushima, raised the white flag and surrendered to the Japanese, was named after Apraksin. The trophy later served in the Japanese fleet ("Okinoshima").

The next Russian occupier of Gotland was Rear Admiral Nikolai Bodisco. He acted according to an insidious plan developed personally by Emperor Alexander I. On April 22, 1808, a landing party of 1,800 people with cannons arrived from Libava on Gotland on several ships under Swedish flags (!). The next day, Bodisco accepted the surrender of the Swedish governor, who simply did not have the troops to defend it. The admiral immediately declared the island the Russian province of Gotland, and himself its governor, for which he received the Order of St. Anne.

But the epic "Gotland is ours" did not last long, only 22 days. On May 17, when the "little green men" of the unlucky conqueror were blocked by the superior forces of the Swedes, the admiral surrendered without a fight. The Russians gave the Swedes their cannons and all their weapons, receiving in return the opportunity to leave the island. For this defeat, Bodisco was stripped of his order on May 26 and dismissed from service. And history received a convincing example of how "Russians do not surrender."

The Åland Islands also have their own interesting history. In the XII – XIX centuries. they belonged to Sweden, and after the defeat in the Russo-Swedish War of 1808–1809, under the terms of the Treaty of Fredrikshamn, the archipelago, as part of the newly created autonomous Grand Duchy of Finland, became part of the Russian Empire.

***For reference: The Åland Islands is an archipelago at the entrance to the Gulf of Bothnia of the Baltic Sea, which have an advantageous military-strategic location, covering the entrance to the Gulf of Finland. Possession of the archipelago allows you to control the sea routes leading to St. Petersburg, Helsinki and Stockholm.***

In 1832, the Russians built the Bomarsund fortress on the Åland Islands, which was captured by an Anglo-French landing force during the Crimean War. After the war, the archipelago was returned to Russia, but demilitarized. However, during World War I (1914–18), with the permission of the Allies, Russia again built fortifications and artillery batteries there. Russian and British submarines were based on the Åland Islands.

In 1915–16, the Germans were about to seize the archipelago. They were preparing an amphibious operation with a subsequent offensive through Finland to the Arctic coast in order to cut off Russia from Western arms supplies. And they eventually partially succeeded.

After the collapse of the Russian Empire, a referendum was held on the islands, in which the local population voted in favor of the archipelago's return to Sweden. Based on this, Stockholm tried to regain the Åland Islands and landed troops there in February 1918. They occupied the entire archipelago without a fight, disarming the Russian units present there, and Sweden was not destined to realize its historic chance.

The obstacle was Germany, which had its sights on the islands and had already landed its troops on March 5, 1918. The Germans came at the request of the “white” government of the already independent (since December 1917) Finland, to put an end to the civil war that was raging in the country. The German occupation of the Åland Islands lasted from March to September 1918, until the fall of the Second Reich and the end of World War I.

At the same time, there was an armed provocation by the Red Baltic Fleet, then trapped in the Gulf of Finland, against independent Estonia, which had maintained neutrality in the Russian Civil War. The Bolsheviks planned to land a landing party on the Estonian island of Nargen, and as part of the preparations, on December 26, 1918, the destroyer Spartak scouted the port of Revel (now Tallinn) and fired on Nargen.

In response, the British fleet, allied to the Estonians, fired on and forced the surrender of two Red destroyers, Spartak and Avtroil, which lowered their red flags. The first captured the commander of the ship's detachment, a member of the Baltic Fleet's

naval command and Lenin's associate Fyodor Raskolnikov. He was later exchanged for British officers captured by the Reds, and both ships served in the Estonian fleet as *Wambola* and *Lennuk*.

As for the Åland Islands, in October 1921, based on the decision of the International Conference, the Åland Convention on the demilitarization and neutrality of the archipelago within Finland was signed. Finland itself, like neighboring Sweden, officially maintained a neutral status for a long time.

But what does the neutrality of small countries mean to Moscow? The Soviet–Finnish war of 1939–40 is a vivid example. It was another attempt by the empire, this time the Red Empire, to regain Finland along with the Åland Islands and continue its expansion westward. It is well known how Moscow provoked this war and how it all ended.

### **About Moscow's respect for neutrality.**

According to the memoirs of the former Swedish Minister of Defense Sven Anderson, in 1971, during his visit to Moscow, where he delivered a report to the military and diplomats on the neutrality of his country, something unexpected happened. The head of the Main Political Directorate of the Soviet Army and Navy, Army General Alexei Yepishev, who was present at the event, commenting on the speech of the Swedish minister, stated that in the event of war with the neutrality of Sweden “...no one will take into account, just as no one is going to respect neutral countries.”

Ten years later, another incident occurred in the Baltic Sea, related to the attitude of Muscovites to Swedish neutrality. On October 27, 1981, the Soviet diesel-electric submarine S-363 pr.613 (“Swedish Komsomolets”), due to a navigator's error, ran aground on rocks near the main base of the Swedish Navy in Karlskrona at night. It was not possible to get off the rocks on its own, and soon the wrecked S-363 was discovered by Swedish fishermen and the military was called.

A loud international scandal broke out. To free the distressed submarine by force, Moscow immediately sent a detachment of BF warships to the shores of Sweden, led by the cruiser Oktyabrskaya Revolutsiya (under the flag of the 1st Deputy Commander

of the Fleet). The detachment stood at full alert within artillery fire range and waited for an order to intervene. Fortunately, the issue was resolved without shooting, through diplomacy. On November 1, a Swedish tugboat towed the S-363 to clean water, and the USSR later paid \$1 million for it.

### Strategy and Marine Assaults

Officially, the tasks of the BF during the war were declared to be fighting the enemy fleet, supporting the combat operations of its troops on the coastal flank, preventing the landing of enemy landings and the landing of its own troops, etc. However, in reality, the landing component aimed at capturing strategically important islands (including neutral countries) was a priority for the descendants of Apraksin and Bodisco.

The main strategic landing operation of the Cold War era was to be the capture of the Denmark Straits by the Warsaw Pact (WP) fleets. The landing was to ensure a flanking breakthrough into Western Europe from the territory of the GDR of powerful armored and mechanized formations of the WP troops and the defeat of NATO in Europe.

A total of several dozen large (LLS) and medium (MLS) landing ships from the fleets of the three WP countries (USSR, Poland, GDR) were to be involved in this landing, and cruisers with 152-mm and 180-mm artillery and destroyers with 130-mm were to provide fire support for the landing.

And for the landing of advanced assault units, the USSR even created a new class of hovercraft (“Skat”, “Dzeyran” and “Zubr”), which passed over mine and anti-landing obstacles at high speed and delivered equipment and paratroopers of the first wave directly to the shore.

***For reference: A similar scenario could only be implemented if the WP struck first, that is, it would be the aggressor (!). And another little-known fact: after the unification of Germany, orders and medals such as “For reaching the English Channel” were found in the Ministry of Defense of the former GDR, prepared in advance for awarding.***

Every year, the “brotherly” fleets carefully practiced their actions in case of the landing of the mentioned strategic landing force, which was usually

accompanied by peaceful rhetoric. This was put to an end only after the unification of Germany and the cessation of its existence of WP and the USSR itself (1991).

Then came the decline in the military activity of Russia, as the self-proclaimed successor of the USSR at sea, and the collapse of the reduction of the Baltic Fleet. Dozens of ships, cruisers, destroyers, landing ships, etc. were massively scrapped. The Baltic Fleet also lost a number of bases in Estonia, Latvia, and Lithuania, which had regained independence.

The fleet was divided into two parts. Its main forces are based in the Kaliningrad region (Baltiysk), and the rest in the Leningrad region (Kronstadt and Lomonosov), at a distance of more than 1,000 km. And the accession of Finland and Sweden to NATO in 2023 and 2024 further complicated the geopolitical situation for Muscovites, turning the Baltic Sea into an inland sea of the Alliance.

Unfortunately, despite all the obvious changes that have occurred since the relatively peaceful collapse of the former USSR, imperial thinking in Russia has proven surprisingly resilient. And as soon as the economic situation allowed in post-Soviet Moscow, they started talking again in terms of amphibious assaults and the seizure of foreign territories. And although there was no longer any talk of a strategic landing in the Danish Straits, the threat to the islands in the Baltic Sea began to grow again.

### Captive to imperial ambitions

After the annexation of Crimea in 2014, Moscow returned to the practice of conducting naval exercises in the Baltic, the scale of which gradually increased. In March 2015, the Baltic Fleet, with the participation of 33 thousand paratroopers, practiced the capture of the islands of Gotland, Bornholm and Åland. These exercises were distinguished by a number of features, using the surprise factor with the capture of beachheads on the coast in a short time (5–6 hours). The landing forces operated in radio silence and maximum stealth, with the preliminary landing of sabotage and reconnaissance units.

And in April 2018, the Baltic Fleet held naval exercises with combat missile firing by surface ships (a frigate and 3 corvettes) and aircraft in three areas

of the southern and southeastern waters of the Baltic Sea (between Sweden, Poland, and Lithuania).

In this way, the Kremlin, with St. Petersburg, which it believed was blocked by NATO countries, and the territorially separated Kaliningrad region, was looking for ways to improve its position in the region. Moscow did not hide the fact that in the event of Sweden (and Finland) joining NATO, the Russian Federation would be forced to take “forced action” – in the context of the possible seizure of important islands belonging to these countries.

In January 2022, Russian military expert and member of the Civic Council under the Ministry of Defense of the Russian Federation Igor Korotchenko published on one of the propaganda channels a “plan to seize Gotland Island as part of a military operation against the Baltic countries.” The plan was to turn the island into a Russian military base.

And this is quite understandable, because it is Gotland’s proximity to the Kaliningrad exclave and the Baltic countries – Latvia, Lithuania and Estonia – that determines its strategic value for protecting NATO’s eastern flank in the event of a military conflict with the Russian Federation. And aggressive propaganda rhetoric has found its reflection even in Russian doctrinal documents.

Thus, on July 31, 2022, the Russian Federation adopted a new naval doctrine, which is considered more confrontational towards the United States and NATO than the previous version. The doctrine outlines actions aimed at ensuring the interests of the Russian Federation at sea by all available means, including military ones. In the context of the Baltic, it speaks of the need to further expand Russian ports and the capabilities of the BF, in particular “to ensure the economic and military security of the Kaliningrad region.”

As the document directly states, “the decisive factor in the Russian Federation’s relations with the North Atlantic Alliance remains the unacceptability of plans to transfer NATO’s military infrastructure to its borders and attempts to give the Alliance global functions” (!). Therefore, a completely logical step in response was to strengthen Sweden’s military presence on Gotland even before this country joined NATO.



*Ships of the Russian Navy in Baltiysk: Corvette pr. 20380 “Soobrazitelnyi” (left) and destroyer pr. 956 “Nastoychiviy”*

### **Baltic balance**

To understand the capabilities of the parties in the potential Baltic theater, one should compare the potentials of the fleets, which as of mid-2025 look as follows. The Russian Navy’s Baltic fleet includes the following ships and boats: 1 submarine Pr.877 (“Dmitrov”), 1 destroyer Pr.956 (“Nastoychiviy”), 2 frigates Pr.1154 (“Neustrashimy” and “Yaroslav Mudry”), 4 corvettes Pr.20380, 5 small missile ships (SMS) Pr.21631 (Buyan-M type) and 5 SMS Pr.22800 (Karakurt type), 3 SMS Pr.1234.1 (Ovod type), 19 combat boats (including 5 missile ships Pr.1241.1M), 6 small anti-submarine ships (SASS) Pr.1331M, 2 naval minesweepers Pr.12700, 3 base and 5 raid minesweepers, 4 large landing shipd (LLS) Pr.775, 2 small landing ships (SLS) on an air cushion Pr.1232.2, 9 landing boats (3 Pr.21820, 3 Pr.11770 and 3 Pr.1176), as well as reconnaissance, rescue and other ships and boats. The Baltic Fleet is also armed with coastal missile systems “Bastion” and “Bal”.

The Air Force’s aviation is armed with Su-24M2 bombers (Chernyakhovsk), Su-27SM3 heavy fighters (Chkalovsk), as well as Mi-8, Mi-24, Ka-27, Ka-29 helicopters and An-26 transport aircraft.

Also, several ships of the Black Sea Fleet are temporarily stationed in the Baltic, which at the time of the closure of the Turkish Straits due to the war in February 2022 were outside the Black Sea: the frigate Pr.11356R “Admiral Grigorovich”, the SMS Pr.21631 “Orekhovo-Zuyevo”, 2 submarines Pr.636.3 “Krasnodar” and “Novorossiysk” (under repair), and the newly built corvette Pr.20380 “Merkury”.

## IN FOCUS: RUSSIA-EUROPE

The Kremlin's aggressive plans in the region are being countered by the national navies of the 9 NATO countries that have access to the Baltic Sea. Today, they have the following number of ships and boats of the main classes:

Poland: 2 frigates, 2 corvettes, 3 SMSs, 1 submarine, 1 command ship, 5 mine transport ships, 13 minesweepers. Additionally, the construction of 3 frigates, 2 reconnaissance ships and 3 minesweepers is ongoing, and all 3 SMSs are being modernized.

The purchase of ultra-small submarines, mobile remotely controlled mine clearance systems at sea and unmanned boats from Italy is being prepared, and the deployment of a coastal missile brigade (48 anti-ship missile launchers) is being prepared. The Polish Naval Special Forces *Formoza* is practicing at sea the tactics of using *Rampage* naval drones (USV) as part of a swarm to strike surface targets and critical infrastructure.

Germany: 11 frigates, 7 corvettes, 19 minesweepers, 2 landing ships and 6 submarines. Construction of 6 new frigates and 3 corvettes is underway.



Polish USV *Rampage*

Denmark: 8 frigates, 14 corvettes, 6 minelayers, 2 control ships, 12 minesweepers, 28 combat boats (including 2 missile boats).



Danish patrol frigate *Thetis*

Norway: 4 frigates, 6 corvettes, 6 minesweepers and 6 submarines, plans to acquire new frigates and submarines together with Germany;

Sweden: 11 missile corvettes (including 5 stealthy ones), 7 minesweepers, 12 combat and patrol boats and 5 submarines (including 2 with air-independent power plants);

Finland: 8 patrol ships, 4 missile boats (after modernization, equipped with light anti-submarine torpedoes and variable depth sonar), 6 minelayers, 13 minesweepers, 2 landing ships and up to 10 landing craft. Construction of 4 new multi-purpose corvettes and 17 landing craft is underway.

Lithuania: 4 patrol ships, 1 control ship and 3 minesweepers.

Latvia: 2 minelayers, 5 patrol ships, 4 minesweepers and 6 patrol boats. The minesweepers are being modernized with the replacement of mine countermeasures weapons with an integrated unmanned mine search and neutralization system (*Unmanned Mine Countermeasures Integrated System, UMIS*).

In December 2024, tests of the new mine-torpedo *USV Vidar FP* were completed, which is capable of carrying 6 barrage mines or 2 torpedoes, light and heavy. Along with this, it is planned to purchase shore-based anti-ship cruise missiles.

Estonia: command ship, 3 minesweepers and 5 patrol boats. Work is underway to create its own unmanned combat boats, the first of which should be ready in 2026. In 2021, it was reported that it would purchase BLUE SPEAR (5 G SSM) anti-ship missile systems with a firing range of up to 290 km. Estonia also purchased sea mines from Finland.

Ships of the Baltic States navies actively participate in *Standing NATO Mine Countermeasures Group One (SNMCMG1)*. The main platform for cooperation between the Baltic States' navies is the *Baltic States Naval Squadron (BALTRON)*, established in 1998 to "ensure continuous rapid response capabilities at sea both in peacetime and in times of crisis."

Finally, an American air defense base has been operating in the city of Redzikowo in northern Poland since 2024, which, in the event of war, together with the US Army contingents deployed in Poland and the Baltics, will certainly not remain on the sidelines.



*Lithuanian mine-torpedo USV Vidar FP under testing.*

As we can see, the comparison of forces at sea is clearly not in favor of the Baltic Fleet, which in the new geopolitical realities is only a pitiful shadow of its former power. Even the fleets of Sweden and Finland together have a quantitative and qualitative advantage over the Baltic Fleet, inferior only to the missile potential of the coastal units. And in general, the fleets of NATO allies have a total quantitative and qualitative advantage over the Baltic Fleet in the Baltic Sea, and this is without taking into account the potential of other Alliance countries. So there is no need to talk about any offensive actions by the Kremlin in the region yet.

It is noteworthy that the Allied Navy has a large number of minelayers and mine-sweepers – this is direct evidence of readiness for the widespread use of mine weapons in the event of a conflict to block Russian ports and sea communications. After all, in the conditions of the shallow Baltic Sea, mine weapons have always been highly effective.

### **Potential scenarios for the Baltic Theater of Operations**

The maritime direction of the Muscovites' aggression involves several key points determined by the development of the situation, which should be paid attention to. According to expert forecasts, in the event of an open conflict in the Baltics, the BF will try to gain supremacy at sea and in the air with the support of aviation in order to change the situation in its own favor, ensure freedom of action and communications, and dictate the terms to NATO.

First, to dominate the Baltic and ensure their own sea communications between St. Petersburg/Kronstadt and Kaliningrad, the Russians will first need to capture Gotland (330 km from Kaliningrad) and the Åland Islands, and then hold them.

The capture of Gotland, followed by the deployment of strike and anti-aircraft missiles on the island, would allow the Russians to block NATO forces from accessing the main ports of the Baltic states and Poland by sea and air (A2/AD restriction). The purpose of the blockade is to prevent the logistics and sea transfer of reinforcements and military equipment of NATO countries.

Secondly, the blockade of the Baltic and Polish ports by the BF, where the Alliance's Forward Presence Forces are stationed, will take place simultaneously with the invasion on land. According to the Kremlin's plans, the blockade will accelerate the capture of the Baltic states and part of Poland in order to subsequently dictate to the West its own terms for ending the war.

Thirdly, the presence of Caliber missile carriers in the Air Force (a total salvo of up to 80 missiles) allows it to keep targets under its sights almost throughout Europe and deliver pinpoint strikes on the most important of them.

Also, taking into account the geographical factor, Russia is able to effectively dominate significant areas of the Baltic Sea and in the air, using missile systems located in the Kaliningrad and Leningrad regions.

First of all, these are the Iskander-M Operational-Tactical Missile Systems with a range of up to 500 km (or 2,000 km in the Iskander-K version), capable of hitting stationary or mobile targets almost throughout Sweden and from southern Poland to central Finland. In addition, the Iskander-M can carry a nuclear warhead.

Furthermore, the coastal missile systems "Bastion-P" with supersonic cruise missiles P-800 "Onyx" (range over 500 km) and "Bal" with Kh-35 "Uran" missiles (up to 260 km) are deployed on the territory of the Kaliningrad exclave.

Fourth, the Baltic Fleet is preparing for the large-scale use of unmanned combat boats (drones) in the Baltic. It is known that up to 7 different USV projects

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have been created in the Russian Federation and naval drone regiments have been formed. From the territory of the Kaliningrad region, the Baltic Fleet's naval drones can threaten not only ships, but also, first of all, critical maritime infrastructure facilities of the coastal countries of the EU and NATO.

On July 23–27 of this year, as part of the July Storm exercises, the ships of the Ukrainian Navy first practiced algorithms for repelling surface drone attacks and demonstrated the use of the latter with a demonstration of the explosion of a floating target by a kamikaze drone.



*Russian Alexander Shabalin large landing ship Pr. 775.*

However, to implement all of the above, first of all, to carry out a surprise landing of a more or less serious marine assault on Gotland, the BF is critically short of forces and means. Its marines are involved in the war against Ukraine, and 3 out of 4 LLSs in February 2022 moved to the Black Sea to participate in the strategic marine assault on Odesa, which never took place. One of them (“Minsk”) was destroyed on September 13, 2023 by a direct hit from the Storm Shadow cruise missile in Sevastopol.

The prospects for the return of the rest, currently hiding in Novorossiysk, to the Baltic depend on the timing of the end of the war and the opening of the Turkish straits. The BF cannot count on the transfer of the LLS from the Northern Fleet, which also lacks such ships for similar reasons.

Thus, currently the Russians have only one LLS in the Baltic (“Alexander Shabalin”), 2 medium landing ships on an air cushion, 9 landing craft and one destroyer for fire support, and this is not enough for even a tactical landing.

It should also be noted the weakness of the anti-submarine and anti-mine forces of the BF, which are also divided into two locations. As a result, this will make it easier for the allies (Sweden, Finland, Poland, Estonia and Latvia) to use minefields in the event of a conflict at sea, including by means of covert mining from submarines or naval drones. This involves blocking the approaches to Gotland and the Åland Islands, the main ports of the Russian Federation and the Gulf of Finland.

It is interesting how, during this year's BALTOPS-25 exercises in the Baltic, the Swedes showed the presence of the low-noise submarine *Södermanland* in the area, delicately reporting that... the submarine had run out of coffee for the coffee machine (!). It surfaced and, having received coffee from the sailors of the British ship *Dasher*, dived and the exercises continued.

According to expert estimates, preventing a Russian landing on Gotland and Åland is a key condition for maintaining the initiative at sea, deterring the aggressor and forcing peace. After all, in this case, if the conflict does not go beyond the Baltics, the BF will face the prospect of its divided forces being blocked in bases and the threat of ships being destroyed near its own berths. Moreover, depending on the situation, the Alliance forces can even relatively easily capture the Kaliningrad exclave.

If the conflict goes beyond the Baltic theater of operations, this will require the Allies to launch preemptive strikes against other strategic military targets, warehouses, arsenals, Northern Fleet bases, etc. But that's a separate story.

The Russian headquarters are carefully studying the experience of the war they lost on the Black Sea and are coming to the disappointing conclusion that the very presence of the Baltic Fleet in the Baltic Sea, which in combat conditions will be shot through with missiles from both shores and from the air, is very risky. It is admitted that the Baltic Fleet “is in mortal danger,” but there is no consensus on what to do about it yet.



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# How to Protect Europe from the Sea: Lessons from the Russian–Ukrainian War for the Baltic and North Sea Areas

(from a report at the German Marshall Center on October 7, 2025, Garmisch-Partenkirchen)

“ The article is devoted to Russian approaches to actions at sea, especially in the context of the defeat of European critical infrastructure located both in the maritime and coastal zones. Numerous cases of the appearance of unknown drones both in the Baltic and North Seas, and over a number of airports, military bases and defense enterprises in Western European countries, actualize the topic of war at sea and the protection of critical infrastructure. First of all, this concerns energy infrastructure and the threats that Russia poses to Europe in the areas of its concentration in the seas adjacent to the continent.

## The Doctrinal Logic of the Adversary

The Russian Naval Doctrine, approved in 2022, indicates both the possibility of conducting hybrid operations and legalizes the use of military force in areas of the World Ocean that are important to Russia:

“103. The Russian Federation for the implementation and protection of its national interests:

26) in the vitally important areas (zones) of the World Ocean, along with political, diplomatic, economic and informational methods, fully uses military force methods, including naval presence, demonstration of the flag and force, if necessary, uses military force...”

At the current stage of Russia’s war against Europe, Moscow is focused on hybrid actions. The main risks during a hybrid war are:

- cyber attacks on energy networks;
- covert sabotage actions disguised as technical incidents;
- direct sabotage actions by anonymous perpetrators.

When transitioning to conventional warfare, the

main risk is associated with kinetic impacts on key infrastructure facilities with the aim of their dysfunction and / or their capture. On the example of Russian aggression against Ukraine, you can see how this is being carried out. The capture of the Zaporizhzhia NPP and the subsequent nuclear blackmail of Ukraine and Europe with the threat of a nuclear incident, systematic damage to power generation, energy networks, fuel bases, refineries, gas compressor stations, port facilities. This is done through massive combined air attacks using drones, cruise and ballistic missiles, and in the frontline zone – by the use of Guided Aircraft Bombs (GABs), by aviation, and long-range MLRS by ground forces. The NPPs of Finland and Sweden are “comfortably” located for their capture by a marine landing.

For the effective use of forces and means, it is necessary to provide appropriate reconnaissance capabilities. Since the middle of the last decade, the command of the Russian Navy has clearly set the goal of “building larger underwater surveillance systems in the Baltic, the North and the Far East.” **Whoever has more “eyes and ears” in the sea has the advantage there.** In the Arctic zone, the Kara and Barents Seas, Russia is creating the Harmony underwater monitoring system.

The Maritime Board of Russia, which has traditionally

been subordinate to the Russian government, after the adoption of the Maritime Doctrine now functions as a body under the President of the Russian Federation. This indicates the increased priority for Russia of maritime policy. The Board was headed by Putin's longtime associate Nikolai Patrushev. It is significant that in this, 2025, on Putin's instructions, the Northern Sea Route project was transformed into the Trans-Arctic Transport Corridor – from Vladivostok in the east to St. Petersburg and Kaliningrad in the west. In parallel, this is also a corridor from Chinese ports to European ports. A kind of Russian-Chinese synergy. This approach fits perfectly into the “turn to the East” policy, proclaimed ten years ago by Putin. This means that the western end of the Trans-Arctic Corridor, that is, the Barents, Norwegian, North and Baltic Seas, will be in the zone of special attention from the point of view of ensuring the security conditions by the Kremlin in the Russian understanding of them, since the “aggressive NATO and the EU” dominate these seas. The alliance has “aggressively expanded” and “absorbed” neutral Finland and Sweden, thereby creating an additional threat to Russia. And therefore, Russia must respond to the threats that have arisen. Such is the Kremlin's logic.

Europe is surrounded by seas. The seas around Europe are full of critical infrastructure – fiber-optic communication lines, energy cables, gas pipelines, production platforms. This is especially true of the western Baltic and North Sea areas. Nuclear power plants, LNG terminals, oil terminals, offshore wind farms are located on or near the coast. Russia sees all of these as critical vulnerabilities for Europe. In fact, they are.

### **Black Sea specifics of Russia's actions**

How Russia can operate in the seas around Europe can be seen to a large extent by the example of its actions in the Black Sea since the very beginning of the aggression against Ukraine in 2014.

The hybrid occupation of the Ukrainian peninsula of Crimea has gone beyond its borders. In the northwestern sector of the Black Sea, Russian special forces seized Ukrainian gas drilling and production platforms in early March 2014. As civilian infrastructure, they were not protected in any

way. Later, the occupiers installed radar equipment – Neva-type radars – on a number of the captured platforms. The goal is to control the air and surface space of the northwestern sector of the sea between Crimea and the coast of the Odesa region.

During the fighting in the Black Sea after the full-scale invasion of Ukraine in 2022, the platforms were used to house radio reconnaissance equipment and electronic warfare equipment. Some platforms also served as intermediate storage points for technical equipment and ammunition for sabotage operations by Russian special forces on the Ukrainian coast. In June 2023, the Ukrainian Navy from the coastal missile systems “Neptune” launched missile strikes on the platforms, and in September the special forces of the Main Intelligence Directorate of the Ministry of Defense of Ukraine carried out a successful operation to clear these points. In the future, periodic control raids are carried out when there are signs of enemy forces and equipment on the platforms.

Let's consider the Baltic and North Sea areas, which are NATO and EU seas. Both seas form one of the world's densest networks of underwater digital infrastructure, connecting European countries to global internet highways. **In the Baltic Sea:** ~10,000 km of underwater telecommunications cables, **in the North Sea: up to** ~30 thousand km.

In the North Sea there are over 1,200 oil and gas platforms of various types, 35 main high-pressure submarine gas pipelines, 10 main power cables transmitting 35 GW of electricity (equivalent to 35 standard nuclear power units), over ~4,000 offshore wind turbines, over 70 telecommunication fiber-optic cables. The Baltic Sea has less underwater infrastructure – 2 functioning submarine gas pipelines, 6 main power cables transmitting 3.9 GW of power, over 30 telecommunication cables, about 700 wind turbines with a total capacity of 3.1 GW.

Given the density of critical infrastructure both on the seabed and around the seas, the task of protecting it from malicious actions seems quite complex. Especially if you take into account the advanced technologies of hybrid warfare, when you cannot clearly determine what happened — a technical accident or a planned sabotage disguised as a technical accident. **Thus, there is still no publicly confirmed final verdict** that would prove

that specific actions were intentionally carried out by a Russian state agency or its proxies in all cases of breaking the anchors of telecommunications vessels, power cables and gas pipelines on the bottom of the Baltic Sea during 2022–2024.

### Sources of threats

Protecting thousands of energy facilities and tens of thousands of kilometers of underwater communications, conducting effective monitoring of their condition and the condition of the environment nearby, does not seem realistic, no matter what modern technical capabilities in combination with AI would be involved. By the way, disabling a high-cost wind turbine of a wind farm is not so difficult and quite inexpensive. One FPV drone with a cumulative charge worth 1000–2000 euros will disable a 10 MW wind turbine, which costs about 20 million euros.

**It is better to identify the sources of threat to such infrastructure in order to keep them in the field of constant monitoring and be ready to counter the enemy.** The answer to the question of where the sources of threat are located does not take long to find. In the Baltic zone is **the 561st Special Purpose Marine Reconnaissance Point of the Baltic Fleet** of the Russian Federation. The military town is located in a historical estate from the times of the Prussian Teutonic Order, which is known as the “Gaffken Estate”. The task of the 561st MRP is to conduct special and reconnaissance operations using underwater reconnaissance divers, underwater mining, reconnaissance and sabotage activities in the water area of ports, on raids, and the seizure of ships and coastal structures. **The seizure of at least one of the nuclear power plants in the Baltic zone will provide an opportunity to blackmail the EU and NATO.**

**The Northern Fleet has the 420th Special Purpose Marine Reconnaissance Point.** The main task of the 420th Special Purpose Marine Reconnaissance Point was to disable elements of the American SOSUS anti-submarine system (**S**ound **S**urveillance System), submarine cables, sabotage at coastal acoustic stations, sabotage at submarine pipelines, power cables, fiber optic networks in the North Atlantic and Western Arctic within the area of responsibility of the Northern Fleet of the Russian Federation.

And of course, we should keep in mind the Main Directorate of Deep-Sea Research (GUGI, from Russian — ГУГИ) of the Russian Ministry of Defense, located in Peterhof, near St. Petersburg. This is one of the most secretive military units of the Russian Ministry of Defense, which plans and is engaged in special underwater operations, has a special fleet of 50 surface and underwater vehicles. The hydronauts of the GUGI are engaged in reconnaissance activities – they listen to communication cables, install various equipment on the seabed, and are also engaged in planning and advance preparation of large-scale sabotage on transatlantic fiber-optic communication lines between Europe and North America for a certain time “H”, when Russia decides to launch a direct or hybrid strike on NATO.

It is also worth paying attention to the special means that the Russian fleets have for conducting sabotage operations. These are not only regular forces and means that are on the balance of the fleets of the Russian Navy or the Ministry of Defense. There are a number of civilian means that Russia uses for military purposes. Just one example. When in 2021 the Biden administration gave Russia the opportunity to complete the Nord Stream 2 gas pipeline, a corresponding flotilla of technical fleet vessels appeared in the area of its completion in the Baltic Sea to perform pipe-laying work. Along with them, there were other vessels in the flotilla. In particular, the multifunctional rescue vessels Spasatel Karev and Bakhtemir were sent from the Maritime Rescue Service of the Federal Maritime Agency of the Ministry of Transport of the Russian Federation. It is quite logical that the rescue vessels would be nearby. However, all of these “rescuers” are actually dual-purpose vessels and can be used for both civilian and military purposes. A special team is taken on board to perform special tasks.

So, during the final stage of work on the completion of the NS2 gas pipeline, servicemen from certain special units of the Russian Ministry of Defense and the Navy were noticed and identified on board the above-mentioned vessels, in particular, from the Main Directorate of Deep-Sea Research, from the 313th Separate Special Purpose Detachment for Combating Underwater Sabotage Forces, and from the 342nd Emergency Rescue Detachment of the Baltic Fleet, based in the city of Baltiysk.

A combined special forces group of 18 people took turns on board these vessels. The equipment of these vessels includes remote-controlled underwater vehicles MSS-3000, which allow working at depths of up to 3000 m. The vessels can also be equipped with underwater vehicles with manipulators equipped with special knives and cable cutters, with which underwater infrastructure can be damaged or disabled.

Increased activity of the group was observed in the Danish and German maritime zones in the area of passage of the underwater FOLS “Baltica” (connecting Poland, Sweden, Denmark) and “Denmark – Poland 2” (connecting Poland with Bornholm Island). Apparently, the group was carrying out reconnaissance work in preparation for the subsequent installation of means of collecting information from the above-mentioned European FOLS, as well as the locations of hydroacoustic stations for monitoring the underwater space of the western sector of the Baltic Sea.

The Russian Navy and the General Directorate of the Russian Navy have at their disposal a whole flotilla of specialized research and auxiliary vessels, which can also be carriers of unmanned underwater vehicles. And we are not only talking about the well-known hydrographic ships of the Yantar or Admiral Vladimírsky type. In addition to rescue vessels, special units of the Russian Navy practice involving other types of civilian vessels to perform tasks — tankers, dry cargo ships, fishing trawlers, which suddenly begin to “catch fish” near the NATO training area. It is likely that unidentified drones in the airspace of Denmark, Sweden, and Norway could not have appeared there without a sea platform. It is most likely that such a platform could have been a container ship. Moreover, the hidden movement and launch of drones are best practiced from containers, if we recall how the “Shaheeds” are launched.

Russia has and continues to develop a range of reconnaissance and strike underwater drones, as well as surface strike aircraft. The enemy’s capabilities were demonstrated in September in the Danube Delta, when a USV attack destroyed a Ukrainian Navy reconnaissance ship. The defeats suffered by the Russian surface fleet in hostilities against Ukraine in the Black Sea, should not generate unnecessary illusions about its ineffectiveness in the depths of the sea.

### Lessons of war

What lessons can be learned from the 12th year of the Russian–Ukrainian war in the context of responding to real and potential threats?

**Lesson #1** is to strengthen the intelligence and counterintelligence capabilities of Western alliances. This could be called “knowing more about the predator without letting it know more about the hunter.”

**Lesson #2** is that civilian offshore oil and gas infrastructure (platforms) must be adequately prepared to defend against a military attack, even if it seems unlikely. This is called “predator-proofing.” Given Ukraine’s experience of the war with Russia, offshore marine infrastructure facilities, in addition to routine air and naval patrols of the surrounding area, should be:

- **covered** by a perimeter of hydroacoustic means of monitoring the underwater space in the near zone for timely detection of dangerous underwater activity;
- **protected** by engineering means (buoy barriers, underwater nets) from enemy naval drones and mines;
- **equipped** with electronic warfare (EW) means to counter possible drone attacks both from the air and from the sea;
- **covered** by short-range air defense systems and small-caliber automatic cannons to destroy naval strike drones, which are to be located on production platforms or on mobile naval platforms equipped with automatic cannons or short-range missiles (such as Magura);
- **equipped** with reliable means of cyber-protection of telecommunications.

**Lesson #3** is to find and eliminate secretly installed enemy “ears” and “eyes” in critical infrastructure locations. This is called “closing the eyes and ears of the predator.”

**Lesson #4** – The locations and movement routes of special vessels that can be used for sabotage are known. There are not many of them. They must be disabled or destroyed at “H-Hour”. This is called “cutting off the predator’s paws”. For example, the aforementioned “rescue” vessels must be under

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control in peacetime, and in wartime they are a legitimate military target and must be destroyed or, at least, damaged wherever they are. On September 10, in the Novorossiysk area, the “Rescuer Ilyin” was hit by a Ukrainian UAV attack, a vessel of the same design as the others mentioned.

**Lesson #5** is to prevent the enemy from capturing offshore facilities. If they are captured, they must be under fire control to prevent the enemy from using them to facilitate combat operations. This is called “depriving the predator of the ambush.”

**Lesson #6** – It is necessary to prepare in advance a list of targets for destruction in enemy territory, against which an immediate disproportionate strike should be delivered in response to his aggression. This is called “setting fire to the predator’s lair.”

**Lesson #7** – It is necessary to know where the enemy’s special forces commanders are and their movement routes, in order to eliminate them at the “H-Hour” and thus disorganize the actions at the initial stage. This is called “decapitating the predator.”

The best response for the enemy to his subliminal actions is not only to create a projection of an asymmetric threat to him, but also to act, including mirroring in certain cases. As you know, Putin once said that the Leningrad streets taught him the principle of “strike first!”, which he constantly does. This principle should be turned against Russia. It should be done in an asymmetrical way — “act preventively and imperceptibly, strike where the enemy does not expect it.” Peacetime is over for Europe, wartime is now. An old Latin truth “nullum magnum periculum sine periculo vincitur” proclaims “no great danger is overcome without danger”. Europe must act preventively, not reactively. We must be ready to “cut off the paws of the predator” before it attacks you. Self-restraint of Europe and the West within the framework of a false anti-escalation model of behavior towards the predator is the path to self-destruction.

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## Transformation of the Energy Security Architecture in the Black Sea Region

“ In recent years, energy cooperation in the Black Sea region has undergone fundamental changes. The reason for these changes, as well as the general transformation of the energy landscape in the EU, was Russia’s war in Ukraine, which led to a decrease in energy imports from the Russian Federation, the implementation of the EU’s policy of completely abandoning Russian energy resources as announced in the RePowerEU plan, Ukraine’s refusal to transit Russian gas, and sanctions policy.

“Sustainable growth” to create energy corridors between the EU, the South Caucasus and Central Asia has become one of the three key areas of the new EU Black Sea Strategy, published in May 2025 [1]. Plans to implement green energy projects, such as the flagship Black Sea Energy project – a submarine cable across the Black Sea between Azerbaijan, Georgia, Romania and Hungary, are to be implemented in the period 2027–2030. Gas and oil, as well as their transmission infrastructure, currently underpin energy corridors in the Black Sea region.

Romania and Türkiye have become the real game changers of energy security in the Black Sea region in recent years, due to the exploration of their own offshore natural gas deposits and rethinking of the use of hydrocarbon infrastructure. In March 2025, OMV Petrom, the Romanian subsidiary of the Austrian OMV AG, and ROMGAZ, the largest producer and main supplier of natural gas in Romania, announced the start of drilling exploration wells in the Pelican Sud and Domino natural gas fields in the Neptun Deep perimeter, located 160 km from the Black Sea coast. The field operator estimates the production volumes at over 100 billion cubic meters [2]. The first gas should be released in 2027 with a gradual increase in production rates to 8 billion cubic meters per year, which is equivalent to almost half of the volumes of Russian gas pumped by pipeline to the European market through the only currently functioning artery – TurkStream.

The launch of the project into commercial production should change Romania’s profile in the European energy market to the second largest exporter of network gas after Norway. In this context, it should be noted that gas from the Neptun Deep Black Sea project is to replace a certain share of Russian gas from 2027 in the gas mix of Germany, the largest natural gas consumer in the EU, according to an agreement between the German company Uniper and OMV Petrom.



*Neptun Deep and Han Asparuh fields  
in the Romanian and Bulgarian sectors  
of the Black Sea.*

*Source: OMV Petrom*

## IN FOCUS: BLACK SEA ENERGY

OMV Petrom is also the operator of the Han Asparukh field, located in the Bulgarian sector of the Black Sea (see Fig.1). Israeli NewMed Energy through its subsidiary NewMed Energy Balkan has a 50% stake in the project. The drilling campaign is scheduled for the 4th quarter of 2025. It was previously reported that the estimated reserves of the block are currently unknown, but according to some estimates they may be from 210 to 510 billion cubic meters of natural gas. The project's stalling in the Bulgarian sector of the Black Sea is due to a lack of investment, as well as the withdrawal of the world major, the French company Total Energies and the Spanish Repsol. Two promising gas fields, Vinekh and Krum, within the Han Asparukh block have an estimated production potential of 5 and 8 billion cubic meters per year in the 2030–2040 perspective, which is much more than the consumption of the Bulgarian economy – about 3 billion cubic meters per year – and therefore, if reserves are confirmed and investments in gas production infrastructure are made, this could also add certain volumes of gas to the European market.

The Bulgarian block “Han Asparukh” is adjacent to the flagship Turkish field Sakarya. In total, Türkiye's

estimated natural gas reserves in the Black Sea are over 700 billion cubic meters [3]. The first gas was already produced in April 2023, and in 2025, daily production in Sakarya, according to the Turkish Ministry of Energy, will be 9.5 million cubic meters of gas [4]. The introduction of the second stage of the field into commercial operation by the Turkish operator TPAO should cover approximately 30% of Türkiye's natural gas consumption by 2030, according to Wood Mackenzie estimates [5]. Therefore, in the perspective of 2030, Türkiye's need for gas imports will decrease by three times. Türkiye receives gas from Russia through the TurkStream and Blue Stream pipelines, as well as minor shipments of Russian gas in liquefied form. In 2024, according to media reports, Russian gas supplies to Türkiye amounted to 21.5 billion cubic meters [6]. Given that the total export capacity via pipeline from the Russian Federation to Türkiye is 31.75 billion cubic meters (15.75 billion cubic meters of gas from the TurkStream for Türkiye and 16 billion cubic meters from the Blue Stream), it can be noted that in 2024, a third of these capacities were underutilized. Future exploration of Sakarya field will further weaken the role of Russian gas in the Turkish market.

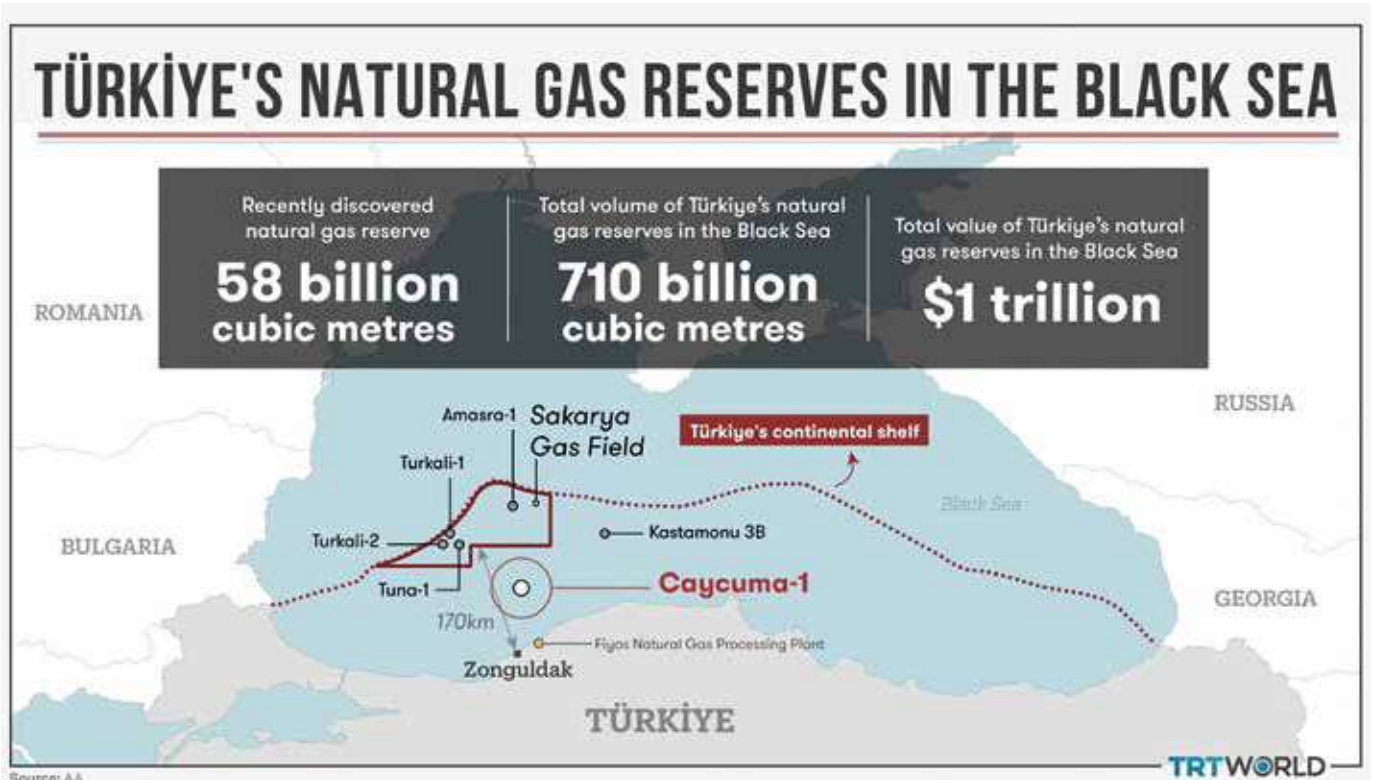


Fig. 2. Türkiye's natural gas reserves in the Black Sea  
Source: Anadolu Agency

## IN FOCUS: BLACK SEA ENERGY

Gazprom's withdrawal from the idea of participating in the Turkish Gas Hub project is a vivid example of Türkiye's strengthening of its energy ambitions in the Black Sea region [7]. Türkiye's unwillingness to grant Gazprom the rights to jointly market gas while retaining the exclusive right to independently sell gas and reducing Gazprom's role to a mere supply of the resource forced the Russians to abandon the idea of expanding the last "bridge" to Europe and plans to build new pipelines in the Black Sea. Not the least role here was played by the banal lack of funds for construction against the background of Gazprom's losses.

Türkiye's ambitions to become a regional energy hub date back to the early 2000s, driven by its favorable geographical location, its interest in deepening ties with European energy markets, and expanding infrastructure with Central Asian countries. Türkiye continues to develop the idea of creating a gas hub, focusing on Azerbaijan's SOCAR as a priority partner, whose gas share in Türkiye's gas imports in 2024 was about 20%. Türkiye's five LNG import terminals – three floating storage and regasification facilities and two onshore – have a combined regasification capacity of 161 million m<sup>3</sup>/day, according to network operator BOTAS, or about 58 billion cubic meters of gas annually [8], which makes it possible not only to diversify the import portfolio, in addition to American LNG, with liquefied gas from Algeria and Oman, but also to absorb the volumes of Qatari liquefied gas, which will additionally appear on the market in 2026. Thus, Qatar, being the second largest LNG producer in the world after the USA, plans to expand the production capacity of the North Field East (NFE) from the current 77 million tons per year to 110 million tons per year from the second half of 2026, which will lead to the emergence of new volumes on the global market, and in particular in the Black Sea region.

The termination of Russian gas transit through the Ukrainian gas transmission system on January 1, 2025 did not affect either the energy security of the countries of the region or consumer prices on the market. In total, in 2024, the EU received 52 billion cubic meters of blue fuel from Russia, of which 32 billion cubic meters were delivered by pipelines and 20 billion cubic meters by sea in the form of LNG. Of course, compared to the record year of 2019,

when 179 billion cubic meters of Russian gas were delivered to the European market, these volumes are insignificant, but still the share of Russian gas on the EU market in 2025 is approximately 13% of EU imports, which in monetary volume is equivalent to more than 15 billion euros per year [9].

The 19th package of sanctions, approved on October 23 of this year, provides for a ban on the import of Russian LNG – in 6 months for short-term contracts and from January 1, 2027 for long-term contracts. About a third of Russian liquefied gas supplies are sold on the EU spot markets through short-term contracts, the rest, about 70%, are LNG supplies under long-term contracts, in particular from the Yamal-LNG terminal of PJSC Novatek. Therefore, an important feature of this package of sanctions is the transition period, which is deliberately given to the aggressor to adapt and set up circumvention mechanisms. For example, it is highly likely that the Russians will try to create a network of trading companies in European countries, even despite the likely requirement to indicate the source of gas origin. At the end of October, the EU Council stated in its communiqué: "*The proposed regulation introduces a legally binding, stepwise prohibition on both pipeline gas and liquefied natural gas (LNG) imports from Russia, with a full ban to apply from 1 January 2028.*" [10] This has consequences for the Black Sea region: in particular, Bulgaria is already laying the groundwork for a change in the owners of the TurkStream. In mid-2025, the odious politician Boyko Borisov, the former Prime Minister of Bulgaria, reported that the country was negotiating with the American hedge fund Elliot Investment Management about the acquisition and possible modernization of the Bulgarian part of the TurkStream. De jure, the structure of owners and traders in the supply chain of Russian gas to the European market will be changed, de facto – the export of Russian gas to the European market will continue, for which mechanisms are already being laid to circumvent future sanctions.

A similar situation exists in oil. Sanctions announced at the end of October this year by the Office of Foreign Assets Control of the US Treasury Department against 34 subsidiaries of PJSC Rosneft and PJSC Lukoil are associated with the risk of an organized simulation of a change of ownership,

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when a nominal transfer of control may occur, which in practice retains the previous influence, while formally complying with regulatory requirements.

### Oil in the Black Sea region

On July 29, 2019, in Ankara, Türkiye, K.-J. Tokayev and R.T. Erdogan held the 5th meeting of the High-Level Strategic Cooperation Council of Kazakhstan and Türkiye, where, among other issues, cooperation in the energy sector was discussed, in particular, the prospects for increasing exports via the Baku-Tbilisi-Ceyhan (BTC) oil pipeline. Details on the possible

volumes of the increase and the timing were not disclosed. The BTC oil pipeline is often mentioned as a potential alternative to Russian export routes, and this topic usually appears in times of political tension – this summer it appeared against the backdrop of aggravation between Russia and Azerbaijan, as well as against the backdrop of D. Trump’s threats to impose secondary sanctions on countries that buy Russian energy resources (Türkiye is the world’s third largest importer of Russian oil). It is in this paradigm that the revival around the topic of transit of Kazakh oil via the BTC should be viewed.

*For reference: BTC began operating in June 2006, was built by the Baku-Tbilisi-Ceyhan pipeline company (BTC Co), operated by BP. The Baku-Tbilisi-Ceyhan (BTC) pipeline transports oil from the Azeri-Chirag-Guneshli (ACG) field and condensate from Shah Deniz through Azerbaijan, Georgia and Türkiye.. It connects the Sangachal terminal on the Caspian Sea coast with the Ceyhan offshore terminal on the Turkish Mediterranean coast. The pipeline continues to transport crude oil from Turkmenistan, Kazakhstan and even small volumes from the Russian Federation. The current capacity of the BTC is 1.2 million barrels per day.*



**In 2024, a total of 223 million barrels of crude oil were transported via the BTC, of which 1.4 million tons per year (about 10.4 million barrels per year) of Kazakh oil was transported, which is about 4.5% of the pipeline’s capacity.** The transportation of Kazakh oil via the BTC is carried out in accordance with the General Agreement between SOCAR and JSC NC “KazMunayGas” dated 2023, which provides for the transit of 1.5 million tons of oil annually.

For 2025, the Ministry of Energy of Kazakhstan approved plans to export 1.7 million tons of oil via the BTC pipeline, this became possible thanks

to last year’s agreements between Kazakhstan and Azerbaijan—namely: on March 11, 2024, an agreement was concluded between JSC NC “KazMunayGas” and the state oil company of Azerbaijan SOCAR on a gradual increase in oil transit through the territory of Azerbaijan to 2.2 million tons per year. Thus, the oil pipeline transports the majority of Azerbaijani oil to the Turkish oil terminal Ceyhan, and the fact that Azerbaijan allows the transit of small volumes of Kazakh oil is primarily a manifestation of friendly relations on the part of Azerbaijan.

In addition, on January 15, 2025, SOCAR Midstream Operations LLC signed an agreement with KMG

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Trading, a subsidiary of KazMunayGas. According to the agreement, 240,000 tons of oil will be pumped from the Kashagan field in 2025 – again a meager amount. The first batch of this fuel, 6,000 tons, was loaded onto a tanker at the port of Aktau in January 2025 and delivered to the Sangachal terminal in Azerbaijan.

Against the background of increasing oil production in Kazakhstan and the prospect of increasing export quotas within OPEC + from May of this year, back in November 2024, Kazakhstan's Energy Minister Almasadam Satkaliyev stated **that Kazakhstan was studying the possibility of increasing annual supplies of Kazakh oil through the BTC to 20 million tons per year.**

By 2030, according to some estimates, oil production in Azerbaijan may fall to 25 million tons per year, and exports to 20 million tons per year, which **opens up certain opportunities for transporting larger volumes of Kazakh oil through the BTC in the next 5-10 years.** To significantly increase oil exports, Kazakhstan needs to expand the port of Aktau and build the Trans-Caspian Oil Pipeline and compressor stations – the implementation of the latter requires the consent of all Caspian countries, including the Russian Federation, and the former requires significant investments, which is actually reflected in the development plan of Kazakhstan until 2029. The Caspian Pipeline Consortium, which connects Kazakhstan's Tengiz oil field to the Yuzhnaya Ozerievka oil terminal on the Black Sea (near the port of Novorossiysk) and which carries

about 80% of all oil exports from Kazakhstan, will continue to be the main route for Kazakh oil exports due to Kazakhstan's infrastructure constraints. According to Kazakhstan's state statistics, Kazakh oil exports bypassing Russian ports amounted to **only 5.9%** of the total exports of 32.6 million tons in the first 6 months of 2025, a share that has remained unchanged since 2024.

A feature of Kazakhstan's cooperation with Azerbaijan in the field of oil transportation is that the countries produce oil of very different quality: the Azerbaijani company SOCAR produces high-quality light oil – Azeri Light, while Kazakhstan produces heavy oil with a high sulfur content. Transportation of Kazakh oil through the Baku-Tbilisi-Ceyhan main regional pipeline requires additional work to ensure the quality of the oil, or the creation of an “oil bank” mechanism.

One option for Kazakhstan is to change the route. In mid-July of this year, according to reports in the Azerbaijani media, Kazakhstan's Energy Minister Yerlan Akkenzhenov announced negotiations with SOCAR on the resumption of the Baku-Supsa oil pipeline, which has been suspended since March 2022. The resumption of the Baku-Supsa pipeline will significantly facilitate the transit of oil for both countries, since it will be exported via a separate pipeline, and thus the issue of oil quality is removed. At the same time, there is also the issue of profitability – the throughput capacity of Baku-Supsa is more than 7 million tons per year.

*For reference: The 837-kilometer Baku-Supsa oil pipeline was built in 1997–1998. This oil pipeline, which transports Azerbaijani oil to the West, starts from the Sangachal terminal and extends to the Supsa terminal on the Georgian Black Sea coast. Oil pumping into the Baku-Supsa oil pipeline, which has a diameter of 530 millimeters, began in December 1998. The pipeline was officially opened on April 17, 1999. Along the western export route, 6 pumping stations were built, 3 in Azerbaijan and 3 in Georgia, 2 pressure reduction stations (both in Georgia) and 1 unloading station (in Azerbaijan). 4 large tanks with a total capacity of 1 million barrels were built at the Supsa terminal in Georgia to store oil. Initially, this pipeline transported oil extracted from the Chirag and Azeri fields located in the Azerbaijani sector of the Caspian Sea. Thus, crude oil shipped from the Sangachal terminal near Baku to the port of Supsa on the Black Sea coast was loaded onto tankers and sent to European markets via the Bosphorus Strait. According to the results of 2021, 4.2 million tons of oil were transported through the Baku-Supsa pipeline. All exported oil fell on the Azeri-Chirag-Guneshli block of fields.*

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**Currently, most of the capacity of Turkish oil terminals is reserved for Russian oil under long-term contracts, but hypothetically the situation could change if the US imposes effective “secondary sanctions” against Russian energy carriers, rather than just paper sanctions. In such a case, Ankara could declare “force majeure” and legally terminate contracts with Russia without risking legal consequences. This legal instrument is already being studied in Türkiye’s energy policy planning, although the chances of its application are uncertain.** *(authors note: this paragraph was written in July 2025, when the essence of the U.S sanctions policy under D. Trump administration was not so obvious as it is at the beginning of 2026, when this issue of Black Sea Security Journal is published)*

In the event of increased sanctions pressure on Russia, Türkiye will look primarily to the PRC, which has already declared its right to “oil sovereignty.” Nevertheless, Türkiye is playing it safe and is exploring options for a more flexible policy in case it has to replace certain volumes of Russian oil with supplies from Kazakhstan, Azerbaijan, and Iraq.

Türkiye’s talks with Kazakhstan came just days after Ankara announced on July 21, 2025 that it was terminating a multi-year 1975 oil pipeline agreement with Iraq. President Recep Tayyip Erdogan’s decree dated July 21, 2025, stated that the “Türkiye-Iraq Crude Oil Pipeline Agreement,” which entered into force in 1975, along with all subsequent protocols and memoranda, will expire on July 27, 2026. Türkiye’s statement adds a new layer to ongoing negotiations between Ankara and Baghdad on the resumption of oil exports via a pipeline that transports crude oil from Iraq’s Kirkuk oil fields to Türkiye’s

Mediterranean port of Ceyhan. The termination of the multi-year agreement is aimed at changing the legal framework for future cooperation between and Iraq in the energy sector.

Turkish Energy Minister Alparslan Bayraktar said that the expected new energy agreement between Türkiye and Iraq should include an approach that ensures full use of the two countries’ oil pipelines.

*For reference: Oil flows through the Iraq-Türkiye (Kirkuk-Ceyhan) pipeline were halted by in March 2023. This followed a ruling by the International Chamber of Commerce (ICC) that ordered Ankara to pay Baghdad \$1.5 billion in compensation. The losses were assessed for unauthorized oil exports by the Kurdistan Regional Government in northern Iraq between 2014 and 2018, which took place without Baghdad’s consent. Türkiye has stated its readiness to resume operations, but talks to resume flows faced a new obstacle in March this year due to disputes over payment mechanisms and contractual arrangements for future exports.*

In July 2025, Iraqi Prime Minister Mohammed Shia al-Sudani, during a telephone conversation with US Secretary of State Marco Rubio, also emphasized the need to resume oil exports through the Iraq-Türkiye pipeline.

In the context of the above, the negotiations between Türkiye and Kazakhstan on the prospect of increasing exports via the Baku-Tbilisi-Ceyhan pipeline should be viewed against the backdrop of geopolitical shifts in the region and the uncertainty surrounding the application of secondary U.S sanctions. A significant increase in Kazakhstan’s exports to 20 million tonnes via Baku-Tbilisi-Ceyhan is possible in the next 5–10 years, provided that infrastructure is expanded and Azerbaijan agrees. In the medium term, the legal framework will allow exports from Kazakhstan to 2.2 million tonnes per year. Increasing the volume of Kazakh oil transported to Baku and then to Türkiye requires either tanker transportation or the construction of the Trans-Caspian pipeline. The current tanker fleet is limited, and pipeline negotiations between the Caspian littoral states have been stalled for many years. Kazakhstan is actively negotiating with Azerbaijan to increase exports of Kazakh oil via all available routes – via Baku-Tbilisi-Ceyhan and Baku-Supsa. Directions for increasing exports from Kazakhstan and Iraq are being studied by Türkiye in case of increased sanctions pressure.

Thus, Russia’s war in Ukraine and the sanctions policy it has caused have had a significant impact on

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the reconfiguration of oil and gas flows in the Black Sea region. Thanks to this, Türkiye has become the world's third largest consumer of Russian oil, which has had an impact on the outlines of energy security in the region. There has been more Russian oil in the Black Sea region than in the pre-war years, but as for gas, the development of hydrocarbon deposits on the Black Sea shelf, in particular the active development of the Sakarya field by Türkiye and Neptun Deep by Romania, in the next few years should transform the

balance of gas import/export in the Black Sea region and lead to even greater marginalization of Russian gas. The combination of these factors is leading to a change in the outlines of energy cooperation in Europe as a whole and in the Black Sea basin. The war in Ukraine has brought the use of naval drones to a new level, thus creating security risks of false flag operations by Russia against the critical energy infrastructure of new producing countries – Türkiye and Romania – in the Black Sea.

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## Childhood in Camouflage: How Soldiers are Trained from Infancy in Crimea

“ On international platforms, the Russian government speaks of “readiness for peace,” while at the same time, the military spending of the Russian budget is breaking all records – in 2025, it increased to a record 146 billion rubles (33% of the entire budget and 6.2% of GDP). Russian industry has been transferred to military rails – weapons production is rapidly increasing, which requires constant replenishment of human resources. The Kremlin is training new soldiers from children and youth, introducing military practices at all stages of socialization – from the family to universities. The Russian government pays special attention to the occupied regions of Ukraine, trying to turn Ukrainian children and adolescents into soldiers for current and future wars. Through the educational system and extracurricular life, mass events, propaganda media and youth organizations, a new generation is being formed, for whom war and aggression become the norm, and the idea of serving the state is a self-value.

### Militarization of children under the slogans of “military-patriotic education”

The militarization of Russian society, with a special emphasis on children and youth, began in the first decade of the 21st century, but systematic work in this direction began after the occupation of Crimea. The militarization of children’s consciousness in the Russian Federation is being presented in the context of military-patriotic education, which is becoming a key element of Russian education, reflected in the state’s educational strategies.

Occupied Crimea is rapidly joining the pan-Russian initiatives – in December 2014, a republican strategy for the development of education was adopted, which focuses on “the upbringing of patriotic feelings and consciousness of citizens of the Russian Federation” among Crimean children and youth. Achieving this goal is based on the introduction of military training into the educational process and increasing motivation for military service among Crimean youth.

After the start of full-scale Russian aggression against Ukraine (the so-called “special military operation” – SVO – from Russian: специальная военная операция – СВО), “patriotic education” in

Crimea will receive a legislative basis – in December 2022, a special law “On Patriotic and Spiritual and Moral Education in the Republic of Crimea” was adopted, which makes the militarization of children’s consciousness one of the main directions of the education process.

In general, since 2022, spending on patriotic education in Russia has been rapidly increasing: from 3.5 billion rubles in 2021 to 66.6 billion rubles in 2025. The increase in spending on the militarization of children and youth best demonstrates the Kremlin’s true attitude towards peace and war.

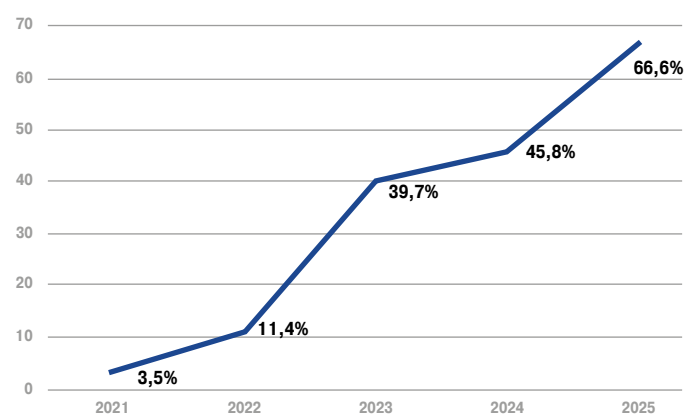


Fig. 1. Dynamics of growth in spending on patriotic education in the Russian Federation

### Key agents of child militarization in Crimea

The basis of Russian patriotic education is the introduction of military practices in various forms and at various levels – from the implementation of the Kremlin’s policy of memory at the family level to the popularization of military service among schoolchildren and students. It should be noted that the key structures involved in promoting these practices in the lives of Crimeans are both the three Russian ministries: Defense, Education and Sports; and the corresponding Crimean structures – the “Ministry of Education, Science and Youth”, the “Ministry of Sports”, the “State Committee for Youth Policy” and the “State Committee for Patriotic Education”. Among the main performers, it is worth noting the “Rospatriot Center” and its branch on the peninsula – the “Krympatriot Center,” which receives the lion’s share of funding for patriotic events. One of the main tasks of this structure is to increase the number of conscripts into the ranks of the Russian army.

In general, all educational institutions are involved in military-patriotic education in Crimea — from kindergartens to universities, public organizations, sports clubs, etc. An important role in these processes is played by the Russian Orthodox Church, which acts as the organizer of military camps and takes an active part in the initiation of boys into “Cossacks.”

### Militarization through the politics of memory

One of the key directions of militarization of children’s consciousness, starting de facto from birth, is the Kremlin’s exploitation of memory policy to form the idea of “generational continuity,” which has transformed from the Soviet thesis of “being worthy of the memory of the fallen” to the audacious “we can repeat it”. Thus, May 9 or “Victory Day”, thanks to a powerful information campaign, is turning into the main holiday for Russians – 65% of respondents put it in first place.

Preparations for the celebration include many events, including military parades and the “Immortal Regiment” campaign, which the Kremlin is transforming from a public memorial march into a large-scale show involving millions. The voluntary format of the event is gradually turning into a mandatory one – for schoolchildren and students, as well as employees of budget organizations, who create an appropriate “mass crowd”.

Quite often in the columns you can see small children dressed in World War II-era gymnasts, whom “creative” parents take out in strollers stylized as tanks and military aircraft. This completely eliminates the memory of the millions of dead and the war itself, which in the children’s minds turns into a masquerade. Such a “carnivalization” of war is a conscious policy of the Russian authorities, which has replaced the real, living memory of World War II, artificially constructed, mythologized, where war is not suffering and death, but victory and celebration. So, those who are accustomed to military uniforms from infancy get used to war as a way of life.



Fig. 2. Parents with children during the “victory march” , Sudak (Photo from open sources)

On the other hand, the action has a deep psychological aspect – it is not just a demonstration of the connection of times, it is “the union of the dead and the living in the fight against universal evil”. The name of “evil” can change depending on the foreign policy situation. Therefore, the “descendants of the victors” must be constantly ready not only to “enter battle”, but also to “die for the victory of the homeland”. This contributes to the distortion of reality and the consolidation of Kremlin narratives in the minds of children from an early age, polarizing the world along antagonistic lines: “their own” – “good Russians” and “alien” – “bad enemies”.

### Militarization in the educational process

The most active militarization of the consciousness of children and youth in Crimea is implemented through the education system, which does everything possible to educate future soldiers ready to give their

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lives for Russia. Patriotic military education begins in kindergarten, where several times a year children are forced to play in military plays or listen to stories of “veterans” of the Soviet and Russian wars. Since 2022, the main speakers have been “heroes of the SVO”, who talk about the destruction of “Ukro-fascists”. Thus, from an early age, children are taught hatred, cultivating the image of enemies from Ukrainians.



*Fig. 3. The event is dedicated to the celebration of “Victory Day” and Easter in the kindergarten “Kazka” in May 2024, Simferopol (Photo from open sources)*

At school, these practices are taking to a new level – “courage lessons” have become mandatory for Crimean students, where “veterans” not only talk about the “heroism” of the Russian military, but also popularize military service and conduct master classes on handling weapons. The educational program includes subjects where students are taught the basics of military course – they are introduced to military equipment and weapons, military traditions, combat practices, etc. Since 2022, these subjects have been taught in schools by participants in the war against Ukraine, who do not hide their hatred of Ukrainians during classes. In Sevastopol, students are regularly taken on excursions to units of the Russian Black Sea Fleet and are introduced to military equipment.



*Fig. 4. Meeting of students of gymnasium No. 9 of Simferopol with Russian military personnel (Photo from open sources)*

A special role in the process of patriotic education of schoolchildren is played by the teaching of history, which since 2014 has been carried out in the Russian Federation on the basis of a “unified cultural and historical standard”, which emphasizes the “eternal Russian belonging to Crimea” as opposed to the internationally recognized occupation of the peninsula.

After the full-scale Russian invasion of Ukraine, new divisions are being added to Russian textbooks to justify Russian aggression against a neighboring state. To do this, Russian authors use the myth of the “artificial nature of Ukrainian statehood” and the “spread of neo-Nazism in Ukraine.” This helps the Russians close the constructed historical circle – “from the victory over German Nazism to the destruction of Ukrainian neo-Nazism.”

### **Glorification and militarization**

An important role in the process of militarization of consciousness is played by the glorification of Russian security forces – from the “little green men,” a monument to whom appeared in the center of the Crimean capital shortly after the occupation, to the renaming of Crimean streets in honor of the “heroes of the SVO.”

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Fig. 5. Monument to “polite people” in the center of Simferopol (Photo: KIA)

In this way, Russia is forming a new “pantheon of heroes” in Crimea, paying attention specifically to educational institutions, where memorial plaques and “hero desks” appear. These symbols become suitable objects for patriotic education – “courage lessons” and other pseudo-patriotic events are held here.



Fig. 6. “Hero’s desk” in Sevastopol school No. 35 (Photo: YouTube )

### Military education

A key role in attracting Crimeans to the ranks of the Russian army or other power units is played by specialized military educational institutions — cadet schools or classes opened in regular schools. The first institution was opened in Sevastopol in 2014 by Putin’s decree on the basis of the Naval Lyceum of the Ministry of Defense of Ukraine, which was later renamed the Sevastopol Presidential Cadet School (a branch of the Nakhimov Naval School in St. Petersburg). Over the past ten years, several more cadet schools of various formats and 260 cadet classes in 92 secondary schools (a third of them in Simferopol and the region) have been opened on the peninsula. In general, during 2014–2025, the number of such classes increased 17 times, and over the past three years doubled. This indicates a systemic policy of the Russian authorities aimed at educating potential military personnel. According to surveys, 60–70% of graduates of such classes and schools enter military universities.



Fig. 7. Cadet class in a Crimean school (Photo from open sources)

### “Youth Army” and the training of “patriots”

The Russian authorities are trying to cover the extracurricular life of Crimean children with military activities through an extensive system of military-patriotic organizations and movements, where the key role belongs to the “Youth Army”. This structure was created in 2016 under the patronage of the Russian Ministry of Defense and unites children and youth from 11 to 18 years old, offering military, technical and sports training. In the fall of 2016, the first rally of “Youth Army” was held in Crimea, in which about 100 children participated. And in 2024, the Russian authorities reported that the Crimean organization had more than 30 thousand members.

Since 2022, the “Youth Army” has been transformed into a personnel reserve for the Russian army. Children are not only taught combat tactics – from hand-to-hand combat to the use of weapons, but also receive classes in reconnaissance and sabotage activities, UAV control, and mine-explosive operations. During the summer holidays, military training continues in children’s camps, where children from low-income families are often invited, who are happy to receive three meals a day and delicious treats.

At the end of their training, Crimean “Youth Army” members take an “exam,” based on which the head of the local “Youth Army,” S. Havrylchuk, who has come under suspicion from the SBU, personally “recruits” school graduates into the ranks of the Russian army. Thus, this structure becomes a real training ground for the training of future “Putin’s soldiers.”

In addition to the “Youth Army,” there are less militarized, but no less “patriotic” structures operating in the Russian Federation. Since 2022, a new project has been launched in the country – the “Movement of the First”, which even in its name is very reminiscent of the Soviet Pioneers. This structure is aimed at educating children “on the basis of Russian traditional values” and is under the patronage of the Russian president. Considering that in September 2024, the “Movement of the First” was headed by the “hero of the SVO” A. Orlov, it is easy to guess what values they instill. The organization is under Western sanctions due to its involvement in the abduction of Ukrainian children.

Despite the declared voluntary participation, Russian “educational” organizations are de facto mandatory for children. Refusal or indifference is perceived as “disloyalty” and can have consequences for children and parents – from moral pressure to problems with schooling and university admissions.

Given the recreational potential of the peninsula, the Russians are actively using Crimean children’s camps to promote military ideas and military training. They also send children from the occupied areas of Kherson and Zaporizhia regions to these camps, trying to quickly erase Ukrainian identity under the guise of “health practices” and “care.”

At the initiative of the former head of the Russian Ministry of Defense, Sergei Shoigu, the Patriot Park (Sevastopol) and the Avangard Center (Evpatoria, based on the Gagarin children’s camp) were opened in Crimea, which are part of an extensive network of similar centers created for patriotic education and training of children for service in the ranks of the Russian army.

### Militarized leisure

An important role in education is played by the media, which are completely controlled by the Russian authorities and whose main task is to promote the Kremlin’s ideology. Russian TV shows, series, and even cartoons romanticize military service, glorify Russian soldiers, and demonize enemies – Ukrainians, citizens of Western countries, and “unreliable” (those who sympathize with Ukraine).

A significant part of mass events in Crimea since 2014 have had a militarized component – a military



Fig. 8. A girl from the “Youth Army” at the celebration of the Airborne Forces Day in Sevastopol, 2021 (Photo: CrimeaRealities)

parade or an exhibition of military equipment. All these events are primarily aimed at children, who are shown the “strength and power” of the Russian army, the ranks of which they are supposed to want to join.

The picture of patriotic education is complemented by “days of military glory” and historical reconstructions (“the storming of Sapun-gora”, etc.). Children are involved in them not only as spectators, but also as active participants: they wear military uniforms, take part in theatrical “battles”, and learn military songs.



*Fig. 9. Exhibition of Russian military equipment in Sevastopol, April 2019 (Photo: CrimeaRealities)*

More and more military toys are appearing in children’s stores, and in children’s parks — rides and khaki balloons. A tankodrom has been opened near the Sevastopol Defense Museum on Sapun Gora, where children and teenagers are invited to drive mini-tanks (mini-copy of a real tank), promising “easy and intuitive control.” It is obvious that teenagers who have mastered the copy can get behind the wheel of the original in adulthood.

### Conclusions

The psychological effect of the policy of militarization is deep and long-term, because it becomes an integral part of the socialization of generations. A child born and raised in an environment of military ideas, clothes, and toys learns to perceive the world through a sniper’s scope, looking for enemies in it. This leads to an increase in the conflict potential in society, the aggressiveness of children and youth, and forms the idea that any conflicts are best resolved by force.

On the other hand, the imposition of narratives about the “greatness of Russia” and the “circle of enemies around it” forms in children and adolescents a persistent idea of the need to be ready for self-sacrifice for the sake of the “fatherland” (in the case of the occupied territories, Russia is not their homeland at all). Thus, children from an early age are accustomed to the idea that war is an inevitable attribute of their lives, and military service is prestigious and important.

The glorification of participants in the war with Ukraine, especially criminals who chose the war as a chance to get out of prison, nullifies the very concept of “heroism”. But the loss of critical thinking due to the dominance of ideological standards in the education system and media deprives young people of the opportunity to objectively perceive reality. All this further distances Crimean children and adolescents from Western civilization with its ideals of humanism and human rights.

Thus, the militarization of the consciousness of children and youth in occupied Crimea is a component of a hybrid war that is long-term in nature and aimed at forming a loyal, controlled population that is ready not only to support the authorities, but also to be active participants in new Russian wars. Counteracting this systemic policy is very difficult, given the Kremlin’s blocking of information channels (blocking YouTube, WhatsApp, VPN). However, Ukraine must seek alternative ways and information tools for communicating with Crimeans, offer its own educational programs, and create information resources for Crimean children, involving them in the Ukrainian cultural and information space.

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## On China’s Worldview

“We need to understand through what prism they view our world”  
Garnault, 2023

“ To understand the actions and motives of the Chinese Communist Party (CCP), it is not enough to simply observe what China does. First, you need to understand how the CCP sees the world and its place in it. This is important because the party views international relations very differently than Western democracies.

The CCP does not view Western values as universal principles, but rather as a tool to undermine the CCP’s rule (Garnault, 2023). The party believes that promoting democracy and human rights is a strategy aimed at changing the communist regime in China (People’s Daily, 2021b).

It is this perception of the world as an arena of confrontation between the Chinese authoritarian

model and Western liberalism that determines Beijing’s behavior, from its partnership with Russia to its attempts to rebuild the international order. While publicly presenting its global ambitions as promoting justice and well-being for humanity, **the Chinese Communist Party seeks to change the international system primarily to preserve its own survival and dominance** (Rolland, 2020: 6).



Illustration credit: <https://rpquarterly.kureselcalismalar.com/how-did-china-become-the-worlds-second-economic-power/>

China seeks to establish a sphere of influence in the Global South, defined not by geographical boundaries but by the willingness of states to submit to Beijing's authority (Rolland, 2020: 2). To instill such submission, the party cultivates the image of China as a peaceful country that will inevitably grow stronger and take revenge on those who oppose it (Garnaut, 2023). **China also seeks to convince other countries that good relations with Beijing are a value in themselves, not a means to their own ends** (Garnaut, 2023). These narratives portray cooperation as beneficial and inevitable, and resistance as futile and dangerous.

To explore how Chinese scholars articulate and theoretically substantiate these strategic narratives, the article analyzes their writings on the China-Russia partnership and the Chinese vision of world order. Their writings provide a theoretical justification for the CCP's stated policies (Rolland, 2020: 24), although they do not propose or predict changes to them (Sagild & Hsiung, 2025: 783).

Among Chinese scholars who analyze both the international order and the Russian invasion of Ukraine, there is a consensus: the global system is in a state of irreversible decline, Western powers bear primary responsibility for this degradation, and China must take the lead in transforming it into a new world order consistent with Chinese principles and institutional frameworks. To systematically examine these views, let us first analyze several authors who write about the international order in general.

Both Wang Qiuyi (China University of International Relations) and Song Guoxin (National Institute for Development and Security Studies, Jilin University) believe that the current international order is in deep structural crisis for three reasons, but they differ significantly in the solutions they propose and the strategies for implementing them. They agree that Western dominance has created an unfair distribution of power and unequal benefits (Wang, 2025: 65; Song, 2025: 12). Both note the relative decline of US hegemony, which generates instability (Wang, 2025: 62; Song, 2025: 7). They argue that the institutions of global governance developed after World War II are unable to cope with contemporary challenges (Wang, 2025: 63; Song, 2025: 7). Both identify the West or the US as the main destroyers of the international order and call for the establishment of

a "new international order" (Wang, 2025: 58; Song, 2025: 5). At the same time, Song positions China as a "protector, builder and donor" of the international order, "rather than a challenger or destroyer" (Song, 2025: 7), while Wang emphasizes the need for a "new international order" based on "equal and orderly multipolarity" (Wang, 2025: 58). The solution for Wang is to build a new "global governance system" consistent with China's "tianxia worldview" (Wang, 2025: 84), while Song calls for rejecting "so-called 'universal values'" and building a "community of shared future for mankind" based on China's three initiatives (Global Development Initiative, Global Security Initiative, and Global Civilization Initiative) and its "civilizational wisdom" (Song, 2025: 12) as practical mechanisms for achieving a "just and reasonable international order" (Song, 2025: 9).

Zheng Yunnian, Wang Jin, and Nian Yue (Institute of International Affairs, Chinese University of Hong Kong, Shenzhen) agree with Sun that the international order is in a state of "disintegration," Western democracy is in chaos, and Chinese "civilization should play a leading role" in "constructing the future international order" (Zheng et al., 2025: 4, 9, 11).

Despite diplomatic formulations about the importance of global cooperation and multipolarity, all the authors agree on one thing: the international order needs fundamental changes that would consolidate Chinese concepts and Chinese leadership at the institutional level. Wang's call for a "global governance system" consistent with the "tianxia worldview" is a rethinking of international relations along Chinese philosophical lines, while Sun's demand to reject "so-called 'universal values'" in favor of China's "three initiatives" and "civilizational wisdom" offers Chinese approaches as better alternatives to Western ones. Jen's seemingly inclusive approach, by giving Chinese civilization a "leading role" in constructing the future order, also counts on Chinese primacy. All authors advocate the strengthening of alternative institutions, such as BRICS and SCO, to legitimize China's transformation from a rule-follower to a rule-maker in global affairs. (Wang, 2025: 92; Song, 2025: 10; Zheng et al., 2025: 7). It is this theoretical framework that explains why Chinese scholars view the Russo-Ukrainian war as both a symptom and a driving force of the transformation of the world order that they advocate.

### **Russian invasion of Ukraine as a geopolitical accelerator**

Chinese scholars from different institutions analyze the Russian aggression against Ukraine in different ways, but they all interpret it as evidence for their broader theses about the Western world order. Researchers from the Chunyang Institute of Financial Studies, Renmin University (RUCIFS) offer the most optimistic interpretation of the consequences of Russian aggression for the PRC. They characterize the war as having created “the most chaotic security situation” since World War II, while also triggering “unprecedented changes in a century” that make China the main beneficiary of the collapse of the Western order (RUCIFS, 2024: 2, 13, 14). They argue that the conflict has “significantly accelerated geopolitical fragmentation” and thrown global governance mechanisms such as the UN and the G20 “into an unprecedented state of disarray,” creating a power vacuum that only China can fill (RUCIFS, 2024: 13, 14). At the same time, the authors are concerned about instability in the world. They believe that China “must be prepared for a protracted war,” but at the same time it must position itself as the main “stabilizer” and avoid “the trap of war and the arms race” (RUCIFS, 2024: 21, 14). Therefore, they recommend a multi-vector strategy for the PRC: increasing scientific and technological self-sufficiency, a more active role in global economic governance and standardization, and developing flexible diplomacy. The point is to take advantage of the chaos in the post-Cold War world, but at the same time avoid direct intervention (RUCIFS, 2024: 1, 2). This indicates that Chinese scholars see the invasion not as a crisis to be resolved, but as a strategic opportunity that has accelerated China’s transition from a rising power to a leading power in a “multipolar world” (RUCIFS, 2024: 14).

Researchers from the Chinese Academy of Social Sciences adopt a more restrained tone and avoid triumphalist rhetoric. Ouyang Xiangying and Zhang Yuxin analyze the dynamics of Russian aggression rather than the expected systemic changes. However, their analysis is positive about the rise of multipolarity: they argue that the war has allowed “some key Eurasian countries to significantly strengthen their international political voice” and that “the international political status of middle Eurasian

states such as Türkiye, Poland, and Saudi Arabia has increased” (Ouyang & Zhang, 2023: 4, 12).

The authors write that the war has led to a fundamental restructuring of global relations, noting that sanctions have “changed the direction of global trade and investment flows and the structure of production chains” and that “the movement towards free markets and globalization has been reversed” (Ouyang & Zhang, 2023: 12). In contrast to the claim of “the rise of the East and the decline of the West” in the Renmin University report (RUCIFS, 2024: 5), this analysis uses more neutral language. The authors simply state that “global governance has regressed to some extent” (Ouyang & Zhang, 2023: 12). They predict a fragmented system in which middle powers increase their influence at the expense of weakening Western dominance. The Russo–Ukrainian war is interpreted as a catalyst for these systemic changes (Ouyang & Zhang, 2023: 12).

### **China as a solution provider**

Ding Xiaoxing directly positions China as an indispensable architect of global stability. In contrast to the focus of previous texts on the breakdown of the system, Ding treats the war as a set of problems that require Chinese leadership to solve. He argues that “the Russian–Ukrainian conflict has brought more uncertainty, the formation of different camps, all kinds of negative security trends, and the degradation of global governance to this turbulent world” (Ding, 2024: 5). In other words, it is a problem that China must solve.

He explicitly positions China as an alternative to both Western and Russian approaches to world order. He observes that “the West divides the world into democracies and non-democracies, and Russia divides the world into friendly and unfriendly countries,” warning that “if China chooses confrontation, the world may find itself in a new Cold War” (Ding, 2024: 5). Ding concludes that “China has indeed become the most important constructive force in maintaining global security and stability” and emphasizes China’s commitment to “building a community with a shared future for mankind” (Ding, 2024: 5).

Ding presents China not simply as a country benefiting from global fragmentation, but as an indispensable

architect of a new, more stable international order—an order that surpasses both Western liberal hegemony and Russia’s confrontational approach.

### **The China-Russia partnership as a structural pillar**

Ding positions Beijing as a future global leader. Feng Yujun, director of the Center for Russian and Central Asian Studies at Fudan University, analyzes how China’s bilateral partnership with Russia can become the basis for alternative international arrangements while preserving China’s strategic flexibility. His approach is the most pragmatic: Feng views global changes primarily through the prism of deepening Sino-Russian relations against the backdrop of Moscow’s Western isolation (Feng, 2024: 5–7).

Feng notes that China is pleased with Russia’s reorientation from West to East. According to him, “Russia’s relations with developed countries such as the United States and Europe have sunk to their lowest level since the end of the Cold War,” and Russia itself has effectively become an “island” in Europe (Feng, 2024: 4).

This, in his opinion, creates opportunities for deeper bilateral cooperation: “China-Russia economic and trade relations have not only not been affected by the conflict and sanctions, but have also deepened, achieving unprecedented success in several areas” (Feng, 2024: 7). Feng also presents the China-Russia partnership as a cornerstone of an alternative international system. He describes in detail the cooperation “within the framework of multilateral mechanisms in which both countries participate, such as the UN, G20, BRICS, APEC, SCO, CICA, China-Russia-India, China-Russia-Iran, China-Russia-Mongolia” and notes the expansion of these formats, including Iran’s accession to the SCO and the expansion of BRICS (Feng, 2024: 7).

At the same time, Feng is cautious about over-commitment to Russia. He notes that the formula of “no restrictions and no no-go zones” in relations with Russia has gradually disappeared from official discourse, and emphasizes a return to the principles of “non-alignment, non-confrontation, and non-targeting against third parties” (Feng, 2024: 8). This indicates a desire to use Russia’s isolation to build alternative institutions, avoiding direct confrontation with the West.

### **Using Russia to weaken the West**

While Feng emphasizes the benefits of deepening cooperation with the Russian Federation while maintaining Beijing’s flexibility, Zhao Hwasheng, a professor at the Center for Russian and Central Asian Studies at Fudan University, goes beyond this balancing act and frankly outlines China’s strategic calculation. He emphasizes that “supporting Russia is not so much supporting Russia as opposing the United States” (Zhao, 2025: 107). This correlates well with the private statement of Chinese Foreign Minister Wang Yi that China cannot accept Russia’s defeat because it would free up American resources to contain China (Bermingham, 2025).

Zhao warns that if China distances itself from Russia, “Russia’s position will be further weakened.” Conversely, if China unites with Russia, “the balance will tip in Russia’s favor” (Zhao, 2025: 99). He notes that the deterioration of Sino-Russian relations could lead to a situation where both the United States and Russia will view China as their main strategic threat (Zhao, 2025: 110).

Despite Zhao’s claims that China’s position is based on “international law” and support for “Ukraine’s sovereignty and territorial integrity” (Zhao, 2025: 112), his analysis demonstrates a discrepancy between rhetoric and practice. Zhao calls China’s position not “neutrality” but “constructive engagement” (Zhao, 2025: 112). He acknowledges that “maintaining cooperation with Russia does not mean full approval of its policies,” but explains why China cannot join the sanctions or fundamentally oppose Moscow (Zhao, 2025: 112).

Zhao’s defense of the “unrestricted cooperation” formula illustrates these contradictions once again. Although he claims that it is only a “rhetorical expression” that “has no relevance to the Ukrainian crisis” (Zhao, 2025: 103), he at the same time recognizes its strategic implications: “by supporting Russia, China indirectly supports itself” (Zhao, 2025: 107). Characterizing the conflict as “two mixed wars” — a Russian–Ukrainian one and a proxy war between the United States and the Russian Federation (Zhao, 2025: 106), he gives equal weight to both interpretations, allowing China to use the version of events that best suits its interests in a given situation. He also contradicts himself: on the one hand, he calls support for Sino-Russian relations

a “stabilizing force,” and on the other, he admits that this could “give the Ukrainian crisis the character of a bloc confrontation” (Zhao, 2025: 112, 99).

Like Zhao, other Chinese commentators consistently present China’s position as both morally principled and pragmatic, stabilizing and potentially destabilizing, neutral and actively engaged. These contradictions reveal a key dilemma for Beijing: how to support Russia in its confrontation with the United States while maintaining international legitimacy and avoiding direct confrontation with the West.

The texts of Liu, Bi et al., Xin et al., Xue & Liang, Zhang & Lu describe the current international system as fundamentally unstable: the former characterize it as undergoing “turbulent transformation and adjustment” (Xue & Liang, 2025: 13), while Xin and colleagues describe a “new pattern of global geopolitics and geoeconomics” that has emerged as a result of the “Russian–Ukrainian conflict” (Xing et al., 2024: 37). China’s position is consistently presented as that of a responsible state, offering alternative models – from the concept of a “community of a shared future for mankind” (Zhang & Lu, 2025: 138), to defending a “multipolar world” and countering “unipolar US hegemony” (Liu, 2023: 135, 130). However, there is a significant discrepancy between the declared principles and the actual practice. While all emphasize China’s commitment to “non-alignment, non-confrontation, non-targeting against third parties” (Zhang & Lu, 2025: 142), at the same time they acknowledge the “alliance-like behavior” of China and Russia (Xue & Liang, 2025: 22), which includes military exercises (Bi et al., 2024: 42).

Scholars propose a vision of a future world order based on “multipolarity,” “democratization of international relations,” and alternative institutions such as BRICS and SCO (Liu, 2023: 135; Bi et al., 2024: 44). However, these texts struggle to reconcile the rhetoric of cooperation with the reality of competition. Bi, for example, presents China’s “deepening strategic cooperation” with Russia as a manifestation of “major power responsibility” for stability (Bi et al., 2024: 22). Particularly problematic is the claim that China and Russia together “will continue... to promote international justice and fairness” (Zhang & Lu, 2025: 138).

China and Russia also share common positions on key issues. They reject what they call “so-called

‘democracy’ and ‘human rights’” (Liu, 2023: 131), and instead advocate “a new world economic order, the democratization of international relations, and the diversity of world civilizations” (Xue & Liang, 2025: 18). Both countries also oppose “NATO’s dominance in European security” (Liu, 2023: 134). In addition, Chinese scholars use the rhetoric of victimhood to justify a departure from the traditional principle of non-alignment. Participants in the conference “Crisis and Global Transformation: Sino-Russian Relations and the Changing World Order” called for joint action to “reduce and weaken US hegemony” (Xing et al., 2024: 46). They stressed the need to “strengthen strategic consultation and cooperation between China and Russia in response to major developments in the world and new challenges in international affairs” (Xing et al., 2024: 38). For example, Xing does not call the Russian invasion an aggression. Instead, he presents Russia as a victim of circumstances, forced to act due to “an extremely complex and difficult international environment” (Xing et al., 2024: 39). This logic allows him to justify Beijing’s rejection of the policy of non-alignment. According to Xing’s argument, when the West pressures both China and Russia simultaneously, both countries have the right to act together. Moreover, a coordinated response is presented as a necessity (Xing et al., 2024: 39).

These academic formulations seem to reflect political changes that have already taken place. As Wishnick observes, in May 2025, China quietly removed the traditional principle of “non-alignment” from official statements about relations with Russia. Instead, only promises of “non-confrontation” and “non-targeting against third parties” remained. This indicates a deliberate ambiguity in defining the status of the partnership (Wishnick, 2025; MOFA, 2025c; SCIO, 2025). Thus, in the texts of leading Chinese scholars and think tanks, **the Russo–Ukrainian war appears as a strategic opportunity for China’s rise on the world stage.**

The main contradiction lies in the Chinese authors’ calls for “peaceful coexistence” and the simultaneous justification of Russian aggression. They present the Russian territorial invasion of Ukraine as legitimate resistance to Western provocation. The intellectual justification of the Chinese position on the war actually conceals a revisionist desire to reshape the global order, disguised as a call for the democratization of global governance.

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## The Global Energy Interconnection Initiative: Another Front of Chinese Expansionism and Hegemony?

“ Launched by China in 2015, the **Global Energy Interconnection (GEI)** initiative aims to create by the mid-21st century a global electricity transmission network linking continents through ultra-high-voltage lines and large renewable energy bases. GEI challenges traditional notions of energy sovereignty, exposes the risks of technological and standards dependence, and demonstrates how infrastructure is becoming a tool of influence in global politics. At the intersection of energy, security, and trust, GEI reflects the transformation of the world order, where power increasingly manifests itself through technology and network standards.

### 1. Talatan as a Symbol of the GEI

In the autumn of 2025, China announced the commissioning of the country's, and indeed the world's, largest solar power plant: the Talatan Solar Park on the Tibetan Plateau. This vast photovoltaic complex covers an area of about 420 km<sup>2</sup> – roughly twice the size of Lviv – and has reached a capacity

of nearly 17 GW [1]. The Talatan Solar Park project, located in Qinghai Province, has taken advantage of the region's unique combination of abundant sunlight, arid climate, and high-altitude terrain, where the thin air increases the efficiency of photovoltaic panels. According to The New York Times, the park already surpasses all others in the world in scale [1].



Source: <https://www.nytimes.com/2025/10/10/business/china-solar-tibetan-plateau.html>

## IN FOCUS: CHINESE EXPANSION

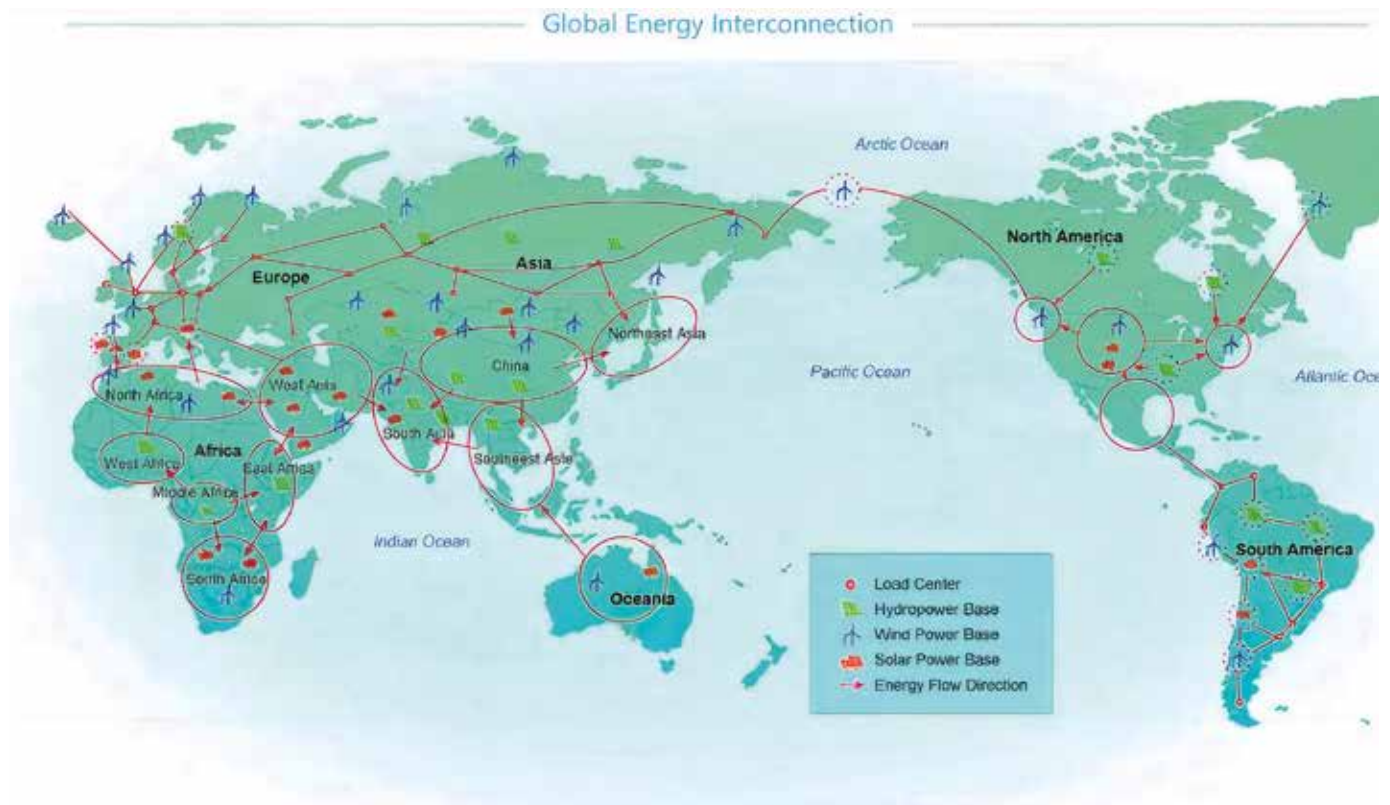
Notably, the Talatan complex is far more than just fields of millions of solar panels. As part of this megaproject, wind turbines with a combined capacity of 4.7 GW and hydroelectric power stations generating 7.3 GW have also been built. Together, they form a renewable energy system in which each component complements the others: during the day, excess solar power is used to pump water into reservoirs, while at night the water is released through turbines, producing electricity at the hydropower stations. In addition, high-voltage transmission lines have been laid from the site, capable of transporting the generated power more than 1,600 kilometres to the country's industrial centres [1]. In other words, China has created on its remote western plateau a vast energy hub that integrates the power of the sun, wind, and water – and transmits it thousands of kilometres away.

### 2. The Vision of a Global Power Grid

The launch of the Talatan Park is part of an even broader vision promoted by Beijing. This refers to

the Global Energy Interconnection (GEI) initiative – a plan to build, by the middle of the 21st century, an interconnected global electricity transmission system. The idea was first introduced by Chinese President Xi Jinping at the United Nations Summit in 2015, where he called for the creation of a “global energy network” to meet the world's energy demand through clean power [2]. At the core of GEI lie three key components: the development of large energy bases in polar regions, along the equator, and across every continent to integrate distributed generation and renewable energy sources; the implementation of smart grids to ensure efficient energy distribution; and the construction of intercontinental ultra-high-voltage (UHV) transmission lines capable of carrying electricity across vast distances [3].

The ambitions of the GEI are indeed impressive. The plan envisions the creation, by 2070, of a global “super grid” that will interconnect the power networks of all continents through 18 main UHV transmission lines – nine longitudinal and nine latitudinal “energy corridors.” [4].

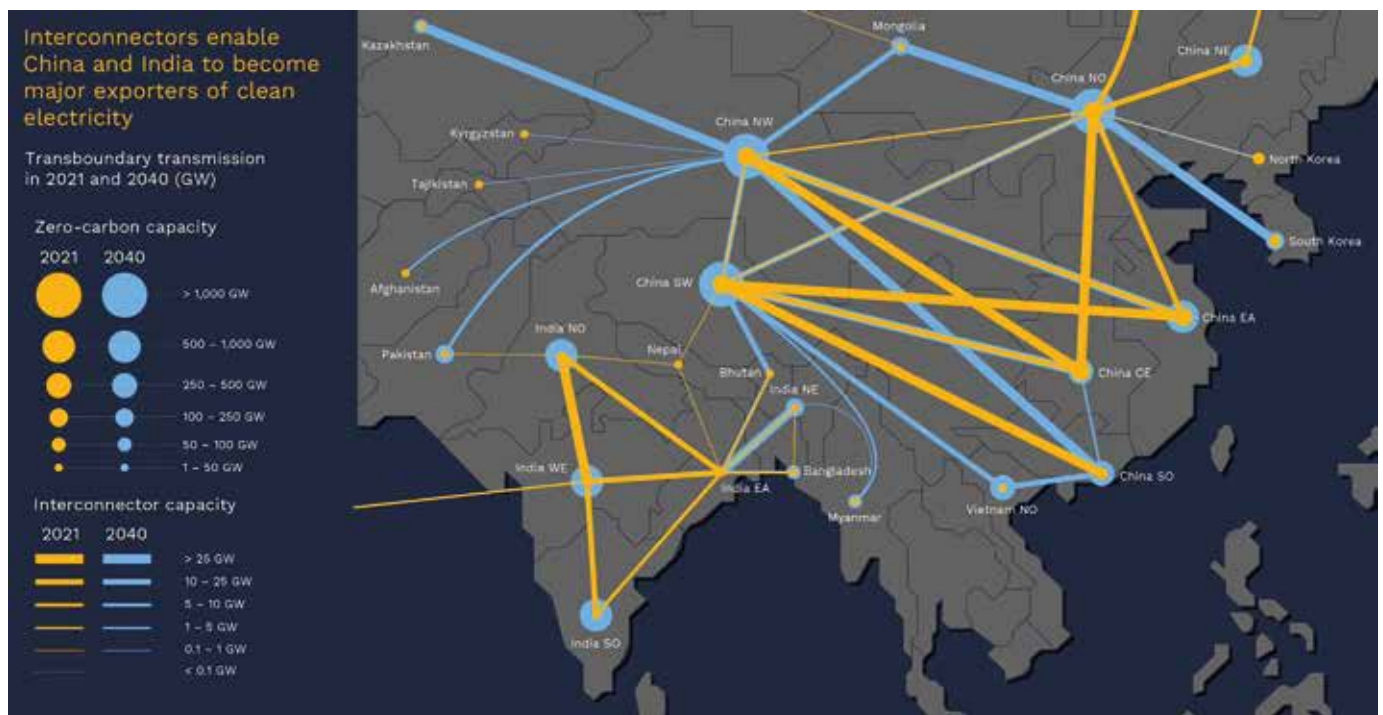


Source: <https://www.solarpaces.org/could-chinas-global-grid-idea-help-grow-csp/>

## IN FOCUS: CHINESE EXPANSION

The GEI concept is being gradually structured into three developmental phases, each with its own logic and timeline. The first phase – domestic interconnection (up to 2020) – focused on expanding clean energy production and integrating national power grids to enhance their capacity and the share of renewables in the overall energy mix. The second phase – intra-continental interconnection (2020–2030) – envisions the establishment of large-scale energy bases within continents and the development of cross-border transmission networks to enable the optimized distribution of clean energy. The third phase – intercontinental interconnection (2030–2050) – aims to create Arctic wind and equatorial solar bases, completing the formation of a unified global power grid. This stage is expected to secure the dominance of clean energy while addressing issues of energy security, environmental pollution, and greenhouse gas emissions [4]. The GEI infrastructure will include both overland ultra-high-voltage (UHV) transmission lines and submarine cable routes across seas and oceans. For example, China is already developing powerful new undersea power cables: in 2020–2021, Chinese companies patented several advanced technologies, surpassing even traditional leaders such as South Korea [5]. This opens the possibility of laying cable connections between continents and islands.

The promotion of the initiative is led by the Global Energy Interconnection Development and Cooperation Organization (GEIDCO), established in 2016 with the participation of the State Grid Corporation of China (SGCC). It is interesting that international figures have also been involved in the leadership of GEIDCO – in particular, former U.S. Secretary of Energy Steven Chu, the founder of Japan’s SoftBank Masayoshi Son, and the former head of the Russian company “Rosseti” Oleg Budargin, who joined the ranks of the organization’s vice presidents [8]. Within a few years, GEIDCO united more than 600 members from 85 countries, signed dozens of agreements with governments and international organizations, and launched joint research projects [6]. China presents the GEI as a mutually beneficial project for the sake of sustainable development. Official presentations claim that the global network will make it possible by 2050 to provide electricity to 100% of the world’s population and to reduce CO<sub>2</sub> emissions by half compared to the 1990 level. The initiative has received positive responses within the UN system: its goals are consistent with the “Sustainable Energy for All” programme, and at UN climate summits the GEI has been called “key” to the implementation of the Paris Agreement [6].



Source: <https://www.transitionzero.org/insights/cables-to-change-the-world>

The geography of the GEI covers the entire world, with a particular focus on regions rich in renewable resources. Large energy bases are planned at the poles (wind potential), along the equator (solar deserts), and in hydropower-rich areas such as equatorial Africa. For example, Chinese engineers have proposed developing massive hydropower projects on the Congo River in Africa, with subsequent transmission of electricity across the Mediterranean to Europe [6]. Another example is the so-called “Asian Super Grid”: transmission lines intended to connect the power systems of China, Mongolia, South Korea, and Japan to enable the exchange of surplus wind and solar energy among these countries [7]. By 2040, analysts predict a significant strengthening of cross-border energy links between China and its neighbours in Central and Southeast Asia. New high-voltage interconnectors are expected to form mainly along the routes China–Kazakhstan, China–Mongolia/Korea, and China–Vietnam, Myanmar, and Bangladesh, outlining the main directions for the development of regional networks [29].

Similar ideas are being discussed in North America, where scientists have proposed creating a main network of HVDC lines across the United States and connecting it with Canada and Mexico [8]. In this way, the GEI is conceived as an energy equivalent of the internet – a global system in which energy travels thousands of kilometres as freely as information. Chinese developers even compare it to the internet by principle: “global but not controlled by any single country,” emphasizing the need for unified technical standards and protocols instead of any one nation’s monopoly [6].

### 3. Security Risks of the GEI

China’s intention to create a global power grid has become one of the most ambitious infrastructure projects of the 21st century. At the same time, such large-scale integration of national electricity networks raises serious national security concerns. With the growing electrification and increasing use of Chinese equipment in strategic energy facilities, questions arise about potential dependence on a single technological supplier. Analysts warn that in such a highly interconnected system, even a local failure or a deliberate shutdown could have far-reaching

consequences for several countries simultaneously [5]. Despite these concerns, the mechanism of energy interdependence differs significantly from that of gas or oil supply systems. The GEI concept envisions electricity in the interconnected grid flowing in both directions and being balanced in real time, which theoretically makes it more difficult to use as a direct instrument of political pressure. Any intentional disconnection could create risks for both the exporting country and its neighbours, undermining the stability of the entire system. At the same time, the high centralization of dispatch control and extensive digital monitoring could create potential for indirect influence, especially under conditions of political tension or conflict. Therefore, the possibility of “weaponizing” power grids cannot be entirely ruled out, although its practical implementation may be constrained by the complex interdependence of technical, economic, and regulatory factors.

Far more realistic, however, are the cyber risks. Modern high-voltage transmission lines are controlled through digital SCADA systems, and the supply of software and components from companies linked to Chinese state structures raises concerns about security. The possibility of unauthorized access or “backdoors” (hidden control channels) draws parallels with debates surrounding the deployment of Chinese 5G technologies, when many countries restricted the participation of suspected manufacturers in critical infrastructure [10]. For this reason, states involved in the GEI emphasize the need for strict cybersecurity protocols, standardized software, and duplication of power transmission channels.

Although security concerns are well-founded, viewing the GEI solely as an instrument of geopolitical control is overly simplistic. Infrastructure does not always function as a centralized mechanism of power; rather, it emerges through complex sociotechnical processes in which political, technological, and local factors interact and mutually transform one another [11]. In practice, the implementation of the GEI faces primarily technical and engineering constraints that complicate the creation of a global supergrid. According to existing research [12], despite significant technological progress in the field of ultra-high-voltage direct current (HVDC) transmission, substantial technical

limitations remain: individual lines rarely exceed 3,000 kilometres, and each intermediate converter increases both costs and energy losses. The proposed China–Europe connection (over 6,500 km) is considered economically unfeasible precisely for this reason. Massive capital investment, long construction timelines, and the high risk of technological obsolescence reduce the project’s attractiveness to investors and make governments cautious about commitments.

Equally complex are the institutional and regulatory barriers. Structurally, the GEI is implemented through the State Grid Corporation of China (SGCC) and its subsidiary organization, the Global Energy Interconnection Development and Cooperation Organization (GEIDCO), established in 2016 to provide the project’s technical and scientific support. GEIDCO employs around 2,000 engineers, funds scientific research, and has opened regional offices to cooperate with governments in various countries, including as a UN partner at the COP24 Climate Summit in Katowice (2018). However, the centralized management structure embodied by the SGCC has raised concerns in the West: such “technocratic international planning” may be perceived as an attempt by China to gain excessive control over critical energy infrastructure [12].

One of the potentially risky aspects of this management model for participating countries is the dispatch control system. GEIDCO reports emphasize that the efficient operation of the interconnected power grid depends on constant real-time data exchange [30]. This approach involves transmitting telemetry data to shared or Chinese data centres, creating risks for the security and confidentiality of critical information. In the context of military conflicts, such data sets may acquire intelligence value, as they can provide indirect indicators of the concentration of human and material resources, as well as reveal potential network vulnerabilities. Moreover, as noted in a research report by SWP [14], centralized dispatch management enables the network coordinator to indirectly influence its stability. Thus, the problem of centralized dispatch control goes beyond the technical sphere and acquires a dimension of energy security.

At present, the global supergrid lacks any supranational operator or mechanism to distribute

benefits, costs, and responsibilities among countries. Even proposals to create a “global system operator” or a special agency under the auspices of the United Nations remain purely theoretical, as it is unclear who would approve and finance such a structure. In the absence of a common market, each state plans its investments based on national interests, making it impossible to ensure an equitable distribution of risks and profits. Financing is further complicated by the lack of an international credit mechanism for intercontinental transmission lines – most participants prefer domestic projects financed and controlled through state budgets [12].

Political and trust-related factors further deepen these challenges. According to research [12], the lack of mutual trust among states is one of the key barriers to developing a global supergrid. The history of initiatives such as Desertec (Europe–North Africa) or the Australia–Southeast Asia transmission line shows that technocratic planning without the involvement of local stakeholders often leads to political disputes, a lack of local support, and project failures. In addition, social and environmental protests frequently slow down construction; even China acknowledges that extensive public consultations tend to delay network development. As a result, the GEI remains a high-tech initiative with global ambitions, but its coordination is complicated by a combination of technical constraints, institutional fragmentation, and political divergences.

#### **4. Infrastructure as an Instrument of Influence**

Beyond security concerns, the GEI project raises a deeper dilemma – technological and standards dependence. Today, China is the undisputed leader in ultra-high-voltage (UHV) transmission technologies: almost all existing UHV lines in the world have been built with the participation of Chinese companies [7]. The State Grid Corporation of China ranks third in the Fortune Global 500 and is increasingly displacing competitors in the field of energy infrastructure. Since the 2010s, Chinese manufacturers have been exporting transmission lines, substations, and equipment abroad, offering favourable financing and short construction times. On the one hand, this helps develop power grids

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in countries lacking their own resources. On the other, it creates a monopoly of standards, in which control protocols, software platforms, and technical regulations are all adapted to Chinese solutions. [7].

Such a monopoly of standards turns technology into a form of structural power. Control over network architecture, technical specifications, and protocols means the ability to set the framework for the development of an entire sector. Through its technological advantage, China gains a long-term geo-economic edge: participating countries become dependent on the supply of components, updates, and engineering support from the PRC. For Chinese corporations, this translates into stable exports and

political incentives at home. Within just a few years, SCCC's research budget in the UHV sector has tripled, and China became the first country in the world to build direct current lines operating at 1,100 kV and extending over 3,000 kilometres [5], [8].

Western countries are concerned: whoever sets the technical standards controls the market. If most states adopt the Chinese format, alternative manufacturers will find it difficult to offer competing solutions. The GEI envisions the unification of technical requirements for cross-border energy interconnections [10], and although this is formally presented as a measure to ensure compatibility, the standards are often tailored to the products of



Source: <https://english.news.cn/20250610/8643cf83a9ce4a75a52b4ef60865c001/c.html>

Chinese companies. Supporters of the initiative emphasize that standardization simplifies integration and improves efficiency. However, critics point out that if standards are dictated by a single country, it gains a structural advantage – the ability to set the pace and terms of technological evolution.

In a broader sense, this aligns with the logic of technological geopolitics. Control over energy

networks provides not only economic profit but also political influence. Estimates suggest that China accounts for up to 75% of global patent applications in the field of clean energy [13], and its companies are becoming key suppliers of components for future “supergrids.” Thus, the GEI reinforces long-term techno-economic dependence, combining industrial benefit with strategic control [5].

Analysts note that such power through standards operates not through direct ownership, but through the very logic of network architecture. As shown in the study “Geopolitics of Electricity” [14], electrical grids create technopolitical and technoeconomic zones of influence that extend beyond national borders and enable the projection of power through regulatory and technological mechanisms. In such systems, asymmetric dependencies emerge: states may use power networks to establish technical, legal, or economic dominance over their partners [14]. This approach allows the GEI to be viewed beyond the rhetoric of threats. The potential for influence is not always intentional; it may arise from the architecture of the network itself, from unequal investment flows, or from differences in standards. The network simultaneously generates both opportunities and vulnerabilities: countries connected to a single system share a common energy destiny in which risks and benefits are unevenly distributed [14].

At the same time, the complexity of such systems calls into question the possibility of absolute control. As noted by American political theorist Jane Bennett [15], author of the concept of the “agency of assemblages,” a power grid is not a hierarchy but a dynamic conglomerate of people, technologies, and natural processes. Power in such networks is distributed among human and non-human agents – engineers, regulators, electrons, the weather – and no one holds complete control over the outcome [15]. The large-scale blackout in North America in August 2003 illustrates this well: even the largest power systems remain vulnerable due to the complexity of interactions between technical, natural, and human elements. The outage began with a few local incidents in the state of Ohio – overheating transmission lines, contact of wires with trees, and a small fire beneath a power line. These seemingly minor malfunctions triggered a cascading reaction within the system, as substations began disconnecting one after another and generators automatically shut down to prevent overload. Within one minute, twenty power plants with a combined capacity of more than 2 GW went offline, leaving around fifty million people in the United States and Canada without electricity.

As it later turned out, the causes were not purely technical but systemic. First, the grid experienced a shortage of reactive power – a type of electricity that

maintains voltage stability in the system but does not generate direct profit. After the deregulation of the energy market in the 1990s, companies were incentivized to produce only commercially profitable “active” power rather than invest resources in maintaining system stability. Second, new rules allowed the sale of electricity over long distances between different regions, creating excessive loads on transmission lines. This led to unpredictable “loop flows,” when electrical energy moved along routes other than those planned by operators, causing chaos in load distribution. As a result, the grid effectively “collapsed from within” – not because of a single malfunction, but due to the interaction of hundreds of factors: software, automation, economic incentives, weather conditions, and human decisions.

According to Bennett [15], this blackout demonstrated that the power grid is an “assemblage” in which agency is distributed among human and non-human forces. Within this system, government regulators, corporations, engineers, software algorithms, electrons, trees, heat, economic laws, and even political decisions all operate simultaneously. None of these factors can fully control the system, yet each exerts influence upon it. As Bennett writes, “the network lives by its own rules” – its actions cannot be reduced to the will of particular individuals or organizations. This case vividly illustrates that power within infrastructures is distributed rather than centralized, and that even high-tech systems possess an internal autonomy generated by the interaction of diverse agents. From this perspective, even if China sets the standards, the infrastructure itself may function unpredictably, producing effects that go beyond its initial intentions.

Thus, the GEI embodies two intertwined logics. On the one hand, it is a geo-economic project in which China leverages its technological and financial advantage to shape standards and create dependencies that may, over time, become levers of political influence. On the other hand, it is a sociotechnical system that is formally open but in practice gradually centralizes the management of data and energy flows. This duality represents the core danger of the GEI: behind the rhetoric of shared development lies the potential for constructing a new, China-controlled infrastructural hierarchy.

## 5. Energy Sovereignty and Dependence

The development of the global GEI power network raises a fundamental question for the world – what does energy sovereignty mean in an age of interdependence? Such a system transforms the very notion of state control over its own resources. On the one hand, it promises mutually beneficial exchange: countries with a surplus of clean energy can export it to those in need, creating balance. On the other hand, there emerges the risk that whoever controls the networks also controls the nations, as infrastructure becomes a tool of strategic influence.

Analysts warn [5] that through the GEI, China gains the ability to shape economic interdependence with its partners, turning it into a source of geo-economic influence. Such dependence may allow Beijing to “nudge” countries into accepting conditions favourable to China, since the economic ties embedded in infrastructure possess their own political inertia. Concerns about the loss of sovereignty intensified after Chinese state-owned companies began actively investing in energy enterprises abroad. SGCC and other major corporations acquired shares in grid operators across South America, Southern Europe, and Southeast Asia [7]. In the EU, this triggered debates over the risks of external control of critical infrastructure: large countries such as Germany and France blocked Chinese deals, while smaller states like Portugal and Greece allowed the participation of Chinese investors [16]. As a result, the EU introduced screening mechanisms for strategic investments to safeguard energy sovereignty.

The problem, however, lies not only in ownership but also in the very architecture of the networks. Infrastructure creates technopolitical spaces in which asymmetric dependencies emerge: states that possess technological advantages or define standards gain the ability to set the rules of the game [14]. Power grids function as techno-economic spheres of influence, where control over technological standards, transmission nodes, and regulatory mechanisms establishes structural power similar to that of financial or digital platforms. In synchronized regional systems, distinctive “energy communities” [14] arise, where countries simultaneously benefit from interdependence and lose part of their autonomy in determining their own energy policies. Power in infrastructure operates not through centralized

control but through structural asymmetry, where one actor wields greater tools of influence – from patents and technologies to regulatory norms. In this sense, energy sovereignty becomes relative and depends not only on a state’s control over assets within its territory but also on its ability to participate in shaping global rules [14].

At the same time, power grids are not merely technical but sociotechnical systems. Their stability and legitimacy depend on the interaction of technology, politics, and public acceptance, without which the transition toward more decentralized, flexible, and low-carbon energy systems is impossible [17]. As analyses of electricity infrastructure show, influence in this field arises not through directives or coercion but through participation in standard-setting, the coordination of market rules, and the creation of conditions for institutional integration [17]. Therefore, even if China builds the technological foundations of the GEI, the very act of participating in standardization and infrastructure financing already generates a form of power that persists regardless of how it is perceived by partners.

This duality – the combination of mutual benefit and structural asymmetry – is well illustrated by the practice of “infrastructure diplomacy.” In a number of Global South countries, projects financed by China are presented or framed by local governments as instruments for strengthening energy independence and economic stability, even when they simultaneously create new forms of financial or technological dependence. According to official assessments, in Ethiopia the electrification of industrial zones and the development of solar generation with the support of Chinese companies have helped reduce dependence on imported fossil fuels [31]. In Pakistan, government reports under the China–Pakistan Economic Corridor indicate that the construction of hydro and thermal power plants has made it possible to overcome chronic electricity shortages [32]. In Laos, official discourse presents large-scale hydropower as an opportunity to export electricity to neighbouring countries and positions the country as the “Battery of Southeast Asia”.

In conclusion, the analysis shows that infrastructural interaction within the GEI is not neutral. Even when projects are perceived as mutually beneficial or depoliticized, they embed a potential for structural

influence that can remain hidden for a long time. Beijing may not employ this interdependence as a tool of direct coercion, yet the very asymmetry in access to technology and data creates long-term conditions for the expansion of China's influence. In this sense, the GEI project simultaneously challenges the classical notion of sovereignty: countries connected to the global power grid do not formally lose it, but are compelled to reconsider how sovereignty is exercised amid technological integration and dependence.

### 6. Global Reactions to the GEI

The international response to China's GEI initiative has been mixed. Many countries, especially in Africa, Asia, and South America, have reacted positively, seeing in it an opportunity to attract investment in the energy sector and provide electricity to their regions. As researchers note, the immense need for grid modernization and the development of renewable energy sources compels states to welcome external funding, and no one but China currently offers financing and technology at such a scale. Chinese companies fill this vacuum, readily building where others hesitate, earning a reputation as partners in development. As RAND analyst Ismael Arciniegas observes, "China is the only one with the financial muscle and know-how to build ultra-long UHV lines" [5]. This pragmatism appeals to many governments in the Global South. Often, participation in the GEI is framed through the lens of combating climate change: UN officials explicitly state that a global power grid could help deliver sustainable energy for all and close the energy gap between rich and poor countries. For instance, in Africa, an alliance of about ten states was established under GEIDCO's initiative to promote interconnections and the joint use of hydropower resources — a step that has been met there with considerable enthusiasm.

At the same time, in developed countries the GEI has provoked caution. The United States has openly refrained from participating in the project and, in expert circles, it is often criticized as a Chinese geostrategic initiative. In late 2023, the RAND Corporation published a report on the global security implications of the GEI, effectively warning U.S. allies about new risks of dependence [5]. The

European Union has no unified position on the GEI, but in practice Brussels has introduced strict investment screening rules in the energy sector to prevent networks from falling under foreign (in this case, Chinese) control. EU countries, on the one hand, cooperate with China in the development of green energy, while on the other hand restricting the sale of key energy companies. For example, the German government has repeatedly blocked the acquisition of shares in its power grids by Chinese investors, citing national security concerns [6]. Such measures reflect a form of cautious adaptation: the West acknowledges that global networks will inevitably expand but seeks to minimize risks by establishing protective barriers and its own standards.

There are also alternative initiatives that, to some extent, respond to the challenge posed by the GEI. In 2021, India, together with Europe, announced the concept of "One Sun, One World, One Grid" (OSOWOG) – a global solar network intended to connect 140 countries by transmitting solar energy in step with the Earth's rotation. This project is presented as a "solar alliance" and even as an instrument of India's foreign policy, designed to demonstrate leadership in clean energy [19]. Although OSOWOG remains in its early stages, its emergence shows that major powers are unwilling to leave Beijing with a monopoly over the idea of a global grid. There are also regional supergrid projects being advanced independently of China, for example, plans to link the electricity networks of the Gulf countries with North Africa and then with Europe. Some of these projects overlap with the routes proposed by the GEI, while others compete with it.

International analysts are gradually coming to understand that the global power grid is not so much a specific Chinese project as an inevitable stage in the evolution of the world's energy system. The choice is not whether interconnection will happen, but who will carry it out and under what conditions. Therefore, instead of direct confrontation, many states have chosen to participate in shaping the rules of the game. For example, European countries, through international organizations such as the International Energy Agency and the International Energy Forum, insist on transparent principles for the future energy integration that would prevent unilateral control or unfair competition. Work is



underway on cybersecurity standards, mechanisms for resolving disputes in cross-border electricity trade, and guarantees for investors. This “soft approach” indicates that the international community seeks to adapt to the idea of global networks – minimizing risks while not losing potential benefits.

## 7. Russia’s Role in the GEI

China’s cooperation with Russia extends beyond oil and gas imports to include a significant electric power partnership. Within the discourse of the Global Energy Interconnection, Russia is portrayed as a key “energy bridge” between Asia and Europe. In the statements of Russian and Chinese experts, emphasis is placed on the deep integration and unique geographic position of Russia’s power system. At the early stage of the initiative’s formation in 2017, Oleg Budargin, then head of Rosseti and later a member of GEIDCO’s leadership, stressed that thanks to Russia’s well-developed internal integration, favourable geographic location, and more than 140 power transmission lines connecting it with eleven neighbouring states, the Russian energy system possesses exceptional potential to become an energy bridge between Asia and Europe

[20]. In this context, Russia sought to position itself as a key partner and transit hub of the future global grid. At the time, Deputy Minister of Energy Anatoly Yanovsky emphasized that the country’s substantial energy resources and transit capacity provided the foundation for its leading role in international energy connections.

Energy cooperation between China and Russia began as early as 1992 and has become one of the most stable dimensions of their bilateral relations. In 2012, the two sides signed a 25-year agreement under which Russia is to supply China with about 100 billion kWh of electricity by 2037 [23]. These long-term intergovernmental contracts have ensured a steady annual flow of electricity amounting to tens of billions of kilowatt-hours. According to People’s Daily, at the stage of energy partnership formation before the COVID-19 pandemic and Russia’s full-scale invasion of Ukraine, China purchased a total of 24.87 billion kWh of electricity from Russia through three operating cross-border transmission lines [21]. The largest of these – the 500 kV line “阿黑线” (Amur–Heihe) – remains the main transmission channel. Although this exchange takes place outside the formal framework of the Global Energy Interconnection project, in China’s official discourse

it is interpreted as “the foundation of GEI’s northern expansion,” the first practical step toward the future integration of power systems. As People’s Daily emphasizes, the Russia–China interconnection project not only laid the groundwork for GEI’s northern direction but also deepened infrastructural cooperation between the two countries [21].

Although in 2024, according to Reuters [22], the volume of electricity supplies fell by nearly half, the pre-war period can serve as a benchmark for assessing the potential of the northern direction within the GEI framework. The reduction in purchases in 2024 was linked to increased domestic electricity demand in Russia’s Far Eastern regions and lower water levels, which limited hydropower generation [25]. Additional factors may have included financial difficulties – sanctions pressure and delays in settlements between Russian and Chinese companies, which complicated external trade [26]. Representatives of the Global Energy Interconnection Development and Cooperation Organization emphasize that both China and Russia remain key participants and “reliable executors” of joint projects, and their cooperation, according to official statements, is expected to “deepen and deliver even greater results” [21].

A strong institutional foundation and deep integration of power systems indicate that the energy partnership between Russia and China has not only an economic but also a strategic dimension. Analysts from the Norwegian Institute for Defence Studies note that, given the close level of integration between the two countries, it is unlikely that China would “weaponize” the power grid in its relations with Russia in the future, as such a move would also harm Beijing itself [24]. However, this assessment reflects the current balance rather than the long-term strategic outlook. China is actively building infrastructural autonomy – developing its own energy capacities, transmission channels, and technological standards – which enables control rather than dependence on external partners. In other words, the present interdependence is more of a temporary phase of adaptation, during which Beijing is preparing to shift the centre of energy gravity inward and strengthen its influence over cross-border flows.

China is steadily expanding its own base of renewable generation, reducing the need for imported supplies.

A telling example is the Talatan Solar Park –one of the world’s largest renewable energy complexes — which embodies Beijing’s course toward self-sufficiency and technological leadership. If the GEI project is implemented in full, China is likely to become not a dependent consumer but rather the central hub of the global network, controlling energy flows. Such a scenario creates a new structural asymmetry of power in the global energy system, which calls for critical reflection in the context of the redistribution of energy power and global energy governance.

### 8. Ukraine’s Position in the GEI

Ukraine currently does not appear in any official or analytical publications related to the GEI project. It is not considered either as a transit territory or as a participant in future intercontinental energy routes. Following the outbreak of the Russian–Ukrainian war, Ukraine decisively changed its direction of energy integration by joining the continental European system ENTSO-E. Chinese industry media noted as early as 2022 that Ukraine’s power system had been technically synchronized with the European network, opening the possibility of exporting surplus electricity – primarily nuclear – to EU countries [27]. Thus, in the Chinese discourse, Ukraine is viewed not as a potential “energy bridge” between Europe and Asia but as part of the European energy space, integrated into the logic of ENTSO-E rather than the future transcontinental corridors of the GEI.

Instead, Chinese analysts focus mainly on routes that bypass Ukraine, interpreting the war itself as a key factor in the ongoing energy restructuring. As noted by GEIDCO observer and researcher Zhang Rui, the Russian–Ukrainian war has become “a catalyst for global energy transformation” [28]. According to him, it has led to a “camp polarization” between those countries that have rejected Russian energy resources and those that continue to use them, creating a new configuration of demand and supply routes across Eurasia. This process, Zhang argues, has stimulated the emergence of new energy directions around Ukraine. In particular, he cites the joint project of Azerbaijan, Georgia, Hungary, and Romania to build a more than 1,200-kilometre undersea cable across

the Black Sea to supply electricity to Central and Eastern Europe. Other examples include the France–UAE and Saudi Arabia–Greece lines, which aim to form new energy corridors between the Middle East and Europe. In Zhang’s view, such networks not only expand opportunities for electricity trade but also shape a new geopolitical imagination of the energy landscape.

An analysis of the Chinese energy discourse shows that the Russian–Ukrainian war is presented not as an act of aggression but as a structural trigger of global energy restructuring that has “retuned the conductor’s baton of world energy flows” [28]. This interpretation removes the political sharpness of the events, framing them as part of a natural process of “energy space reconfiguration.” Within this logic, China positions itself not as a participant or moral arbiter of the conflict but as an observer and potential beneficiary capable of turning the crisis into an opportunity for its own technological and infrastructural expansion. For China, the war is not viewed as a tragedy but as a catalyst for a new stage of energy globalization – particularly through the diversification of electricity supply routes, the development of “green” interregional grids, and the strengthening of China’s role as a coordinator.

The key concept Zhang Rui uses to describe the consequences of the war is “camp polarization” [28]. It is understood not in a political or moral sense of “enemies versus allies,” but as an energy category denoting different modes of supply and consumption. On one side are the countries that have rejected Russian energy resources and reoriented toward alternative sources; on the other, those that have remained within the zone of Russian supplies. This differentiation creates a new map of energy flows, in which China positions itself outside the bloc logic as a technocratic integrator of “both camps.” In this context, Chinese publications shift their focus to the Caucasus, the Black Sea, and the Middle East, presented as promising “bypass zones,” that is, spaces of new energy interaction enabling the connection of Asia and Europe without passing through Ukrainian territory. Thus, Ukraine’s absence from Chinese energy schemes is not accidental: it reflects Beijing’s strategic goal of minimizing political risks while maintaining the appearance of neutrality and the techno-infrastructure character of the GEI initiative.

In conclusion, within the conceptual framework of the GEI as presented by GEIDCO, Ukraine is designated as part of the European continental segment rather than the Eurasian “energy bridge.” At the same time, in Beijing’s strategic vision, Ukraine has long been viewed not as an independent energy actor but as an element of the post-Soviet space remaining within Russia’s sphere of influence. This has resulted in the absence of a distinct “Ukrainian” line in China’s energy strategies.

Despite Ukraine’s synchronization with the European power system in 2022, the trans-Eurasian segment of the GEI leading to Europe has not yet been realized: none of the proposed routes – neither the northern one through Russia nor the southern one through the Middle East – has entered the stage of technical design. Under these circumstances, future transregional routes for electricity supply and exchange, if they reach Europe at all, are likely to be developed through alternative southern and eastern directions while maintaining the current military-political status quo. This follows from a combination of political, security, and geoeconomic factors: at present, Beijing prioritizes more stable Asian corridors already integrated into its infrastructural presence, whereas the war increases the risks and transactional uncertainty associated with the northern vector.

## 9. Conclusions

The GEI is not merely a Chinese project but a mirror of the global transformations taking place in the structure of energy power. For the international community, it serves as a test not so much of technological capability as of political trust. States now face a difficult moral, political, and strategic choice: to join intercontinental connections and reshape established partnership models, or, conversely, to strengthen their own energy supply systems. Ignoring the GEI may deepen the divide between the West and the rest of the world, potentially worsening relations with the Global South and ultimately dividing the world into those who can afford to distance themselves from China and those who depend on it. An alternative could lie in investing in local microgrids and energy storage to enhance system resilience, alongside developing clear international rules and protocols, particularly in the field of power grid cybersecurity.

At the same time, the very concept of a global power grid remains deeply ambiguous. Can such a system function without centralized control? Is it possible to establish common standards when countries possess vastly different political interests and technological capacities? The issue lies not only in technology but in the form of trust that can sustain or undermine such connections. The GEI calls for finding a balance between integration and sovereignty, between global ambitions and local realities. Despite declarations of mutual benefit, an open question remains: can the Global South become an equal participant in this new energy architecture, or will its role once again

be defined by others – those who finance, design, and control the grid? And is the pursuit of “green development” truly worth the partial surrender of energy sovereignty in exchange for integration into global networks?

Any cross-border network requires not only engineering solutions but also trust – trust in partners, in standards, and in the very idea of a shared energy architecture. And it is precisely this trust, rather than technology, that will determine whether the GEI can become the foundation of a new model of cooperation or remain yet another unattainable project of global interdependence.

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## Is Russia Capable of Creating an Alternative to China in the Field of Rare Earth Metals?

“ Over the past three years, whenever the United States begins to restrict technology transfers or raise tariffs on China, Beijing has responded by increasing economic pressure on the United States’ defense-industrial base. China has significant leverage to do so, namely its global dominance in the extraction and processing of rare earth metals (REM). For example, this was the situation on April 4, 2025, which occurred in response to the US “Liberation Day” tariffs. The United States is looking for ways to protect itself from Chinese dominance.

At the end of February 2025, the Russian leadership offered US President Donald Trump its own agreement on the extraction of rare earth metals, including in the occupied Ukrainian territories. This proposal arose against the background of the signing of the agreement on minerals between Ukraine and the United States. According to Vladimir Putin, the Russian Federation has much more deposits of rare earth metals. He also stated that Russia is ready to implement joint projects with the United States on the extraction of aluminum in Krasnoyarsk, in particular, it was promised to provide the American market with 2 million tons of this metal. Despite the fact that Russia is rich in minerals, it cannot catch up with China in the field of rare earth metals.

### Chinese monopoly in the world

As noted in the CSIS article [5], today China produces 60% of the world’s rare earth metals. The PRC has a real monopoly in the processing of these metals, which is 90%. Therefore, China imports rare earth metals from other countries [5]. If we break down these figures, China refines 89% of the world’s neodymium and praseodymium. These metals play a major role in the manufacture of electromagnets. According to forecasts by the consulting company Benchmark Mineral Intelligence, by 2028, Chinese production of rare earth metals will decrease to 75%. This is stated in a Reuters study [8].

The article “Mine the Tech Gap: Why China’s Rare Earth Dominance Persists” mentions that China has

a monopoly on the processing of heavy rare earths such as dysprosium (Dy) and terbium (Tb), as well as light ones: neodymium (Nd) and praseodymium (Pr) [7].

The European Commission website published information that in 2024, 12,900 tons of rare earths were imported into the EU, which is 29.3% less than in 2023. At the same time, 5,500 tons of rare earths were exported from the EU. Overall, exports fell by only 0.8%.

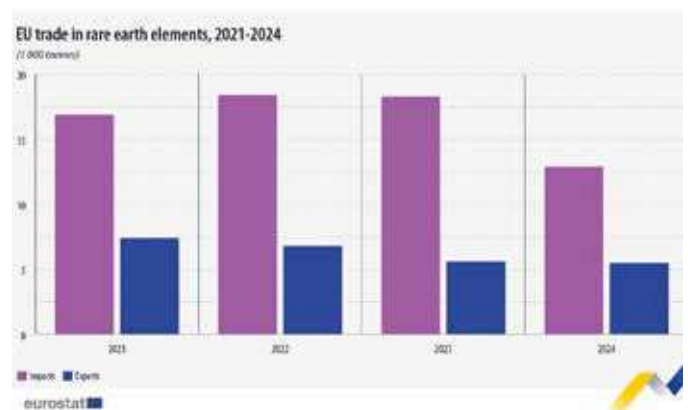


Fig. 1. Rare earths trade during 2021-2024 (source: European Commission website).

Almost half of REM imports came from China in 2024, accounting for 46.3% of total imports (6,000 tons). Russia came in second with 28.4% of imports (3,700 tons), and Malaysia came in third with 19.9% of imports (2,600 tons) [39].

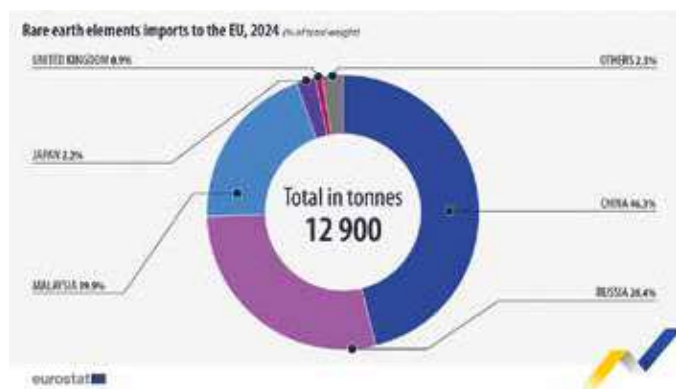


Fig. 2. Imports of rare earth elements to the EU in 2024 (source: European Commission website).

In 2024, REM production increased to 390,000 metric tons worldwide [41]. There was also an increase in demand for neodymium, dysprosium, praseodymium, and yttrium, which is associated with the rapid development of technology. In 2024, 70% of REM imports to the United States came from China. The United States is the second largest producer of REM, but it lags behind China. At the same time, REM reserves in the United States account for only 2% of total global reserves [41]. Russia produced only 2,600 tons of REM in 2024. This figure has been stable over the past five years, indicating a lack of development of this industry in the Russian Federation.

According to data from the United States Geological Survey (USGS), published in the article “Top 10 Countries by Rare Earth Metal Production” [41], the top ten countries by rare earth metal production in 2024 are:

**1. China.** In 2024, China’s domestic production of rare earths was 270,000 metric tons, compared to 255,000 metric tons in 2023.

**2. United States.** The United States produced 45,000 metric tons of rare earths in 2024, compared to 41,600 metric tons in 2023 (the main mine is Mountain Pass in California, owned by MP Materials, which produces high-purity neodymium and praseodymium oxide). The US Geological Survey estimates the value of rare earth imports to the United States in 2024 at \$170 million, compared to \$186 million in 2023.

**3. Myanmar.** In 2024, rare earths production was 31,000 metric tons. Myanmar saw a 27% decline in production. This is due to instability in the country following the 2021 military coup.

**4. Australia.** In 2024, production was 13,000 metric tons compared to 16,000 metric tons in 2023. Australia has the fourth largest reserves of rare earths in the world and is poised to increase its production. Lynas Rare Earths (ASX:LYC,OTC Pink:LYSCF) is the leading rare earth producer outside of China, operating the Mount Weld mine and concentrator in Western Australia.

**5. Nigeria.** Nigeria’s REM production in 2024 was 13,000 metric tons, an increase of over 80% from 2023. In late 2024, the Nigerian government signed a memorandum of understanding with the French government to jointly develop critical minerals, including REM.

**6. Thailand.** REM production in 2024 was 13,000 metric tons, up 261% from 2023. The country is China’s main source of REM imports. Neo Performance Materials’ subsidiary Neo Magnequench controls a REM magnetic materials production facility in Korat. Chinese electric vehicle giant BYD opened a \$486 million electric vehicle production facility in Thailand in July 2023. According to the Financial Times, this will allow Chinese electric vehicle manufacturers to penetrate deeper into Southeast Asia.

**7. India.** India’s REE production in 2024 was 2,900 metric tons, unchanged from the previous few years. India’s rare earth production is well below its potential. This is despite the country having 35% of the world’s total beach sand deposits, which are sources of REM.

**8. Russia.** In 2024, Russia produced 2,600 metric tons of rare earths, the same as in the previous five years. Russia ranks fifth in the world in rare earth reserves. Russia’s largest rare earth deposit, Tomtor, has recently been developed by Rosneft, which acquired the deposit from TriArk Mining, a joint venture between Rostec and billionaire Alexander Nesis.

**9. Madagascar.** Madagascar produced 2,000 metric tons of rare earths in 2024, almost on par with 2,100 metric tons in 2023 but significantly less than the 6,800 metric tons in 2021. The Ampasindava Peninsula contains 628 million metric tons of ionic clays with significant concentrations of rare earths. This is one of the largest rare earth deposits outside of China.

**10. Vietnam.** Production in 2024 was 300 metric tons, the same as in 2023. This is 75% less than the 1,200 metric tons in 2022. Vietnam has the sixth largest reserves of rare earths in the world, including deposits on the northwestern border with China and along the east coast.

Ukraine is not among the top producers of rare earths, but it has significant reserves in the Volyn, Podolsk, Central, Kryvyi Rih-Kremenchuk, and Azov regions.

*According to CSIS experts [5], China has a number of advantages in rare earth mining compared to other countries. These advantages are:*

- availability of technical know-how in the field of metal processing and purification;
- in other countries, plants for the separation, processing and production of rare earth elements are under construction, so it will take many years to complete and put into operation;
- extraction and processing of rare earths are harmful to the environment. Western countries are not willing to take these risks [5].

### **Rare earth resources of the PRC**

According to Reuters, China has 44 million metric tons of rare earth reserves, accounting for 34% of the world's total [8]. The most prominent of these are the heavy rare earths, which together account for 80% of the world's heavy rare earth reserves. They are mined in several regions of China.

In northern China, the main producer of rare earth metals is Inner Mongolia Baotou Steel Rare-Earth Hi-Tech Company, and in the south, China Minmetals. Other large companies are Aluminum Corporation of China Limited and China Non-Ferrous Metal Mining. There are also two state-owned research institutions specializing in rare earth research in China, namely the State Laboratory of Rare Earth Chemistry and Application, affiliated with Beijing University, and the State Laboratory of Rare Earth Resource Utilization in Changchun, Jilin Province.

### **Deposits of rare earth elements and critical minerals in the PRC:**

- the largest deposit is located in Bayan-Obo in

Inner Mongolia (accounts for over 50% of the world's production of rare earths and 70% of the reserves of these metals in China. The largest mining company is China Northern Rare Earth High-Tech [10]);

- large deposits have been developed in Sichuan province, the Weishan area in Shandong province;
- in the Xinjiang Uyghur Autonomous Region there are large veins of pegmatites in the Kyoktokai, Kuzhurty, Khusty, Obogon, Bazai deposits;
- pegmatite deposits in Guangdong province (near Changzhou);
- the Yichun tantalum deposit is in Jiangxi province;
- from 10 to 20 tons of tantalum are mined at enterprises in Limu (Guangxi Zhuang Autonomous Region);
- lithium is extracted from salt lakes in central and western China, as well as from pegmatites in the Shanpi (Jiangxi Province) and Dangsimu (Inner Mongolia) deposits;
- in 2024, several new large deposits were discovered in China: in Yunnan Province [15]. According to information in Chinese media, they may have more than 1.15 million tons of resources [16]. A press release from the China Geological Survey (CGS) indicated that the deposit may be a source of praseodymium, neodymium, dysprosium and terbium and contain more than 470,000 tons of these minerals [16];
- in July 2024, Chinese geologists discovered two new minerals, oboniobite and scandium-fluorine-ekkermanite, in the Bayan-Obo mine in Inner Mongolia [16].

In 2022, China Northern Rare Earth Group announced that its subsidiary Zibo Baosteel Lingzhi Rare Earth High-tech Co., Ltd., a 25,000-ton-per-year rare earth chloride smelter in Zibo, Shandong Province, East China, had completed construction and passed testing. The company specializes in polishing powder, which is made of cerium oxide. The demand for it is high and is linked to the rapid growth of demand for electronic products, including mobile phones and liquid crystal displays [26].

Shandong Shenghe New Materials Technology Co., Ltd. produces 5,500 tons of rare earth elements every

year and transfers them to the park for Zhongkai rare Earth Materials Co., Ltd. Zhongkai rare Earth Materials Co., Ltd. Shandong Shenghe New Materials Technology Co., Ltd. is located in Hanjia Village and Xiuwang Village, Jinshan City [27].

Sichuan has established a national rare earth production base with an industrial scale of rare earth elements exceeding 1.474 billion US dollars by 2027. Sichuan has accelerated the restructuring and integration of rare earth mines in Mianning and Dechang. Rare earth smelting and separation are carried out in Leshan and Liangshan. Chengdu, Mianyang, Leshan are developing the metal deep processing industry [27].

Jiangxi Rare Earth & Rare Metals Tungsten Group Imp & Exp Co., Ltd. is a subsidiary of Jiangxi Rare Metals Tungsten Group Holding Co., Ltd. It is one of the large industrial conglomerates in Jiangxi Province, which focuses on tungsten production. JXHC is a large state-owned industrial enterprise in China with sales revenue of over 10 billion US dollars, which has nine mines in China with a total tungsten concentrate production capacity of nearly 10,000 tons per year, as well as more than eight factories with a total production capacity of about 30,000 tons [27].

### **“Uncommon” REMs or the miracle of the Chinese monopoly**

The name “rare” in the phrase REM is not due to the fact that these metals are rarely found in natural minerals. In fact, there are more of them than silver and gold, but they are scattered. China’s dominance in this area is due to the fact that the extraction and purification of these metals is environmentally destructive. China did not pay attention to the state of the environment, so it developed its capacity to become a monopolist. The United States and other Western countries willingly gave their REM to be purified in China so as not to create an ecological disaster [29].

If Beijing continues to use its monopoly as leverage, Western countries, together with Japan, are ready to seek an alternative and develop processing methods that will be much more environmentally friendly. Japan has already proposed that the G7 group (Canada, France, Germany, Italy, the United Kingdom and the United States) join forces to find and finance methods

for extracting and processing rare earths in Africa and Latin America. Japan is ready to take the lead in creating an alternative [29].

The US has begun supporting the domestic REM value chain by funding research and projects under the Inflation Reduction Act. Australia supports REM projects through tax incentives, Europe seeks to increase supply through domestic supply quota targets. Australia’s 2024–2025 budget included a 10% mining tax credit and funding for pre-feasibility studies for all critical minerals, including REM. The Biden administration in the US has imposed a 25% import tariff on REM magnets from China from 2026.

The total world reserves of rare earths are about 115 million tons. This will last the world for 300 years at the current rate of use. More deposits are likely to be discovered in the coming years, so resource shortages are not a problem [32].

In 2024, a Norwegian mining company announced that it had discovered Europe’s largest-ever explored deposit of rare earths not owned or controlled by China. Rare Earths Norway’s discovery was a boost in Europe’s bid to overcome China’s dominance in the rare earths industry.

On July 10, 2025, Donald Trump met with five West African leaders at the White House to discuss trade and development, and to increase the American presence on the African continent. Trump emphasized the US desire to conclude trade agreements on rare earths to reduce dependence on China. This could counterbalance China’s traditional “infrastructure for resources” strategy.

### **China is concerned about securing its domestic market**

Rising domestic demand and prices have prompted Chinese exporters to sell more REMs domestically. As a result, REM exports from China fell by 11.5% in September 2024 compared to August [31]. China is seeing a sharp increase in the production of electric vehicles and consumer electronics, which require REMs. “Some exporters preferred to sell domestically amid rising prices,” said Yang Jiawen, an analyst at Shanghai Metals (SMM) Market. On September 30, 2024, spot prices for praseodymium-neodymium oxide in China rose by 5% compared to

August of the same year. This is due to the fact that the Chinese government introduced new regulations on the industry from October 1, so REM production was lower than expected. Smelting and separation quotas and increased seasonal demand played a role. All of this combined has led to a reduction in domestic supply and an increase in prices. At the same time, interest in magnetic products abroad has decreased amid an increase in supply outside China.

Four rare earth elements are of particular importance to modern technology – neodymium, praseodymium, dysprosium and terbium. They are projected to account for 98% of the rare earth market by 2030.

Neha Mukherjee, senior analyst for critical minerals at Benchmark Mineral Intelligence [31], said the country with a population of one billion can maintain its dominance in the industry because of its economic scale, government subsidies and vast reserves. These factors contribute to the fact that the prices of rare earths and their products in China are more favorable than in other countries. China is focused on maintaining stable prices for rare earths to support its domestic electric vehicle industry.

China's manufacturing sector is now larger than that of the United States, Germany, Japan, South Korea, and the United Kingdom combined. The PRC is close to ending its dependence on US supplies in many sectors, except for the fastest-growing semiconductors.

### **China is developing and extracting rare earths in other countries, but not Russia.**

China is actively increasing imports of rare earth raw materials in the form of unseparated compounds from other countries. In 2021–2023, Vietnam exported 3.4–3.6 thousand tons of rare earth products to China [34].

A hydrometallurgical plant, LAMP, has been built in Malaysia to produce neodymium and praseodymium. Products are supplied to Japan, France, and China, with China's share in 2022 being 36% [34].

At the beginning of 2025, China's imports of rare earths fell by 41.1% compared to 2023 to 9,645 tons. In 2024, 132,931 tons were produced, which is 24.4% less than in 2023. Experts believe that the drop was due to reduced supplies from the United States and Myanmar [18].

In October 2024, militant groups fighting the military regime in Myanmar took control of a mining center that is a major supplier of rare earth oxides to China, causing a disruption in supplies [18].

Imports of heavy rare earth oxides from Myanmar to China have surged from 19,500 tonnes in 2021 to 41,700 tonnes in 2023. The latter figure is more than double China's own quota for domestic rare earth mining. Satellite images analysed by Global Witness have shown significant destruction in Myanmar due to this mining. In Kachin I region, which is controlled by armed groups linked to the Myanmar government, the number of mining sites has increased by 40%. This mining covers the area from the border town of Pangwa to Chipwe. An increase in mining sites has also been observed in Momauk, a region controlled by the Kachin Independence Organization. The vast majority of mining in the country is illegal and controlled by illegitimate military militias [6].

Trade data shows that most mining chemicals come from China. In 2023, 1.5 million tons of ammonium sulfate and 174,000 tons of oxalic acid were exported to Myanmar [6].

China receives 70% of its raw materials for medium and heavy rare earths from Myanmar, particularly dysprosium and terbium. The extraction of these metals is critical for clean energy technologies (electric vehicles and wind turbines) [10].

According to London-based Benchmark Mineral Intelligence [11], Chinese companies control most of the cobalt mines (important in the production of electric vehicle batteries) in the Democratic Republic of Congo. Congo accounts for 70% of the world's cobalt supply.

Professor Zuo Zhengguang [35] of the Laboratory of Geological Processes and Mineral Resources of the China University of Earth Sciences and his team are working to use artificial intelligence technologies to determine the exact coordinates of rare earth deposits in the Himalayas. According to preliminary estimates, this may be a belt over a thousand kilometers long in the highlands near the southern borders of Tibet. This is a disputed territory between China and India. In China, these metals are important for the production of electric vehicles, electronic devices, batteries, wind turbines, efficient oil refining, and the military-industrial complex.

Turkish President Recep Tayyip Erdogan met with Chinese President Xi Jinping in Kazakhstan in July 2024 [30] to discuss cooperation in the development of rare earths. In 2022, Turkey discovered large reserves of rare earths near Eskisehir in Central Anatolia. The Turkish Ministry of Energy announced its readiness to build a plant there to process the raw materials. At the same time, the Chinese Communist Party newspaper Global Times wrote that “this discovery has created an opportunity for China and Turkey to cooperate.”

### **Strategic advantages of Chinese dominance**

China’s dominance in the rare earths industry is no accident – it is the result of decades of strategic planning, technological investment and economic maneuvering. The advantages are as follows [17].

**1. Cost advantage.** China has used its low labor costs, government subsidies, and less stringent environmental regulations to produce rare earths at a fraction of the cost of other countries.

**2. Processing capabilities.** The most critical bottleneck in the product supply chain is not mining, but the processing of rare earths.

**3. Vertical integration of the supply chain.** This allows China to control not only raw materials but also high-value-added products made using rare earths, such as magnets and special alloys used in high-tech and defense industries.

**4. Global influence through export policy.**

**5. Critical role in green energy and technology.** REMs are essential for renewable energy technologies such as wind turbines and solar panels.

**6. Economic and geopolitical leverage.** In the modern world, geopolitical tensions are moving beyond traditional battlefields and into the fields of economics and technology. One of the most powerful tools in this confrontation is control over the supply chains of critical raw materials. China, in the case of its dominance in rare earths, gains unprecedented leverage over the economies and defense sectors of the United States and the European Union. This dependence turns raw materials into weapons capable of destabilizing Western democracies without firing a single shot [40].

### **Scenarios of China’s pressure on the economies of other countries**

The article “Caught in the US-China Crossfire: To Protect Itself, Europe Must Call a Critical Raw Material Emergency” [40] provides a detailed analysis of the global threats posed by China’s dominance in the extraction and refining of rare earths. The authors propose three potential scenarios for Beijing to use its monopoly on critical materials to pressure the democratic alliance.

#### ***Scenario 1: Targeted attack with unpredictable consequences***

China seeks to cause chaos. Beijing threatens sanctions on component manufacturers from third countries, in particular South Korean companies that produce transformers and supply products to the US military. In addition, the PRC may block supplies to European wafer manufacturers in order to disrupt production processes in the US military-industrial complex. The threat to global security is that China has become the largest producer of semiconductors and is rapidly increasing production of all types of chips. At the same time, the US and the EU still do not produce gallium.

#### ***Scenario 2: Untargeted attack with major consequences***

If China’s goal is to inflict the most severe blow possible on the US military, it would need to drastically reduce or stop exports to other countries. Even reducing supplies already carries many risks. For example, a 30% reduction in gallium exports could reduce US economic output by \$602 billion (2.1% of GDP). Such actions could cripple US and European industries, leading to a weakening of deterrence in Europe and Asia.

#### ***Scenario 3: Attack from multiple front***

China has modernized its armed forces, expanded military exercises near Taiwan, and intensified military activity in the “gray” zone. If a diplomatic conflict or military confrontation arises between the United States and China, the PRC may stop exporting critical raw materials. In this case, China will use all means at its disposal, including material dependence, to sabotage attempts by the United States and its allies to mass produce new weapons systems [40].

## IN FOCUS: RUSSIA-CHINA

Europe will face various risks, as if the US were to be drawn into a conflict in East Asia, the priority for supplying scarce ammunition and weapons systems would be directed to the Indo-Pacific region. Experts say the US and EU should prepare for the worst.

### RUSSIA AND ITS RESOURCES

Rare earth elements are included in the list of strategic raw materials in the Russian Federation, along with oil, natural gas, gold, copper, nickel and titanium [36].

Mining Division Asset Map

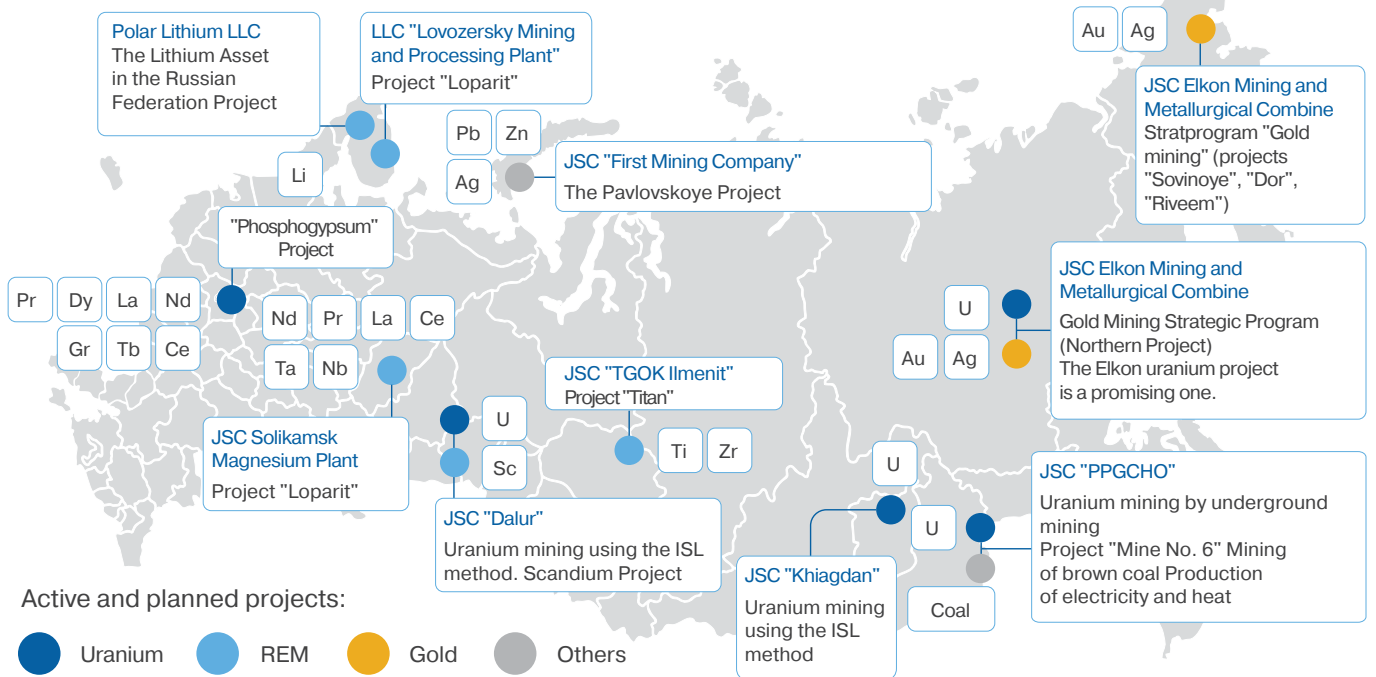


Fig. 3 Map of assets of the mining division of Rosatom State Corporation

HOLDINGS / parent companies	SUBSOIL USERS	DEPOSITS, incl. those under development, other raw material sources	MINES	BENEFICIATION PLANTS	PROCESSING ENTERPRISES
ROSATOM State Corporation	Lovozersky Mining and Processing Plant LLC	Lovozero deposit (Karnasurt and Kedykvyrpakh areas)	Karnasurt (underground mine)	Karnasurt	Solikamsk Magnesium Plant JSC
TRIARK MINING LLC	Vostok Engineering LLC	Tomtor deposit (Buranny site)	open pit	beneficiation plant	Krasnokamensk Hydrometallurgical Plant LLC
Chelyabinsk Pipe Rolling Plant PJSC (CHTPZ)	Technoinvest Alliance CJSC	Zashikhinskoye	open pit	beneficiation plant	Chemical and Metallurgical Plant
PHOSAGRO PJSC	Apatit JSC	Apatite Cirque, Rasvumchorr Plateau (below pit section)	Rasvumchorr underground mine	ANOF 3	PHOSAGRO PJSC <small>mineral fertilizer production plant; REEs are not extracted into commercial products</small>
		Yuksporskoye, Kukisvumchorrskoye deposits	Kirovsky underground mine	ANOF 2	
		Rasvumchorr Plateau (within the Central Pit contour), Nyorkpakh koye, Koashvinskoye deposits	Vostochny open pit		
AKRON PJSC	SZFK JSC Partomchorskoye CJSC	Oleniy Ruchey Partomchorskoye	Oleniy Ruchey Mining and Processing Plant (open pit + underground mine)		AKRON PJSC
SKYGRAD Group		Phosphorite, Voskresensky District, Moscow Region		group rare earth elements (REE) concentrate	Skygrad Innovations LLC Laboratory of Innovative Technologies (LIT)

Fig. 4. Russian REM industry base structure

Deposits under preparation for exploitation are shown by outlines

## IN FOCUS: RUSSIA-CHINA

Russia ranks second in the world in terms of rare earth reserves. The volume of explored reserves, according to the mining division of the State Corporation Rosatom, is 28.66 million tons. At the same time, the actual availability of rare earths remains quite low: Russian companies are forced to import finished products and components due to the lack of domestic production in the required volumes [36].

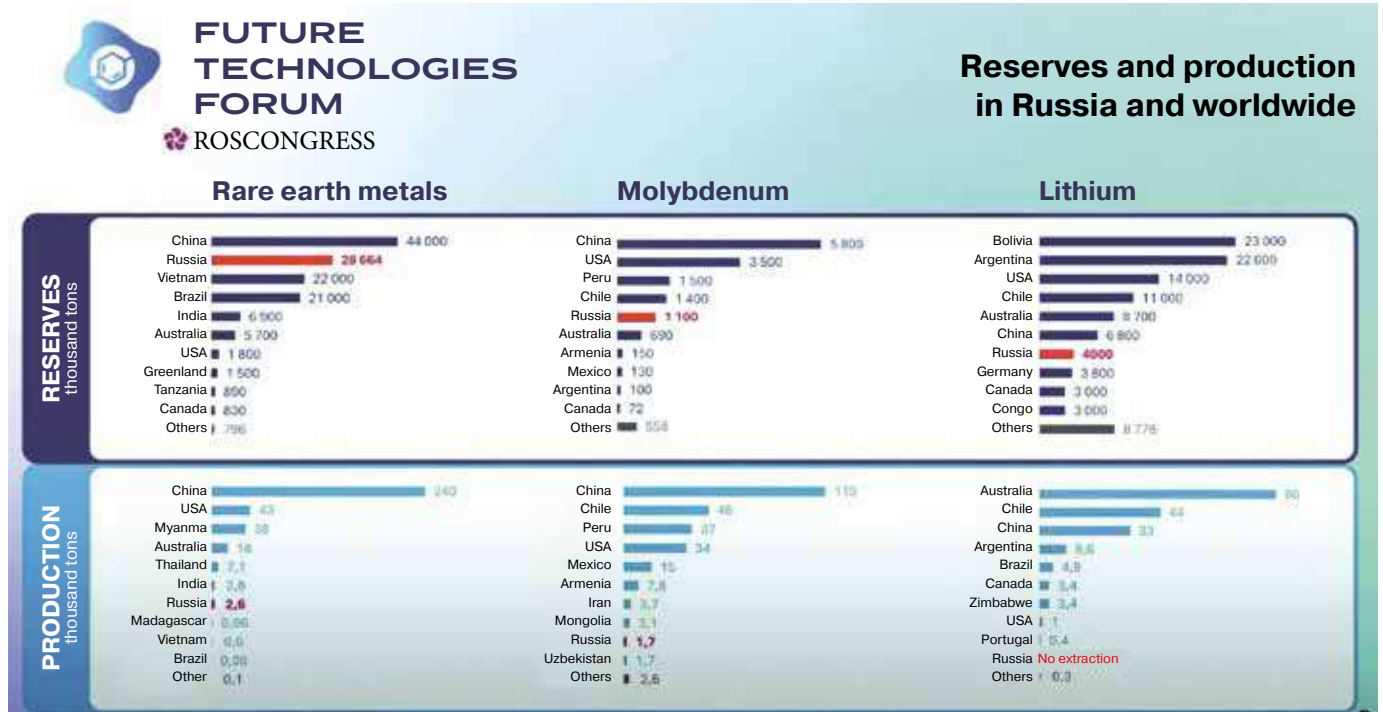


Fig. 5. Reserves and production of rare earth elements in Russia and the world.

The state balance of mineral reserves of the Russian Federation takes into account 18 indigenous deposits with reserves of rare earth elements and 2 man-made deposits.

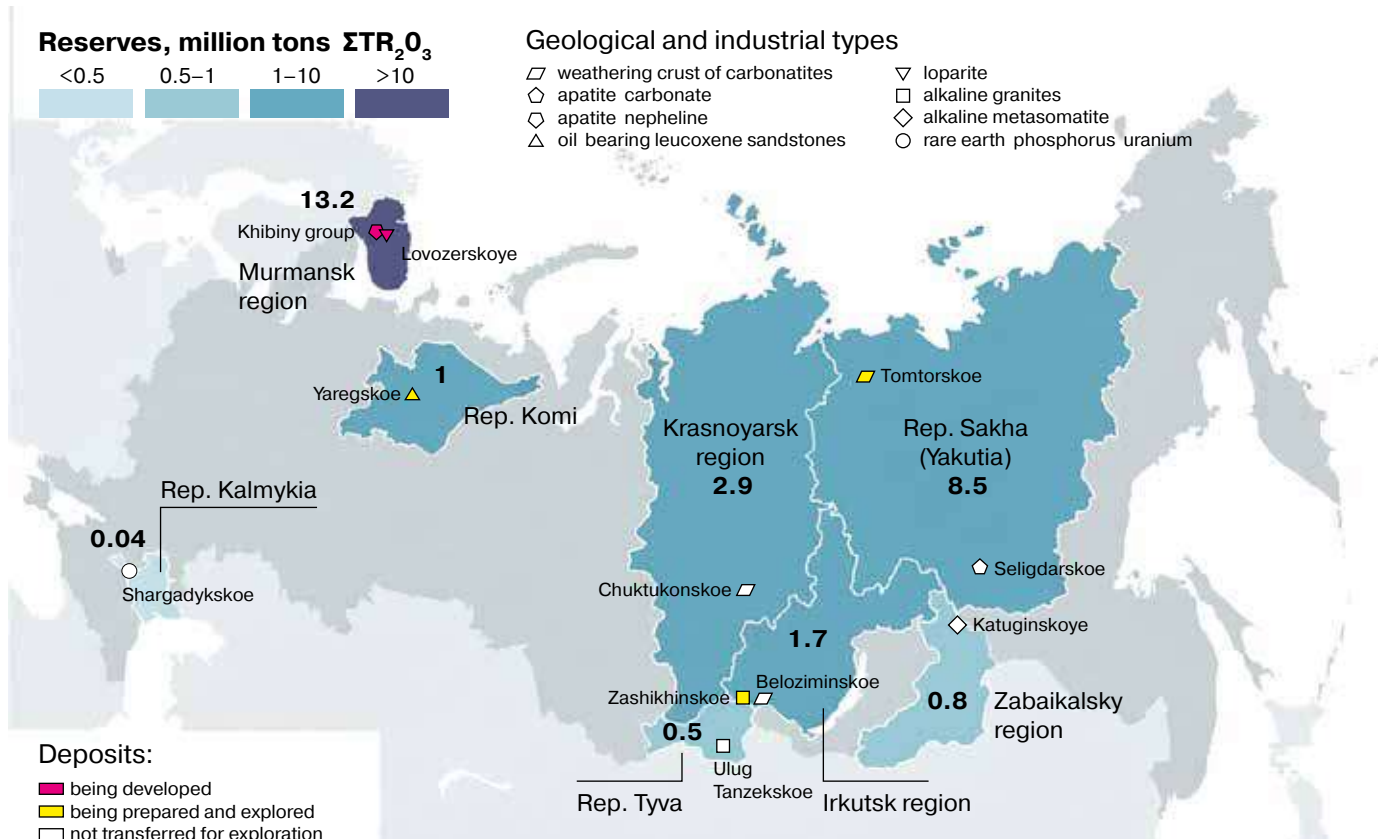


Fig. 6. Distribution of rare earth reserves among the subjects of the Russian Federation (million tons of  $\Sigma TR_2O_3$ ) and their main deposits.

## IN FOCUS: RUSSIA-CHINA

The raw material base of rare earth minerals in Russia is characterized by high geographical concentration: 46.1% of the reserves are concentrated in nine sites in the Murmansk region. Of these, 25% are in the Lovozero deposit of complex loparite ores — the only one in the country that is developed for rare earth minerals. The remaining reserves of the region are in the ores of eight deposits of the Khibiny group, the main component of which is phosphorus.

Deposit (Region of the RF)	Geological-industrial type	Reserves as of 01.01.2023 by category, thousand tons $\Sigma\text{TR}_2\text{O}_3$		Share in RF (%)	REE (Rare Earth Metals) content in ores (%) $\Sigma\text{TR}_2\text{O}_3$	Production 2022 (th. t) $\Sigma\text{TR}_2\text{O}_3$
		A+B+C <sub>1</sub>	C <sub>2</sub>			
<b>PRODUCED</b>						
(LLC Lovozersky GOK)						
Lovozerskoye* (Murmansk Reg.)	Loparite	2644.0	4522.8	25	1.11	2.6
<b>PRODUCED FOR OTHER COMPONENTS</b>						
JSC "Apatit" (PJSC "PhosAgro")						
Kukisvumchorskoye* (Murmansk Reg.)		831.6	3.2	2.9	0.24	24.6
Yuksporskoye (Murmansk Reg.)		1573.7	—	5.5	0.34	32.1
Apatitovy Tsirk (Murmansk Reg.)	Apatite-nepheline	287.8	24.8	1.1	0.36	20.4
Koashvinskoye** (Murmansk Reg.)		—	—	—	0.39	11.4
Nyorpakhskoye* (Murmansk Reg.)		201.7	21.7	0.8	0.37	11.7
JSC "North-Western Phosphorous Company" (PJSC "Acron")						
Oleniy Ruchey (Murmansk Reg.)	Apatite-nepheline	907.2	436	4.7	0.38	13.4
<b>PREPARING FOR DEVELOPMENT</b>						
CJSC "GC "Partomchorr" (PJSC "PhosAgro")						
Partomchorskoye	Apatite-nepheline	1505.2	257.7	6.1	0.2	—
LLC "Vostok Engineering" (LLC "TriArk Mining")						
Tomtorskoye (Sakha Republic)	Carbonatite weathering crusts	2640.4	592.5	11.3	11.99***	—
LLC "YaregaRuda", LLC "LUKOIL-Komi" (PJSC "LUKOIL")						
Yaregskoye* (Komi Republic)	Oil-bearing leucoxene sandstones	219.4	811.7	3.6	0.04	—
CJSC "TECHNOINVEST ALLIANCE"						
Zashikhinskoye* (Irkutsk Reg.)	Alkaline granites	—	44.4	0.2	0.07	—
<b>UNDISTRIBUTED FUND</b>						
Chuktukonskoye	Carbonatite weathering crusts	952.9	1909.4	10	5.38	—
Seligdarskoye (Sakha Republic)	Apatite-carbonate	4410.4	—	15.4	0.35	—
Beloziminskoye (Irkutsk Reg.)	Carbonatite weathering crusts	—	1645.9	5.7	0.9	—

\* part of the deposit's reserves are recorded in the undistributed subsoil fund \*\* only off-balance reserves are considered \*\*\* calculation of  $\Sigma\text{TR}_2\text{O}_3$  content is performed on wet ore

Fig. 7. Russian REM fund

## IN FOCUS: RUSSIA-CHINA

Deposits in Siberia and the Far East contain 50.2% of Russian reserves of rare earth elements. Of these, 30.2% are in large deposits of complex ores (Tomtorskyy in the Republic of Sakha, Chukotkonsky in the Krasnoyarsk Territory and Beloziminsky in the Irkutsk Region). Another 15.4% are concentrated in the Seligdar deposit. Other reserves are in complex deposits of alkaline granites Ulug-Tanzetsk in the Republic of Tyva and Zashikhinsky in the Irkutsk Region, metamorphic rocks of tectonic shear zones (Katuginsky in the Trans-Baikal Territory).

The oil-bearing leucoxene sandstones of the Yarega deposit in the Komi Republic account for 3.6% of Russia's reserves. Their average rare earth element content is 0.04%, and there is no industrial technology for their extraction.

0.1% of the reserves are contained in the small Shargadykskoye deposit in the Republic of Kalmykia.

According to Rosatom Nedra, Russian companies produce only about 2,600 tons of rare earths per year. In this indicator, Russia lags behind not only China, but also India, Thailand, Australia, Myanmar, and the United States.

It was assumed that by 2024, rare earth metal production capacity in the Russian Federation would increase to 7 thousand tons, and by 2030 – to 30 thousand tons. The targets for 2024 were not achieved [36].

The key rare earth metal mining enterprises in Russia are Lovozero Mining and Processing Plant and Solikamsk Magnesium Plant. Other enterprises producing rare earth metal concentrates also include Uralredmet (formerly Pyshminsk Plant), Dalur JSC, Ilmenit JSC, and others.

The reserves of rare earth metals at the Lovozero deposit in the Murmansk region, according to the Federal Agency for Subsoil Use of the Russian Federation (Rosnedra), amount to 7 million tons. The reserves of rare earth metals at the Tomtor deposit in Yakutia are 4 million tons, and the reserves of rare earth trioxides at the Chuktukon deposit are 2.8 million tons.

Key challenges in the development of the industry include high production costs, remote infrastructure, the location of deposits in sparsely populated areas of the country, and harsh climate. They entail additional capital costs of 40 to 60%, while operating costs, taking these factors into account, are on average 10–15% higher than production [36].

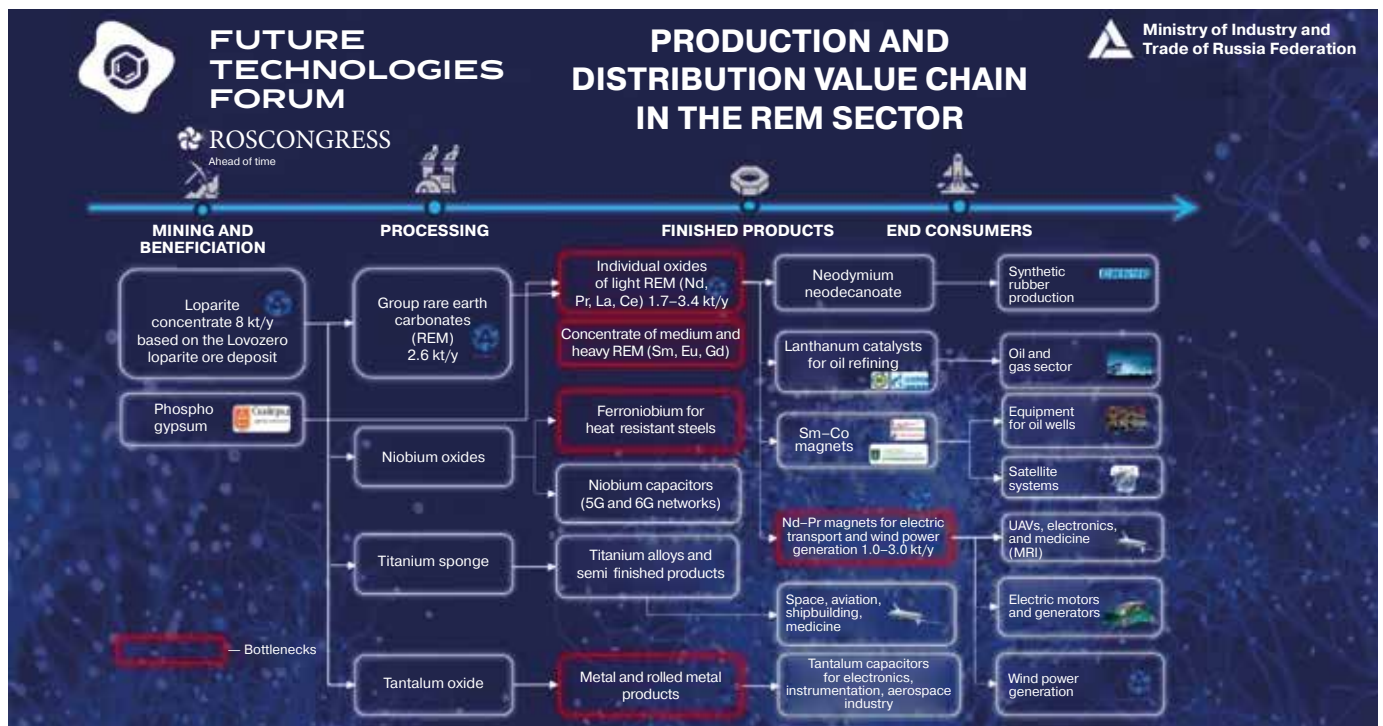


Fig 8. Rare earths production chain.

As a result of these factors, as well as the creation by the Chinese authorities of conditions for competitive advantages of Chinese companies, there is a significant gap in the cost of production of rare earth elements in Russia and China. According to a number of estimates, the cost of production of rare earth elements in the Russian Federation is almost twice as high as in China.

In Russia, loparite concentrate is mainly processed at the Lovozero Mining and Processing Complex by the method of chlorination in a molten chloride salt. In recent years, the production of REM oxides in carbonates has been at the level of 2.3–2.7 thousand tons. REM carbonates were supplied to the NPM Silmet enterprise (Estonia) for further processing. After the Russian invasion of Ukraine, the enterprise reoriented its trade flows to China [37].

Small capacities for the production of individual rare earth compounds in Russia were created by the Skygrad Group of Companies (200–250 tons). The enterprise is implementing a project to process phosphogypsum (a by-product of the production of phosphate fertilizers). Rare earth production volumes can reach up to 4 thousand tons. [37]

### **Chinese companies supply rare earth elements to Russia**

In 2023, China became the sole supplier of gallium and germanium to Russia and has maintained this status to this day [1]. Sanctions are ineffective. Many companies were created specifically to circumvent sanctions [1]. Of the 20 Chinese companies that sell sanctioned rare earths to Russia, a third are partially state-owned. None of these Chinese companies are under Western sanctions [1]. And this:

- Yunnan Lincang Xinyuan Germanium Industry (the company's chairman and owner of the largest share of ownership is CPC member Bao Wen Dong);
- group of companies Vital Technology Group (1/4 of the shares belong to Chinese state structures);
- Hynhe Technology – 10% owned by a leading Chinese state-owned enterprise headquartered in Hangzhou – Zhejiang Jingsheng Mechanical & Electrical;
- Nanjing Infrated (the company is not owned by the state).

Chinese companies supply rare earths through JSC Germany, owned by Rostec, and Germany and Applications, which then supplies the products to defense industry enterprises: TsKB Foton and the Ural Optical-Mechanical Plant. Anchor Group was hit by US sanctions in 2023. It is owned by Mikhail Sivoldaev, a former top manager of Russian oligarch Viktor Vekselberg. Cryotrade Engineering was hit by US sanctions in 2024, but continues to work openly with Russian defense institutions.

### **Conclusions**

China will maintain its undisputed dominance in the rare earths market in the coming years and will do everything possible to prevent other countries from shaking its position. Thanks to its monopoly, the PRC gains economic and geopolitical leverage over the economies and defense sectors of the United States and the European Union, transforming raw materials into weapons.

The West, for its part, will continue to look for ways to protect itself from Chinese hegemony in the field of rare earths. We can already see this today in the example of the USA. All previous steps by the EU, Australia and the USA indicate that these countries are making efforts to diversify sources of supply and reduce geopolitical risks. India, which has significant reserves of rare earths and is a democratic state, in whose interests it is also necessary to weaken Chinese influence, could become a very important player here.

As for Russia, it is not able to create an alternative to China in the extraction and processing of rare earths, since over the past five years it has not been possible to increase their production. Despite the fact that the Russian Federation ranks second in the world in terms of rare earth reserves, the actual supply of them in the country is quite low. Russia is forced to import finished products due to the lack of its own production.

And another important factor is that the cost of producing rare earth elements in Russia is almost twice as high as in China. Chinese companies are actively supplying rare earth elements to Russia.

Ukraine is not a leading producer of rare earths, but it has significant reserves in the Volyn, Podolsk,

Central, Kryvyi Rih-Kremenchuk, and Azov regions. This makes Ukraine a potentially important player in the future if rare earth deposits are developed. At the same time, Ukraine needs to develop a clear domestic policy regarding these deposits. Recent events show that Russia is using occupied Ukrainian deposits as an object of geopolitical manipulation. This concerns Russia's proposal to the United States for joint mining of rare earths, in particular in the

occupied Ukrainian territories, which was made in late February 2025. This proposal was made against the background of an existing mineral resources agreement between Ukraine and the United States. This emphasizes that access to Ukrainian rare earths is a subject of interest and rivalry between major powers, especially in the context of reducing dependence on China.

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## From Wagner to the Africa Corps: Changing Presence of Russia on the African Continent in 2025

“Recent geopolitical mutations have reshaped the world’s order. Among the most relevant examples is the rapid rapprochement between Russia and Africa. If relationships between the two parties had existed prior, they truly accelerated since the 2010s, especially since the outbreak of the war in Ukraine. In a context where Russia is increasingly isolated, the Kremlin has begun building new partnerships with African countries, utilizing the private military company Wagner Group and the Africa Corps, a newly created branch of the army. This article proposes an analysis of the recent activity of the PMC Wagner Group in Africa, as well as an examination of its recent replacement by the Africa Corps. Furthermore, the case of Mali serves as a concrete illustration of Wagner/Africa Corps’ recent activity in Africa.



### Acknowledgements

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### Introduction

The current war in Ukraine has worldwide consequences. One of them is the mutation of geopolitical partnerships between states and the subsequent alteration of the international order. With the outset of the war in Ukraine, Russia and Africa have become closer, and their collaboration has never been so entrenched. However, Russo-African

relationships do not date back to yesterday. Indeed, during its Soviet period, the Kremlin financially and materially supported African independence movements, which aligned with the anticolonial narratives that Russian authorities advocated as part of the Soviet-Union’s ideological dogma. Once independent, African nations would usually partner up with the Soviet Union. Partnership would extend from economic and political to military and cultural domains. Nevertheless, the arrival of Mikhail Gorbachev at the head of the Soviet Union in 1990 meant a recentralization of the USSR’s policies. The Perestroïka was established to stabilize the national economic and political climate, rather than opening up to foreign entities. Therefore, Russian-African relations were relatively slowed down until the late 2010s.

In 2019, Russia hosted the first official Russo-African Summit. Between October 23rd and 25th, African heads of state formalized their countries' ties with Russia. These two days resulted in \$12.5 billion worth of business deals ranging from merchandise exchanges to industrial development. Generally, this summit portrayed the Kremlin's international ambitions to partner up with new allies. The second Russo-African Summit, held in July 2023, illustrated Moscow's willingness to expose Russia as a credible partner despite the ongoing economic sanctions imposed by the West in response to its invasion of Ukraine. This renewed Russia-African partnership also answers Russia's desire to find new allies in a context where the country is sanctioned and isolated from the Western-led international order. Parallely, African countries see in Russia a legitimate partner. In fact, African nations consider Russia a legitimate ally for multiple reasons, among them the absence of colonial antecedents, given that Russia has never colonized any territories in Africa. From an African perspective, partnering with Russia is seen as an escape from neo-colonialist dynamics, as represented by partnerships with Western (former colonial) countries like France.

The Russian presence in Africa has been consolidating since these summits. Indeed, the Wagner Group, the leading Russian private military company, has seen its activities increase in recent years, although its presence dates back to 2014. A private military company is an "international firm legally established to provide a broad range of services in the domains of security, military consulting, and operational support" (Nikola Vračević, 2025). The rise of the Wagner Group in Africa led to increased Russian influence in the countries where the firm operated. Hence, it can be argued that the Wagner Group is the main instrument of Russia's foreign policy, as it represents the Kremlin's interests.

The following article examines the recent activity of the Wagner Group in Africa, as well as the early episodes of transition to the Africa Corps, the new vector of Russian influence-seeking in Africa. Following this analysis, this article proposes a critical examination of a specific country's context: Mali. This second chapter serves as an illustration of the Wagner/Africa Corps' operations and their subsequent outcomes. The article's claims are supported by a thorough body

of primary and secondary sources, including but not limited to two interviews with experts on Wagner/Africa Corps' activities in Africa: Christopher Faulkner from the U.S. Naval War College, and Ulf Laessing, director of the regional Sahel Program at the Konrad Adenauer Foundation in Mali.

### **Part 1. From Wagner to the Africa Corps**

The Wagner PMC is a conglomerate of firms comprising security-focused entities, as well as entities involved in mining and energy ventures. The firm was created in 2014 by Dmitry Utkin and Yevgeny Prigozhin to support Russian military enterprises in the Donbas. The legal status of PMCs in Russia confers an ambiguous role on the corporation in Russian foreign policy. Indeed, despite the existing legal framework restricting the creation of armed formations and the participation in one that is not provided by a federal body (Article 208 of the Criminal Code of the Russian Federation), and mercenarism (Article 309 of the Criminal Code), the Russian state has continuously used such organizations to serve its interests outside of the national territory. The Wagner group operates in a grey area; it is neither illegal nor legal. Since its status is not acknowledged by Russian federal law, the Russian state utilizes Wagner as an agent of state influence, rationally leveraging its low operational costs, the avoidance of conscript losses, and plausible deniability.

The group's operations in Africa involve establishing contracted partnerships with African governments that seek to maintain their authority and combat internal threats. The Wagner Group offers a range of security services, from private protection for high-ranking personnel to military training and involvement in counterinsurgency campaigns, in exchange for mining concessions and energy ventures. The transactional nature of Wagner-African governments' partnerships has a significant loophole. Indeed, the private military company (and indirectly, the Russian government) benefits from conflicts in African countries because it gets access to raw materials and resources. Therefore, it is not in the interest of the group to restore stability to the countries they are contracted to serve. Wagner capitalizes on profits and reaps the benefits from prolonged chaos, despite openly claiming its goal is to establish peace

and stability in countries with which it is contracted.

Nevertheless, contracting Wagner also benefits African governments, such as Mali's, which will be the subject of a deeper examination later in the article, because international laws limit the government's means. The Russian PMC is willing to accommodate the desires and needs of its military partners in the Sahel – even if these expectations lead to increasingly complex security challenges. Concretely, authoritarian Sahelian regimes like Mali rely on Wagner to do the “dirty job.” As a matter of fact, the Wagner Group has regularly been accused of violating human rights by both governmental and non-governmental entities like Human Rights Watch. The group is accused of committing massacres against civilian populations living in jihadist-influenced regions. Wagner fighters often fail to differentiate between civilians and insurgents, instead avoiding distinctions.

Despite its remarkable brutality in operational modes, the Wagner conglomerate has now established a profound influence on the African continent. Wagner often counsels authoritarian African leaders on security measures. They also train African armed forces and furnish part of their weaponry. However, most importantly, they establish cultural links with African societies by disseminating propaganda discourses that praise the Russian state and instigate cultural exchanges between countries. Ultimately, Wagner works as a propagator of Russia's influence in Africa, in every domain. This ambiguous yet strong link between the Wagner Group and the Kremlin's foreign policy is explained by the close relationship between Wagner's leader, Yevgeny Prigozhin, and Russian President Vladimir Putin. As Theo Neethling rightly explained, the strong link between the Wagner Group and Russian military/intelligence services has been “an open secret.”

The 2023 mutiny orchestrated by Wagner's late leader Prigozhin has, however, undermined the group's relationship with the Kremlin. This mutiny reassessed the Kremlin's authority over its military forces deployed in Ukraine and globally. Therefore, after ending the mutiny and supposedly orchestrating the assassination of most of Wagner's leadership, including Prigozhin, the Russian government initiated a process of replacing Wagner in Africa and the Middle East. The new Russian presence in Africa

was known as the “Africa Corps” (AC). Unlike the Wagner Group, the Africa Corps is an officially declared state agent, and it formally represents the Kremlin's interests in Africa. The Africa Corps is directly managed by the Ministry of Defense and the Russian military intelligence (GRU), and claims to “expand Russia's military influence” in Africa, make good use of “windows of opportunity” resulting in the weakening of Western influence in the region, “consolidate” Russia's diplomatic gains, and support its “geopolitical interests.” Subsequent interrogations arise from this manoeuvre. Are there any differences between the Wagner Group and the Afrika Corps? In fact, isn't this replacement a rebranding of the Russian presence in Africa?

At first glance, Russia's presence in Africa appears to remain unchanged. Indeed, the Africa Corps' structure remains the same as Wagner's. Most of Africa Corps's fighters are Wagner veterans who signed new contracts with the Russian government. Additionally, the AC's motivations and modus operandi remained unchanged. The new entity proposes security-oriented services to African governments that require political and military assistance. Like Wagner, the Africa Corps' personnel provide private protection, military training, and assist African armies in counterinsurgency campaigns. The operations' brutality has not changed either. The Africa Corps' Telegram channels are filled with explicit posts containing raw images of their victims. Also, the cultural dissemination of Russia's image in Africa remains among one of the organization's top priorities. Through the press agency Африканская инициатива (“Africa Initiative”), the Africa Corps publishes news that presents Russia-Africa relations and propagates anti-Western narratives, mainly conspiratorial theories about American and French activities in Africa. Like the Wagner Group, the AC builds influence in the infosphere. Moreover, the AC exploits natural resources from African countries in which the Corps is working. The transactional model of international partnership mentioned earlier in this article also applies to this relatively new institution. The main difference between the Africa Corps and the Wagner Group lies in their status and relationship with the Russian state. When the Wagner group is recognized as a private military company operating in accordance with Russia's interests, the Africa

Corps is an official state body; it is the Russian state itself. As such, it is legitimate to argue that Russia is directly present on African soil and that African governments operating with the AC deal directly with Russia. There is no intermediary between African governments seeking to partner with Russia and the Kremlin, unlike when Wagner operated in Africa.

The replacement of Wagner by the Africa Corps has not significantly altered the security situation in African countries where it operates. In fact, the AC's brutality nourishes social resentment in remote areas of the countries the group operates in. Social resentment, then, may evolve into social mobilization in the context of insurgency. Jihadist groups benefit from the increasing violence committed against civilians to recruit more fighters, which in turn nourishes insecurity. Despite claiming to combat insurgency and establish security, the Africa Corps benefits from insecurity and instability. The more security services they provide, the more access to mines and energy ventures they receive. However, from the African government's perspective, the establishment of the AC enabled the improvement of relations between Russia and Africa. For some states, the appearance of the Africa Corps met their enduring hope of officially partnering with Russia.

### **Part 2. Illustrative example: Mali**

To properly understand the activities of Wagner and the African Corps, as well as the ultimate presence of Russia in Africa, this article now proceeds to a critical analysis of the Malian case.

Mali is landlocked in the Sub-Saharan region of the Sahel, and has been at war since 2012. This internal conflict opposes the successive Malian governments (based in the capital city Bamako) to jihadist groups insurrecting in the northern regions of the country. These groups include, among others, the Tuareg nationalist group MNLA as well as the Islamic State in the Maghreb and al-Qaeda. Knowing that its survival was threatened, the Malian government requested international military help, which France provided through the successive *Opération Serval* (2013–2014) and *Opération Barkhane* (2014–2022). The French interventions aimed to eradicate the jihadist threat to the Malian government, secure the region, and establish a durable peace in the country.

While *Serval* focused on direct confrontation with terrorists, *Barkhane* was a peace-building operation that collaborated with the Malian civil society to build long-lasting security. In parallel, the United Nations deployed the Multidimensional Stabilization Mission in Mali (MINUSMA, in French acronyms) to provide humanitarian assistance to the Malian civil society.

Nevertheless, after almost ten years of presence, the French and international missions were highly criticized for their lack of results. Indeed, the situation had not significantly evolved, and national security had not been durably established. Therefore, 2021 marked the beginning of tensions between the newly established Malian military junta and Western entities present in the country. In 2022, all Western forces were withdrawn from the country. In the meantime, Mali has shifted towards partnering with Russia, specifically the Wagner Group. The PMC was considered more effective and a more reliable partner in conducting counterinsurgency because its internal structure was not regulated by a complex set of laws; Wagner did not need to validate every military decision based on legal and ethical frameworks, as *Serval* and *Barkhane* did. Moreover, the newly established government had nourished nationalist and anti-colonialist discourses against Western countries, which were portrayed as neo-colonialist entrepreneurs. As of this, the first Russian plane landed in Bamako in December 2021, and the PMC rapidly established itself as the primary security partner of Assimi Goïta's military authoritarian regime.

Wagner's *modus operandi* respected the main frames explained in Part 1. Violence was the primary tool used in counterinsurgency. Wagner mercenaries participated in frontal military operations with the Malian armed forces against jihadist groups and civilians in the northern part of Mali (70% of their operations). While the Russian PMC guaranteed the conduct of a peace-building operation that would ultimately improve Mali's national security and strengthen the junta's authority and legitimacy over the country, its results fell short of these expectations. Actually, the number of incidents resulting in civilian casualties since *Barkhane's* departure increased from 50 in 2020 to almost 170 in 2025. The fundamental difference between Wagner and *Barkhane* was not the end goal but the method, which consisted of

## IN FOCUS: RUSSIA IN AFRICA

indiscriminate violence against civilian populations. In terms of military casualties, estimates indicate several dozen Russian mercenaries and more than 450 Malian conscripts, a number highly superior to that during the Barkhane years. In 2024, the rate of casualties in counterinsurgency combat rose to 190% of the 2021 rate. In other words, since Wagner arrived, casualties increased. In return for their security services (counterinsurgency, private security, policy counselling, and military training), the Wagner group received \$10.8 million cash every month. Surprisingly, the Malian government resisted the group's pressure to access mines, and instead increased taxation towards Western mining companies operating in the country. It must be mentioned, however, that Wagner still controlled, to a certain degree, more or less legally, gold mines in the northern part of Mali, as

well as industrial complexes and transport axes. In doing so, the Wagner Group entrenched itself in the political, military, and economic life of Mali to the point where Malian authorities relied on Wagner to legitimize their rule.

The replacement of the Wagner Group by the Africa Corps was initiated after Wagner's 2023 mutiny. During the second Russia-Africa Summit held in July 2023, Russian authorities strongly recommended that African heads of state terminate their contracts with Wagner and partner with the Africa Corps instead.

The Malian case appears different from the rest of the African countries. Indeed, the Wagner Group's presence was so entrenched that replacing Wagner with the Africa Corps took longer than in other Sahelian countries, such as Burkina Faso and Niger.



Source: <https://thesudantimes.com/africa/russia-swaps-wagner-for-africa-corps-in-mali/>

In fact, Malian authorities did not renew their contract with Wagner in 2023; however, it was only in 2024 that the African Corps' presence in the country was confirmed. And, the private military company only declared its total withdrawal from Mali in June 2025. There are no specific explanations for this delay. However, both Ulf Laessing and Christopher Faulkner explain that the prolonged replacement was due to a lack of structure in Wagner's organizational setup – Wagner's hierarchy is less structured than the supposed Africa Corps–, which complicated the transition. In this context, until 2025, most of the African Corps fighters present in Mali were Wagner veterans who had signed new contracts with the Russian government. Although these former mercenaries fought for the Russian state, Wagner's

identity remained significantly present. Indeed, these fighters still wear Wagner's insignia and fly the PMC's flag. Finally, Wagner's Telegram channels remain active and publish explicit content from their operations, aiming to promote the group's activities and recruit new members. Logistical challenges also contributed to the prolonged transition, as the majority of the Kremlin's logistical resources were invested in the Ukrainian theater.

As the transition progresses gradually, the Africa Corps' operations in Mali do not differ significantly from Wagner's. Actually, there is very little change. Specifically, the Africa Corps' operations involve providing security services to the Malian junta. They compose part of Goïta's private guard and train the Malian armed forces to conduct counterinsurgency

operations. The main difference is that, as Ulf Laessing explained, the Africa Corps does not participate in frontal operations as much as Wagner's mercenaries, but focuses on training the Malian army and providing them with weaponry. In his interview with the author, Laessing also explained how the Africa Corps does not control any mining concessions yet. There are only international mining firms, such as the Canadian company Barrick Gold, which pays high taxes to the Malian government in exchange for extracting gold. The latter tax revenue serves to pay the Africa Corps.

Wagner's replacement by the Africa Corps meant an officialization of the Russia-Mali relationship and partnership. As Christopher Faulkner explained in his interview with the author, the officialization of bilateral relations was beneficial to both countries. On the one hand, strengthening a multi-sectoral partnership with Mali allows Russia to diversify its international ties with foreign actors at a time when the Kremlin is finding itself increasingly isolated from the Western-led balance. Partnering with Mali also allows Russia to project its interest against Western countries indirectly, through the propagation of anti-French/American propaganda, and mechanisms of state-capture, which can be associated with its hybrid warfare strategy. Furthermore, the partnership with Mali sustains Russia's project to strengthen its relations with the African continent as a politically potent international entity. Indeed, the African community comprises the biggest voting bloc at the United Nations. Therefore, maintaining favorable relations with African countries can enable Russia to garner support at the United Nations assemblies.

On the other hand, Malian authorities escaped from the neo-colonialist dynamic that the country's partnership with Western powers suggested. Instead of partnering with the former colonizer, Malian authorities advocated for a national assertion and an orientation towards a country that they perceived as non-colonial. Despite Russia's historical non-colonial past with Africa, it can legitimately be affirmed that the Kremlin's presence in Mali and Africa in general exposes neo-colonialist tendencies. Malian authorities have found in Russia a more capable ally, one whose operations are not constrained by ethical and legal considerations.

### Conclusions

The Russian private military company Wagner and the newly established body Africa Corps truly affirm Russia's presence in Africa. Both entities were, and still are, the main tools of the Kremlin's playbook on the African continent.

Despite an apparent fruitful collaboration with African countries – and especially Mali – Russia's plan is certainly looking beyond Africa. Russia's primary foreign policy objective is to expand its sphere of influence as a means of reducing Western influence and challenging the Western-established geopolitical balance; Russia aspires to lead a new multipolar order. Currently, in replacing Western powers in Africa, the Wagner Group and the Africa Corps effectively respond to the Kremlin's objective: they reduce the West's global influence.

However, the activities of Wagner and the Africa Corps have created and continue to make indelible marks on African countries. In the case of Mali, Wagner and AC's actions have a double-edged impact. On the one hand, the Malian junta found a powerful ally in the presence of Russian actors. The counterinsurgency, as violent as it is, continues to operate, and the regime is secure and legitimized. Additionally, this partnership is economically beneficial to Mali due to multiple agreements on industrial development, the latest of which is the joint construction of nuclear power plants (June 2025). On the other hand, the brutality of Wagner and the Africa Corps gradually creates social resentment and questioning of the legitimacy of the Russian presence. An increasing part of the Malian population now considers Russia a new neo-colonialist influence in the country. This part of the population also sees Assimi Goïta's regime as increasingly illegitimate for its brutality and authoritarianism. Despite this, the Russo-Malian partnership and the Russo-African relationship in general are likely to expand in the near future, as the African continent seeks further international recognition and will most probably avoid Western countries.

In response to the growing Russian presence in Africa, Western governments should consider reevaluating their foreign policy towards Africa. Instead of approaching the continent with development programs that ultimately benefit the West, which are then perceived as neo-colonialist policies, Africa's place should be considered within the broader global

equilibrium. Most analyses see Africa as the rising power in the near future. Its population will soon grow rapidly, and its raw material resources remain abundant. By placing African countries within a broader equilibrium, Western countries would include

Africa in the global order, which, until recently, has been a rare occurrence. Subsequently, if the West's objective is to reduce Russia's influence globally, it is fundamental to tackle it on the African continent, as it is its main theater of action after Asia.



### About the author.

Elouan Pannegeon is a recent graduate from Utrecht University (The Netherlands). Majoring in History, he decided to specialize in the study of conflict, violence, and security, with a particular emphasis on Eastern Europe and Russia. Currently interning at the Center for the Study of Democracy (Sofia, Bulgaria), he aspires to pursue a career in Security and Defense or International Policy and Diplomacy.

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Christopher Faulkner, direct interview with the author, August 18, 2025.

Ulf Lessing, direct interview with the author, August 25, 2025.



## Book summary

*Oleksandr Chudnovets, Petro Senko, Georgii Snigyr*

### “Chronicle of the War in the Azov and Black Sea Operational Zones 2024”

(Public and political publication). — Kyiv: Publishing House “ADEF-Ukraine”, 2025, — 376 p.

Since 2014, Ukraine has been waging a just war for its own identity, for the preservation of independence and the right to freely choose its priorities, for its sovereignty and territorial integrity – for its own existence! We have stood our ground and proven to the world community our ability to fight and defeat the Russian aggressors. It has been three years since Russia’s insidious full-scale invasion of Ukraine, and today Ukraine is

effectively holding back the enemy invasion thanks to the incredible efforts of specialists on the military, diplomatic, and information fronts, as well as powerful international assistance.

During this time, we Ukrainians have learned to be stronger, more resilient, wiser. We have learned to find meaning in every breath and maintain optimism, to feel unity and support each other even at a distance. In the end, we have proven our subjectivity. Our struggle will continue until the last occupier’s boot leaves Ukrainian soil, until there is at least one person who wants to take away our freedom! Resistance is not only a struggle for the physical survival of the Ukrainian people and the freedom of the country. In this war, Ukraine defends its European choice, its national identity and values, as part of European ones. Ukrainians are shedding blood for a free, democratic Europe.

But one of the biggest challenges now is to learn to understand each other, to distinguish an impartial analysis of the situation from the information manipulations of the invader, etc. And this book is aimed at providing society with objective information. Our enemies are making incredible efforts to stimulate all potential “zones of possible conflicts” and to actualize all issues that can divide us, and therefore we absolutely need the most effective information weapon to make these provocations impossible.

The third book “Chronicle of the War in the Azov and Black Sea Operational Zones. 2024,” like previous editions of the chronicle, about the course of events during the Russian–Ukrainian war for 2022 and 2023, is presented to readers in the form of a brief daily chronology of events related to the sea and coastal theaters (Azov and Black Sea Operational Zones). zones) in combination with combat operations on land and in the air. The book provides general information on the international community’s response to the war in Ukraine. As in previous editions, the authors conduct extensive analysis and monitoring of Russian news and information sources. Some of them, which we believe will be interesting to readers, we publish in our edition.

Once again, the authors emphasize that all the material published in the book is exclusively official and comes from open sources. The book uses only verified and official news, and the spread of various “fakes” is completely excluded.

The book is dedicated to the memory of Vice Admiral Volodymyr Bezkorovaynyi — the Admiral who created and brought the national fleet of Ukraine into the World Ocean.

**Glory to the Security and Defense Forces! And eternal memory to all those who fell for our Freedom and Independence! Glory to Ukraine! Glory to the Heroes!**



*Olesia Yaremchuk, Oleksandra Yefymenko, Iryna Slavinska, Anastasiia Levkova, Rustem Khalil, Yevheniia Henova, Yeva Raiska.*

**Free Voices of Crimea. Stories of Crimean Journalists — Prisoners of the Kremlin.** – Kharkiv: Vivat, 2025. – 352 pages. – (Series “Library of Ukrainian PEN”)

Free Voices of Crimea is a collection of portraits of sixteen political prisoner journalists who fought for human rights and freedom of speech on the occupied peninsula. Russia deprived them of their liberty for terms ranging from seven to nineteen years. The book includes selected letters, excerpts from diaries, and courtroom statements of these journalist political prisoners.

Among them is Oleksii Bessarabov, a member of the editorial board and deputy editor-in-chief of the journal Black Sea Security. Oleksii openly wrote about Russia’s violations of bilateral agreements concerning the presence of the Black Sea Fleet and predicted the occupation of Crimea. He paid for this with his freedom — he was sentenced to 14 years in prison.

In the essay **“Oleksii Bessarabov. About the Sea”**, included in the book, the author Olesia Yaremchuk recalls Oleksii’s appeal to U.S. Secretary of State Antony Blinken dated May 5, 2021. She describes Oleksii’s development as a journalist and analyst, his work at the Nomos Center, as well as the intense pressure exerted by the FSB in the final months before his imprisonment, and also provides later information about his time in the penal colony. His remarkable analytical abilities are further evidenced by his talent for accurately predicting the geopolitical situation:

“*...In October 2013, in a major analytical article published in Dzerkalo Tyzhnia, Oleksii wrote about the illegal delivery to Sevastopol of a number of military assets: a state-of-the-art armored personnel carrier, a raid and rescue tugboat, a diving support vessel, as well as an entire ‘caravan of ships’ of the Black Sea Fleet. He wrote about Russia’s violations of border control by the patrol ship Smetlivy, and about how the Kremlin had begun economic pressure on Kyiv and moved to open forms of confrontation with the direct involvement of the Black Sea Fleet. Oleksii Bessarabov was convinced that the Russian leadership would continue to actively use the Black Sea Fleet of Russia in its geopolitical game.*”



For the last time before Ukraine and Russia severed diplomatic relations, Taras Malyshevskyy, Acting Consul General of Ukraine in Rostov-on-Don from 2018 to 2022, visited Oleksii in January 2022. The consul recalls that during their meetings Oleksii was “a tough nut to crack”:

“He carried himself with dignity and confidence, firmly... He always looked well and had a clear mind...”

We wish Oleksii and all illegally detained prisoners, including Crimean ones, the soonest possible liberation from the Kremlin’s clutches!!!

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Operating range – 500 km

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