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SHADOW FLEET IN THE BALTIC SEA
LIMITS OF TOLERANCE

Russian pressure and the coherence of the West's response

OPPORTUNITY
Institute for Foreign Affairs

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„Shadow fleet in the Baltic Sea - limits of tolerance.
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The experts present their own independent opinions.

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Ladies and Gentlemen,

Europe has imposed sanctions on Russian oil. Russia, however, has created a system that allows it to evade them.

In public debate, it is known by various names—the ghost fleet, the junk fleet. We refer to it as the **shadow fleet.**

In reality, this involves an operating model: a network of tankers, operators, and logistics services designed to exploit regulatory gaps, differences between legal regimes, and fragmented jurisdiction at sea. This allows responsibility for the shadow fleet's activities to be dispersed among multiple entities and across different legal and administrative systems. As a result, Russia can maintain oil exports while remaining beyond the direct reach of sanctions.

In the Baltic Sea, the paradox of this system becomes clear: the key Russian oil export corridor runs through one of Europe's most infrastructure-sensitive sea areas, an area under the control of the EU and NATO. In such an environment, economic phenomena quickly take on a security dimension.

The scale and consequences of the shadow fleet's activities are still not fully reflected in how the states of the region respond to it. Merely detecting tankers on radar does not solve the problem. The real challenge is to devise a response as well-designed as the mechanism it seeks to curb. This report is dedicated to addressing this challenge.

Zuzanna Nowak

Executive Director

The Opportunity Institute for Foreign Affairs

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In partnership with Canada

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Executive summary

The shadow fleet has evolved from a mechanism for circumventing sanctions into a persistent instrument of pressure on Western states, operating below the threshold of open conflict. The Baltic Sea has become a particularly exposed arena of this activity due to the multiplicity of jurisdictions, the high concentration of critical infrastructure, and its central role in regional energy flows. **The analytical section** demonstrates that this is not a series of isolated incidents, but a coherent mode of operation grounded in the use of legitimate market components—flags, insurance, and intermediary services. **The diagnosis** shows that the system's core weakness lies not in the absence of regulation, but in its uneven application and the lack of coordination among states. These discrepancies create the operational space within which the shadow fleet can move and adapt to changing conditions. **The strategic section** argues that an effective response requires a shift from reacting to individual incidents toward a comprehensive approach addressing the entire network of linkages that has enabled the fleet's functioning. In this context, Baltic Sea is not only an area of heightened risk, but also a test of the ability of regional states, as well as EU and NATO structures, to deliver coordinated action over the long term.

OPERATION SYSTEM OF THE SHADOW FLEET

A fleet of aging vessels operating outside insurance and classification systems, used for the systematic evasion of sanctions, mainly in the trade in Russian oil; an instrument of political pressure and hybrid warfare

AIS (AUTOMATIC IDENTIFICATION SYSTEM)

Mandatory vessel identification system enabling the tracking of vessels' position and movement

AIS-OFF

Deliberate disabling of AIS in order to conceal a vessel's presence, route, or operations

FLAG OF CONVENIENCE

Vessel registration in a state registry with lax control requirements, limited oversight, and low documentation fees

REFLAGGING

Frequent reflagging of vessels to hinder identification and avoid liability

P&I (PROTECTION AND INDEMNITY)

Shipowners' third-party liability insurance. P&I Clubs are shipowners' mutual insurance associations. The absence of P&I constitutes a serious violation and is characteristic of vessels in the shadow fleet

SPOOFING GNSS

Falsification of satellite navigation signals in order to misreport a vessel's position

PORT STATE CONTROL (PSC)

Inspection of ships in port by the port state authorities. An effective tool, but one with limited effectiveness against the shadow fleet

UNCLOS

The United Nations Convention on the Law of the Sea – the foundation of international maritime law. Practices associated with the shadow fleet violate its provisions

IMO (INTERNATIONAL MARITIME ORGANIZATION)

A specialized UN agency responsible for maritime safety. The body responsible for developing international legal and technical standards

SOLAS

The International Convention for the Safety of Life at Sea – a fundamental IMO convention governing standards for the construction, equipment, and operation of ships, as well as the obligations of the flag state and the shipowner. Shadow fleet vessels often violate this convention's requirements regarding technical safety, certification, and vessel traceability

G7 PRICE CAP

A price cap on Russian crude oil, systematically circumvented through the use of the shadow fleet. The cap levels have evolved from $60/barrel (as of 5 December 2022), through $47.6/barrel (as of September 3, 2025), to $44.1/barrel (announced on January 15, 2026)

STS (SHIP-TO SHIP TRANSFER)

Transfer of cargo between ships at sea, often without oversight and intended to obscure the cargo's origin

CRITICAL UNDERSEA INFRASTRUCTURE

Power and telecommunications cables and energy pipelines. They are vulnerable to sabotage and hybrid operations

GRAY-ZONE TESTING

Testing states' responses through legally and politically ambiguous actions

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PROLOGUE
WHAT ELSE NEEDS TO HAPPEN?

The Baltic Sea, situated between the European Union and NATO member states on the one hand and the Russian Federation on the other, has in recent years become one of the world's most sensitive sea areas. Through the chokepoints of the Danish Straits, tens of millions of tons of crude oil pass each year, and an ever-larger share of that volume is transported by so-called shadow fleet vessels—old ships, often uninsured, with opaque ownership structures, operating outside the standard regulatory framework. These vessels employ a range of deceptive shipping practices: falsifying documentation, disabling AIS, manipulating satellite navigation signals (GNSS), and ship-to-ship transfers of crude oil at sea (STS), often outside of effective oversight.

The Baltic has ceased to be merely a trade route. It has become an arena in which the West's resilience is being tested. The scale and nature of the observed events—from disruptions to navigation systems, through infrastructure incidents, to demonstrative operations involving high-risk activities– form a coherent pattern of activity below the threshold of open confrontation. Individual incidents of different types should therefore be interpreted as part of a systemic effort to undermine the provisions of the law of the sea (e.g., through their selective interpretation) in order to circumvent the sanctions architecture. The Baltic Sea's particular vulnerability to such actions results from the convergence of several factors: the semi-enclosed nature of this sea area, the concentration of critical infrastructure (energy and telecommunications), heavy shipping, an uneven system of law enforcement among the states of the region, and the Russian Federation's strong determination to achieve its strategic objectives while remaining on a confrontational course toward Western states. Under such conditions, even a single event—a failure, a collision, sabotage, or "unintentional" damage—can have consequences far beyond the immediate site of occurrence. The Baltic plays an important role in Russian exports of energy commodities and in merchandise trade, while at the same time remaining highly vulnerable to incidents that threaten the environment (the Baltic ecosystem would probably feel the effects of an oil spill on a catastrophic scale for a very long time).

The following chronology is not a catalog of sensational episodes. It is an empirical record of the gradual shifting of the limits of tolerance—of testing where the administrative handling of incidents ends and a real threat to the security of states in the region begins.

IX 2022

On the seabed of the Baltic Sea, the Nord Stream 1 and 2 pipelines are damaged by explosions. Within minutes, the controversial infrastructure of strategic importance to Europe is destroyed. The Baltic becomes a space where responsibility for security is limited. In the months that follow, Denmark, Germany and Sweden conduct separate investigations, yet none of these states identify the perpetrators. In 2025, individuals linked to the logistics of the operation were detained, including in Poland and Italy. To this day, no common mechanism for protecting subsea infrastructure has been developed within the EU or NATO.

X 2023

The Balticconnector gas pipeline linking Finland and Estonia is damaged. At the site of the damage, an anchor is recovered at the site, and the Chinese container ship NewNew Polar Bear is identified as one of the suspected vessels. Losses are estimated in the tens of millions of euros. A gap in the region's systems for protecting critical infrastructure is exposed. To this day, no report on the incident has been published.

XII 2023

South of Bornholm, GNSS signal interference persists for weeks, affecting civil aviation and merchant ships. Satellite analyses point to a source in the Kaliningrad Oblast. The term **gray-zone testing** is increasingly used in the context of the shadow fleet—the testing of systems' resilience at the threshold of warfare.

III 2024

The Danish straits observe a record number of STS transfers involving vessels of uncertain nationality and a significant increase in the number of vessels disabling AIS. The presence of vessels flying the flags of Togo, Cameroon, Panama, etc. is increasing. The Baltic remains the primary corridor for Russian oil exports despite the sanctions in place, which points to systemic problems with enforcing restrictions.

IX 2024

The European Maritime Safety Agency and Lloyd's List record a sharp increase in the number of tankers over 15 years old, often without current P&I insurance or valid class certification. The growing number of such vessels in the Baltic—often operating in AIS-off mode—indicates a deterioration in the region's maritime safety.

XI 2024

In the Gulf of Finland and on the Sweden–Lithuania route, two fiber-optic cables are damaged—BCS East-West Interlink and C-Lion1. Damage was recorded between November 17 and 18. Investigations conducted by Finland and Estonia show that two high-risk vessels were near the incident sites—the Chinese container ship NewNew Polar Bear and the Russian tanker Eagle S flying the Cook Islands flag. AIS data indicate anomalies in the speed and course of both vessels. The authorities have not identified the cause of the incident, but describe it as a possible case of "unintentional damage caused by an anchor". The incident is nonetheless a strong signal that the Baltic's subsea infrastructure—both energy and telecommunications—is emerging as a new tool for exerting pressure in the security gray zone.

XII 2024

The Russian tanker Eagle S, flying the Cook Islands flag, is involved in a more serious incident in the Gulf of Finland, severing four telecommunications cables and one power cable between Estonia and Finland. The Finnish National Bureau of Investigation determines that the vessel dragged its anchor along the seabed for several nautical miles. The damage is estimated at over 60 million euros. Estonia and Finland classify the incident as "serious interference with critical infrastructure" and forward their findings to NATO and the European Commission. In October 2025, a court in Helsinki acquits the crew of Eagle S, citing a lack of evidence of deliberate action. The ruling sparks debate in the EU over legal gaps concerning jurisdiction and liability for damage to infrastructure in international waters.

IV 2025

The Estonian Border Guard and the Navy detain the tanker Kiwala—a stateless vessel (without nationality), linked to the Russian shadow fleet. The technical inspection reveals 40 deficiencies, 29 of them classified as serious, including the lack of P&I insurance and non-compliance with SOLAS. The vessel is on a sanctions list and is towed to the port of Tallinn. This is the first full technical audit of a shadow fleet vessel in the Baltic Sea region. A few months later, the same tanker, now operating under the name Boracay, is detained by the French Coast Guard off the coast of Marseille. In the same month, Altai (Belize) remains in AIS-off mode for more than 72 hours, conducting nighttime STS operations off the coast of Latvia. After commercial monitoring systems reveal the data, the vessel disappears from global AIS databases, suggesting a deliberate effort to cover its tracks.

V 2025

The Polish Navy intervenes near the SwePol Link cable after detecting a suspicious maneuver by a sanctioned vessel. A hydrographic vessel and patrol aircraft force it to alter course. This is the first case of energy infrastructure protection in Poland's area of responsibility.

VI 2025

Satellite images reveal six tankers moored side by side near Ust-Luga in Russia, including three flying the flags of Indonesia and Liberia. The operations take place at night, without notifying the port authorities. The Russian Navy begins escorting tankers, officially to "ensure the safety of navigation".

VII 2025

Sweden introduces document and insurance checks for ships in transit. The system includes verification of P&I Clubs and vessel classification – the first element of a regional administrative response.

X 2025

The Danish government tightens controls in the waters off Skagen – the gateway to the Baltic. It introduces mandatory inspections of documentation and the technical condition of high-risk tankers. The Danish Armed Forces report provocations by Russian vessels—targeting Danish warships and helicopters with radars and weapons, and engaging in collision-course maneuvers. At the same time, intelligence services confirm a series of overflights by unidentified drones over Copenhagen and the Danish Straits, coinciding with the presence of ships in the area tied to the shadow fleet network. According to Danish analyses, the drones are likely deployed from the decks of merchant vessels for reconnaissance of port and energy infrastructure, pointing to an escalation of operations in the gray zone of security.

XII 2025

Finnish authorities detain the cargo ship Fitburg, flying the flag of Saint Vincent and the Grenadines en route from St. Petersburg to Haifa, suspected of causing damage to two subsea telecommunications cables in the Gulf of Finland between Finland and Estonia. Two members of the 14-member crew are arrested, and two are barred from leaving the country. The investigation is being conducted on suspicion of "intentional damage to a telecommunications cable" and "violation of sanctions" following the discovery of materials subject to EU sanctions on board.

The foregoing overview clearly shows that the shadow fleet is neither a technical problem nor solely a matter of the safety of navigation. In the context of the war in Ukraine and the sanctions imposed on the Russian Federation by Western states, it has become an instrument of state policy, enabling Russia to circumvent trade restrictions, shift risk onto the states of the region, and conduct operations in the gray zone of security. The scale and recurrence of the incidents show that we are dealing with a systemic challenge that affects the entire European Union and the North Atlantic Alliance.

This report is an attempt to assess a problem that is turning the Baltic Sea into an arena of enduring maritime rivalry among states with divergent geopolitical, economic, military, and even social interests. Its objectives are to explain how the shadow fleet operates, identify enforcement gaps, and pinpoint the moment at which further tolerance of its activities ceases to be neutral and begins to entrench Russia's advantage.

Oil tanker Eagle S anchored at Svartbäck anchoring site close to Porvoo

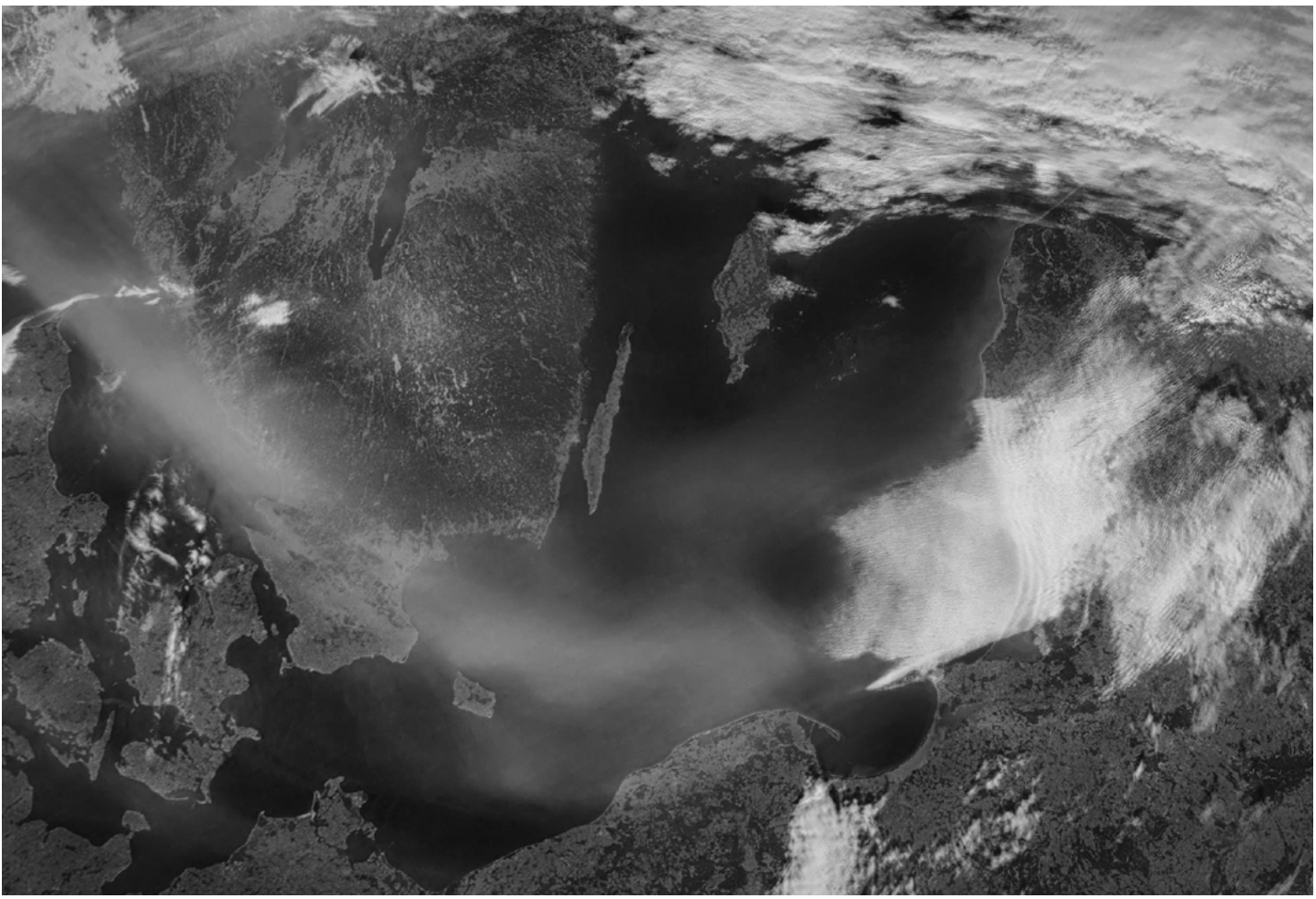
Methodology

The complex and highly dynamic situation in maritime security, stemming from ongoing changes in international relations, requires continuous monitoring of developments that directly affect the multidimensional security of the Republic of Poland. The shadow fleet phenomenon exposes numerous systemic weaknesses and testifies to years of creeping neglect, driven by the pursuit of savings (profit maximization) in maritime shipping, ultimately undermining international law (e.g., through a selective approach to its application, as well as a lack of means or will to enforce it). The main rationale for preparing the Report was the growing threat to Poland posed by the shadow fleet operating along the Baltic Sea shipping routes that stretch for several hundred kilometers along our country's coastline. Poland's Presidency of the Council of the Baltic Sea States (from July 2025 to July 2026) and the goals set within that presidency for the work of that organization spurred efforts to seek answers to questions about the Republic of Poland's real capabilities to counter shadow fleet operations.

In the authors' view, this Report is also a further element in building awareness of the state's maritime character, arising not only from its coastal location but also from the fact that strategic interests lie at sea (energy security). This compels a search for tools to shape the state's maritime security, beginning with the need for in-depth reflection that takes a broad view of the issue, and extending to the search for a strategic vision that would enable the pursuit of interests amid challenges, competition, and rivalry over the coming decades.

Among the basic research methods employed in preparing this study is the analysis of available materials in the form of reports and publications from the Atlantic Council (Braw, 2024), the Carnegie Endowment for International Peace (Westgaard, 2023), the maritime trade publication The Maritime Executive and reputable media outlets (Radio Free Europe, The Guardian, Reuters, Politico, S&P Global Commodity Insights, Polish Press Agency), as well as statements from the European Commission (Joint Statement by the European Commission..., 2024). Materials gathered through active participation in conferences held at NATO centers (14th and 15th NATO Maritime Interdiction Operation Training Center Annual Conferences) also played a major role, as did publications from the United States Naval War College (Maritime Doctrine of the Russian Federation, 2022), the Center for International Maritime Security (Chiriac, 2022), and studies under the auspices of Lloyd's List (Bockmann, 2024; Meade, 2024; Minchin, 2024). Discussions of the applicable instruments of international law at sea were based on resolutions of the International Maritime Organization and publications from the National Maritime Foundation (Parmar, Sawan, Agnihotri, 2022). The issue of international sanctions imposed on trade in Russian crude oil was discussed on the basis of publications from the Centre for Research on Energy and Clean Air (Katinas, Wickenden, 2024), the U.S. Department of the Treasury and OXFORDENERGY (Henderson, Yermakov, Connolly, 2024).

The Report covers events up to early 2026.



Baltic Sea area

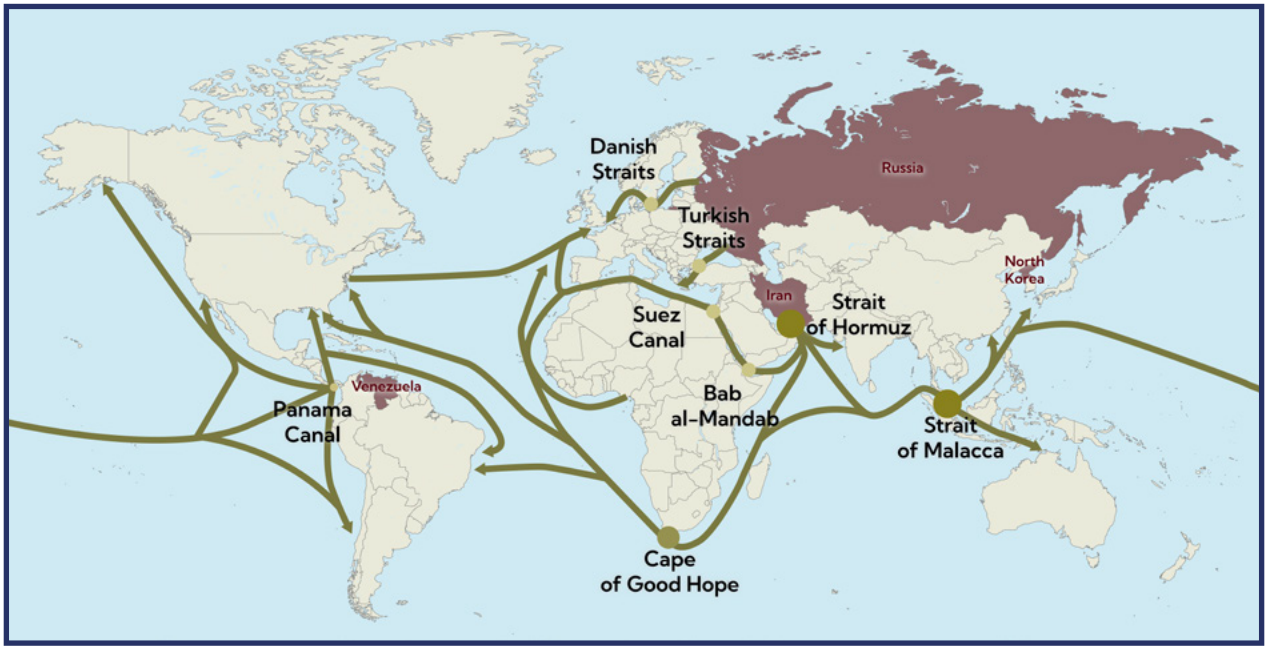
/ANALYSIS/

1

From Tehran to Moscow
the origins of the shadow fleet

The shadow fleet has become a symbol of a new phase of economic and geopolitical rivalry—a shift from ad hoc attempts at sanctions circumvention to an organized system for transporting raw materials operating outside international law. It grew out of the experiences of Iran, North Korea, and Venezuela, but Russia gave it global reach, turning it into an important instrument of economic policy and economic warfare.

Traditional oil transport routes and their chokepoints



Pathways of sanctions circumvention

The concept of the shadow fleet has its roots in the experience of states subject to sanctions—Iran, North Korea, and Venezuela. It was there that the practices later adopted and developed by Russia first took shape. Key elements such as switching off AIS, STS transfers, falsifying documents, reflagging, and the use of old vessels without P&I insurance had emerged years earlier and were further developed in line with local conditions (Braw, 2024; Chiriac, 2022; Minchin, 2024).

Iran was one of the first states to begin systematically circumventing sanctions by switching off vessel tracking systems and conducting crude oil transfers at sea. It was Iran that brought the phenomenon of "ghost ships"—vessels employing measures that enabled them to conceal their activities and then appear in ports fully laden—into commercial practice. Iran also resorted to frequent reflagging to make vessels harder to identify. It was then that international organizations first recognized manipulation of positioning signals as a serious threat to the safety of navigation.

Faced with UN sanctions on trade in coal and petroleum products, North Korea developed a broad range of irregular shipping techniques, although it used methods similar to those employed by Iran. One of the tools was ship-to-ship transfers carried out with AIS transponders switched off in the Yellow Sea and the Sea of Japan. Vessels involved in sanctions circumvention often used false identification numbers (unique seven-digit identifiers) and masqueraded as other vessels, making them harder to track using satellite-based systems (Chiriac, 2022). This was facilitated by networks of intermediaries from Southeast Asia that supplied false documents and insurance policies.

After sanctions were imposed in 2019, Venezuela began using old decommissioned tankers—often without valid certificates and insurance. These vessels carried crude oil mainly to China and Cuba, relying on intermediary companies and ports that did not require full documentation. Additionally, crude blending was used to conceal its true origin. Over time, these activities evolved into a permanent, parallel transport system operating outside international regulations and sanctions.

Each of the cases described thus contributed new elements to the shadow fleet's repertoire of techniques: Iran—systematic AIS switch-offs, North Korea—GNSS spoofing and false IMO numbers, Venezuela—crude blending and the widespread use of vessels over 20 years old (S&P Global, 2025).

Today's Russian shadow fleet is a synthesis of these experiences, scaled up globally and adapted to the conditions of semi-enclosed sea areas such as the Baltic Sea (Saiz, 2025; EPRS, 2024).

Never before has this phenomenon reached such a scale as it has today. Russia expanded on earlier patterns, creating a system more elaborate and more varied in technological, logistical, and geographical terms. Unlike its predecessors, it integrated the shadow fleet's activities with the state apparatus—including the navy—and employed advanced operational techniques. It is responsible for expanding the shadow fleet to a global scale, while simultaneously deploying its resources and operational capabilities (still being expanded) under conditions of hybrid conflict.

The harmful impact of the shadow fleet on global and regional crude oil markets

Following sanctions imposed by the EU and the G7, Russia intensified its use of the shadow fleet as a key tool for maintaining exports of crude oil and petroleum products. This fleet enables Russia to circumvent the price cap and formal trade restrictions, thereby maintaining revenue flows to the federal budget and preserving Russia's ability to influence global markets. This means that it plays an increasingly important role in shaping global and regional trends in crude oil markets, leading to significant price distortions and undermining the transparency of trading mechanisms. A key aspect of this activity's impact is the circumvention of the price cap mechanism established by the G7 states. Initially, as of December 2022, a fixed limit of $60 per barrel was in force. In September 2025, it was lowered to $47.60, and in January 2026—as part of the first application of the dynamic mechanism—to $44.10. The new formula automatically adjusts the price cap to 15% below the average market price of Urals crude over the previous 22 weeks. As a result, sanctions more effectively limit Russia's revenues while increasing pressure on logistics and narrowing access to legitimate shipping and insurance services.

According to estimates by the KSE Institute, Russian investment in the shadow fleet amounted to about $10 billion. In 2024, 70% of Russia's seaborne crude oil exports were carried aboard shadow fleet tankers (Hilgenstock et al., 2024). Russian exporters receive, on average, about $65 for their crude oil. Despite the sanctions regime imposed by the EU, the US, and the G7, Moscow's crude oil revenues were estimated to have risen by about 5% year over year in 2024, reaching about $16.4 billion (Chiusa, 2025).

At the regional level, the impact of shadow fleet activity in the Baltic Sea region is particularly significant. The Russian ports of Primorsk and Ust-Luga remain the principal crude oil loading ports, while clear changes are evident in seaborne transport patterns. Crude exported from Baltic Sea ports is increasingly being delivered to third countries through a series of ship-to-ship transfers, especially those carried out in international waters, making it difficult to identify the cargo's ultimate recipient. The rise in trade volumes involving crude of uncertain origin in the Baltic Sea region also raises concerns about the effectiveness of the EU sanctions regime and about how effectively anti-money laundering standards in the energy sector are monitored and enforced.

Russia uses the shadow fleet to strengthen relations with states of current strategic importance to it, especially in Asia and the Pacific, while shifting the burden of political and economic risk onto neighboring regions. It is estimated that from January to May 2024, about 70% of Russian crude oil exports were directed to Asia, mainly to India and China, bypassing official reporting channels. This makes it difficult to estimate global supply accurately and increases uncertainty in supply-and-demand forecasts, which is reflected in increased price volatility in futures markets. At the same time, offering crude at prices significantly below market levels not only leads to the "crowding out" of competing producers, especially in Asia, but also deepens price asymmetries and creates confusion among investors and physical traders.

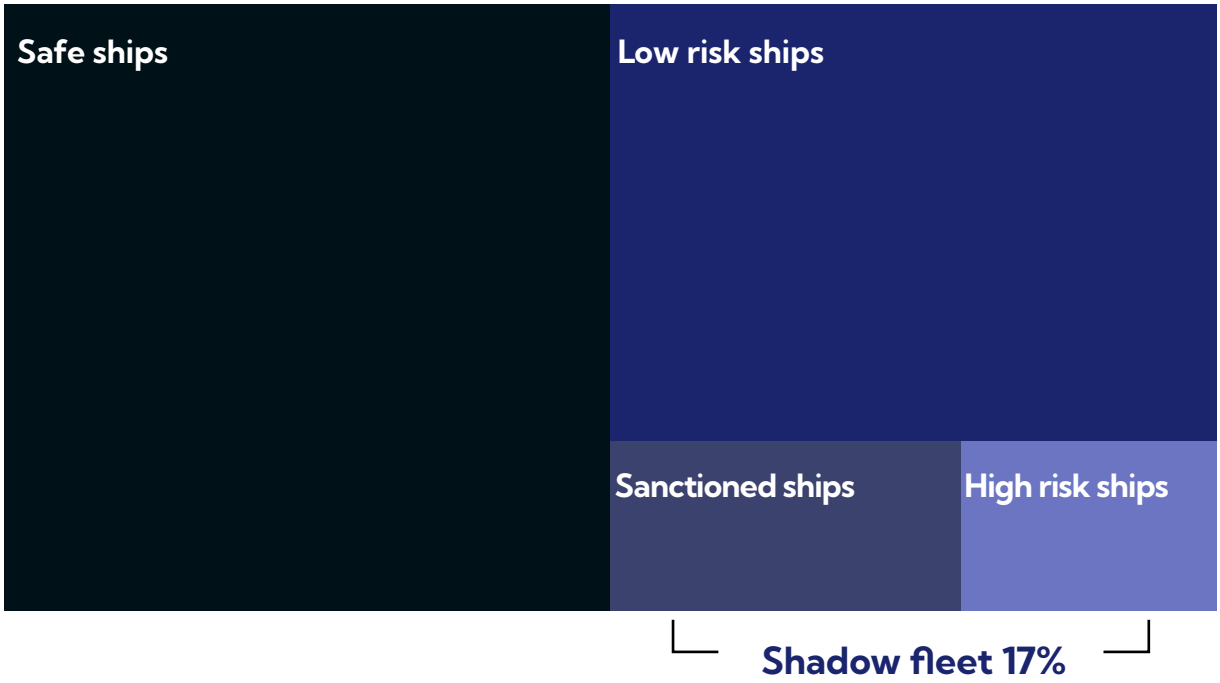
The Russian shadow fleet undoubtedly succeeded and gave its backers what it was set up to provide, namely, revenue for the Russian budget (the oil and gas sector accounts for about 60% of Russian exports and about 40% of state revenues), which ultimately made it possible to cover enormous war expenditures. One should expect such practices to be used in the future by other states under sanctions as well (Chiusa, 2025).

Russian distinctiveness

The Russian shadow fleet reached an unprecedented scale and level of organization. To circumvent the G7 price cap on seaborne Russian crude oil exports, introduced on December 5, 2022, the Kremlin began actively developing alternative shipping channels. This included securing new vessels, shipowners, and insurers that would make it possible to carry out transactions subject to sanctions. Data on the number of tankers used to transport Russian crude oil and their share of the global fleet of such vessels are inconsistent and, for obvious reasons, change over time.

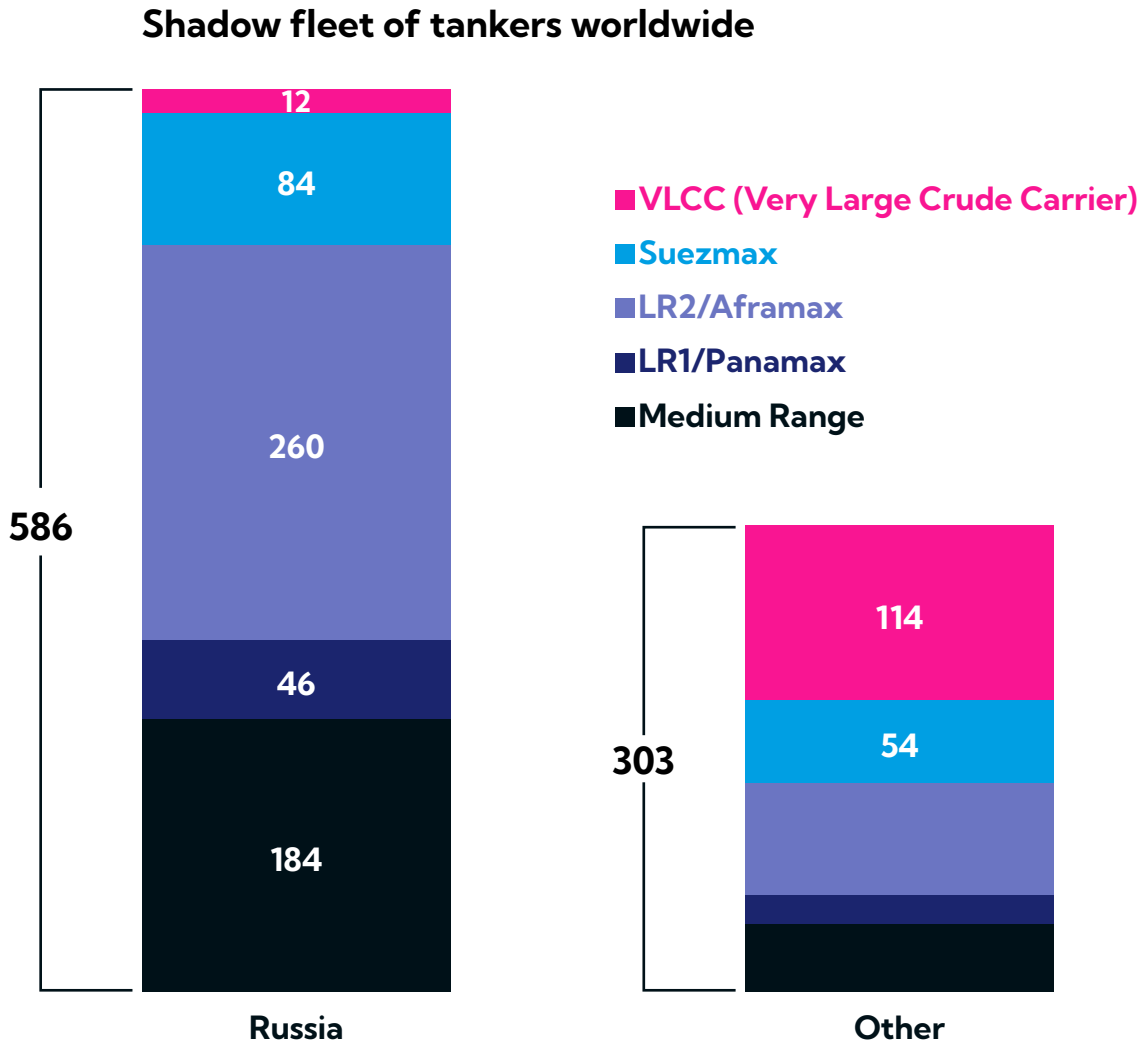
According to a 2024 publication, Russia amassed a tanker fleet estimated to number between 435 vessels (Q1 2024) (EPRS, 2024) and as many as 586, with a total deadweight tonnage of 57.1 million tons. Most of them are old vessels without adequate insurance (Lin, 2024). This fleet accounted for about 10% of all tankers worldwide. It is estimated that about 60% of these high-risk tankers are operated by state entities from Russia, Iran, and Venezuela, which is significant because it points to coordinated action by those states. In addition, new entities are being set up as part of this scheme to support the shadow fleet: shipping companies, crude oil buyers, and insurance companies. These actions suggest a deliberate effort to establish independent logistics to circumvent sanctions. Other data indicate that the shadow fleet accounts for 17% of vessels of this type registered worldwide.

Shadow fleet makes up 17% of global tanker capacity
Breakdown of tanker capacity in DWT



Source: S&P Global

The structure of the Russian shadow fleet reveals significant differences in the approach to seaborne crude oil transport compared with that of other states using similar tactics. It has nearly twice as many vessels as other states that use this approach, such as Iran or Venezuela (303 vessels). This points both to the scale of energy exports and to the level of development of sanctions circumvention strategies, although for years it was Iran and Venezuela, not Russia, that played a key role in the illegal trade in energy resources. Russia is also clearly focusing on medium-sized and moderately large vessels. As many as 260 of them are LR2/Aframax tankers, accounting for more than 78% of the global shadow fleet in this category. They are particularly useful in shallow-water regions close to European customers, such as ports on the Baltic and Black Seas. In addition, the Russian fleet uses a substantial number of Medium Range vessels (184) and LR1/Panamax vessels (46), indicating a preference for regional and medium-haul transport.



Source: S&P Global Energy, Argus Media

The situation is entirely different when it comes to the largest tankers—the VLCC (Very Large Crude Carrier). Russia has only 12 such vessels, whereas Iran, Venezuela, and other states maintain as many as 114. This points to Russia's limited ability to export directly over long distances, for example, to the Asia-Pacific region, without needing to transfer crude oil to larger vessels or to rely on third-country mediation. As a result, Russia relies on a dispersed fleet of smaller vessels, enabling it to effectively avoid identification and scrutiny by maritime and insurance institutions, while also responding flexibly to changing political and commercial conditions. The number of ships also enables the rapid replacement of vessels subject to secondary sanctions, increasing the resilience of Russia's transport system. Russia has thus built a highly specialized system for transporting energy resources, based on flexibility, scale, and adaptability.

In 2024, the shadow fleet expanded beyond crude oil tankers to include cryogenic vessels transporting Russian gas from the Arctic LNG 2 facility. The plant had been launched several months earlier, with shipments intended to be handled by vessels operated by Ocean Speedstar Solutions, a company established for this purpose and registered in India. Both the vessels and the operator have been subject to U.S. sanctions.

The specific characteristics of the LNG market and maritime transport pose significantly greater challenges—compared to oil transport—for Russia's Novatek: a technologically demanding cost structure, a limited number of suitable vessels, harsh navigational conditions requiring ice-class ships, and the need to secure buyers primarily in Asian markets. Nevertheless, this case demonstrates Russia's strong determination to advance strategic projects enabling the export of natural resources (Rudnik, 2024).

Research data and OSINT confirm the scale of the active shadow fleet and its significance for Russian trade. The European Parliamentary Research Service estimates that in Q1 2024, shadow fleet vessels accounted for about 60% of Russia's seaborne crude oil exports and 45% of its seaborne petroleum product exports (EPRS, 2024). At the same time, higher estimates have emerged suggesting that the total size of the shadow fleet may have reached as many as 1,300–1,400 vessels (Braw, 2024; Bajarūnas, 2025). On the secondary market, used tanker sales reached record levels. In 2022, about 600 vessels were sold in total, and by mid-2023, the prices of 15-year-old Aframax tankers had doubled, indicating a surge in demand for "high-risk" tonnage (Braw, 2024). In 2024, about 175 tankers carrying Russian crude oil were reportedly plying the Baltic each month, and Russia's shadow fleet alone was estimated to have a shipping capacity of about 270 Aframax tankers, although some authors consider this figure overstated (Kennedy, 2024; Kennedy, 2024A).

"Russia has thus built a highly specialized system for transporting energy resources, based on flexibility, scale, and adaptability."

Conceptual evolution

Operationally, a vessel is classified as part of the shadow fleet if it meets several distinctive criteria. These include: repeated AIS deactivations or cases of GNSS spoofing, conducting STS operations at locations with limited oversight, a lack of ownership transparency (including the use of front companies, repeated reflagging, and registration outside OECD member states), the absence of credible P&I insurance, and discrepancies in shipping documentation concerning cargoes and routes. This combination of features allows lawful activity to be distinguished from activity that systematically circumvents oversight and enforcement mechanisms.

The evolution of perception is just as important as the changes in practice. Until 2021, the shadow fleet issue remained largely confined to the trade press and sectoral analyses. After 2022, as sanctions pressure increased and the conflict between Russia and Ukraine escalated, it shifted to the center of foreign policy and security debates. In 2023, the issue was strongly emphasized in international documents—including IMO resolution A.1192(33)—confirming that this is a threat of systemic dimensions (Braw, 2024; IMO, 2023; EPRS, 2024). At the same time, in 2024, the EPRS estimated the core of the active shadow fleet to consist of hundreds of vessels carrying a significant share of Russia's seaborne exports of crude oil and petroleum products (EPRS, 2024).

> "Operationally, a vessel is classified as part of the shadow fleet if it meets several distinctive criteria."

As the problem intensified, terms such as the so-called gray fleet and the so-called dark fleet (or the fleet of darkness), or shadow fleet, came into use. The first of these, the "gray fleet," denotes a fleet whose origin, ownership, and flag give rise to justified suspicions (including as to the propriety of its registration and its genuine link to the State in which it is purportedly registered). Such fleets operate alongside fleets positively assessed by the International Maritime Organization. By contrast, the shadow fleet (or dark fleet) resorts to illegal practices designed to circumvent sanctions imposed on Russia with respect to the crude oil trade—manipulating identifiers and position data or deliberately switching off AIS (IMO Resolution A.1192(33)).

Another harmful and illegal practice serving Russian interests is the emergence of so-called ghost ships, or zombie vessels, which sail under stolen identities assigned to lawfully operating vessels. As a result, two identical sets of identification data may be recorded in registration and monitoring systems, creating serious evidentiary difficulties and delaying the identification of those responsible (Soon, 2024; The Guardian, 2024).

Moreover, a phenomenon noted in 2025 was the emergence of the so-called renegade fleet, comprising vessels sailing under no official flag, such as the vessel Kiwala mentioned earlier. This example shows that even the lack of low-cost or flag-of-convenience registries does not deter operators from engaging in the illicit transport of Russian crude

oil. Numerous ports tolerate such practices, which further undermine the authority of international law (Braw, 2025).

The above terms overlap, and their interpretation is often fluid. Differentiating these phenomena, however, is useful primarily in analytical and political debate. In Polish diplomatic discourse (including in statements issued by the Ministry of Foreign Affairs of the Republic of Poland), alongside operational terminology, the emphatic label junk fleet is also used, shifting the focus of the debate from sanctions issues to the direct threat of an environmental disaster by emphasizing the vessels' advanced age and technical deterioration. From the perspective of international law, all these practices constitute violations of the United Nations Convention on the Law of the Sea (UNCLOS), and the difference between them lies mainly in the difficulty and complexity of the evidentiary process required to prove their illegality.

By convention, for the purposes of this publication, the term "shadow fleet" will be used to describe the practice of seaborne transport of Russian crude oil subject to sanctions, encompassing vessels classified as part of the "gray fleet," the "shadow fleet," "zombie" vessels, as well as "renegades."

Terminology of phenomena associated with an illegally operating fleet

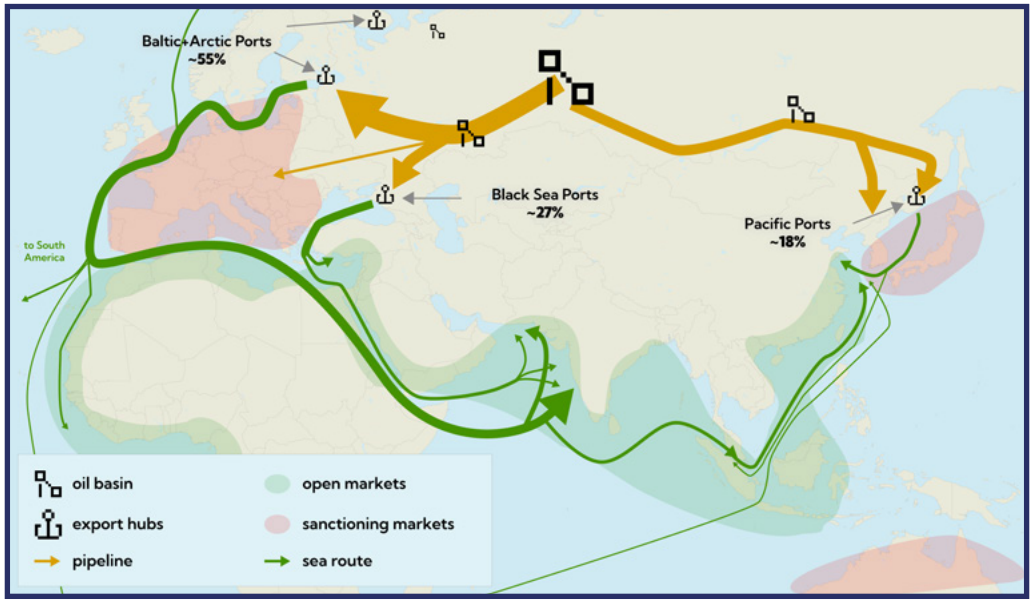
English name	meaning
GRAY FLEET	a quasi-legal fleet operating alongside fleets regulated by IMO resolutions—it is difficult to prove whether it is used for sanctions circumvention
DARK FLEET SHADOW FLEET	vessels engaged in illegal activities aimed at circumventing sanctions
GHOST SHIPS	vessels using the identifying attributes of lawfully operating ships (passing themselves off as such ships)
RENEGADE FLEET	vessels operating outside the law, without a flag (State nationality)

The Baltic as a center of shadow fleet operations

Until the outbreak of the war in Ukraine, the Baltic Sea was of fundamental importance to Russian hydrocarbon exports (crude oil and natural gas), both in terms of seaborne transport and for transmission infrastructure (the Nord Stream projects). First, this state of affairs allowed Russia to bypass the transit states located along the route to the ultimate recipients—the countries of Western Europe (with Germany serving as a gas hub). This made it possible to maximize profits by elimianating intermediaries. Second, it fostered bilateral ties favored by Moscow (e.g., with Germany), which further weakened the European Union and NATO. This was intended to further deepen the dependence of Western consumers on Russian hydrocarbons. The concepts for implementing Russian policy outlined in the World Ocean program for 2016–2032 pointed to the need to mitigate threats arising from American expansion in energy exports (e.g., LNG deliveries to terminals in Poland and Lithuania). The strategic role of the Baltic Sea encompassed three principal areas:

- the inclusion of the Baltic Sea, together with the Norwegian and North Seas, in a common security and shipping control policy in the Arctic Ocean,
- countering the natural gas export policy of the USA through energy cooperation with Germany in order to reduce exports to the strategic partners of the region, Poland foremost among them,
- the use of the waters of the Baltic Sea and the North Sea for the controlled escalation of tensions and a proxy rivalry with the USA, while simultaneously attempting to bring China into play (joint military exercises and emphasizing a Baltic community of interests with the PRC) (Szubrycht, Rokiciński, Mickiewicz, 2020).

Directions and methods of crude oil exports from Russia in 2023



Source: Craig Kennedy, Navigating Russia

The importance of the Baltic Sea grew steadily as Russia invested in developing transmission infrastructure (the major Nord Stream 1 and 2 projects) as well as ports and specialized terminals, until it came to play a fundamental role in the following areas:

- the export of energy resources (natural gas transmitted to the EU),
- the import into Russia of goods and technologies from Western Europe, with Germany playing a particularly important role,
- the concept of gaining dominance over rail freight on the Asia–Europe route using the Duisburg AG Logistics Center (Szubrycht, Mickiewicz, Rokiciński, 2020).

The Russian maritime doctrine adopted in 2022, announced after the start of the full-scale invasion of Ukraine, replaced the earlier version in force since 2015. An analysis of the document, taking into account the broader global context, the foreign policy course chosen by Russia, as well as the domestic situation, points to a dominant socioeconomic dimension. The document confirms the confrontational course of Russian policy toward Western states (total hybrid warfare) and the ambition to reshape the current security architecture (world order). It should also be noted that Russia's long-term security strategy, as well as strategic thinking and political culture, mirror the vertical structure of power. Thus, maritime and energy assets are above all instruments of power. The new doctrine identifies three levels of importance assigned to sea areas from the standpoint of the interests of the Russian Federation (vital sea areas, important sea areas, and other sea areas).

Vital sea areas are of fundamental importance to securing Russian national interests in the world ocean. They contribute to the development of the state, the protection of its sovereignty and territorial integrity, and the strengthening of its defense capability. The loss of control over them may threaten national security and the very existence of the state. These sea areas are: Russia's internal waters and territorial sea; its exclusive economic zone and continental shelf, including the continental shelf beyond 200 nautical miles from the Russian exclusive economic zone in the Arctic basin; the Arctic basin adjacent to the Russian coast and the Northern Sea Route area; the waters of the Sea of Okhotsk and the Russian sector of the Caspian Sea.

Important sea areas have a significant impact on Russia's economic development, the material well-being of its population, and its national security, as well as on maintaining Russia's strategic and regional security. They include, among others, the waters of the seas and oceans adjacent to the Russian coast, as well as the Danish Straits.

Other sea areas—the remaining areas, not designated as significant or important (Maritime Doctrine of the Russian Federation, 2022).

„Russia's new maritime doctrine allows the civilian fleet (ships and crews) to be used as a tool for military operations."

The Baltic Sea was included among the sea areas used in implementing the regional directions of Russia's national maritime policy as part of the Atlantic area. Priorities with respect to the Baltic include, among others:

- the development of domestic coastal port infrastructure—rail lines, logistics centers, and port complexes, including the processing and transport of hydrocarbon resources, with a view to redirecting export and import cargoes toward domestic ports;
- the continued development of a system of undersea export pipelines, ensuring their safe and effective operation;
- the development of the Baltic Fleet's military capabilities and basing network, as well as its ability to safeguard the national interests of the Russian Federation in the Baltic Sea;
- the conduct of comprehensive scientific research, including monitoring the condition of chemical weapons, potentially hazardous underwater objects, and undersea pipelines (Maritime Doctrine of the Russian Federation, 2022).

At the same time, Russian maritime doctrine indicates that the Arctic will continue to be treated as a priority with respect to Russia's maritime interests, with continued emphasis on the Mediterranean, Black, and Baltic seas (Parmar, Sawan, Agnihotri, 2022).

Russia's new maritime doctrine allows the civilian fleet (ships and crews) to be used as a tool for military operations (Chiriac, 2022). Accordingly, shadow fleet vessels may be used to carry out sabotage and diversionary operations against critical infrastructure (mainly undersea, although depending on the level of international tension, actions against other facilities are also conceivable).

Over the past few quarters, Russia's shadow fleet activity in the Baltic Sea and across the wider area of northeastern Europe has taken on a systemic character, becoming one of the pillars of the Kremlin's adaptive strategy toward the sanctions regime. The Baltic has become one of the shadow fleet's main theaters of operation because it brings together the immediate proximity of Russian export terminals, a dense network of critical infrastructure in EU and NATO states, and shipping chokepoints that force transit through confined sea areas. Its semi-enclosed nature, limited water exchange, and the concentration of cables, pipelines, and ports mean that even a local disruption has the potential to generate cascading effects throughout the region (The Guardian, 2024; EC, 2024). The risk is multifaceted—from temporary infrastructure outages and navigation disruptions to costly spill response operations.

Map of the Danish Straits

Suspicions regarding the possible severing of the EastLink 2 power interconnector between Finland and Estonia focused on a vessel used by Russia in December 2024 as part of the shadow fleet. Initially, the Chinese container ship "Yi Peng 3" was suspected of severing the undersea power line (Finland-Estonia power..., 2024), but later Finnish authorities detained and inspected the vessel Eagle S (a Panamax tanker registered in the Cook Islands, whose owner, Caravella LLCFZ, is based in the United Arab Emirates). The vessel (IMO: 9329760) was also allegedly responsible for severing four fiber-optic links (two belonging to the Finnish operator Elisa, one belonging to the Chinese company Citic connecting Finland and Estonia, and another connecting Finland to Germany, operated by the Finnish group Cinia). The ship was secured by the Finnish coast guard and detained in Finnish territorial waters (Lehto, Sytas, 2024), after it allegedly slowed while transiting the Gulf of Finland and dragged its anchor along the seabed in the area where the power cable had been laid. Later reports indicated that spy devices used to monitor underwater and aerial activity were present on board. Such equipment was also discovered aboard Swiftsea, a Honduras-flagged tanker belonging to the same shipowner and subject to UK sanctions (IMO: 9318539). Eagle S was reportedly dropping sensors while transiting the English Channel (Bockmann, 2024A).

The Danish Straits (Øresund and the Great Belt), which remain a strategic transit corridor for crude oil shipped from the Baltic Sea to southern Europe and destinations beyond Europe (important sea areas according to Russian nomenclature). They remain the only outlet from the Baltic to the North Sea, which is why navigational risk is particularly high here. From July 2023 to May 2025, more than 480 voyages by Aframax and Suezmax tankers that had loaded in Russian ports passed through the straits; these vessels exhibited behavior inconsistent with IMO requirements and safety practices, including AIS signal gaps, no pilot on board, or unusual speed profiles (Lloyd's List Intelligence / Windward, 2025). At the same time, maritime authorities recorded refusals to take a pilot and incidents of position masking using GNSS spoofing, which were interpreted as a deliberate effort to hinder surveillance (Braw, 2024).

Importantly, a number of these vessels participated in the so-called rotational transport chain—a multistage process involving transshipments, reflagging, temporary AIS shutdowns, and final unloading outside the jurisdiction of the EU or the G7. This phenomenon points to the deliberate construction of an alternative logistics infrastructure in which northeastern Europe, the Baltic Sea in particular, serves as the main geographic and regulatory buffer.

Main Russian oil export terminals

Terminal	Area	Annual Throughput Capacity
Primorsk	Baltic Sea	75 million tonnes
Ust-Luga	Baltic Sea	~60 million tonnes
Kozmino	Pacific Ocean	45–50 million tonnes
Novorossiysk (Sheskharis)	Black Sea	~50–60 million tonnes
Novorossiysk (CPC)	Black Sea	~67 million tonnes

The scale of the operations and the pace of their growth indicate the limited effectiveness of the current sanctions enforcement model. Despite formal restrictions, Russia has managed to keep export volumes relatively stable. In 2024 alone, a total of approximately 96 million metric tons of crude oil were exported from the ports of Primorsk and Ust-Luga, of which more than 30% was estimated to have been transported aboard vessels matching the shadow fleet profile. Data from 2024 indicate that from January through August alone, approximately 46 million metric tons of Russian crude oil passed through the Danish Straits, with a significant share transported by vessels classified as part of the shadow fleet; at the same time, hundreds of passages by old tankers were recorded in Germany's Baltic waters (Katinas, Wickenden, 2024; Greenpeace, 2024; EPRS, 2024).

Primorsk remains a strategic terminal for loading Russian crude oil in the Gulf of Finland, supplied by pipelines serving exports of Urals crude. The terminal maintained high volumes after 2022 and is the main departure point for voyages toward the Danish Straits, where cargoes are routed either to transshipment ports or to sea areas where STS is carried out (Kennedy, 2024a).

Ust-Luga serves as a hub for petroleum products, especially diesel and jet fuel, and handles a growing share of medium-sized tankers (Aframax, LR2), which form the backbone of Russian shipments to non-European recipients and to onward redistribution points (McKinney, 2023; Minchin, 2024).

„The scale of the operations and the pace of their growth indicate the limited effectiveness of the current sanctions enforcement model."

Map of Primorsk and Ust-Luga on the Baltic Sea

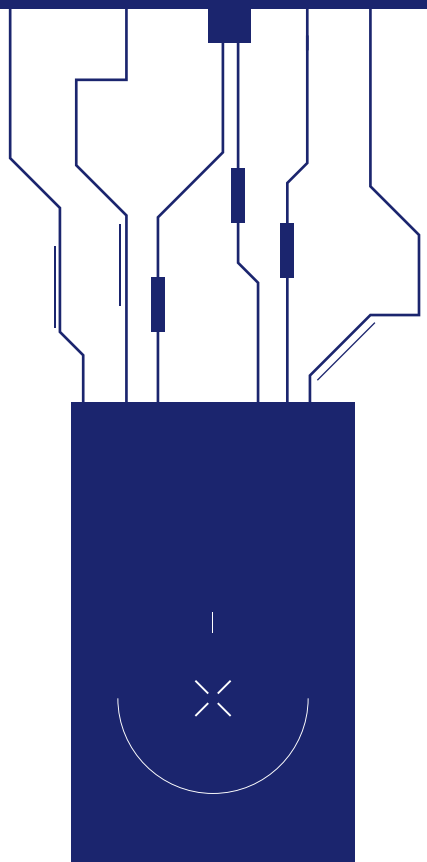
Primorsk and Ust-Luga, therefore, serve as points of departure for a growing number of voyages undertaken by vessels fitting the shadow fleet profile, while in the waters around Bornholm and Gotland, vessels conduct STS operations and disable AIS. Data from 2023–2025 indicate a sharp increase in the number of STS transfers, a high proportion of voyages with AIS signal gaps, and an above-average presence of aging tankers. Taken together with the volume of oil transported, these findings confirm that the Baltic Sea has become a key channel for circumventing sanctions regimes. In addition, documented infrastructure-related incidents and the growing threat to the marine environment of a semi-enclosed sea constitute persistent, severe, multidimensional threats to coastal states. Such actions are described as "openly provocative" (Braw, 2024). The Baltic Sea, as a semi-enclosed sea, is also characterized by slow water exchange and a tendency to accumulate pollutants. Persistent eutrophication and low water temperatures prolong the natural degradation of petroleum-derived substances, further increasing the scale of potential damage. In this context, the growing number of aging vessels and the STS operations conducted in zones with limited oversight create a risk profile far higher than that found in open waters (Greenpeace, 2024). These risks are compounded by adverse hydrometeorological conditions, such as ice cover in the Gulf of Finland, potentially leading to far-reaching environmental, economic, and political consequences. Estimates indicate that the cost of responding to a crude oil spill from an Aframax tanker in Europe may reach $859 million, while environmental and social costs extend far beyond direct operational expenditures (Peachey, 2024).

An important instrument for protecting the marine environment in international law is the Particularly Sensitive Sea Areas (PSSA) concept, developed within the regulatory framework of the International Maritime Organization (IMO). It refers to sea areas with exceptional natural value and significant ecological importance that require special protection from ship-generated pollution.

The legal basis for such measures is Article 192 of the United Nations Convention on the Law of the Sea (UNCLOS), which requires states to protect and preserve the marine environment and to cooperate internationally in preventing pollution, particularly that associated with spills of crude oil and petroleum products.

In the Baltic Sea region, Marine Protected Areas (MPA) developed through cooperation among the region's states, including through the HELCOM system, also play an important role. Since 2018, they have covered approximately 11.8% of the Baltic Sea's surface area, while across the EU in 2023 protected areas covered 13.7% of marine waters, with a target of 30% by 2030.

Of particular importance in this context are the Danish Straits, through which the main access route to the Baltic Sea runs and where shipping routes pass through Marine Protected Areas established by HELCOM. This provides grounds for considering additional measures to protect the ecosystem, including requirements relating to the age and technical condition of vessels (EEA, 2025).

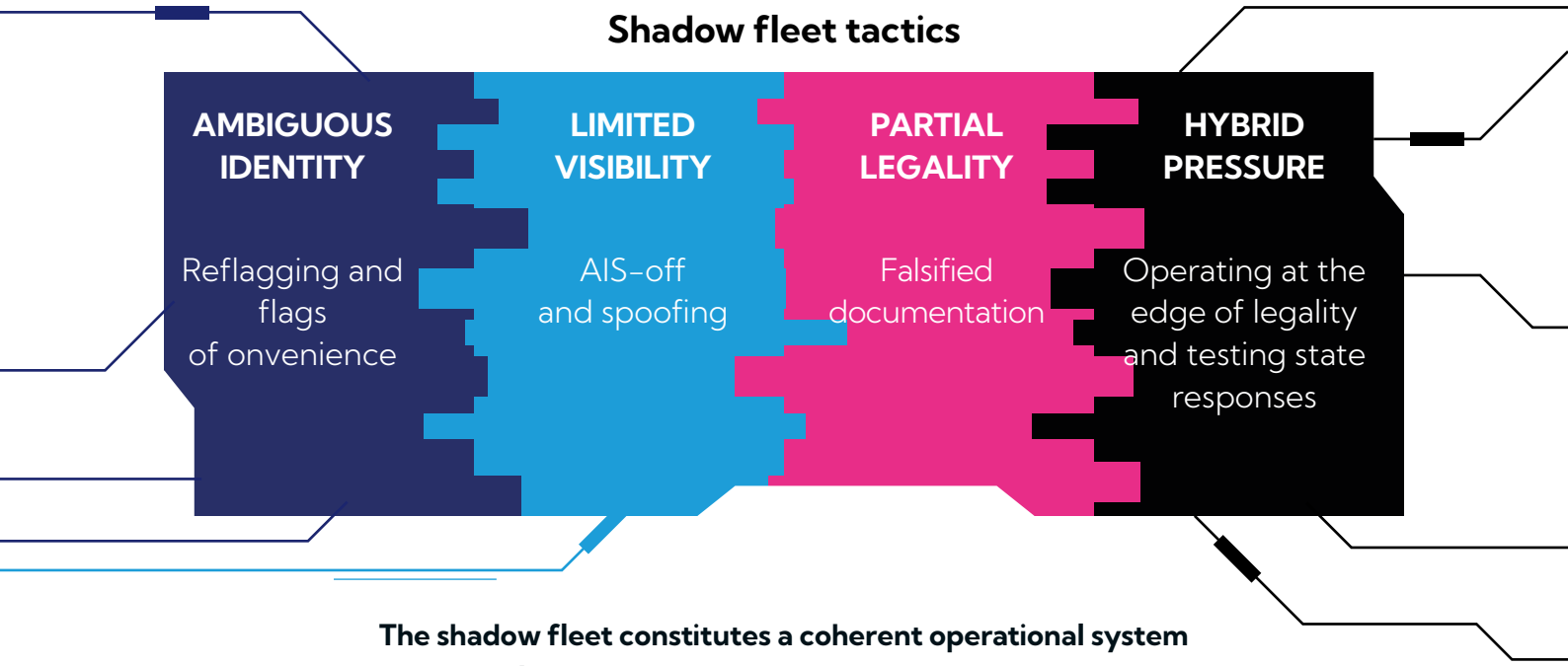


Two oil tankers side by side

2

Methods of circumvention
shadow fleet tactics

The shadow fleet is a complex, meticulously organized logistical and legal system in which individual operational techniques form a coherent, mutually reinforcing structure. The purpose of these techniques is to sustain the flow of sanctioned cargoes while erasing traces of ownership and liability and maximizing operational resilience. In practice, the operational core of the shadow fleet comprises four types of measures: systematic reflagging and vessel identity changes; AIS manipulation; falsification of documents and identities; STS transfers. All of them occur simultaneously and are supported by market mechanisms, intermediary networks, and ports and flag States that tolerate this practice (Braw, 2024; EPRS, 2024).



The shadow fleet constitutes a coherent operational system that enables the circumvention of the sanctions regime.

Basic manipulation—reflagging and vessel identity changes

Article 91 UNCLOS

Nationality of ships

1. Every State shall fix the conditions for the grant of its nationality to ships, for the registration of ships in its territory, and for the right to fly its flag. Ships have the nationality of the State whose flag they are entitled to fly. There must exist a genuine link between the State and the ship.
2. Every State shall issue to ships to which it has granted the right to fly its flag documents to that effect.

Article 92 UNCLOS

Status of ships

1. Ships shall sail under the flag of one State only and, save in exceptional cases expressly provided for in international treaties or in this Convention, shall be subject to its exclusive jurisdiction on the high seas. A ship may not change its flag during a voyage or while in a port of call, save in the case of a real transfer of ownership or change of registry.
2. A ship which sails under the flags of two or more States, using them according to convenience, may not claim any of the nationalities in question with respect to any other State, and may be assimilated to a ship without nationality.

Reflagging and the rapid rotation of vessel identities make it harder to determine vessel ownership, prolong vessels' service lives, and minimize the risk of detention in ports. Shadow fleet operators use registries with low administrative and audit requirements—in practice, they often choose so-called flags of convenience and smaller jurisdictions outside the OECD, where registration is fast, formalities are few, and verification of technical and insurance documents is limited (Braw, 2024). In many cases, flag rotation is also accompanied by changes to the vessel's name, identification number, call sign, and owner of record. Such sequences may repeat many times over a short period, so that the same hull appears in documents under several names within a few months. Such practices make it difficult to establish a vessel's inspection history, technical condition, and liability for any potential damage (Bockmann, 2024).

In practice, there are also cases of "false flagging", in which the flag is changed only in shipboard documentation or external markings, without any actual change in the administrative registry or the required audits being carried out. Even such superficial measures make it easier for vessels to pass through ports and reduce the effectiveness of port state control.

On May 13, 2025, Estonian authorities operating in the Baltic Sea attempted to stop the tanker Jaguar (approx. 105,000 DWT), which was listed as a "high-risk vessel" in connection with the Russian shadow fleet. During this episode, a Russian Su-35 fighter jet violated Estonian airspace (briefly, for approx. 1 min), which Estonia described as an escalatory element accompanying the operation involving the tanker.

Subsequently, on May 25, 2025, the vessel departed the Russian oil terminal in Primorsk, and AIS signals indicated that it was operating under the name Blint and was listed on the Comoros register. Industry reporting emphasized that this would be the third name change in 2025 over a short period (from Argent at the beginning of the year to Jaguar and in May to Blint).

How to become invisible—switching off AIS and GNSS spoofing

Chapter V, Regulation 19 of SOLAS

All ships of 300 gross tonnage and upwards engaged on international voyages and cargo ships of 500 gross tonnage and upwards not engaged on international voyages and passenger ships irrespective of size shall be fitted with an automatic identification system (AIS).

[...]

Ships fitted with AIS shall maintain AIS in operation at all times, except where international agreements, rules or standards provide for the protection of navigational information.

The shadow fleet uses various methods to conceal its presence, including falsifying AIS data and providing misleading information about a vessel's current status.

Switching off the automatic identification system (AIS-off) is a common practice during STS operations. Switching off AIS allows a vessel to "disappear" temporarily from public vessel tracking systems, limiting rapid response by port and maritime authorities. Analyses indicate that the frequency and duration of AIS outages are significantly higher among vessels linked to the shadow fleet than in the commercial tanker fleet as a whole (EPRS, 2024; Greenpeace, 2024).

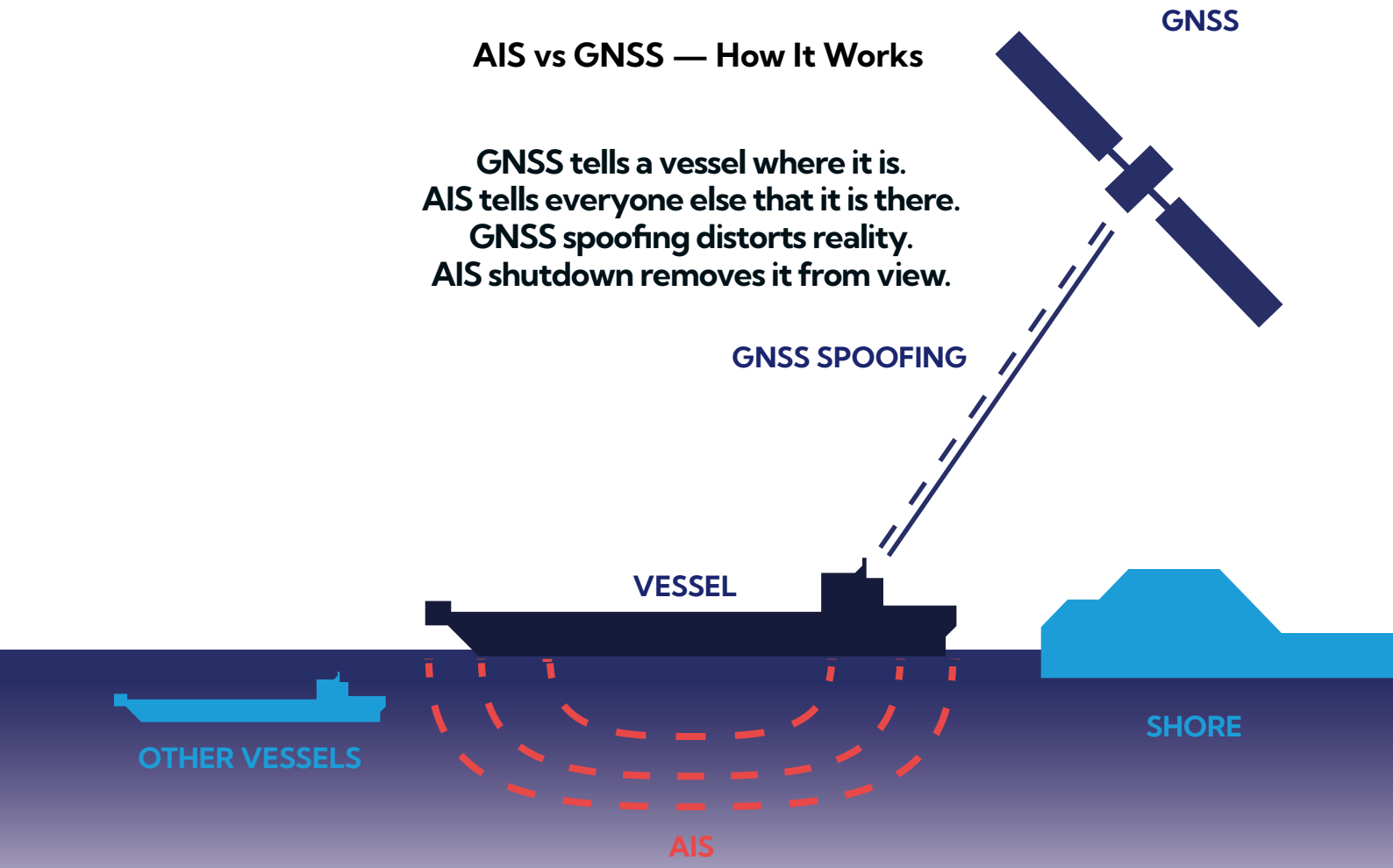
On May 25, 2025, the tanker "Falcon", removed from the Cameroon register in 2024, was broadcasting Tallinn as its AIS destination, while satellite data and vessel traffic monitoring confirmed that it was actually conducting loading operations in a Russian port. The vessel was transmitting false navigational information (AIS destination spoofing), operating without clearly assigned flag State jurisdiction.

Another Russian technique—used, among others, by the tanker Blint—is GNSS spoofing, that is, transmitting false coordinates to tracking systems. Examples from the Baltic region include cases where a vessel's reported position is tens or hundreds of nautical miles from its actual location. Manipulations aimed at creating "virtual formations" or "virtual convoys" are also observed, disorienting both national authorities and analytical systems that use satellite and AIS data. To effectively detect and track such operations, it is essential to correlate multiple data sources (AIS, GNSS, SAR/optical satellite imagery, VTS data, and draft measurements) (Molik, 2025; Meade, 2025). Such actions also disorient other participants in maritime traffic, for whom navigational equipment ceases to be a reliable source of information (Molik, 2025).

Russia's Baltic Fleet and air force became actively involved in keeping crude oil exports flowing through the shadow fleet. Russian warships and aircraft (the latter violating the airspace of neighboring states) began escort operations for tankers carrying Russian crude oil (Meade, 2025).

Grzegorz Wrochna, PhD, Professor

Satellite technologies now make it possible to track vessels at sea even when they do not transmit Automatic Identification System (AIS) signals or deliberately spoof them. Satellite imagery has reached resolutions of below 1 meter, enabling not only the detection of a vessel but also the identification of its class or type. Satellites using radar imaging (SAR) allow for observation even under heavy cloud cover and at night. They also make it possible to detect prolonged close-proximity interactions between vessels and identify suspicious behavioral patterns. In turn, satellites equipped with signals intelligence capabilities (SIGINT/ELINT – Signal/Electronic Intelligence) can detect vessels through emissions from their onboard radar systems.
It is worth noting that since November, Poland has operated its first Earth observation satellite constellation, consisting of three satellites. The PIAST constellation, developed in Poland under the leadership of the Military University of Technology, with the participation of Creotech Instruments—provider of satellite platforms—and other domestic entities, represents an important step in building Poland's independent satellite capabilities.
In parallel, additional national observation programs are being developed. Under the MikroGlob program, Creotech Instruments will deliver four satellites to the Polish Armed Forces. In 2027, as part of the CAMILA project, three optical satellites and one radar satellite are scheduled to be launched into orbit.



System Function:
- GNSS (e.g. GPS, Galileo) – self-positioning and navigation
- AIS (Automatic Identification System)- situational awareness and identification of surrounding vessels

Direction of Information Flow
- **GNSS** → one-way (satelite → vessel)
- **AIS** → two-way (vessel ↔ vessel / vessel → shore)

Signal Source
- **GNSS** → satellites in Earth orbit
- **AIS** → VHF radio or S-AIS (shipborne and shore-based transmitters)

What the operator sees
- **GNSS** → own position
- **AIS** → full traffic picture:
  → vessel identities
  → courses
  → speeds

System dependency
GNSS → operates autonomously (requires only sky visibility)
AIS → dependent on GNSS (uses GNSS-derived position data for transmission)

Charade—falsification and concealment

COUNCIL REGULATION (EU) No 833/2014 of July 31, 2014 concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine (as amended)

Article 3m

1. It shall be prohibited to purchase, import or transfer, directly or indirectly, crude oil and petroleum products as listed in Annex XXV, if they originate in Russia or are exported from Russia.
2. It shall be prohibited to provide, directly or indirectly, technical assistance, brokering services, financing or financial assistance or any other services related to the prohibition laid down in paragraph 1.

Article 12

It shall be prohibited to participate, knowingly and intentionally, in activities the object or effect of which is to circumvent the prohibitions set out in this Regulation, including by participating in such activities without deliberately seeking that object or effect but being aware that the participation may have that object or effect and accepting that possibility.

The operation of Russia's shadow fleet involves not only the physical circumvention of sanctions mechanisms but also a significant risk of disinformation and falsification of crude oil origin. A key element of this strategy is the deliberate creation of informational uncertainty in the global supply chain, aimed at obscuring the source of the crude oil and hindering the enforcement of regulations restricting imports of crude oil from Russia.

This process takes various forms—from the manipulation of shipping documentation to technical practices that hinder the identification of the shipping route, with a marked concentration of such activities in the Baltic Sea area. They include a wide range of practices: the issuance of dual sets of documents, the creation of alternative insurance policies, the use of false classification certificates and the impersonation of other vessels.

Hybrid escalation of Russia's activities in the Baltic Sea (Miętkiewicz, 2023):

- deliberately manipulating AIS transponder signals, as well as switching the transponders off in order to conceal the presence of vessels in a sea area and force the authorities of coastal states to take steps in response,
- making changes to the external markings identifying a vessel's identity and affiliation (vessel name, IMO number, call sign),
- falsifying vessel and cargo documents,
- conducting cargo transfer operations (pumping crude oil) on the high seas from ship to ship (ship-to-ship transfer),
- switching flags (false flagging),
- deliberately creating complications in ownership rights and ship management,
- remaining stationary for extended periods near the boundaries of the territorial waters of coastal states (recorded in the Baltic Sea, the Mediterranean Sea, and the Arabian Sea),
- the use of research vessels for espionage and reconnaissance activities (seabed mapping), as suggested by the presence of reconnaissance equipment (Sweden Thinks Russian..., 2024),
- military threats by Russia, presented as potential consequences of actions by western states, aimed at deterring them from attempting to block the freedom of navigation of tankers carrying Russian crude oil,
- the creation of environmental hazards arising directly from the age and condition

Approximately 35% of Russia's seaborne crude oil exports in 2024 were transported by vessels deemed by Western classification societies to belong to the shadow fleet. On average, 12–15% of tankers operating in the Baltic Sea switched off their AIS transponders on the leg between loading in Russia and transshipment or unloading, which significantly hampers tracking the origin of the cargo and makes effective enforcement of regulations impossible.

The cargo itself is concealed through crude blending and manipulation of cargo classification in cargo manifests. Crude blending involves mixing cargoes of different origins or qualities, which hampers chemical and isotopic analyses aimed at determining the origin of the crude oil. In addition, cargo documentation includes, for example, fabricated declarations that conceal the true nature or origin of the cargo being carried, making the enforcement of restrictions such as the price cap mechanism more difficult (Minchin, 2024).

Particularly troubling is the phenomenon of so-called origin obfuscation—falsifying the origin of crude oil by altering or concealing information contained in shipping documentation (bills of lading), cargo manifests, or customs declarations. According to analyses by the Centre for Research on Energy and Clean Air (CREA), in 2024, between 20% and 25% of the crude oil shipped from the Baltic Sea may have been declared as Kazakh crude oil (the KEBCO grade, Kazakhstan Export Blend Crude Oil) or as being of unspecified origin, even though it physically originated from Russian terminals.

„The operation of Russia's shadow fleet involves not only the physical circumvention of sanctions mechanisms but also a significant risk of disinformation and falsification of crude oil origin."

In some cases, this oil was directed to buyers in Asia or South America, but deliveries to European ports were also recorded—mainly in the Netherlands, Spain, and Malta—where it arrived after prior document tampering and transshipments outside EU jurisdiction.

The scale of these practices poses a serious threat to the integrity of the sanctions architecture of the EU and the G7 states. The lack of a coordinated system for verifying the origin of crude oil during transit and the shortage of tools for real-time cargo monitoring mean that Russian crude can still reach global markets despite formal restrictions. This phenomenon, expanding particularly rapidly in northeastern Europe, requires urgent coordinated action in maritime inspections, the certification of shipping documentation, and the creation of a shared digital database to identify suspicious shipping operations.

„Additional destabilizing factors are the advanced age of shadow fleet vessels, their poor technical condition, and their uncertain insurance status."

Russian maritime logistics as a tool for power projection beyond the conflict zone

Shifting pressure to the sea—hybrid operations

Article 113 of UNCLOS

Breaking or injury of a submarine cable or pipeline
Every State shall adopt the laws and other regulations necessary to provide that the breaking or injury by a ship flying its flag or by a person subject to its jurisdiction of a submarine cable beneath the high seas done wilfully or through culpable negligence, in such a manner as to be liable to interrupt or obstruct telegraphic or telephonic communications, and similarly the breaking or injury of a submarine pipeline or high-voltage power cable, shall be a punishable offence. This provision shall apply also to conduct calculated or likely to result in such breaking or injury. However, it shall not apply to any break or injury caused by persons who acted merely with the legitimate object of saving their lives or their ships, after having taken all necessary precautions to avoid such break or injury.

Andrzej Makowski, PhD, Professor
Threats to security in the region

- **Environmental**—long-lasting damage to the environment and the absence of financial compensation if such damage occurs (lack of insurance and uncertainty as to the vessel's owner or its flag State), meaning that in the event of oil spills or rescue operations, the financial burden will fall on the Baltic Sea states
- **Technical**—the age of the vessels and, consequently, their technical condition create hazards such as: the risk of collision, loss of propulsion and steering, and oil spills. Many tankers also forgo using pilots (when transiting the Danish Straits, the Kadet Fairway, and the Bornholm Gate), which heightens the danger of collision or grounding.
- **Suspicion that "shadow fleet" vessels are engaged in espionage** (additional antennas and radio masts that are not typical equipment on cargo ships) and sabotage activities. The latter have occurred in the Baltic Sea since 2022. Such activity may also be evidenced by unusual vessel maneuvers, the reporting of false position or course data, slowing down, and switching off the vessel identification system (AIS), which also increases the risk of collisions in the crowded Baltic Sea.
- **The risk of a profound erosion of the principles of international law** (relevant to the situation under discussion) and undermining the Baltic Sea states' confidence in the effectiveness of the sanctions being imposed.

Master Mariner Jarosław Dawid

The poor technical condition of "shadow fleet" vessels poses risks to the environment. Difficulties in identifying the owners of these vessels lead directly to a diffusion of responsibility for potential losses arising from accidents and maritime disasters caused by vessels without insurance coverage. The resulting situation poses a challenge to regulations governing requirements for merchant vessel crews. These vessels themselves also pose a threat to maritime infrastructure. They may, in fact, be used to carry out physical attacks against structural elements of offshore installations, e.g., under the guise of a breakdown, or be sunk in port approaches (approach channels). Their decks can potentially serve as bases for aerial drones and devices for jamming satellite navigation signals. The latter threat is already driving up operating costs because of position-accuracy requirements for work on offshore installations. We face the challenge of building systems to oversee the safety of maritime traffic similar to those used in civil aviation. At the same time, the need to enable the flow of enormous amounts of data and coordinate the activities of all countries and shore-based operators constitutes a major challenge.

The Russian shadow fleet, in addition to its role in the export of crude oil, is increasingly serving as a tool of hybrid influence in the maritime domain. Vessels of this kind are used to pose threats to undersea energy infrastructure (gas pipelines and power interconnectors) and telecommunications infrastructure (fiber-optic cables), as well as to conduct reconnaissance and espionage activities, including seabed mapping. Such vessels are also increasingly involved in collisions at sea, with some cases giving rise to suspicions that situations of heightened risk are being deliberately engineered.

Additional destabilizing factors are the advanced age of shadow fleet vessels, their poor technical condition, and their uncertain insurance status. Combined with the practice of shipowners abandoning vessels, this poses a real threat to the lives and health of seafarers, who in emergencies may be left without any support whatsoever. No less important is the environmental risk associated with shadow fleet operations in the Baltic Sea.

Polish marine protected areas cover approximately 24% of the sea areas of the Republic of Poland (one such area lies entirely within the exclusive economic zone). Supervision of areas within maritime waters is carried out by the directors of marine waters. The EU Biodiversity Strategy for 2030—"Bringing nature back into our lives", accepted by all member states, sets the goal of protecting at least 30% of the EU's land and sea area. A minimum of 1/3 of this area (10% of the land and sea area) should also be placed under strict protection (Ginalski, 2025).

The presence of shadow fleet tankers near power cables, telecommunications cables, and gas pipelines increases the vulnerability of this infrastructure to incidents and acts of sabotage. In December 2024, the tanker Eagle S damaged cables in the Gulf of Finland. In May 2025, Polish authorities intervened in response to suspicious maneuvers by a sanctioned vessel near the SwePol cable route, which confirmed the need for continuous cable corridor surveillance (Reuters, 2025).

At the same time, the activity of the shadow fleet contributes to growing threats to the safety of navigation. The Baltic Sea, a sea area characterized by chokepoints, shallow waters, and heavy traffic, offers little margin for navigational error. Meanwhile, the qualifications of crews on shadow fleet vessels are sometimes called into question because IMO rules on the training of maritime personnel are circumvented, which may result in substandard bridge and engine-room watches. Additionally, these vessels often refuse to use pilotage services when transiting the Danish Straits, which is sometimes viewed as deliberate conduct intended to increase risk at a critical point in the region's shipping system.

The growing share of older vessels with AIS switched off and in poorer technical condition significantly increases the likelihood of collisions and groundings. In 2023, a serious disaster was narrowly averted when an aging tanker carrying Russian crude oil lost steering control in the Danish Straits. In such circumstances, a spill could have amounted to about 340,000 barrels. Ultimately, the disaster was avoided, thereby sparing the highly environmentally sensitive area around the island of Langeland.

The shadow fleet is therefore far more than merely a transport safety problem. It is a tool for pursuing the Kremlin's political interests, used for sanctions circumvention, for shifting hybrid activities into the maritime domain, and for testing the resilience of European states' institutions and security mechanisms.

„The qualifications of crews on shadow fleet vessels are sometimes called into question because IMO rules on the training of maritime personnel are circumvented"

In May 2025, suspicious activity by a sanctioned vessel forming part of the shadow fleet was detected. The vessel maneuvered near the cable corridor of the SwePol interconnection. Poland's actions included dispatching a patrol aircraft, after whose overflight the vessel left the area and headed for one of the Russian ports. Subsequently, a hydrographic ship was dispatched to the scene (Kamiński, 2025). Similar incidents, such as prolonged anchoring near the boundary of territorial waters or maneuvers near drilling platforms, were recorded in Polish sea areas in previous years.

3

Logistical chain of acquiescence

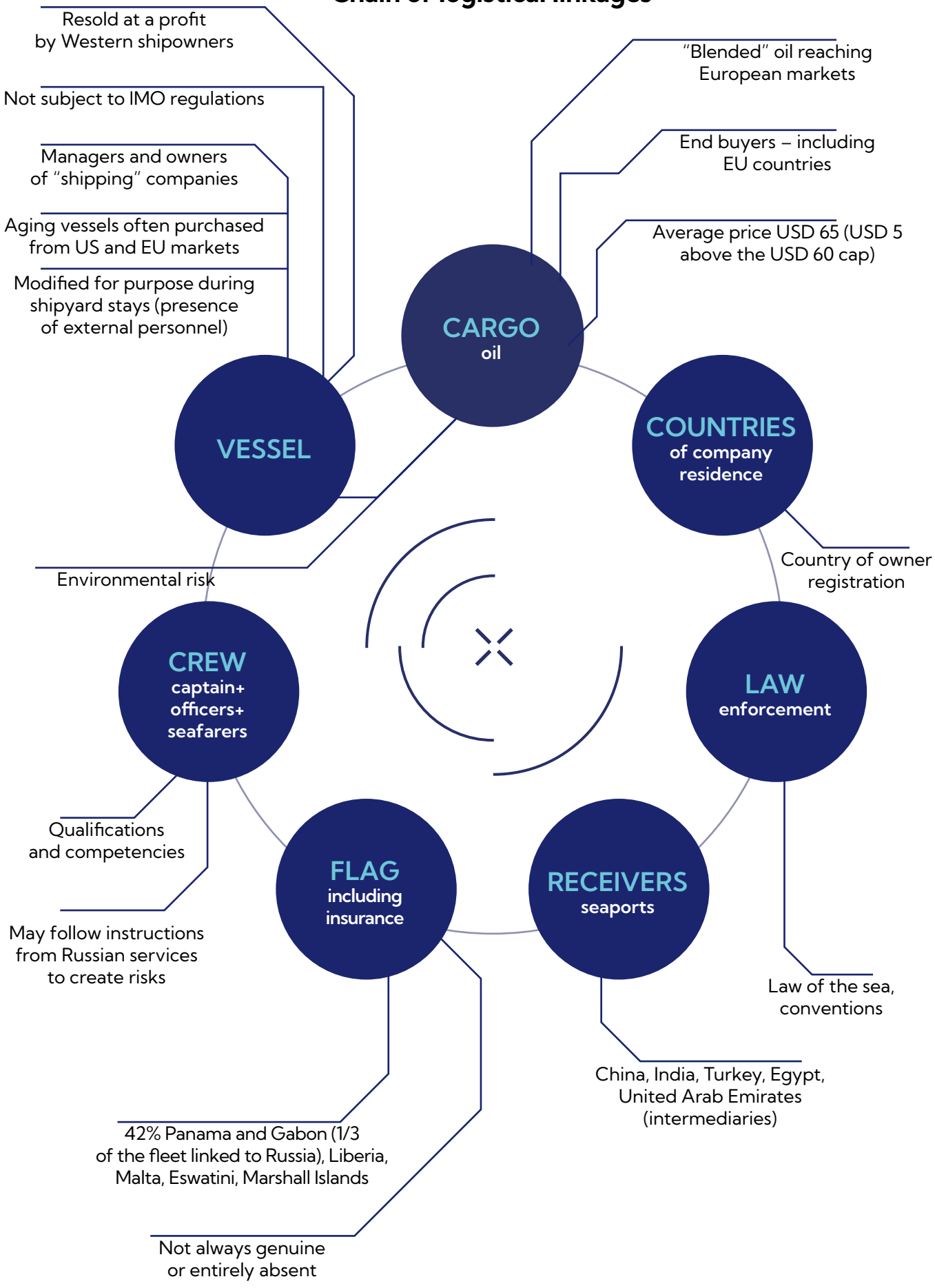
actors, services, and jurisdictions

Shadow fleet operations are supported by a range of logistical practices: dedicated off-terminal bunkering routes, the use of floating storage vessels, the use of poorly monitored areas for cargo storage, and the organized resale of used vessels. A parallel market of intermediaries, brokers, front companies, and alternative insurers sustains this operating model and enables the rapid restoration of lost tonnage capacity. Investigations revealed significant involvement by European shipowners and companies in the trade in vessels that later entered the shadow fleet. These transactions involved substantial sums (FTM/OCCRP, 2025; Maritime Executive, 2024).

Ports, states that tolerate such activity, and private actors form a structure that determines the scale and persistence of shadow fleet operations. The decisions of port authorities, the availability of certain permissive anchorages and low-oversight registries, as well as the practices of shipowners, brokers, and insurers, determine whether vessels with an opaque ownership structure, lacking credible P&I insurance, and with a history of violations will continue to trade. In recent years, a logistical arrangement linking roadsteads and transshipment areas with weak registration jurisdictions and networks of financial and insurance intermediaries has become entrenched, enabling the large-scale use of aging vessels, repeated reflagging and renaming, and STS transfers with AIS switched off (Kennedy, 2024a; Hilgenstock et al., 2024).

„Ports, states that tolerate such activity, and private actors form a structure that determines the scale and persistence of shadow fleet operations."

Chain of logistical linkages



Ports and STS areas as logistical hubs

Key STS hubs have developed mainly outside the Baltic Sea and often outside Europe, yet they have had a direct impact on sustaining the flow of Russian crude oil and petroleum products. In Ceuta, on the North African coast of the Mediterranean Sea, an average of 18 STS operations per month were recorded between October 2022 and January 2023. Additional centers of activity included roadsteads off the Peloponnese and South Korean coastal waters, which supported cargo distribution beyond the reach of EU control regimes (McKinney, 2023).

In response, port authorities in the region expanded checks of documents and P&I policies, a development that was particularly evident in the measures taken by Denmark in 2025 and in announcements of similar mechanisms in Sweden and Germany. These practices extended such checks to coastal waters and strait areas, rather than limiting them solely to port entrances (Bloomberg, 2025; Baird Maritime, 2025; Foreign Policy, 2025). The experience of southern Europe showed, however, that unilateral restrictions cause a displacement effect. After STS transfers were restricted in the Laconian Gulf, activity quickly shifted to waters off Malta, demonstrating the practice's high mobility and the need for interjurisdictional coordination (Minchin, 2024; Bockmann, 2024).

Maciej Filip Bukowski

Russia's "shadow fleet" in the Baltic Sea is not merely a sanctions enforcement issue; it reflects a deeper asymmetry between the global nature of maritime shipping and the inherently national character of regulatory and enforcement instruments available to states. Tankers transporting Russian oil operate within a dense web of jurisdictions, intermediary companies, flags of convenience registries, and alternative insurance and financing systems that enable them to circumvent Western control mechanisms. Changes in ownership, operatorship, or flag can occur within days—often outside Europe—rendering even stringent sanctions regimes difficult to enforce in practice.

At the same time, shadow fleet tankers operate in a maritime space where the jurisdictional boundaries of coastal states are in close proximity. In practice, this means that even active enforcement measures undertaken by one state can be easily bypassed by altering routes or moving into the waters of another state or into international waters.

Therefore, an effective response cannot remain purely national in scope. Shadow fleet operations exploit the very structure of the Baltic Sea as a basin divided among multiple jurisdictions, where vessels can rapidly shift between national waters, taking advantage of differences in oversight and enforcement. Addressing this challenge requires an integrated approach among Baltic states, including coordinated vessel monitoring, information sharing on ownership and insurance structures, and joint actions by maritime authorities. Only such a regional framework can effectively close the regulatory and operational gaps that the shadow fleet systematically exploits—gaps that no single state, acting alone, is capable of controlling.

On June 1, 2025, new regulations entered into force in Sweden allowing maritime authorities to carry out inspections of foreign-flag vessels, including the right to require information on the insurance of vessels transiting Swedish territorial waters or the Swedish exclusive economic zone. Previously, such powers existed only with respect to vessels bound for Swedish ports (Zysk, 2025). According to Prime Minister Ulf Kristersson, the new law will provide Sweden and its allies with access to important information that could serve as a basis for expanding the sanctions list targeting the Russian shadow fleet.

Unsafe Baltic Sea

Permissive states and indirect transit

States that allow the storage, crude blending, and re-export of Russian crude oil play a significant role in sanctions circumvention. India and Turkey serve as hubs through which Russian crude is routed to EU countries, including the Netherlands, France, and Italy, despite the restrictions in place, as confirmed by 2025 reports and flow data (SVT News, 2025). After 2022, Russian cargoes were also directed to China, Egypt, and the United Arab Emirates, thereby diversifying export routes and reducing vulnerability to European sanctions instruments (Crude oil..., 2025).

Political factors also reinforced tolerance of shadow fleet activity, as some African states consistently refrained from supporting measures targeting Russia in votes at the United Nations General Assembly (e.g., Algeria, Angola, Eswatini, Ethiopia, Mozambique, Namibia, Sudan, Tanzania, Uganda, Zimbabwe), thereby facilitating the creation of an alternative system for trading energy resources that bypassed Western restrictions (Roszak, 2022).

„In-transit inspections primarily serve a screening and evidentiary role—they enable the collection of information on the legal status, insurance, and technical certificates of a vessel"

Measures adopted at the European Union level have complemented actions taken by Member States, strengthening the EU's capacity to act against high-risk shipping, primarily through sanctions and regulatory mechanisms.

A key milestone in this regard was the 14th package of sanctions against Russia, adopted on 24 June 2024, which for the first time imposed restrictions at such scale on specific vessels forming the so-called shadow fleet. Vessels included on the EU sanctions list are prohibited from entering EU ports and from accessing technical and insurance services within the territory of the European Union.

At the same time, greater emphasis has been placed on the enforcement of existing Port State Control mechanisms, in particular with regard to the verification of insurance (P&I) and classification certificates of vessels with an elevated risk profile.

It should also be emphasized that the effectiveness of these mechanisms is limited by the absence of automatic authority to detain a vessel solely based on its risk profile. In practice, in-transit inspections primarily serve a screening and evidentiary role—they enable the collection of information on the legal status, insurance, and technical certificates of a vessel, and that information may then serve as the basis for further administrative or sanctions-related action.

In this context, the system of class certification takes on major importance as an instrument for the indirect enforcement of the sanctions regime and safety standards. Class certification is the technical foundation of international shipping and determines vessels' access to P&I insurance, ports, bunkering services, and financing. After sanctions were imposed on Russia, the withdrawal of recognized classification societies from classing vessels involved in carrying Russian crude oil led to a rapid fragmentation of the class system, including a rise in the importance of alternative providers with limited credibility and weak oversight.

There are, however, some positive exceptions as well. In June 2024, Liberia decided to prohibit the Russian insurer Ingosstrakh from providing services to vessels flying its flag. The decision was preventive in nature and was seen as an attempt to reduce the environmental and legal risks associated with the shadow fleet (Maritime Executive, 2024). It was a precedent demonstrating that flag States can take action to limit the operations of high-risk vessels.

The EU's expanded inspection powers now allow class certificates to be verified while vessels are still in transit, which limits the use of "sham class" status as a tool for legitimizing shadow fleet operations. Vessels using class certificates challenged by insurers or maritime administrations thus fall into the category of high-risk vessels, whose continued operation becomes increasingly costly and operationally difficult.

As a result, class certification—hitherto used by the shadow fleet as a means of evading sanctions and technical standards—is beginning to serve as a structural regulatory filter that, combined with in-transit inspections and actions by flag States, may gradually narrow these vessels' operating space in Europe's maritime environment, even without any formal detention of ships or port calls.

Private actors: shipowners, brokers, and insurers

The operational capabilities of Russia's shadow fleet largely depend on private market actors, who enable it to operate outside formal sanctions and oversight regimes. They are the ones responsible for creating and maintaining a secondary market for vessels, legal and operational brokerage networks, and alternative insurance mechanisms that allow high-risk vessels to remain in operation despite growing regulatory pressure.

Western shipowners played a key role in the shadow fleet's formative phase by selling hundreds of aging tankers in 2022–2024 to entities registered in jurisdictions not covered by the sanctions regimes.

Cmdr Dariusz R. Bugajski, PhD, professor at the Polish Naval Academy

Shipping companies may register their ships in any State and, for obvious reasons, choose registries that neither entail high registration fees nor fall under legal regimes that generate high operating costs for ships. Thus, a company with multinational ownership and management, based in Hong Kong, registers a ship, for example, in the Marshall Islands (where capital connections are difficult to establish). Such a company may charter the entire ship – with or without a crew, or just part of its cargo space – to yet another entity on the other side of the world. Many businesses from different countries are involved in carrying the cargo (freight forwarders, carriers, etc.). During the voyage, the cargo may change hands many times, passing to different owners or other parties entitled to it. Finally, each crew member may hold the citizenship of a different State, and none may even be a citizen of the flag State. At present, the largest pool of seafarers serving aboard the world's merchant ships comes from six countries: The Philippines, China, Indonesia, Russia, India, and Ukraine; specifically, about 110,000 seafarers are from Russia (including about 60,000 officers), and about 96,000 from Ukraine (including about 46,000 officers). To involve a ship in shadow fleet activities or hybrid operations, the security services often need neither capital control of the shipping company nor control over the captain; economic considerations are enough, namely the prospect of profits attractive enough to offset the risks.

50

Estimates indicate that these transactions yielded the sellers approximately USD 6.3 billion. As a result, as much as 40% of the shadow fleet's current tonnage may come directly from European and American markets (European Ships Keep Russia's Shadow Fleet Afloat, 2025). These vessels, often nearing the end of their economic life, were sold to shell companies registered in India, Hong Kong, Vietnam, and the Seychelles, among other jurisdictions. Although these transactions formally fell within the applicable legal framework, in practice, they laid the physical foundation for the shadow fleet's further expansion and enabled Russia to maintain its export capacity under sanctions.

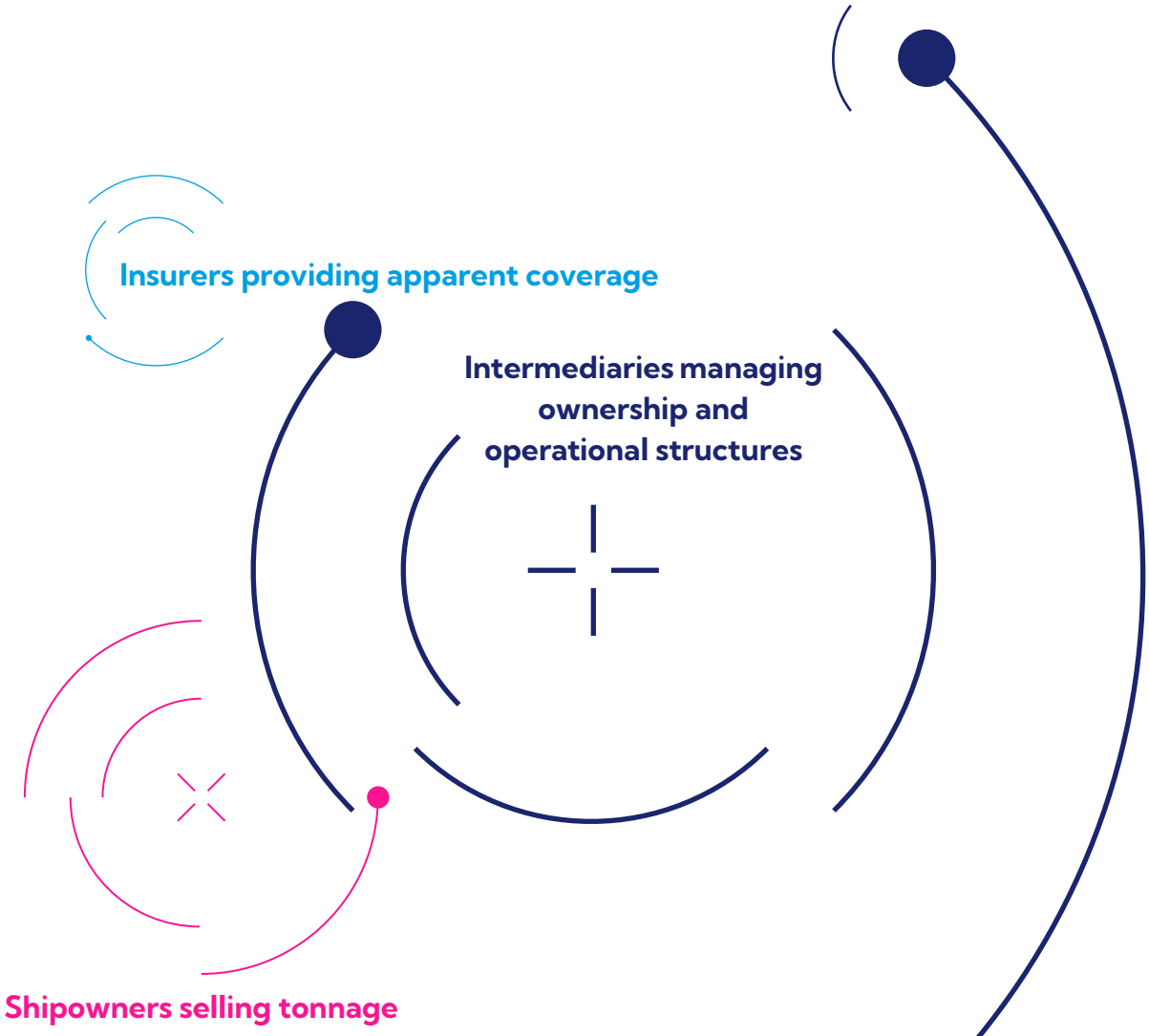
The sale of vessels, however, was merely the first stage in a broader process. Keeping the shadow fleet operational required an extensive network of intermediaries, including ship management companies, shipbrokers, law firms, and special-purpose companies. These entities arrange reflagging, ownership restructuring, the concealment of beneficial owners, and ongoing administrative support for vessels registered in lightly regulated registries. This gives rise to an operational chain designed not for shipping efficiency but to minimize legal exposure, one in which responsibility for a vessel's technical condition, crew safety, or sanctions compliance becomes blurred (Meade, 2024). Such intermediary infrastructure enables rapid responses to changes in the regulatory environment, including shifting vessels to different registries and operators in response to actions by coastal states or port authorities.

The third pillar enabling the shadow fleet to function comprises insurance arrangements, particularly with respect to shipowners' civil liability. In international shipping, P&I (Protection and Indemnity) policies play a key role, covering liability for damage caused to third parties, to other vessels, and to the marine environment. These policies are separate from hull and machinery policies, which relate solely to the vessel's technical condition. In the case of the shadow fleet, however, it is increasingly common for vessels to operate without reliable P&I policies or to rely on insurers of unclear financial standing and limited capacity to honor claims.

In practice, this means that in the event of a maritime accident—collision, fire, or oil spill—liability for damages becomes illusory, and the financing of rescue operations and the remediation of environmental damage may be shifted onto coastal states. Tolerating such insurance arrangements constitutes a significant systemic gap, because it allows private actors to derive economic benefits from high-risk activity while simultaneously limiting their own financial liability.

Consequently, private actors—shipowners selling tonnage, intermediaries managing ownership and operational structures, and insurers providing only illusory liability coverage—create a system that enables the shadow fleet's continued operation. Although they formally operate at different stages of the value chain, their activities amount to a coherent business model in which environmental and legal risks are systematically externalized, while the costs of potential incidents are borne by public entities. It is precisely this dimension of shared responsibility among private actors that poses one of the key challenges to the effectiveness of international sanctions regimes and maritime security.

How the shadow fleet operates



States and flags of convenience

Article 94 of UNCLOS

Duties of the flag State

1. Every State shall effectively exercise its jurisdiction and control in administrative, technical and social matters over ships flying its flag.

3. Every State shall take such measures for ships flying its flag as are necessary to ensure safety at sea with regard, inter alia, to:
(a) the construction, equipment and seaworthiness of ships;
(b) the manning of ships, labor conditions and the training of crews, taking into account the applicable international instruments;
(c) the use of signals, the maintenance of communications and the prevention of collisions.

7. Each State shall cause an inquiry to be held by or before a suitably qualified person or persons into every marine casualty or incident of navigation on the high seas involving a ship flying its flag and causing loss of life or serious injury to nationals of another State or serious damage to ships or installations of another State or to the marine environment. The flag State and the other State shall cooperate in the conduct of any inquiry held by that other State into any such marine casualty or incident of navigation.

„In the case of the shadow fleet, the criterion for the choice of flag is not administrative efficiency or the stability of the registry, but the absence of actual control by the flag State over vessels registered under that flag."

The flag State system is one of the key elements of the international maritime order, and at the same time, one of the most vulnerable to abuse. Under the law of the sea, a flag is not merely a formal attribute of a ship, but the basis for a state's actual jurisdiction and control over the vessel, its crew, its technical condition and its compliance with international safety and environmental protection standards. In practice, however, this system has undergone a profound transformation: from an instrument for exercising state authority, it has in many cases become an administrative service, used as a tool in global maritime commerce.

This phenomenon manifests itself in what is known as forum shopping, that is, choosing the jurisdiction offering the most liberal conditions for ship registration rather than the one with which the vessel has a genuine economic or operational link. In the case of the shadow fleet, the criterion for the choice of flag is not administrative efficiency or the stability of the registry, but the absence of actual control by the flag State over vessels registered under that flag. The flag thus becomes a tool that separates a ship's operations from legal and political responsibility.

Cmdr Dariusz R. Bugajski, PhD, professor at the Polish Naval Academy
Legal options for curbing the practice

Finding a legal basis that would resolve the shadow fleet problem at a systemic level is almost impossible under the current legal and political conditions. Individual ships can be monitored and tracked, and measures can be taken against them, including seizure, if they qualify as ships without nationality. Such a legal basis for ad hoc intervention against the shadow fleet could be established by the United Nations Security Council, but given Russia's and China's veto power, this is unrealistic. Moreover, western states that impose sanctions may bar ships involved in the shadow fleet from entering their own ports (the European Union does so). Sanctions may also be directed against shipping businesses involved in this practice. Actions of this kind require close coordination among EU member states, the United States, Japan, etc. There is also another avenue that was used about 20 years ago in the fight against the proliferation of weapons of mass destruction by sea. This would involve agreements with the flag States of ships engaged in shadow fleet operations, under which such ships could be detained. The difficulty is that pressure would have to be brought to bear on those states—in fact, on a large group of states—and only major actors such as the United States or possibly the European Union can do that effectively. Moreover, some Western states are linked to shadow fleet operations and may not be entirely interested in ensuring a watertight sanctions system.

Analyses indicate that vessels linked to the shadow fleet are most often registered in Panama and Gabon, which together account for about 42% of identified cases (OCCRP/FTM, 2025). Eswatini, Liberia, Malta, and the Marshall Islands also play a significant role. It is estimated that about one-third of the entire shadow fleet is directly linked to Russia, which undermines claims that these registries are neutral (OCCRP/FTM, 2025). In 2025, under pressure from the United States, Panama took drastic steps against the shadow fleet by introducing a ban on registering vessels more than 15 years old. At the same time, a mass deflagging of ships on sanctions lists was carried out, turning them into "stateless" vessels. Such vessels lose insurance coverage and access to ports, which paralyzes the logistics of Russian shipments. In addition, mandatory reporting of ship-to-ship transfer operations was introduced, drastically limiting anonymous transfers. These measures force operators to turn to niche registries (e.g., Gabon or Eswatini), significantly increasing the costs of sanctions circumvention.

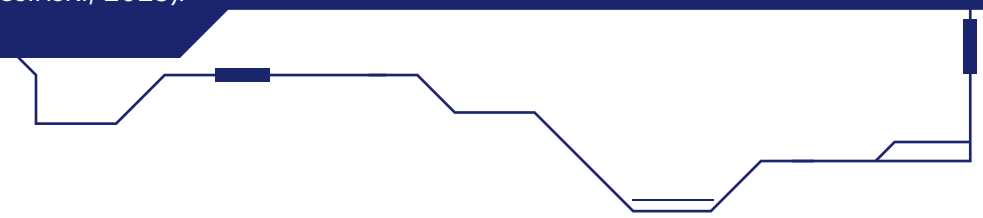
The normative benchmark for the duties of the flag State remains Article 94 of UNCLOS, which requires states to effectively exercise jurisdiction in administrative, technical, and social matters over ships flying their flag. This includes, among other things, maintaining reliable ship registers, overseeing crew qualifications and the technical condition of vessels, as well as investigating marine casualties. However, the way in which the registers used by the ghost fleet operate reveals not systematic violations of individual obligations, but a systematic undermining of the entire logic of Article 94 of UNCLOS, based on the assumption that there exists a genuine link between the State and the ship.

Particularly telling is the example of Eswatini—a landlocked state—in whose name a registry covering several dozen ships was operated. This case lays bare the problem of outsourcing flag State functions to private entities in the absence of transparency and effective oversight. Registries of this kind may operate in a formally lawful manner, while in practice remaining outside any effective administrative control, which significantly facilitates the reflagging of vessels and the concealment of their true identities and of their beneficial owners (Meade, 2024). As a result, the flag State ceases to serve as a regulator and becomes merely an administrative intermediary.

The problem of the instrumental use of flags, however, is not limited to jurisdictions traditionally known as flags of convenience. Investigations by Follow The Money and OCCRP found that more than half of the tankers identified as part of the shadow fleet had been sold by 54 Greek companies, and the total value of those transactions exceeded $3.7 billion. Companies from Germany and Belgium were also involved in the scheme, demonstrating that the mechanisms sustaining the shadow fleet include entities from the Western member states of the European Union (OCCRP/FTM, 2025). This means that the issue of flag registration is not merely a matter of "exotic" registries, but part of a broader economic and legal system.

The European Union sought to address this challenge by introducing a requirement for EU shipowners to notify sales of ships to buyers outside the EU. This instrument was intended to limit the transfer of tonnage into the shadow fleet and increase transparency in the secondary market. The experience of recent years shows, however, that this mechanism, when used in isolation, is insufficient. The ease of switching between registries, rapid reflagging, and the use of intermediary structures mean that ex post oversight cannot keep pace with market dynamics.

The actions taken by the U.S. government in 2003 may serve as an example of efforts to combat the practice under discussion. Efforts to counter the proliferation of weapons of mass destruction by sea were pursued under agreements with states offering so-called flags of convenience. If suspicions arose regarding a specific vessel, the authorities of the relevant state were notified of the planned boarding (going aboard the vessel) by U.S. personnel. The vessel remained under surveillance for 48 to 72 hours, during which the flag State could lodge a protest. In the absence of such a protest, the vessel was inspected and, depending on the outcome, detained (an investigation was launched) or released. Such a solution requires active diplomatic engagement aimed at persuading or compelling the state to cooperate (Zalesiński, 2025).



From a strategic perspective, flag States should therefore be viewed not only as passive links in the system, but as active elements of the infrastructure enabling the shadow fleet to operate. Weak or illusory flag State oversight reinforces the other mechanisms described in the report—from STS transfers in the regulatory gray zone, through tolerating certificates with limited credibility, to operations without genuine insurance coverage. As long as the flag State remains a formal participant in the system, yet does not enforce its obligations, the shadow fleet retains the capacity to adapt to successive rounds of sanctions.

From the perspective of maritime security and the effectiveness of sanctions regimes, a key challenge, therefore, is to restore the flag's significance as a bearer of real responsibility rather than merely an administrative label. Without this, even the most advanced port, in-transit, or financial control mechanisms will remain vulnerable to circumvention, and the environmental and legal risks associated with the shadow fleet's activities will continue to be shifted onto coastal states and the international community.

„A key challenge, therefore, is to restore the flag's significance as a bearer of real responsibility rather than merely an administrative label."

4

Enforcement gap
law, oversight, and diffusion of responsibility

The development and maintenance of the Russian shadow fleet are not the result of a lack of rules governing international shipping, nor of the absence of formal sanctions regimes targeting Russia's energy sector. The main factors remain: the limited effectiveness of enforcing existing regulations under conditions of fragmented jurisdiction, the differing interests of states, and the global nature of maritime supply chains. As a result, old and technically worn-out vessels operating without reliable P&I coverage and with opaque ownership structures may remain at sea, enabling sanctions circumvention, generating environmental risks, and undermining the effectiveness of oversight mechanisms at the international and EU levels.

The presence of Russian-flagged tankers does not automatically imply shadow fleet activity.

UNCLOS and IMO—norms exist, enforceability is limited

The international maritime order is based on the United Nations Convention on the Law of the Sea (UNCLOS) and on the system of conventions and standards adopted under the auspices of the International Maritime Organization (IMO). UNCLOS establishes the basic principles of jurisdiction, state responsibility, and freedom of navigation, while IMO is responsible for developing technical and operational standards for maritime safety and the protection of the marine environment. This system places primary responsibility on the flag State, with port States in a supplementary role and coastal states having only limited powers beyond the territorial sea.

Lt Cmdr Oskar Draus, MEng

The use of civilian vessels to transport equipment, armaments, or goods subject to sanctions is not a new phenomenon in the history of the USSR/the Russian Federation. There are known and documented cases in which military contingents were expanded in this way (without prior consultation or agreement) (e.g., Tartus, Syria, during 2013–2016), as well as cases in which military equipment was delivered to African states (including the case of MV Faina). The "shadow fleet" is therefore nothing new, but merely a proven method of employing ships that operate on the edge of legality and at times openly violate international regulations. They are mostly tankers (sometimes also general cargo vessels or bulk carriers). The difficulty of identifying the owner, coupled with a shifting flag State affiliation (often through the use of flags of convenience, e.g., those of the Cook Islands or Togo), provides perfect camouflage, making it possible to evade responsibility for the direct actions of such vessels, particularly on the high seas. On January 14, 2025, NATO countries decided to launch the "Baltic Sentry" operation, intended as a response to the emerging hybrid threat, evidenced among other things by the destruction of critical infrastructure (e.g., the subsea cables between Sweden and Lithuania on October 17, 2024) in the Baltic Sea by suspicious civilian vessels. The mission has no fixed end date and involves a rotational deployment of naval groups and maritime aviation from NATO member states to monitor potential threats and, if necessary, support the navies of states whose critical infrastructure in the Baltic Sea and the Danish Straits is threatened by sabotage. The operation also involves monitoring, collecting data, and tracking vessels suspected of participating in dangerous hybrid activity. The key is to forge consensus and a common policy among Alliance member states and partner countries (such as those in Partnership for Peace, Mediterranean Dialogue, or the Istanbul Cooperation Initiative), despite difficulties such as the absence of UN sanctions on trade in Russian oil (given the composition and functioning of the United Nations Security Council—two of its five permanent members are the Russian Federation and the People's Republic of China). Adherence to procedures, credible justification for inspection/peacekeeping actions, and a consistent interpretation of international law are enormous challenges facing NATO. Trade in Russian oil (subject to sanctions by the EU, among others) is not illegal as part of global trade (BRICS countries, Singapore, Turkey etc.), which makes stopping vessels/conducting boarding inspections in international transit waters difficult (e.g., the Danish Straits—despite their internal character, they function as a transit corridor with Denmark having only limited inspection powers in the field of environmental protection).

For the shadow fleet, this constitutes a structural advantage: by minimizing port calls at locations capable of conducting effective inspections and shifting operations to transit areas, vessels reduce the risk of enforcement. As a result, the shadow fleet benefits from the formal protections of freedom of navigation, while operating in an environment where the enforcement of standards depends on the least regulated segments of the global maritime system—flags of convenience, intermediaries, and service providers handling high-risk cargoes.

At the same time, shadow fleet vessels may, in certain circumstances, be subject to visit and boarding by warships under UNCLOS. However, this authority is limited and applies only in cases where there are reasonable grounds to suspect that a vessel is without nationality, is flying a foreign flag or refusing to show its flag, or in fact shares the same nationality as the warship (Article 110). The growing number of instances in which these instruments are being used suggests that operational practices have been developed and are being implemented. Nevertheless, their application remains constrained by a high evidentiary threshold and the political sensitivity of such decisions. As a result, Article 110 of UNCLOS functions more as an exceptional instrument than as a tool of systematic legal enforcement.

The IMO Assembly resolution A.1192(33), adopted in 2023 and calling on member states and the private sector to counter shadow fleet activity, confirmed the existence of the problem at the political level (IMO, 2023). However, its non-binding nature and the wide latitude left for implementation meant that the declaration translated only partially into uniform operational measures. In practice, the system's effectiveness still depends on the quality of national regulations and on the actual willingness and capacity of individual jurisdictions to enforce them. As a result, the shadow fleet's actual behavior is shaped not by the "best" standard, but by whichever standard is "easiest to circumvent" in the weakest flag State jurisdiction.

In the Baltic Sea, the tension between freedom of navigation and the growing need to protect the marine environment and critical infrastructure is especially stark. At the same time, unilateral measures that restrict freedom of navigation may create legal and political risks—including the risk of setting a precedent that Russia could use to justify measures restricting access to the ports of the states in the region. From the perspective of the Baltic Sea states, the key challenge, therefore, remains finding instruments that raise the operational cost of shadow fleet activity without violating the basic principles of the law of the sea.

The Russian Federation has been a member of the IMO Council continuously since 1960. In 2023, it lost its seat for the first time. In 2025, it again failed to win a seat, despite formally meeting the criteria for a state with significant shipping interests. The outcome was determined by political and reputational factors: the full-scale aggression launched against Ukraine in 2022, actions jeopardizing the safety of navigation (including attacks on ports and the use of the shadow fleet), and coordinated diplomacy by states opposed to granting Russia legitimacy within key executive bodies of the UN.

IMO Resolution A.1192(33)

is recommendatory in nature and, inter alia:

Calls upon flag States to:

- ensure that ships registered under their flag comply with regulations governing ship-to-ship (STS) operations, including those aimed at preventing pollution;
- consider introducing requirements for ships flying their flag to update the Ship-to-Ship Transfer Operations Plan in a timely and accurate manner in response to such operations;

Encourages port States to:

- ensure the enforcement of conventions concerning the safety and liability of these ships, including relevant requirements under IMO conventions on STS operations, and to verify that such ships hold valid certificates confirming compliance with the applicable IMO conventions on liability for damage;
- subject vessels undertaking deliberate actions to evade detection to increased inspections, and inform flag States accordingly;

Calls upon coastal States to:

- monitor STS operations at sea, including in their Exclusive Economic Zones (EEZs), verify the submission of required notifications, and take appropriate action in cases of violations of maritime safety and environmental protection regulations;
- cooperate in monitoring such practices and operations;

Also encourages public and private stakeholders in the maritime sector to:

- promote and conduct activities aimed at enhancing due diligence (e.g. workshops) to prevent, detect, and report activities of so-called "shadow fleets" or related illegal practices.

EU and NATO—between regulation and security

The existing framework of the law of the sea provides the formal foundation for the international maritime order. They do not, however, address the challenges posed by systemic sanctions circumvention and hybrid activities carried out using civilian merchant shipping. Within this operational gap, two actors of the Euro-Atlantic order operate—the European Union and NATO—whose roles in maritime security in the Baltic Sea remain separate, incoherent, and insufficient, given the nature of the threats posed by shadow fleet activity.

The European Union is the principal architect of the sanctions regime against Russia, including restrictions on the seaborne transport of crude oil, insurance services, and the price cap mechanism. One of the key legal bases for these measures remains Council Regulation (EU) No. 833/2014 of July 31, 2014, concerning restrictive measures in view of Russia's actions destabilizing the situation in Ukraine, along with subsequent amendments adopted after 2022, which introduce far-reaching prohibitions and obligations for EU entities. At the same time, the structure of the EU sanctions system rests on the assumption that enforcement of the adopted regulations is the responsibility of the member states, which leads to differences in checks, inspections, and administrative responses from one state in the region to another. As a result, the EU has substantial normative power, but limited instruments for direct operational intervention at sea, especially outside the territorial waters of the member states.

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Scope of the actions required to amend the law of the sea

Solving the shadow fleet problem through amendments to the law of the sea is unrealistic. Amending the 1982 Convention on the Law of the Sea, the cornerstone of the legal order at sea, is virtually out of the question. Even if it did occur, it would still take about 20 years. Second, changes that would go too far by granting coastal states additional powers over international shipping would be a double-edged sword (a dangerous situation for Poland, which imports raw materials by sea). Thus, the only realistic and reasonably swift way to create a legal basis for action against shadow fleet vessels is through agreements between the states concerned and the flag States of the ships involved in shadow fleet operations. However, such agreements are conceivable with most flag States, such as Liberia, Panama, or the Bahamas, but much more difficult in the case of China.

Baltic coastal radar system for maritime traffic monitoring

The European Maritime Safety Agency (EMSA), established under Regulation (EC) No. 1406/2002 of June 27, 2002, plays an important supporting role. The Agency develops advanced tools for vessel traffic monitoring and environmental risk assessment, such as SafeSeaNet and CleanSeaNet, and provides analytical support to the member states. EMSA's mandate, however, does not include powers to conduct inspections, detain vessels, or apply coercive measures. Consequently, despite the large body of regulations and extensive analytical capabilities, the EU maritime security system remains largely reactive and dependent on the decisions and capacities of the individual national administrations.

NATO, in turn, has significant military, reconnaissance, and deterrence capabilities in the Baltic Sea region, including a continuous maritime presence, command structures, and mechanisms for information sharing. The Alliance's mandate under the North Atlantic Treaty, however, is focused on collective defense and on responding to threats of a military nature. Incidents related to shadow fleet activity—such as manipulation of AIS and GNSS systems, STS operations, suspicious maneuvers near critical infrastructure, or prolonged inactivity of high-risk vessels—usually fall below the threshold that would trigger the Alliance's formal response mechanisms, including consultations under Art. 4 or Art. 5 of the Treaty.

NATO's 2022 Strategic Concept and the document "NATO 2030: United for a New Era" explicitly identify hybrid activities and so-called gray zone activity as a significant challenge to the security of the member states. At the same time, these documents do not specify instruments for responding to threats carried out using civilian merchant vessels, which formally fall outside the category of military means. NATO's activities in the field of undersea infrastructure protection, including the establishment in 2023 of specialized coordination structures (NATO Critical Undersea Infrastructure Coordination Cell, NATO Maritime Centre for the Security of Critical Undersea Infrastructure), focus primarily on monitoring, risk analysis, and deterrence, but do not include direct control over or action against civilian vessels.

As a result, responsibility for countering the activities of the shadow fleet is diffused between the EU's regulatory framework and NATO's security architecture. The shadow fleet effectively exploits this structural gap, operating in a space where violations of international law are not automatically treated as security threats and where security threats do not trigger clear legal and operational instruments. The Baltic Sea thus functions as a heavily regulated sea area, yet one where regulatory implementation lacks coherence, thereby fostering the durable entrenchment of practices that undermine both the effectiveness of the sanctions regime and the credibility of the regional security architecture.

„Responsibility for countering the activities of the shadow fleet is diffused between the EU's regulatory framework and NATO's security architecture."

The Port State Control mechanism—an effective tool, yet structurally limited

The Port State Control mechanism (PSC) remains one of the major instruments for verifying vessels' compliance with international conventions concerning the safety of navigation, environmental protection, and seafarers' working conditions. Inspections carried out by port State authorities make it possible to identify technical and documentary deficiencies and, in cases of serious breaches, to detain a vessel until those deficiencies are remedied. In this sense, PSC effectively raises shipping standards regardless of the vessel's flag.

At the same time, the effectiveness of PSC is limited by the scope of port State jurisdiction. Operations conducted on the high seas remain beyond the direct reach of this mechanism. The shadow fleet systematically exploits this feature of the system, carrying out high-risk operations—particularly STS transfers—in areas with limited administrative oversight, outside Port State Control.

An additional problem is the uneven application of PSC. Its effectiveness depends on the competence of maritime administrations, institutional stability, and the political priorities of individual states.

In recent years, EU Member States and regional partners have increasingly leveraged the requirement for credible shipowners' liability insurance (P&I) as a tool to counter the activities of the shadow fleet. In 2025, Sweden expanded the powers of its maritime authorities, enabling them to request insurance information not only from vessels calling at ports, but also from those transiting its Exclusive Economic Zone. A similar tightening of documentary controls—covering the verification of P&I policies and classification certificates—has been implemented by Denmark in the Danish Straits. These measures have been further reinforced at the regional level through NB8++ initiatives, under which participating states agreed on joint requirements to provide proof of insurance for vessels suspected of belonging to the shadow fleet, as well as the coordinated use of the information obtained. The importance of insurance as an enforcement instrument was also underscored in the European Council Declaration of December 2025, which identified the absence of credible insurance coverage as a key risk to the marine environment and critical infrastructure.

State responses—the case of Poland

An analysis of Poland's response so far to the activities of the Russian shadow fleet in the Baltic Sea points to significant shortcomings in systemic preparedness to counter hybrid and irregular threats. Although the very phenomenon of Russia's unconventional presence in the Baltic Sea was noted by both state institutions and the public (as evidenced, among other things, by incidents in the vicinity of critical infrastructure and observed anomalies in civilian vessel traffic), responses were most often delayed, uncoordinated, and limited to tactical measures.

Calm Baltic Sea

Sanctions—from regulation to enforcement

After Russia launched its full-scale invasion of Ukraine in 2022, the EU, the United States, and the G7 countries adopted a comprehensive sanctions regime against the Russian energy sector, including an embargo, bans on the provision of transport and financial services, and a price cap mechanism for Russian crude oil. Formally, these instruments increased the legal and reputational costs of Western entities' involvement in Russian exports.

At the operational level, the effectiveness of sanctions is nevertheless limited by the global nature of seaborne trade and the design of the restrictions, which to a large extent rely on a declaration-based model (statements, documents, assurances of compliance). Verification of the true origin of the crude is significantly hindered by complex chains of intermediaries and often multiple STS transfers.

In this context, the shadow fleet has become a tool through which Russia's crude oil exports have adapted. The use of vessels flying third-country flags, operating beyond the direct reach of EU control mechanisms, made it possible to maintain export volumes despite formal restrictions. At the same time, the absence of clear due diligence obligations following STS transfers enables Russian crude to be placed on the market.

Sanctions regime on Russian crude oil: design, exceptions, and operational consequences

Russia's shadow fleet today constitutes one of the most serious mechanisms undermining the effectiveness of the sanctions regime imposed by Western organizations and states in response to Russia's aggression against Ukraine. The Baltic Sea, because of the concentration of Russian export infrastructure (including terminals in Primorsk and Ust-Luga) and the relatively short distance to neutral international waters, has become a key area of operations for efforts aimed at circumventing Western restrictions. The sanctions, targeted in nature, proved structurally insufficient in this context—not only did they fail to account for the scale of the available circumvention methods, but they also left considerable latitude to lawfully operating entities that provide ancillary services to Russian exports. In this sense, the problem concerns not merely the absence of sanctions, but their design and the scope of their application.

Whereas the energy component of the first round of sanctions imposed on Russia in 2014 after the annexation of Crimea focused mainly on the oil sector (chiefly in the upstream segment) and did so on a relatively limited scale (Åslund, 2019), the sanctions adopted in 2022 by the U.S. and EU authorities included very broad bans on new investment in Russia's energy sector. In 2022, import bans on various Russian energy products were also adopted by many of Russia's traditional Western trading partners, most importantly by the EU, which approved an embargo on most seaborne imports of Russian crude oil (effective from December 5, 2022) and on most Russian petroleum products (effective from February 5, 2023). In the natural gas sector, the key new sanctions included a ban on the supply of goods and technologies needed to complete several planned Russian LNG projects. Importantly, voluntary sanctions by Russia's long-standing partners also hampered energy trade with Russia and numerous joint projects in Russia (especially joint ventures in oil and natural gas extraction) (European Commission). At the same time, even such a broad sanctions package did not disrupt the continuity of Russia's exports of energy raw materials.

A significant limitation was the introduction on December 2, 2022, of a crude oil price cap on sales to third parties, which entered into force three days later. It prohibited the provision of a broad range of services (including marine insurance and trade finance) related to the seaborne transport of Russian-origin crude oil, unless buyers purchased the crude oil at or below the specified price cap, initially set at USD 60/bbl FOB. For a limited period, these regulations exempted exports to the United States, the EU, and the United Kingdom from the trade ban, provided that vessels had been loaded before December 5, 2022, and unloaded before January 19, 2023. The EU also temporarily exempted companies trading with Russia, in connection with exports to Japan of crude oil from the Sakhalin-2 project, from the obligation to comply with sanctions until June 5, 2023, as did the United States, until September

30, 2023. From February 5, 2023, the maritime services ban was extended to the seaborne transport of Russian-origin petroleum products, unless they were sold at or below specified price caps, initially set at USD 100/bbl for products traded at a premium to crude oil, including diesel fuel (Russia's largest petroleum-products export stream), gasoline, and jet fuel, as well as USD 45/bbl for products traded at a discount to crude oil, including fuel oil and naphtha (U.S. Department of the Treasury, 2022). In practice, this mechanism did not eliminate exports, but altered their structure and the channels through which they were carried out.

There are, however, limits to the effectiveness of international sanctions regimes that largely explain the resilience of Russia's energy sector and, more broadly, Russia's national economy in the face of new challenges. These limitations have at least three components. First, countries that have not imposed sanctions on Russia account for about 2/3 of the world's population and hold a growing share of the global energy raw materials market, although relatively few of them can be regarded as close partners of Russia. Second, official G7/EU sanctions packages contained several key exemptions, mainly to avoid serious disruptions in the global market and the resulting spikes in commodity prices. The most important of these was the price cap regime, which allowed the use of insurance from G7 and EU-based providers or other maritime services to facilitate the export of Russian crude oil and petroleum products to third countries, provided that the crude oil and products were sold below the specified price cap. Third, voluntary sanctions adopted by Western companies usually did not lead to a complete cessation of business operations in Russia. A substantial number of companies suspended operations in Russia through write-downs on their assets in that country rather than fully divesting those assets. Taken together, these elements created an environment conducive to adaptation rather than to the disruption of Russian exports.

The inadequate effectiveness of the restrictions to date made it necessary to tighten them. In September 2025, the price cap was lowered to USD 47.60, and in January 2026—with the launch of the dynamic mechanism—to USD 44.10. The new formula, which keeps the price cap 15% below the market price of Urals crude over the previous 22 weeks, targets Russian finances more precisely. This change not only reduces the Kremlin's revenues but also compounds logistical difficulties, cutting Russia off from lawful shipping and insurance (European Commission, 2026).

The 12.8% increase in Russia's crude oil exports in 2022, to 5.19 mbd, was mainly due to a sharp increase in deliveries of crude oil to Asia-Pacific markets, which over the course of the year replaced the EU as the primary overall destination for Russian crude oil exports. Interestingly, the earlier phases of Russia's eastward "pivot" toward Asia-Pacific markets (a long-standing trend predating the invasion of Ukraine) mainly involved an increase in deliveries through the ESPO pipeline (deliveries via the Kozmino oil terminal or by overland pipeline to China via Skovorodino). Russian crude oil exports via Kozmino and Skovorodino rose again in 2022, but the increase in exports was driven by crude that had previously been produced and routed to international markets via oil terminals on the Baltic and Black Seas (Henderson, J., Yermakov, V., Connolly, R., 2024). Russia had to rely primarily on costly, long-haul tanker shipments of Urals crude from western marine terminals (located

mainly on the Baltic and Black Seas) to redirect exports to markets in Asia and the Pacific in 2022. The average voyage length of crude oil tanker shipments from Russian Baltic ports rose to more than 9,000 nautical miles. It was at this point that maritime logistics became a critical element of the entire sanctions circumvention system.

At the same time, at least two key factors underpinned the increase in Russian crude oil exports in 2022. The first was increased demand for Russian crude oil in selected markets outside the EU, especially in India, China, and Turkey. India became the largest importer by volume of Russian crude oil in 2024. The second factor was steep discounts relative to international crude grades. Thanks to such discounts, the price of Russian crude is attractive enough to offset the additional risk and logistical costs associated with purchasing it. These factors created an economic rationale for the continued operation of alternative transport channels.

The imperfection of the sanctions regime lies primarily in the lack of effective instruments for monitoring and countering indirect forms of cooperation with the shadow fleet. Although the export itself may be carried out by an entity outside the EU using a vessel registered under a third-country flag, individual links in the transport chain—including insurers, brokers, and ship operators—often have ties to the EU market, which weakens the actual reach of the sanctions. As a result, there is a diffusion of responsibility for sanctions enforcement throughout the entire logistics chain.

Data from late 2025 and early 2026 confirm that the adaptation of Russia's oil export system to the sanctions regime is durable and structural in nature, rather than temporary. Despite further tightening of restrictions—including lowering the price cap to $44.10 per barrel under the EU's dynamic mechanism—Russia maintains its export capacity by reshaping the logistics underpinning it. As a result, rather than effectively cutting Russia off from energy revenues, what we are seeing is a redefinition of the gray zone of international crude oil trade, with its epicenter increasingly located right in the northeastern part of the EU. In this context, it should be acknowledged that the effectiveness of the current sanctions concerning the activities of the Russian shadow fleet in the Baltic Sea is limited not by a lack of formal tools, but by an operational deficit and the misalignment of regulatory instruments with the actual dynamics of global trade routes and transport practices. This shifts the problem from the normative level to the implementation level.

What makes the shadow fleet such an effective tool for sanctions evasion is not merely its scale, but the absence of a coherent and politically determined response from international institutions. This does not imply a lack of political or operational action as such. In recent years—particularly within the frameworks of the European Union, NATO, and the G7—a range of response practices has been developed and implemented. These include expanded sanctions regimes, enhanced documentary controls, inspection activities, and instances of boarding high-risk vessels. This evolving practice is reflected in the growing number of detentions, inspections, and quasi-law enforcement actions at sea. The challenge, however, lies not in the absence of action, but in the lack of full automation, consistent legal qualification, and uniform application across jurisdictions. Responses remain selective, situational, and dependent on the political will

of individual states, enabling the shadow fleet to adapt and exploit divergences in enforcement practices.

In practice, there is a growing asymmetry between the stated objective of sanctions and the actual actions of states and international organizations. Although in 2025 the United States, the United Kingdom, and the European Union imposed sanctions on more than 470 vessels in total (USA—183, UK—101, EU—189), effective tools to curb the fleet's operations have still not been devised, including secondary sanctions against third-party entities that support the scheme or share responsibility for sustaining it. The sheer number of sanctions, therefore, failed to make them effective at a structural level. By the end of 2025, the European Union had sanctioned more than 550 shadow fleet vessels under its 16th, 17th, 18th, and 19th sanctions packages, including through bans on port entry in the EU and the provision of maritime services.

One of the main factors enabling the shadow fleet to continue operating is the economic interest shared by many states and companies, both those that provide vessels and those that benefit from access to Russian energy raw materials at prices far below market levels. Particularly important here are the sale of aging vessels by Greek shipowners and the rise in registrations under the flags of low-fee jurisdictions (most often Panama), with some of those registrations being falsified. Lack of ownership transparency, links to entities in India or the United Arab Emirates, and operations in waters with limited oversight entrench a "gray zone" of maritime transport that proves resistant to formal legal frameworks. In this way, economic interest becomes a stabilizing factor in the entire sanctions circumvention system.

Enforcement is a serious challenge. It faces resistance from those EU member states whose economies depend heavily on the shipping industry (Cyprus, Greece, and Malta). They fear the imposition of further stringent restrictions and are counting on compensation for lost revenues (European Ships Keep Russia's Shadow Fleet Afloat, 2025). The EU instructed European shipowners to notify national authorities of any intention to sell a vessel to a buyer outside the EU, in an effort to make companies think twice before completing the transaction. Despite the entry into force of the new regulations, European companies from Belgium, Greece, and Germany are involved in opaque schemes (European Ships Keep Russia's Shadow Fleet Afloat, 2025). Ceuta, on the North African coast of the Mediterranean Sea, and the Peloponnese in Greece are important hubs (for STS crude oil transfers) for Russia's shadow fleet (McKinney, 2023). This demonstrates the limited effectiveness of measures based solely on reporting obligations.

The lack of an institutional response, stemming largely from political opportunism and the fragmentation of economic interests within the European Union, leads to a situation in which Russia effectively undermines the mechanisms of economic pressure while adapting its model for trading energy raw materials to the new realities. In the long term, this state of affairs undermines the credibility of the sanctions system as an instrument of foreign policy and strengthens authoritarian states' ability to build alternative, opaque economic structures.

In 2025, the European Union introduced advanced measures targeting shadow fleet activity, adding hundreds of specific vessels to the blacklist. The new measures primarily included a ban

on providing transshipment services for Russian LNG in EU ports for its onward export to third countries and targeted the logistics and insurance of vessels identified as tools for sanctions circumvention (Foreign Policy, 2025). Member States have tightened administrative controls, including by requiring detailed reporting on tanker sales to entities outside the EU, in order to curb the growth of the shadow fleet at the stage of market transactions.

Analysts and EU institutions emphasize, however, that the effectiveness of these measures depends on consistent enforcement of sanctions in ports and along transit corridors, as well as on the integration of data-sharing systems. The creation of joint registries of STS operations and shadow fleet activity, with data updated in real time, is recommended. The integration of AIS/GNSS data, VTS systems, and satellite imagery should be supported by algorithmic risk assessment (EPRS, 2024; Atlantic Council, 2024; CREA, 2024).

Even the most ambitious measures face serious political and economic barriers. These include a lack of global consensus on sanctions regimes, diverging interests within the EU and NATO, and market factors that create strong incentives to circumvent restrictions. Market greed and a willingness to maximize profits, even at the cost of political and environmental risks, foster tolerance for shadow fleet activity. The process of deglobalization and the erosion of the existing international order further reinforce these tendencies, allowing certain states and private actors to knowingly accept this practice. As a consequence, the shadow fleet operates not as an anomaly, but as a by-product of the current international order.

Michał Świeczkowski

At present, threats posed by the "shadow fleet" are not factored into considerations of maritime port security or the security of individual terminals operating within port areas. This applies both to the day-to-day commercial operations of terminals and to the port as a whole, including its strategic role for the state in terms of defense and economic capabilities.

Nevertheless, the "shadow fleet" constitutes a highly significant issue, the consequences of which may have serious implications for the functioning of Polish seaports. Above all, the circumvention by the Russian Federation of sanctions imposed by the European Union enables the continued financing of the war in Ukraine, thereby destabilizing the economic situation across the Baltic Sea region. As a result, market instability and fluctuations driven by the development of the conflict force port terminals to make sudden adjustments to their business strategies and incur adaptation costs.

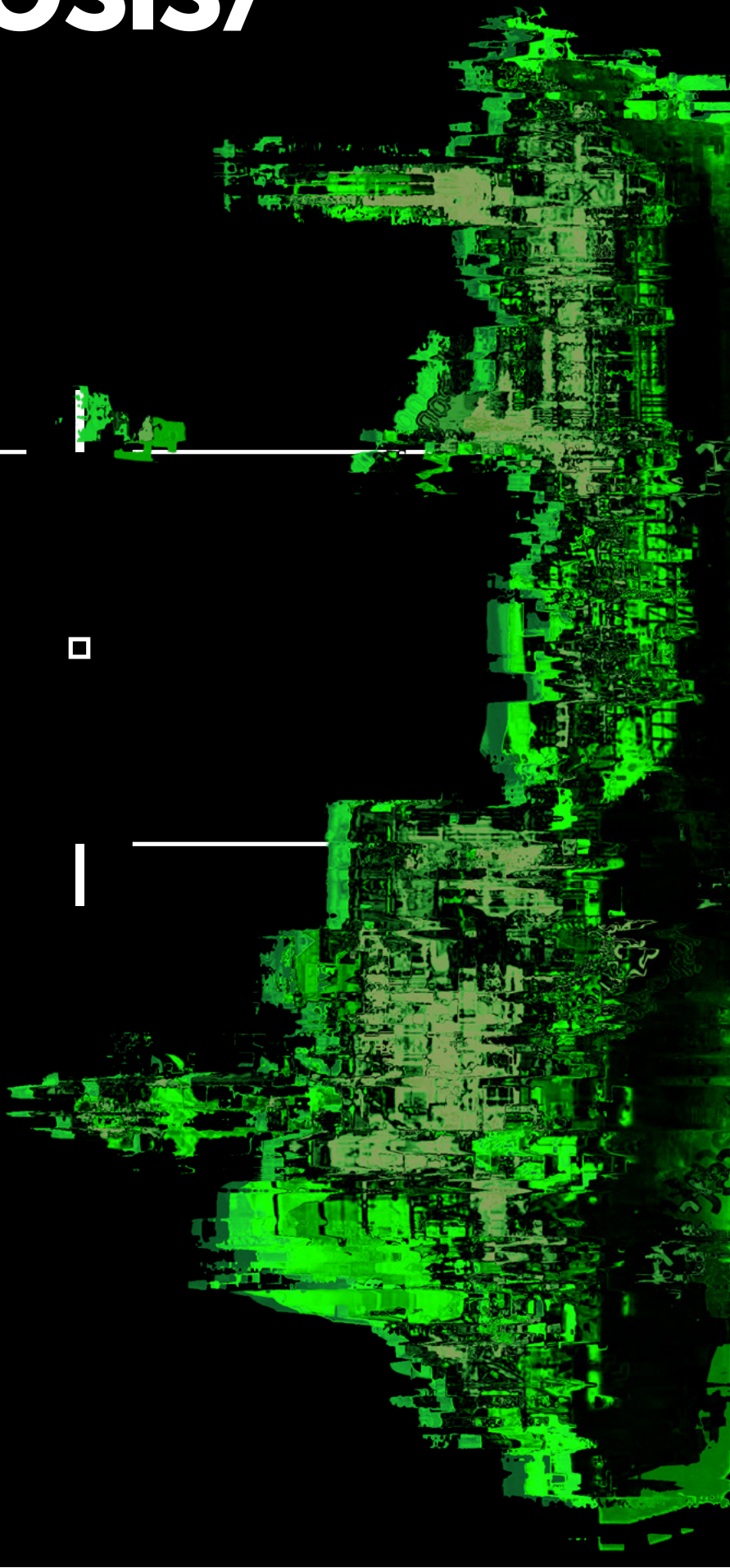
In addition, all Baltic states must reassess their economic and development plans in light of the need to significantly strengthen military capabilities and alliances in the event of further escalation of the ongoing war or even a potential attack by the Russian Federation on another country's territory.

As the analysis of the "shadow fleet" phenomenon indicates, vessels operating within it are often heavily worn, in poor technical condition, and covered by unreliable insurance policies issued by Russian insurers. These factors significantly increase the risk of an environmental disaster, while making it virtually impossible to obtain compensation from those responsible. It should be recalled that the Baltic Sea is a semi-enclosed basin, and in the event of an environmental disaster, remediation efforts would necessarily rely on direct human intervention.

There are already documented cases—supported by satellite data—where vessels from the "shadow fleet" have left multi-kilometer oil spills and discharges of other operational fluids (e.g., off the northern coast of Scotland in March 2024), without assuming any responsibility. Moreover, an environmental disaster in the highly sensitive Danish Straits—whether resulting from the poor condition of vessels or from potential acts of sabotage by the Russian Federation, which cannot be ruled out—would have catastrophic consequences for trade and maritime ports in the Baltic region, as well as for fisheries and tourism. According to available data, approximately three tankers associated with the Russian "shadow fleet" transit the Danish Straits each day. The question, therefore, is not whether such a disaster will occur, but when—and who will bear political responsibility for it, given that the "shadow fleet" has been built up by the Russian Federation over many years without effective opposition or response from Western states.

It is also important to consider the legal dimension. Western states operate in compliance with the law of the sea, whereas the Russian Federation effectively disregards these rules while advancing its own interests. This raises a fundamental question: in the current geopolitical context, does freedom of navigation take precedence over ensuring security in the Baltic Sea region, where the shadow fleet represents a tangible threat across multiple dimensions?

/DIAGNOSIS/



The shadow fleet is not a pathology of the system, but a product of it.

The phenomenon of the Russian shadow fleet does not arise from the absence of norms of international law, but from their selective enforceability. Frameworks such as UNCLOS, IMO, SOLAS, and EU sanctions are formally in place, yet in practice, they favor actors capable of operating at the crossroads of jurisdictions. The shadow fleet exploits the structural weaknesses of the global maritime system: diffusion of responsibility, forum shopping, and market tolerance for risk. As a result, circumvention of the legal system is not incidental but has taken the form of a lasting adaptive operating model.

The Baltic Sea has become not only a transit corridor, but also a testing ground and an arena of proxy conflict.

The semi-enclosed nature of this sea area, its narrow straits, a high concentration of critical infrastructure, and low tolerance for navigational errors create an environment in which even individual incidents can produce significant cascading effects. Under conditions of hybrid warfare, these features are conducive to testing the resilience of the states of the region. Today, the Baltic is a space in which the limits of law enforcement, allied coordination, and readiness to respond to Russia's actions are tested—at a relatively low escalation threshold.

The Russian shadow fleet operates as a coherent system, not as a collection of isolated vessels.

A coherent system for circumventing restrictions exists. Reflagging and rapid vessel identity changes blur legal responsibility, AIS manipulation and GNSS spoofing distort the situational picture, falsification of documentation undermines the enforceability of the law, and STS transfers serve as a logistical "laundromat" for raw materials. These elements do not operate independently—they reinforce one another, creating a mechanism resistant to legal measures and quantitative sanctions.

The scale of the shadow fleet and the degree of its integration with the state apparatus distinguish Russia from previous cases.

Unlike Iran, North Korea, or Venezuela, Russia has made the shadow fleet an element of the state's strategic interest. This system stabilizes budget revenues, enables war to be waged despite sanctions and at the same time shifts costs and risks onto transit regions. The shadow fleet is no longer merely a tool of commerce. It has become a component of hybrid warfare at sea, designed to test responses, generate threats to infrastructure and destabilize the security environment.

Environmental and infrastructural risks have been deliberately externalized.

The economic benefits from the shadow fleet's operations are concentrated in Russian hands, while the risks—environmental disaster, the severing of cables and energy links, the costs of rescue and repair operations—are borne by the public and dispersed across the Baltic Sea region. The advanced age of the vessels, the lack of credible P&I coverage and STS operations conducted in areas of limited oversight mean that the burden of responsibility in the event of an incident falls on the Baltic Sea states, not on the actual perpetrators and beneficiaries of the scheme.

The persistence of the shadow fleet rests on private actors and market indifference.

The sale of aging vessels by EU shipowners, the activity of brokers and intermediaries, alternative insurance and low-oversight registries create an ecosystem that enables the shadow fleet to function. The formal legality of the individual links in the chain masks their cumulative effect: the systemic undermining of sanctions and maritime safety standards. In this sense, the shadow

fleet is not only a geopolitical problem but also a product of the global market, which internalizes profits and externalizes risk.

Sanctions and port State control work, but structurally, they come too late and are too fragmented.

Port State control mechanisms remain effective where a vessel actually calls at a port. But the shadow fleet minimizes contact with port State jurisdiction, shifting its operations to roadsteads, anchorages and transit waters. Sanctions imposed in increasing numbers raise operating costs, but they do not eliminate the system's operational capacity, which quickly replaces sanctioned vessels. The lack of coherent regional enforcement leads to a displacement effect, not to any real curtailment of the scheme.

The shadow fleet is a test of the credibility and effectiveness of the EU and NATO and is a strategic warning to the West.

The shadow fleet does not test states' technical capabilities, but their political will to enforce their own rules in a conflict below the threshold of war. Every jurisdictional gap, every fragmented standard of control and every delayed response lowers the risk tolerance threshold and entrenches the Baltic as a permissive space. The shadow fleet is not a problem for further monitoring or management—it is a challenge that requires a shift from declarations to real action.

The shadow fleet is a routine instrument of hybrid conflict.

The shadow fleet is used both for reconnaissance and espionage activities as well as for attacks on undersea infrastructure assets. The vessels that comprise it can serve as platforms carrying systems ranging from autonomous systems and electronic warfare systems to containerized maritime weapons systems. The large displacement and size of shadow fleet vessels and their technical condition may provide grounds for their use as direct tools for blocking approach channels, for deliberately causing collisions with maritime infrastructure assets, commercial vessels and warships.

The shadow fleet is an element of information warfare.

The Russian Federation's rhetoric surrounding the shadow fleet centers on accusing Western societies of creating "shadow zones" in the Baltic Sea, openly curtailing freedoms under the law of the sea, engaging in state piracy, and thereby making retaliatory measures by Russia necessary. Such actions are meant to intensify hostility toward the EU and NATO and to justify Russian actions as a response to external provocations.

The shadow fleet is an example of Russia's determination and appetite for risk.

The Russian Federation's response, justified and compelled by the harmful actions of the West, may include the use of private companies on board tankers carrying Russian oil to provide physical security, as well as the use of available military forces to protect those vessels. Russia's actions here are characterized by a high risk appetite and a confrontational nature. To this must be added an acceptance of threats to the natural environment, including in its own sea areas and those in its immediate vicinity.

THRESHOLD OF TOLERANCE
the line has been crossed

The data and operational patterns presented in the report clearly indicate that the scale and nature of the Russian shadow fleet's activity in the Baltic Sea exceed the level of acceptable risk within the current legal and security order. These are not isolated incidents or temporary market disruptions, but an entrenched mode of operation that systematically undermines the effectiveness of sanctions, the security of critical infrastructure, and the credibility of EU and NATO states' ability to act.

Under these conditions, the question of what more needs to happen before action should be taken no longer makes sense. The threshold that justifies a shift from observation to response has already been crossed—not once, but repeatedly. In practice, continued waiting for a turning point means accepting the gradual normalization of risk and the shifting of the security threshold in favor of the actor testing the system, namely, Russia.

The lack of a coordinated response does not stem from a lack of information or legal tools, but from the diffusion of responsibility and political caution in responding to activities below the threshold of armed conflict. As a result, inaction ceases to be an expression of restraint and becomes a strategic decision, the costs of which are borne by the states of the region and the European Union as a whole.

This moment requires a shift in perspective: from asking whether the threat is sufficiently serious to asking how it should be classified and handled within the existing mechanisms of collective security. Crossing the threshold for action does not mean escalation, but rather the need to adjust the response to the threat's actual nature.

The remainder of the report focuses on strategy, scenarios, and courses of action that can restore coherence between regulations, their implementation, and political responsibility.

Now that the threshold has been crossed, the key question is no longer whether to respond, but how to make the response effective, proportionate, and collective.

Baltic critical infrastructure

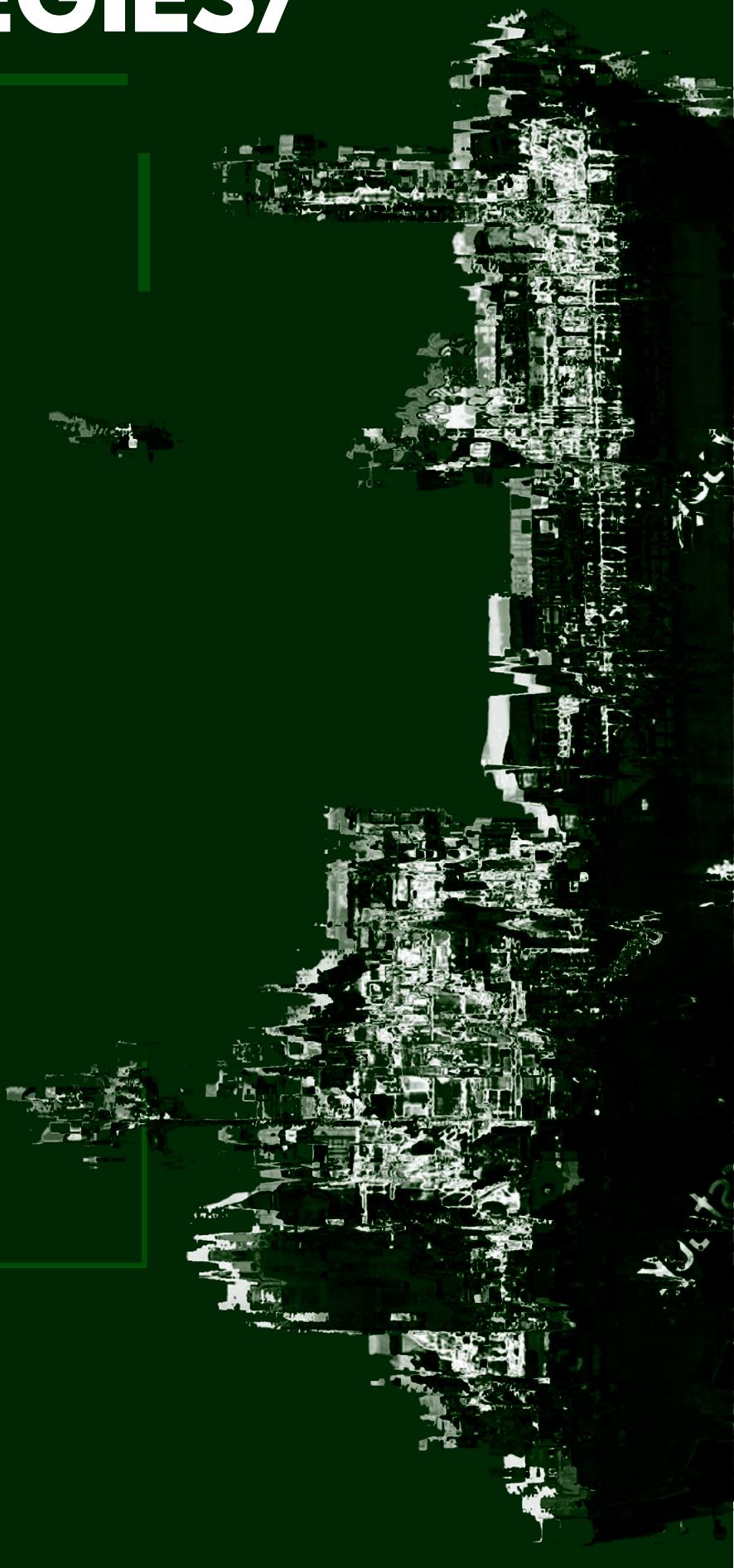
Andrzej Makowski, PhD, Professor
What mechanisms should be implemented?

This is quite a complex problem because states are reluctant to breach the fundamental principle of the international law of the sea, namely the freedom of navigation. Such concern seems justified, as it could trigger a domino effect in other flashpoint regions of the world ocean. Therefore, only rather restrained measures are being taken:

- In 2005, IMO designated the Baltic Sea as a "Particularly Sensitive Sea Area", which entails certain technical requirements, especially for tankers. It would be advisable to expand the IMO resolution so that, in addition to the current rules, it would also introduce a ban on tankers over 15 years old entering the Baltic Sea and require mandatory pilotage throughout the Baltic Sea (or only in the straits and their approaches, including the Bornholm Strait, and the Gulf of Finland). An additional requirement could apply to the insurer (a list of reliable insurance companies).
- It seems that the EU, beyond what it has done so far (sanctions, the oil price cap, proposals from experts), will go no further than discussing possible measures and mechanisms for combating the shadow fleet because of the conflicting interests of individual states tied to hydrocarbon imports.
- NATO, drawing on Commander Task Force (CTF) Baltic in Rostock, could establish Maritime Situational Awareness (MSA) supported by AI to monitor the situation in the Baltic Sea, with particular attention to vessels on the sanctions lists of the EU, the USA, and the United Kingdom. A response/control system could also be created in the event of suspicious behavior by a vessel. This system should have at its disposal aircraft (drones, airplanes, helicopters) as well as surface vessels with appropriate equipment (documentation, coercive measures).
- The Baltic Sea states should, both through bilateral contacts and within the Council of the Baltic Sea States, engage in genuine cooperation to coordinate the protection of critical infrastructure.

Baltic Sea view near Rozewie

/STRATEGIES/



1

The Baltic in a strategic context

Gray-zone laboratory

The Baltic Sea has become one of the most important arenas for observing the activities of the Russian shadow fleet, because it combines the formal absence of armed conflict with a high level of regulation, densely distributed critical infrastructure, and ready availability of vessel traffic data. At the same time, Russia exports crude oil mainly through oil terminals on the Baltic Sea. The Baltic is thus becoming the hub of shadow fleet operations. In such an environment, a threat carried out using civilian shipping for this purpose does not blur into the background of other events, but can be systematically analyzed.

Practices characteristic of the shadow fleet—manipulation of AIS and GNSS systems, frequent reflagging and changes in ownership structure, the lack of credible P&I coverage, the use of networks of intermediaries, and the shifting of key operations beyond port State jurisdiction—coalesce in the Baltic into recurring sequences that can be analyzed as elements of a single operating model.

The regular presence of shadow fleet vessels near cables, gas pipelines, interconnectors, or offshore farms means that activities of a formally civilian character generate security challenges. These challenges are not the consequence of a single incident, but build up as further signs of irregularities accumulate, straining the response system and gradually shifting the boundaries of acceptable risk.

In this sense, the Baltic serves as a laboratory, because it allows the mechanism of Russian maritime pressure to be observed under conditions in which the applicable rules have not been suspended, but are consistently exploited to the limits of their practical enforceability. This laboratory thus reveals not the weakness of the rules themselves, but the limits of decision-making capacity for their collective enforcement.

Precedent for other sea areas

The significance of the Baltic experience extends beyond the region because it brings together the most important elements of the contemporary maritime regime in one place. Here, EU sanctions, IMO safety standards, an extensive system of port State control, and advanced vessel traffic monitoring are all in place. At the same time, a significant share of shadow fleet operations has shifted beyond ports—into sea areas where the scope of practical control exercised by states is significantly more limited.

Under these conditions, the shadow fleet retains operational capability not by openly violating regulations, but by systematically avoiding the moments when they are actually enforced. Sanctions apply to EU entities, port State control applies to vessels calling at ports, and insurance requirements apply where verification is possible. Yet the key operations—STS transfers, vessel identity changes, transfers of legal responsibility—are carried out in an environment where these instruments lose effectiveness or take effect only after a delay.

The Baltic case, then, is not one of "resistance to regulation". It shows that a system based on control at discrete points and national jurisdictions cannot keep pace with an operating model based on mobility, dispersion, and risk transfer. If the shadow fleet remains functional under such an arrangement, that implies that a similar approach will be even more effective in sea areas marked by greater diffusion of responsibility and weaker institutional coordination.

In this sense, the Baltic sets a precedent, as it reveals the structural limitations of the current model of maritime sanctions enforcement. The way responses are handled in this region sets the interpretive framework for other sea areas, such as the Black Sea or the Mediterranean Sea, where the same sanctions circumvention mechanisms occur under even less oversight and greater risk tolerance. The situation in the Baltic, therefore, concerns not just one region, but the future effectiveness of maritime sanctions as a political instrument.

Wind Farm on Øresund

NATO–EU coherence test

Shadow fleet activity in the Baltic Sea reveals the limits of cooperation between the EU and NATO in responding to threats that do not fall within a single framework of responsibility. The pressure exerted by the shadow fleet does not automatically trigger collective security mechanisms, yet it effectively eludes enforcement instruments focused on maritime administration and port State control.

From the EU's perspective, the shadow fleet problem is framed primarily as an issue of sanctions, safety of navigation, and regulatory compliance. These tools are effective where the responsible entity can be identified and administrative measures applied: in ports, against EU entities, or within a clearly defined jurisdiction. From NATO's perspective, this activity remains below the threshold that would justify activating military instruments, even though its effects—the challenges it poses to infrastructure, the testing of responses, and the burden it places on monitoring systems—may threaten security.

The shadow fleet systematically exploits this discrepancy. Operations are planned to avoid situations in which port State jurisdiction would apply, while remaining below the level at which they could be unequivocally classified as a military threat. As a result, activities with real security consequences remain "dispersed" among institutions, none of which has full responsibility or a mandate for a comprehensive response.

The Baltic region also offers conditions that should, in theory, make it possible to break this pattern. All coastal states, with the obvious exception of Russia, are members of the EU and NATO. Their legal framework is well known and access to vessel traffic data and analytical capabilities remains high. Additionally, thanks to the Danish Straits, which constitute a shipping chokepoint, the states of the region have real points of leverage over the movement of high-risk vessels.

Paweł Kusiak, PhD

Liberal-minded politicians and analysts must focus on the fact that the shadow fleet primarily undermines common international interests: safety of navigation, environmental protection, and the sanctions regime. Within the liberal paradigm, the solution to the shadow fleet problem lies in strengthening legal frameworks and deepening cooperation. A good idea in this context might be to forge a new international agreement penalizing the lack of insurance and failure to meet flag State obligations. Additionally, it could provide for better coordination among states (within NATO, the EU, and the UN) in responding to incidents caused by the shadow fleet.

The test of coherence, therefore, lies not only in access to tools but in adopting a common classification of the problem. As long as shadow fleet activity is treated as a set of separate regulatory violations or administrative incidents, pressure exerted through the shadow fleet will remain an effective means of operating below the threshold that would trigger an unequivocal response. The lack of coordination between the regulatory framework and the security architecture perpetuates this state of affairs and lowers Russia's cost of further testing.

The situation in the Baltic today raises the question of whether the European Union and NATO are capable of translating their formal alignment of interests into coherent action under conditions of hybrid conflict that falls short of open conflict. If, in a region with a high degree of institutional compatibility and available response tools, no common classification of the problem is reached, this means that similar coordination will be even more difficult under less favorable conditions.

NATO member states and military bases

2

Decision-making scenarios

The following scenarios are not a prediction of events, but an analysis of the consequences arising from different response models adopted by EU and NATO member states to the fact that the shadow fleet's activity has crossed the threshold for action.

Scenario 1: Normalization of risk

Once the tolerance threshold has been crossed, the lack of any fundamental change in the approach of the EU and NATO leads to the entrenchment of a situation in which the risk associated with shadow fleet activity becomes part of the permanent security landscape in the Baltic. Institutions respond to incidents, but do not change the way they classify them. Each incident is treated individually, and the phenomenon as a whole does not receive either a common assessment or a coherent response.

In this configuration, the problem does not disappear, but stabilizes. From Russia's point of view, this is a favorable situation. The responses of the West become predictable, and the operational costs of the shadow fleet, although high, remain calculable and can be spread over time. The model based on the rapid turnover of vessels, reflagging, and moving operations outside areas of effective control continues to function. This makes it possible to maintain exports of raw materials and systematically test the responses of the states of the region without significant political risk.

The most serious consequences emerge in terms of EU and NATO coherence. The states most exposed to environmental and infrastructure-related consequences begin to perceive the shadow fleet as a direct security threat. Others continue to treat it as a regulatory or economic problem. These differences translate into the pace of action, the willingness to bear costs, and political priorities, gradually weakening the capacity for a common response.

From Russia's perspective, this is a desired outcome. The lack of change in the approach shifts the debate within the EU and NATO from the question of a threat to a dispute over responsibility and the proportionality of the response. Normalization of risk functions as a strategic decision: sanctions lose their deterrent effect, and the Baltic Sea becomes an arena for prolonged testing of the limits of tolerance without the need for military escalation.

Scenario 2: Fragmented actions

Some EU and NATO states take more decisive steps at the national level once the threshold for action is crossed, while others remain cautious. The response to the shadow fleet's activity loses coherence. A set of divergent practices emerges in place of a single response model, based on different risk assessments and interests.

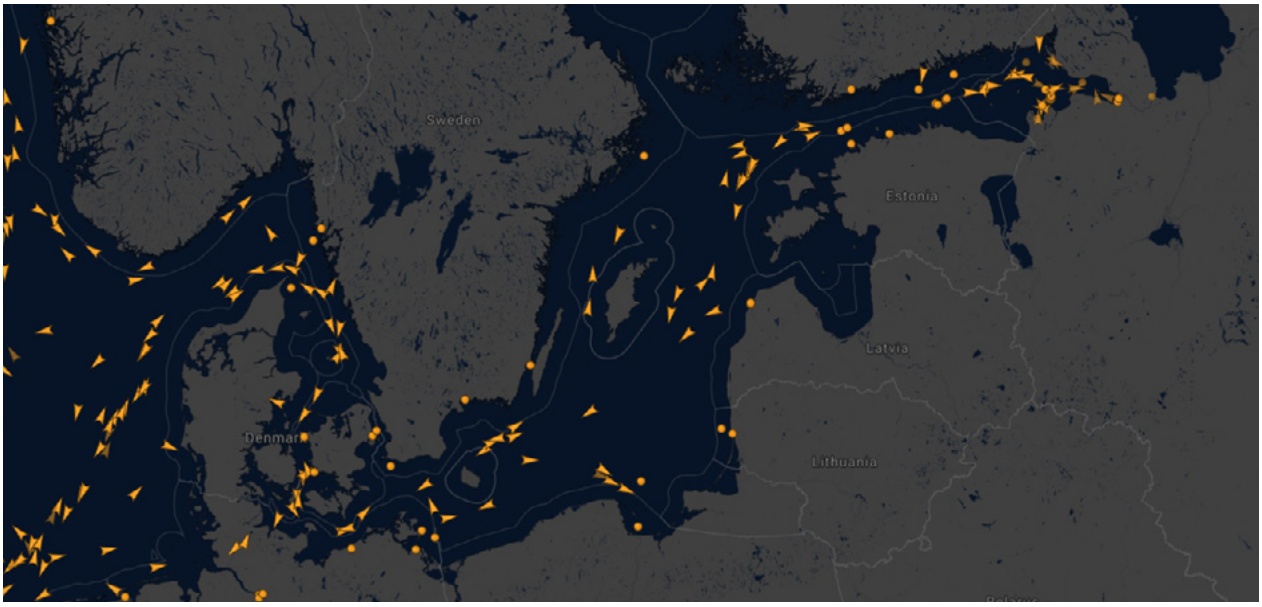
In this scenario, States respond, but not as a single system. States facing the greatest environmental and infrastructure risks tighten controls, broaden their interpretation of regulations and increase administrative burdens. At the same time, the lack of common criteria means that these actions do not produce a lasting reduction in the shadow fleet's operational capabilities. Risk is shifted geographically and across jurisdictions—to ports, sea areas and zones under lighter oversight.

For Russia, such a situation is easy to read and easy to exploit. The shadow fleet adapts its routes and practices to the system's weakest points, minimizing the additional costs resulting from the restrictions. Meanwhile, differences in Western states' approaches become part of a disinformation campaign, reinforcing the narrative of disunity and internal contradictions within the EU and NATO.

The most serious consequences are political. Fragmented actions deepen divisions within both structures, shifting the focus of the debate from the question of the threat to disputes over solidarity, costs and the risk of escalation. The states most exposed begin to view the lack of coordination as a collective security problem, while others fear economic or political consequences. As a result, the decision-making process becomes increasingly defensive, and the capacity for joint action grows ever weaker.

This scenario does not halt the erosion of the effectiveness of sanctions, but instead renders that erosion uneven. The Baltic Sea remains an arena for testing the limits of legal enforceability and allied cohesion. For Russia, this means maintaining the economic viability of the shadow fleet model while gradually weakening Western unity, still without having to raise the level of confrontation.

Tanker traffic in the Baltic Sea according to VesselFinder, 13 April 2026



Scenario 3: Coordinated response

Crossing the threshold of tolerance leads to the recognition that continuing to respond solely to individual events is no longer a sign of prudence, but a source of lasting weakness. EU and NATO states, therefore, adopt a common approach, based on a shared risk assessment and the coordinated use of existing legal, regulatory and operational tools. This does not mean a change in international law or military escalation, but rather a change in the way the system operates.

Under this scenario, the activity of the shadow fleet is no longer treated as a collection of incidents. Specific practices—manipulation of AIS and GNSS, STS operations, lack of credible insurance coverage, repeated reflagging or presence near critical infrastructure—trigger predictable and uniform consequences across all jurisdictions. What matters is not the severity of the measures, but their consistency and the absence of regulatory "safe harbors".

The result is a change in Russia's cost calculus. The shadow fleet loses the ability to maneuver through gaps in law and decision-making. Insurance, logistical and reputational costs rise, while the ability to adapt quickly declines. Activities below the threshold of war cease to be a cheap and predictable instrument of pressure and begin to generate lasting operational uncertainty.

At the same time, the coordinated response limits the potential for divisions within the EU and NATO. Diplomatic efforts aimed at African states produce results, leading to the gradual loss of existing partners supporting the shadow fleet. Shared risk assessment reduces differences in threat perception and stabilizes expectations regarding cost-sharing. The Baltic Sea ceases to serve as an area where the limits of tolerance are gradually shifted, and becomes an example of maritime pressure being met with a consistent collective response.

This is the only scenario that reverses the logic of testing the West. For Russia, it means losing the ability to erode EU and NATO cohesion over the long term with limited political risk. For Western states, it means regaining control over the rules of the game and strengthening the credibility of the security architecture without embarking on a path of military escalation.

Andrzej Makowski, PhD, Professor
Obstacles to coherent and rapid action by international actors:

- **The current geopolitical situation** may be taken as the principal obstacle. The world is in the midst of a dynamic process of transformation and the emergence of a new order that we may call deglobalization (with all due caveats, of course). This is demonstrated, for example, by support for sanctions against the Russian Federation, which are backed only by EU and NATO states, and even then with reservations, while the rest of the world sees the problem quite differently.
- **Current U.S. policy,** which suggests that Russia need not necessarily be its age-old enemy (as the example of the 19th century and the Civil War shows).
- **Ordinary human greed—**wherever there are bans, sanctions, embargoes and blockades, there is always money to be made, while the "free market" does not necessarily support the state's current policy. To this should be added the differences that are almost always present in how states that are members of broader communities, such as the EU or NATO, perceive their own interests.

Comparison of scenarios—consequences of strategic choices

Dimension	Scenario 1: Normalization of risk	Scenario 2: Fragmented actions	Scenario 3: Coordinated response
Logic of Western action	Tolerating incidents and managing them	Selective action dependent on individual states	Common assessment of the problem and common consequences
Status of the shadow fleet	Permanent element of the maritime environment	Problem shifting between jurisdictions	Operating model systemically undermined
Consequences for Russia	Time, predictability, and low costs	Ability to exploit differences and weaknesses	Loss of flexibility and rising costs
Impact on sanctions	Gradual loss of credibility	Effectiveness in individual cases, no effect at scale	Strengthening through consistency and the absence of gaps
EU and NATO cohesion	Silent erosion through habituation	Mounting tensions and internal disputes	Reduction of divisions through common rules
Importance of the Baltic Sea	Area of habituation to risk	Area of friction and threat displacement	Area where EU and NATO states regain control over the rules of the game

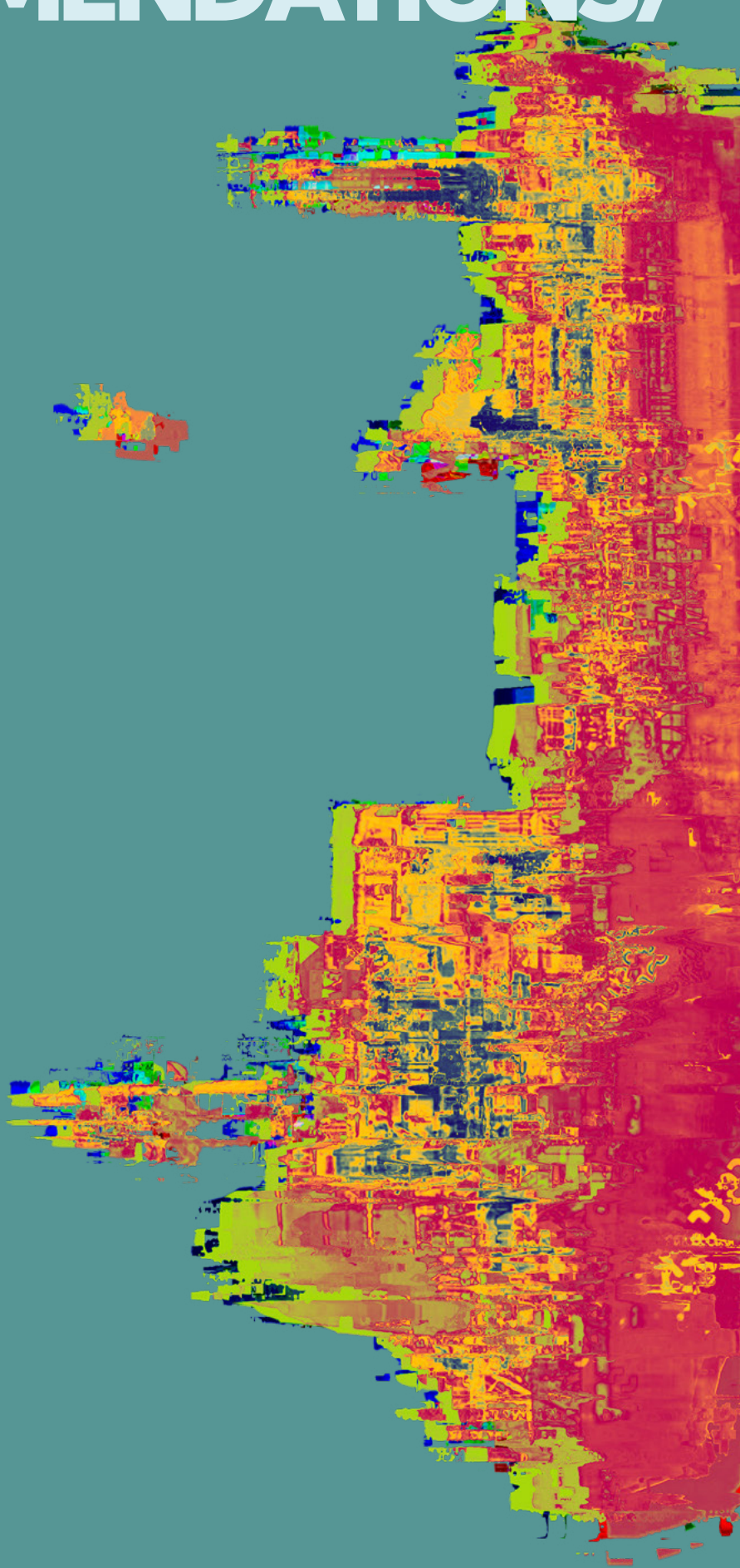
A comparison of the scenarios leads to one conclusion. Failure to decide is not a middle ground, but a choice with specific strategic consequences.

The difference between the scenarios lies not in the intensity of the response, but in how responsibility is organized. Where responsibility remains fragmented, Russia retains the ability to continue testing the limits and to adapt its actions without incurring significant costs. Where responsibility is organized through a common approach, the operational, logistical, and reputational costs of the Russian model rise, and the capacity of the shadow fleet to adapt is materially reduced.

The choice is not about the level of risk, but about who manages it: Russia or the EU and NATO states. The approach adopted will determine whether the Baltic Sea remains a space for the gradual expansion of Russian freedom of action or becomes a precedent showing that activities carried out using the shadow fleet are met with a consistent collective response. The consequences of this decision will matter beyond the region, affecting the credibility of sanctions, allied cohesion, and the ability of the West to constrain Russian actions below the threshold of open conflict.

Deck of a big oil tanker

/RECOMMENDATIONS/



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Pillars of collective response

Applying the pillars below will enable action within the framework of the existing law of the sea, without opening risky debates about restricting freedom of navigation or revising UNCLOS. At the same time, this changes how the shadow fleet operates: it raises costs faster than Russia can absorb them, limits room for adaptation and reduces the potential for narrative escalation and for dividing the EU and NATO. This is a shift from managing the problem to regaining control of the system.

UK authorises military boarding of sanctioned shadow fleet vessels

Pillar 1: Shared risk assessment instead of incident management

Problem

Shadow fleet activity continues to be assessed incident by incident, which allows the fleet to adapt, fosters diffusion of responsibility and enables the exploitation of jurisdictional gaps. At the same time, far-reaching attempts to redefine freedom of navigation under international law would entail the risk of retaliatory action and would be unworkable in current political circumstances.

Strategic objective

Shifting the EU and NATO response from the level of incidents to the level of the operational pattern, while acting within the framework of the existing law of the sea.

Strategic recommendations

- agree at the EU level and among the states of the Baltic Sea region on a common definition of a high-risk vessel, based on a set of behavioral and structural criteria, rather than on a single violation;
- adopt the principle that the recurrence of certain practices (AIS and GNSS manipulation, STS operations, lack of credible P&I coverage, advanced age of the vessel, frequent reflagging) constitutes grounds for classifying a vessel as high-risk and for applying a heightened control regime;
- recognize action aimed at flag States as an element of policy to counter the shadow fleet, including through coordinated EU diplomatic action and the development of agreements enabling proactive action with respect to high-risk vessels.

Tactical recommendations

- create a regional system for ongoing exchange of information and a common watchlist of high-risk vessels, shared among maritime administrations, coast guards, and security agencies;
- harmonize response thresholds within port state control and operations in transit waters to avoid the “displacement effect” risk;
- develop behavioral vessel traffic analytics drawing on AIS data, satellite monitoring, and EMSA resources, including the use of data analysis tools (and AI) to identify risk patterns;
- develop common or aligned operational procedures for vessel interception and inspection, drawing, for example, on Frontex’s experience.

Pillar 2: Linking the regulatory framework with security

Problem

The shadow fleet operates in the gap between the sanctions regime and the security architecture, exploiting the civilian status of commercial shipping and the limitations of existing instruments of the law of the sea. This creates a separation between regulatory and security mandates, makes it harder to trigger clear response mechanisms, and encourages Russia to further test the resilience of the states in the region.

Strategic objective

Recognition that civilian commercial shipping (the shadow fleet) can be an instrument of hybrid pressure, without the need to redefine the law of the sea or restrict freedom of navigation.

Strategic recommendations

- adopt a common assessment that the actions of the shadow fleet near critical infrastructure (cables, pipelines, offshore installations) constitute a security threat, regardless of the civilian status of the vessels;
- include the topic of the shadow fleet in regular EU–NATO consultations as a matter below the threshold of armed conflict, but one requiring political and operational coordination;
- develop joint frameworks for critical infrastructure protection at sea, encompassing monitoring of the underwater situation, data exchange, and coordination of operational presence in key sea areas;
- strengthen the use of marine environmental protection instruments as a basis for raising navigation safety standards, particularly with respect to semi-enclosed seas and sea areas of high ecological sensitivity;
- focus efforts on promoting and enforcing the provisions of international law and IMO regulations governing maritime shipping, particularly with respect to the safety of navigation, environmental protection, and shipowners' liability;
- use existing instruments of the law of the sea (including marine environmental protection, safety of navigation, and liability for environmental damage) as a basis for taking preventive measures against vessels posing a heightened risk.

Tactical recommendations

- establish a permanent mechanism for information exchange among maritime administrations, coast guards, and the security structures of the states in the region;
- treat shadow fleet monitoring and critical infrastructure protection as a single risk package, rather than as separate security management domains;
- develop joint procedures for responding to "gray zone" incidents at sea, limiting the potential for narrative escalation and for Russia to exploit such incidents for demonstrative purposes (accusations of piracy, pretexts for military escorts, shows of force);
- base operational solutions on a requirement for credible insurance coverage, commensurate with the level of environmental and security risks associated with the operation of shadow fleet vessels (age, technical condition, crew qualifications);
- develop common regulations on monitoring of the underwater situation and data transmission, and intensify activities related to demonstrating presence in sea areas of particular significance (nodal points);
- strengthen the coordinated operational presence of the states in the region in sea areas of particular significance for infrastructure security and the continuity of navigation.

Bridge over Øresund

Pillar 3: Targeting the market system, not individual vessels

Problem

The persistence of the shadow fleet stems from the existence of a private, dispersed system of services—insurance, flag registries, intermediaries, etc.—operating formally within the law and remaining beyond the direct reach of quantitative sanctions. This system enables the rapid replacement of shadow fleet vessels and adaptation to new regulatory constraints.

Strategic objective

Undermining the model's economic viability, without military escalation and without altering the foundations of international law.

Strategic recommendations

- focus regulatory action and sanctions on the services that enable the shadow fleet to function—especially insurance, flag registries, shipbroking, and ship management services—rather than only on vessels;
- establish a common position among the EU member states on alternative insurance systems and low-oversight registries that enable the circumvention of sanctions regimes;
- consider creating "shadow-free zones", in which vessels would have to comply with heightened environmental safety standards and maintain credible insurance coverage;
- use instruments for protecting the marine environment (including PSSA and MPA mechanisms, as well as HELCOM regional regulations) as a basis for introducing heightened navigation safety standards in particularly sensitive sea areas.

Tactical recommendations

- implement systemic solutions for the ongoing identification of the beneficial owners of vessels, as well as of the entities involved in supporting those vessels (insurers, operators, shipbrokers, ship managers) and in the operation of the shadow fleet;
- introduce digital verification of insurance policies at their source, limiting the possibility of using fraudulent documentation;
- tighten the requirements for vessels transiting sensitive sea areas to maintain credible P&I policies, especially in areas of high environmental risk (including the Baltic in this category);
- increase the regulatory accountability of shipbrokers, intermediaries, and classification societies operating on the EU market in cases of involvement in systemic sanctions circumvention;
- apply reputational, regulatory, and financial measures against entities that provide systemic support for the operation of the shadow fleet or facilitate the circumvention of sanctions-related restrictions.

View of Øresund

2

Poland's individual response

At the national level, it is recommended to swiftly organize and operationalize a Maritime Safety Centre—a platform consolidating the efforts of services responsible for safeguarding the state's interests at sea. The Centre must be oriented toward cooperation with private stakeholders (maritime infrastructure operators), as well as with analogous institutions in Baltic Sea states and relevant NATO and European Union bodies. Close cooperation with intelligence services and analytical centres specializing in maritime security is also essential. This raises questions regarding the effectiveness and extent to which such expertise is currently utilized in Poland, as well as the potential for establishing effective "coalitions of analytical centres."

Phenomena related to the use of the shadow fleet as part of hybrid activities also constitute an important area of academic research. Accordingly, close cooperation between researchers and state authorities is required—both in analytical work and in the development of recommendations, as well as in shaping research agendas and supporting start-ups in the search for technological solutions (activities at the intersection of advanced technologies and security).

In light of the need to strengthen the protection of critical infrastructure in the Baltic Sea (Polish maritime areas), efforts to introduce new legal and organizational frameworks in this domain should be accelerated. One such regulatory initiative is the "Safe Baltic" Act. Maintaining direct cooperation between services and infrastructure operators remains essential. At the same time, such infrastructure should be protected already at the construction stage, rather than only upon reaching operational readiness.

At the EU level, it is necessary to consistently articulate Poland's position and to propose and support initiatives aimed at imposing sanctions on shadow fleet vessels. Given the increasing environmental risks, it may be advisable to advocate for the establishment of a European fund to respond to potential crisis situations. It is also important to conduct regular training exercises for maritime security services at both national and international levels. These should include scenarios covering operational coordination, data exchange, command of joint maritime forces, intervention activities, mitigation of environmental disasters, and search and rescue operations.

The Maritime Safety Centre (CBM), envisaged as a coordinating body for crisis management activities, could be established and launched within the framework of amendments to the Act on Crisis Management and related legislation. It has been indicated that the CBM could be located within the Counter-Terrorism Centre of the Internal Security Agency (ABW). Such a structure would ensure an effective flow of both operational and informational data, integrating the interests of the state and critical infrastructure operators (Miętkiewicz, 2026).

New formats of cooperation with Baltic partners, particularly those focused on the protection of subsea critical infrastructure, should be assessed positively. An example is the Polish–Lithuanian–Latvian–Estonian memorandum. Cooperation is to be implemented through a dedicated working group and will include both data exchange and the organization of joint exercises (Ledzińska, 2025).

A particularly pressing challenge remains the rapid equipping of Poland's maritime forces with platforms adequate to contemporary threats. While certain processes—such as the modernization of coastal surveillance and maritime situational awareness systems—can be accelerated, the development of systems involving offshore wind farms is inherently time-dependent (given the timelines of individual investments). Similarly, the commissioning of new naval vessels requires both time and continuity of funding for shipbuilding programs. Time thus emerges as the critical factor, given that achieving operational readiness is measured in tens of months.

The current situation of the Polish Navy, and to some extent also the Maritime Unit of the Border Guard, should serve as a lesson for decision-makers on the need for a strategic approach and long-term planning of naval force development over decades. Gaining experience while gradually losing key capabilities until their effective disappearance proves highly costly; at the same time, restoring or building such capabilities requires the critical resource—time. In a context of growing threats, when political elites across multiple states simultaneously recognize the need to strengthen their capabilities, previously relied-upon "stopgap solutions" may prove unattainable in practice.

Beyond determination to protect national interests at sea and uphold international maritime law, the capabilities available to a maritime state play a decisive role. Both their quantitative and, in particular, qualitative dimensions determine the ability to engage physically in international operations and to undertake independent operational initiatives.

For example, Operation "Zatoka," launched in 2022 by the Polish Navy, is aimed at monitoring maritime traffic and identifying threats to installations and facilities critical to the state's economy and security. To enhance the effectiveness of these activities, the Armed Forces cooperate with the Maritime Unit of the Border Guard. Operation "Zatoka" constitutes Poland's contribution to NATO activities under the codename "Baltic Sentry."

The role of the North Atlantic Alliance in shaping the security environment in the Baltic region should not be underestimated. Poland's involvement in maritime activities designed to increase pressure on potential adversaries and serve as preventive measures—such as participation in Standing Naval Forces—should be sustained. This applies both to the development

The "Safe Baltic" Act expands the scope of the Armed Forces of the Republic of Poland to include the use of military forces outside the territory of the state, in actions aimed at strengthening Poland's security. The amendments also cover the rules governing the deployment of the Armed Forces abroad, which in practice means participation in permanent operational activities conducted outside national borders under a reinforced presence framework (Forward Presence). The legal basis for the use of the Armed Forces of the Republic of Poland outside the territory of the state is the ratified North Atlantic Treaty, the National Defence Act, decisions of international organizations of which Poland is a member, as well as an invitation or consent from the host state (Miętkiewicz, 2026A).

of capabilities to counter threats in the subsea domain, including those targeting energy infrastructure, and to strengthening Poland's image as an engaged and credible NATO ally.

It should be assumed that challenges characteristic of sub-threshold activities and crisis situations will become a permanent feature of the Baltic security environment. Poland's engagement in newly established NATO command structures (CTF Baltic) should be interpreted as further evidence of strengthening its position among Baltic NATO members. Efforts should therefore be made to ensure the smooth assumption of command within NATO structures and the effective execution of a broad range of tasks related to coordination and command of maritime forces in the region.

Poland's proactive role in shaping the Alliance's approach to Baltic security should be viewed positively, as demonstrated by its proposal to establish a Baltic Guard. Joint maritime patrols provide a tangible signal of determination and presence at sea by member states acting in a coordinated manner. As a regional leader in offshore wind development, with a growing role of Polish ports in cargo and energy carrier handling, Poland should continue to assert its position as a major regional actor by proposing such initiatives.

These activities require broad coordination both at the international level and across the EU–NATO interface. One of their key objectives should be the development of uniform response patterns to acts of sabotage. Under the declaration adopted at the NATO Baltic Sea Allies Summit in Helsinki, in addition to endorsing the expansion of NATO activities under "Baltic Sentry," signatories agreed on the need to strengthen cooperation with the private sector—particularly infrastructure operators and companies in the advanced technology sector (Joint Statement of the Baltic Sea NATO Allies Summit, 2025).

At the national level, it is recommended to strengthen mechanisms enabling closer cooperation between the offshore sector, port operators, and companies providing advanced systems based on Polish technological solutions.

In 2028, command of the Command Task Force Baltic (CTF Baltic) will be transferred from Germany to POL MARFOR, which is to be established by that time. The establishment of CTF Baltic enables NATO to concentrate its efforts on challenges specific to the Baltic theatre and strengthens the interoperability of Baltic forces. The tasks of the CTF include the rotational command of NATO-led maritime exercises and operations, coordination of allied maritime activities in the region, the development of a comprehensive maritime situational picture, the organization of logistical support for subordinate units, as well as participation in public information campaigns (Miętkiewicz, 2025).

Poland's direct contribution to strengthening the Alliance's capabilities (combat potential) sends a clear signal to NATO members of its high level of commitment to effective joint maritime operations. Given the scale of threats targeting subsea critical infrastructure (subsea pipelines, power interconnectors, and telecommunications cables), the activities of the SNMCMG1 group take on particular importance for maintaining maritime security.
The tasks carried out by the group go beyond the traditional framework of countering threats in the subsea domain. They increasingly address hybrid threats generated by the shadow fleet (Miętkiewicz, 2026b). The SNMCMG1 forces are integrated into NATO's "Baltic Sentry" mission.

Mariusz Ruszel, PhD, Associate Professor at Rzeszów University of Technology, MBA

The operation of the shadow fleet in the Baltic Sea constitutes a geo-economic instrument used by the Russian Federation to increase the costs of Poland's energy security.
First, ensuring adequate strategic resilience of Poland's energy infrastructure requires continuous monitoring and rising military expenditures, both in physical and cyber domains. The growing risk of infrastructure damage—through potential acts of sabotage involving shadow fleet vessels—translates into higher costs for permanent maritime patrols and associated operational activities. Second, the shadow fleet enables increased flows of Russian crude oil to the EU market, directly boosting revenues to the Russian state budget. The conflict in Iran, which began in late February 2026, contributed to a rise in oil prices, with Russian crude exceeding USD 100 per barrel in March 2026. This demonstrates that, despite the war in Ukraine, Russia continues to sell oil on European markets, financing its military buildup while informally maintaining influence over the EU energy market. The current blockade of the Strait of Hormuz by Iran, combined with the U.S. decision to introduce a 30-day suspension of sanctions on Russian oil, further facilitates additional exports, including to India. Third, the presence of the shadow fleet in the Baltic Sea increases espionage risks and raises the cost of risk for Poland's energy transition projects, including offshore wind farms. It may also disrupt energy supply chains to Poland in the event of physical or cyber sabotage, or an environmental incident. This, in turn, creates growing financial and insurance risks for vessels operating from Polish ports, which must factor in the possibility of incidents such as collisions with shadow fleet ships.

3

Poland's role and the importance of the presidency of the Council of the Baltic Sea States

The analysis presented in the report shows that the effectiveness of the response to Russian shadow fleet activity depends above all on the ability to harmonize the practices of the states in the region and to narrow the space within which differences in interpretation translate into a real operational advantage for Russia. From Poland's perspective, this is of particular importance because the Baltic Sea is not only a key area for the state's energy, infrastructure and military security but also the main avenue through which the shadow fleet affects the interests of the EU and NATO. The issue of protecting the Baltic Sea's exceptionally sensitive ecosystem is also of enormous importance.

In this context, Poland's ongoing presidency of the Council of the Baltic Sea States (CBSS) creates an opportunity to translate the findings of the assessment and the scenarios into concrete regional action, without entering into disputes over revising international law or escalating security measures. For Poland, this presidency has not only a coordinating function, but is also a tool for strengthening its own position as a framework nation for security in the Baltic, capable of initiating and organizing operational cooperation. Among the three long-term priorities of the CBSS (regional identity, a sustainable and prosperous region, and security and stability), issues of multidimensional security should be brought to the forefront. The intensification of political dialogue within the CBSS announced by the Ministry of Foreign Affairs of the Republic of Poland on issues such as the protection of critical infrastructure in the Baltic Sea and countering the shadow fleet, alongside current issues on the security agenda (July 1 Poland..., 2025), should be enriched as much as possible by events enabling the sharing of experience and the development of harmonized solutions (or ones as closely aligned as possible) in responding to actions by the Russian Federation (agency procedures). This will make it possible to exert pressure across the widest possible area of the Baltic Sea while minimizing the risk of Russia shifting incidents into the sea areas of less resolute states.

The CBSS remains a forum in which states directly affected by the consequences of the shadow fleet's operations meet at the working level, outside the frameworks of treaty negotiations and formal alliance commitments. From the perspective of the scenarios described in the report, this means a real possibility of limiting both the first (normalization of risk) and the second (fragmented national responses) through the gradual alignment of the administrative and operational practices of the states of the region.

Poland's presidency can focus the CBSS's work on areas that derive directly from the pillars of collective response proposed in the report. This applies in particular to:

- a common approach to identifying high-risk vessels,
- agreement on how to address recurring operational patterns of the shadow fleet,
- linking vessel traffic monitoring with critical infrastructure protection in the Baltic.

In each of these areas, Poland has both institutional capabilities and growing operational capacity, which allows it to serve as an initiator rather than merely a moderator of regional efforts. Nevertheless, these actions fall within the competence of all coastal states and address the mechanisms described in the diagnostic section of the report, which showed that it is divergences in practice, rather than a lack of regulation, that create room for the shadow fleet to adapt.

From the perspective of the coordinated scenario, the CBSS under Poland's presidency may serve as a regional transitional stage in which common standards and procedures are developed before they are potentially raised to the EU level or taken up within EU–NATO dialogue. Such an approach reduces the risk of political disputes and allows solutions to be tested in an environment with a relatively high degree of commonality of interests and challenges.

The outcomes achieved within the CBSS will have a direct impact on which of the scenarios described in the report become the dominant trajectory for the further development of the situation in the Baltic. If the states of the region manage to reduce divergences in their approach to risk and strengthen consistency in practice, the Baltic may become a genuine testing ground for a coordinated response. Otherwise, the model in which pressure exerted below the threshold of war continues to successfully undermine the effectiveness of sanctions and the coherence of responses by the states of the region will be entrenched.

Polish presidency of The Council of the Baltic Sea States

Damian Szacawa, PhD
The CBSS Approach to the Shadow Fleet

Russia's shadow fleet represents one of the most complex regional security challenges facing both the member states of the Council of the Baltic Sea States (CBSS) and the organization itself. Poland's CBSS Presidency (July 2025 – June 2026) has made countering these threats one of its key priorities, recognizing that the issue requires a coordinated response at the political, economic, and environmental levels.

This shift also reflects a broader transformation of the organization—from a platform for regional cooperation into a significant actor within the regional security architecture, responding to emerging geopolitical challenges in the Baltic Sea region. A particularly important element of Poland's presidency has been its efforts to strengthen the political dimension of the CBSS (see: the informal meeting of CBSS foreign ministers in Warsaw on 4 March 2026, convened at the invitation of Deputy Prime Minister Radosław Sikorski).

The threats arising from the activities of vessels associated with the shadow fleet, used by Russia to circumvent international sanctions imposed following its full-scale invasion of Ukraine, extend beyond purely economic and legal considerations. The Baltic Sea holds the status of a Particularly Sensitive Sea Area (PSSA), due to its dense shipping traffic, ecological vulnerability, and limited water exchange. The presence of aging, poorly maintained tankers significantly increases the risk of an environmental disaster in the region—particularly as these vessels often lack adequate insurance and deliberately disable AIS systems, preventing effective tracking.

In response to these risks, Poland's presidency has adopted a three-dimensional strategy for coordinating CBSS actions, embedded within a broader regional framework, including NATO's "Baltic Sentry" operation and Nordic-Baltic initiatives to strengthen maritime surveillance.

First, Poland seeks to tighten mandatory insurance reporting requirements for vessels operating in the Baltic Sea. Second, it envisages the introduction of additional restrictive measures targeting the broader shadow fleet ecosystem, including economic sanctions and limitations on port access for vessels with unclear legal status. Third, it assumes intensified diplomatic engagement with flag states to enhance their awareness and accountability for the practices of vessels registered under their flags.

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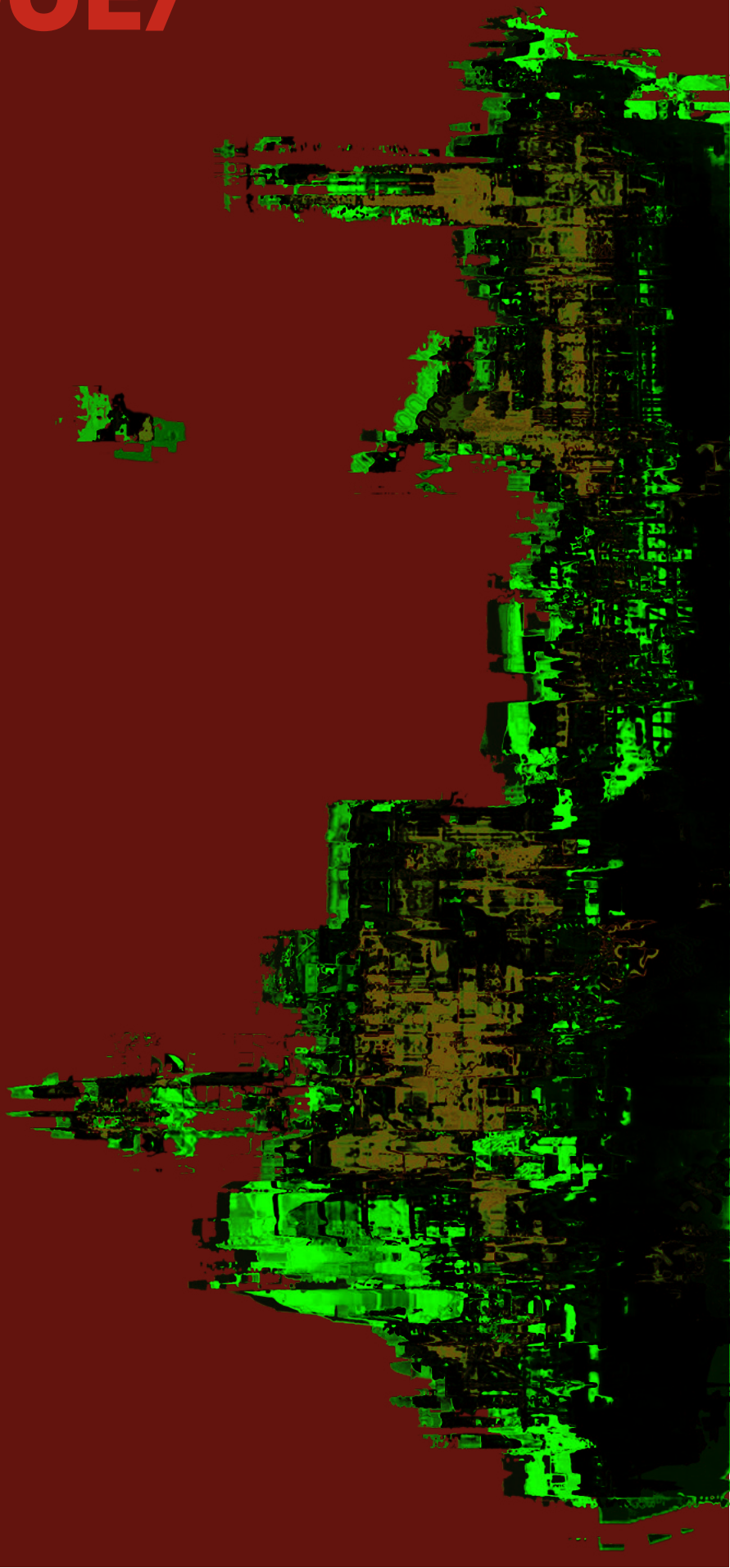


EPILOGUE
RESOLUTION

Paweł Kusiak, PhD

An analysis of the phenomenon of Russia's shadow fleet through the lens of international relations theory leads to the identification of various response strategies. Realism emphasizes the need for a hard-line approach, suggesting that only an effective deterrence policy and a decisive military response can constrain Russia's activities at sea. Liberals would point instead to the need for international cooperation, the strengthening of international institutions, and the consistent enforcement of legal norms. Constructivism, in turn, highlights the importance of narrative and strategic communication, whose aim should be to delegitimize the shadow fleet in the eyes of the international community. Finally, critical approaches present the shadow fleet as a product of global inequalities and the imperfections of the international trade system, calling for greater transparency and proportionality in states' responses.

The Baltic coast near Klaipeda

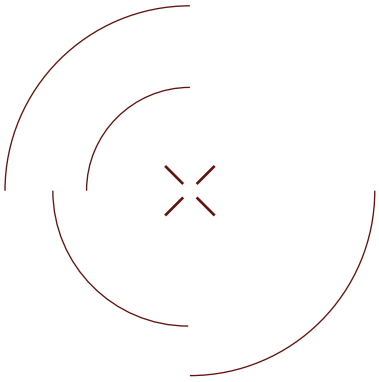
The operations of the Russian shadow fleet in the Baltic Sea form part of a broader pattern of behavior by the Russian Federation: the systematic expansion of its freedom of action at the expense of rules-based order. It rests not on openly violating norms, but on their instrumental circumvention, selective application, and the exploitation of divergences in the practices of other states. In this way, Russia gradually accustoms the international environment to a new level of risk, which over time ceases to be perceived as exceptional.

The shadow fleet is one element of this model. It makes it possible to maintain revenues from raw materials exports, weakens the effectiveness of sanctions, and at the same time shifts environmental and infrastructure risks onto the states of the region. Its significance, however, lies not solely in the role it plays in the oil trade, but in its function as a test: it allows testing how far one can go within the framework of formal peace before a coherent response emerges. In this sense, the shadow fleet is not a separate problem, but an indicator of the broader dynamics of Russia's relations with the West.

The choice confronting EU and NATO states is a fundamental one. It concerns not whether each of the actions described constitutes an unambiguous violation of the law, but whether their cumulative effect will be regarded as an acceptable cost of the system's operation. Maintaining the current response model amounts to accepting a situation in which Russia gradually shapes the operating conditions, taking advantage of differences among states and delays in decision-making. The alternative is a shift to a consistent practice of applying existing rules, without military escalation and without altering the foundations of the law of the sea.

Against this background, the shadow fleet stands out as a distinct problem, not because it is the most dangerous to the states bordering the Baltic Sea, but because it is the most tangible. Unlike many other forms of Russia's hybrid warfare, these activities are observable, recurrent, and occur in a sphere where the states of the region have real authority. Even if practices are not harmonized and response logic does not change in this area, it will be difficult to believe that such a change is possible in more complex domains.

The Baltic Sea is not the place where the future of relations with Russia will be decided, but the first arena in which the West's ability to limit Russia's freedom of action without escalation can be tested. If, under such conditions, response practices are not harmonized, pressure below the threshold of war will remain a permanent feature of the European security environment.



Abbreviations

Abbreviation	Full name	Definition
AI	Artificial Intelligence	technology used for data analysis and maritime situational monitoring
AIS	Automatic Identification System	system enabling the tracking of vessel position and movement
AIS-off	–	deliberate deactivation of AIS to conceal a vessel's presence, route, or operations
CREA	Centre for Research on Energy and Clean Air	analytical organization focusing on energy markets and emissions
CTF	Commander Task Force	operational task group within military structures (e.g. NATO)
EPRS	European Parliamentary Research Service	research service of the European Parliament
G7	Group of Seven	group of seven major advanced economies
GNSS	Global Navigation Satellite System	satellite-based system used to determine a vessel's position
IMO	International Maritime Organization	UN agency responsible for maritime safety and regulation
LNG	Liquefied Natural Gas	natural gas cooled to liquid form for transport
LR1	Long Range 1	medium-sized long-range product tanker
LR2	Long Range 2	larger long-range product tanker with higher capacity
MR	Medium Range	medium-range tanker
MSA	Maritime Situational Awarenes	capability to monitor and interpret maritime activities
NATO	North Atlantic Treaty Organization	political and military alliance of member states
OECD	Organisation for Economic Co-operation and Development	international organization promoting economic development and cooperation
P&I	Protection and Indemnity	shipowner's liability insurance
PSC	Port State Control	inspection regime conducted by port states on foreign vessels
SOLAS	Safety of Life at Sea	international convention on maritime safety
STS	Ship-to-Ship Transfer	ransfer of cargo between vessels at sea
UE	Unia Europejska	political and economic union of European states
UNCLOS	United Nations Convention on the Law of the Sea	international treaty defining maritime law framework
VLCC	Very Large Crude Carrier	very large oil tanker used for crude transport
VTS	Vessel Traffic Service	system for monitoring and managing vessel traffic in coastal areas

Bibliography

1. 1 lipca Polska przejmuje przewodnictwo w Radzie Państw Morza Bałtyckiego (2025), https://www.gov.pl/web/dyplomacja/1-lipca-polska-przejmuje-przewodnictwo-w-radzie-panstw-morza-baltyckiego (accessed: June 23, 2025).

2. AP News (2025), Estonia warns Russia may use military force to defend shadow tanker fleet, https://apnews.com/article/5e74109e3b1d84dc73ac2592068d4689 (accessed: March 7, 2026).

3. Åslund, A. (2019), Western Economic Sanctions on Russia over Ukraine 2014–2019, https://www.cesifo.org/DocDL/CESifo-Forum-2019-4-aslund-economic-sanctions-december.pdf (accessed: December 12, 2024).

4. Baird Maritime (2025), Russia releases Green Admire, https://www.bairdmaritime.com/shipping/tankers/russia-releases-green-admire-from-baltic-sea-detention (accessed: March 7, 2026).

5. Baird Maritime (2025a), Sweden to implement tighter control of foreign ships, https://www.bairdmaritime.com/security/non-naval-security/coast-guard/sweden-to-implement-tighter-control-of-foreign-ships-to-deter-shadow-fleet-activity (accessed: March 7, 2026).

6. Bajarūnas, E. (2025), Choking Russia's Shadow Fleet in the Baltic, https://cepa.org/article/choking-russias-shadow-fleet-in-the-baltic/ (accessed: June 8, 2025).

7. Bloomberg (2025), Denmark to intensify scrutiny of shadow-fleet tankers, https://www.bloomberg.com/news/articles/2025-02-05/denmark-to-intensify-scrutiny-of-russia-s-shadow-fleet-tankers (accessed: March 7, 2026).

8. Bockmann, M. (2024), Malta STS transfers of Russian oil quadruple after Greece shuts down Laconia Bay, https://www.lloydslist.com/LL1149569/Malta-STS-transfers-of-Russian-oil-quadruple-after-Greece-shuts-down-Laconia-Bay (accessed: June 10, 2025).

9. Bockmann, M. (2024A), Russia-linked cable-cutting tanker seized by Finland 'was loaded with spying equipment', https://www.lloydslist.com/LL1151955/Russia-linked-cable-cutting-tanker-seized-by-Finland-was-loaded-with-spying-equipment (accessed: December 28, 2024).

10. Braw, E. (2024), Russia's growing dark fleet: Risks for the global maritime order, https://www.atlanticcouncil.org/in-depth-research-reports/issue-brief/russias-growing-dark-fleet-risks-for-the-global-maritime-order/ (accessed: April 29, 2024).

11. Braw, E. (2024A), The threats posed by the global shadow fleet—and how to stop it, https://www.atlanticcouncil.org/in-depth-research-reports/report/the-threats-posed-by-the-global-shadow-fleet-and-how-to-stop-it/ (accessed: June 9, 2025).

12. Braw, E. (2025), The shadow fleet was bad—now the renegade fleet has arrived, https://www.politico.eu/article/shadow-fleet-russia-oil-spills-baltic-ports/ (accessed: June 8, 2025).

13. Carnegie Endowment (2025), The Baltic Sea at a Boil, https://carnegieendowment.org/research/2025/06/baltic-russia-maritime-cable-sabotage?lang=en (accessed: March 7, 2026).

14. Centre for Research on Energy and Clean Air (CREA) (2024), State capture: Tackling the Russian 'shadow' fleet, https://energyandcleanair.org/wp/wp-content/uploads/2024/09/State-Capture_CREA_Shadow-fleet-policy-briefing_Final_08.2024.pdf (accessed: February 10, 2026).

15. Chiriac, O. (2022), The 2022 Maritime Doctrine of the Russian Federation: Mobilization, Maritime Law, and Socio-Economic Warfare, https://cimsec.org/the-2022-maritime-doctrine-of-the-russian-federation-mobilization-maritime-law-and-socio-economic-warfare/ (accessed: December 7, 2024).

16. Chiusa, S. (2025), Russia's Shadow Fleet: A Masterclass in Sanctions Evasion, https://www.geopoliticalmonitor.com/russias-shadow-fleet-a-masterclass-in-sanctions-evasion/ (accessed: January 4, 2026).

17. Crude oil shipments from Russia 2022–2025, by destination (2025), https://www.statista.com/statistics/1350506/russia-crude-oil-shipments-by-destination/ (accessed: June 10, 2025).

18. Estonian Ministry of Foreign Affairs (2025), Russia detained the oil tanker Green Admire, https://vm.ee/en/news/russia-detained-oil-tanker-green-admire-it-was-departing-estonian-port-sillamae (accessed: March 7, 2026).

19. Euronews (2025), Poland intervenes after Russian 'shadow fleet' ship near cable, https://www.euronews.com/2025/05/21/poland-intervenes-after-russian-shadow-fleet-ship-detected-near-baltic-sea-cable (accessed: March 7, 2026).

20. European Commission (2024), Joint Statement on the Investigation into Damaged Electricity and Data Cables in the Baltic Sea, Brussels, December 26, 2024.

21. European Commission (2025), Sanctions adopted following Russia's military aggression against Ukraine, https://finance.ec.europa.eu/eu-and-world/sanctions-restrictive-measures/sanctions-adopted-following-russias-military-aggression-against-ukraine_en/ (accessed: December 14, 2024).

22. European Commission (2026), New dynamic mechanism for lower price cap on Russian crude oil at 4410 $/barrel, https://finance.ec.europa.eu/news/new-dynamic-mechanism-lower-price-cap-russian-crude-oil-4410-barrel-2026-01-15_en (accessed: February 1, 2026).

23. European Environment Agency (EEA) (2025), Marine protected areas in Europe's seas, https://www.eea.europa.eu/en/analysis/indicators/marine-protected-areas-in-europes-seas (accessed: February 10, 2026).

24. European Parliamentary Research Service (EPRS) (2024), Russia's 'shadow fleet': Bringing the threat to light (Briefing No. 766242), European Parliament, https://www.europarl.europa.eu/RegData/etudes/BRIE/2024/766242/EPRS_BRI(2024)766242_EN.pdf (accessed: February 10, 2026).

25. European Ships Keep Russia's Shadow Fleet Afloat (2025), https://www.occrp.org/en/investigation/european-ships-keep-russias-shadow-fleet-afloat (accessed: January 4, 2026).

26. Financial Times (2025), Finland charges captain of Eagle S, https://www.ft.com/content/a3110e00-9d4d-4757-9066-7afoec925b42 (accessed: March 7, 2026).

27. Finland Reports Russia Has Begun Naval Escorts for Shadow Fleet Tankers (2025), https://maritime-executive.com/article/finland-reports-russia-has-begun-naval-escorts-for-shadow-fleet-tankers (accessed: June 19, 2025).

28. Finland–Estonia power cable hit in latest Baltic Sea incident (2024), The Guardian, https://www.theguardian.com/world/2024/dec/25/finland-estonia-power-cable-hit-in-latest-baltic-sea-incident (accessed: December 27, 2024).

29. Foreign Policy (2025), How Europe Is Cracking Down on Russia's Shadow Fleet, https://foreignpolicy.com/2025/07/03/baltic-states-russia-denmark-europe-shadow-fleet-oil/ (accessed: March 7, 2026)

30. Ginalski, A. (2025), Chronimy przyrodę z ludźmi i dla ludzi, https://www.wwf.pl/morskie-obszary-chronione (accessed: June 10, 2025).

31. Greenpeace (2024), Shadow Fleet, https://www.greenpeace.org/static/planet4-sweden-stateless/2024/10/fb3d5709-greenpeace-shadow-fleet-baltic-tankers-list.pdf (accessed: June 11, 2025).

32. Henderson, J., Yermakov, V., Connolly, R. (2024), Outlook for Russia's oil and gas production and exports, https://www.oxfordenergy.org/wpcms/wp-content/uploads/2024/03/NG-189-Outlook-for-Russias-oil-and-gas-improved-resolution.pdf (accessed: December 15, 2024).

33. Hilgenstock, B., Kravtsev, A., Pavytska, Y., Vlasiuk, A. (2024), Creating "Shadow-Free" Zones: Proposal for the Implementation of an Insurance Requirement to Address Key Environmental Risks, KSE Institute, https://kse.ua/wp-content/uploads/2024/10/Shadow_free_zones_October_2024_final.pdf (accessed: March 7, 2026).

34. IMO Resolution A.1192(33) (2023), Adopted on 6 December 2023.

35. Kamiński, R. (2025), Rosyjski statek z „floty widmo" wykonywał podejrzane manewry na Bałtyku, https://www.gospodarkamorska.pl/rosyjski-statek-z-floty-widmo-wykonywal-podejrzane-manewry-na-baltyku-85202 (accessed: June 19, 2025).

36. Katinas, P., Wickenden, L. (2024), Ensuring an ecological disaster: "Shadow" tanker spill could cost coastal states USD 1.6 bn, Centre for Research on Energy and Clean Air (CREA).

37. Kennedy, C. (2024), The Shadow Fleet in Crisis, https://navigatingrussia.substack.com/p/the-shadow-fleet-in-crisis-highlights (accessed: June 8, 2025).

38. Kennedy, C. (2024A), Making the Baltic a "shadow-free" zone, Brookings Institution.

39. Ledzińska, P. (2025), Polska i kraje bałtyckie podpisały memorandum w sprawie infrastruktury krytycznej, https://polskamorska.pl/2025/06/17/polska-i-kraje-baltyckie-podpisaly-memorandum-w-sprawie-infrastruktury-krytycznej/ (accessed: March 26, 2026).

40. Lehto, E., Sytas, A. (2024), Finland boards oil tanker suspected of causing internet and power cable outages, https://www.reuters.com/world/europe/finland-police-investigate-role-foreign-ship-after-power-cable-outage-2024-12-26/ (accessed: December 27, 2024).

41. Lin, M. (2024), UK sanctions 30 shadow tankers in largest clampdown on Russian oil trade, https://www.spglobal.com/commodity-insights/en/news-research/latest-news/crude-oil/112524-uk-sanctions-30-shadow-tankers-in-largest-clampdown-on-russian-oil-trade (accessed: December 12, 2024).

42. Lundqvist S., Elliot K., Nylander N. (2025), SVT News, https://www.svtplay.se/video/jqPyWxQ/aktuellt/tis-20-maj-21-00 (accessed: June 9, 2025).

43. Maritime Doctrine of the Russian Federation (2022), translated by Anna Davis and Ryan Vest, Russia Maritime Studies Institute, United States Naval War College.

44. McKinney, B. (2023), Russia's Shadow Fleet—Understanding its Size, Activity and Relationships, https://www.spglobal.com/market-intelligence/en/news-insights/research/russias-shadow-fleet-understanding-its-size-activity-and-relat (accessed: June 8, 2025).

45. Meade, R. (2024), How Eswatini created a shipping register by accident, https://www.lloydslist.com/LL1150511/How-Eswatini-created-a-shipping-register-by-accident (accessed: June 10, 2025).

46. Meade, R. (2025), Russian naval escorts raise stakes in Baltic security stand-off, https://www.lloydslist.com/LL1153663/Russian-naval-escorts-raise-stakes-in-Baltic-security-stand-off (accessed: June 19, 2025).

47. Miętkiewicz, R. (2023), Systemy autonomiczne w działaniach na morzu, Wydawnictwo Akademickie AMW, Gdynia, ISBN 978-83-966280-7-7.

48. Miętkiewicz, R. (2026), Centrum Bezpieczeństwa Morskiego – potrzeba koordynacji działań narodowych i transgranicznych w ochronie interesów Polski na Bałtyku, https://theopportunity.pl/publikacje/centrum-bezpieczenstwa-morskiego-potrzeba-koordynacji-dzialan-narodowych-i-transgranicznych-w-ochronie-interesow-polski-na-baltyku/(accessed: March 26, 2026).

49. Miętkiewicz, R. (2026a), Ustawa „Bezpieczny Bałtyk" – kurs na ochronę strategicznych interesów państwa na morzu, https://theopportunity.pl/publikacje/ustawa-bezpieczny-baltyk-kurs-na-ochrone-strategicznych-interesow-panstwa-na-morzu/ (accessed: March 26, 2026).

50. Minchin, J. (2024), Greek Navy makes anti-STS measures more permanent, https://www.lloydslist.com/LL1149374/Greek-Navy-makes-anti-STS-measures-more-permanent (accessed: June 11, 2025).

51. Molik, P. (2025), Fiński resort obrony: Rosja stosuje nowe metody działań wojskowych na Bałtyku, https://www.pap.pl/aktualnosci/finski-resort-obrony-rosja-stosuje-nowe-metody-dzialan-wojskowych-na-baltyku (accessed: June 19, 2025).

52. NATO (2025), Baltic Sentry to enhance NATO's presence in the Baltic Sea, https://shape.nato.int/news-releases/baltic-sentry-to-enhance-natos-presence-in-the-baltic-sea (accessed: March 27, 2026).

53. Parmar, S., Sawan, R., Agnihotri, K. (2022), Maritime Doctrine of the Russian Federation 2022: An Analysis, National Maritime Foundation, https://maritimeindia.org/wp-content/uploads/2022/08/3.-Russias-Maritime-Doctrine-2022-An-Analysis-For-Website-1.pdf (accessed: December 7, 2024).

54. Peachey, P. (2024), Shadow tanker catastrophe fears: Oil spill could cost Asian nations $1.6bn, new report warns, https://www.tradewindsnews.com/tankers/shadow-tanker-catastrophe-fears-oil-spill-could-cost-asian-nations-1-6bn-new-report-warns/2-1-1722999 (accessed: June 9, 2025).

55. President of Finland (2025), Joint Statement of the Baltic Sea NATO Allies Summit, https://www.presidentti.fi/en/joint-statement-of-the-baltic-sea-nato-allies-summit/ (accessed: March 27, 2026).

56. Reuters (2025a), Estonia says Russia briefly violated NATO airspace during attempt to stop shadow-fleet tanker, https://www.reuters.com/world/europe/estonian-navy-says-it-tried-detain-one-russian-shadow-fleet-baltic-sea-2025-05-15/ (accessed: March 7, 2026)

57. Reuters (2025b), Estonia says Russia detained tanker in Baltic Sea, https://www.reuters.com/world/europe/estonia-says-russia-detained-tanker-baltic-sea-2025-05-18/ (accessed: March 7, 2026).

58. Reuters (2025c), EU to propose ban on Russian LNG by 2027; targets include shadow fleet, https://www.reuters.com/business/energy/eu-will-propose-banning-russian-lng-imports-by-jan-1-2027-sources-say-2025-09-19/ (accessed: March 7, 2026).

59. Reuters (2025d), Poland intervenes near undersea cable, https://www.reuters.com/world/europe/poland-says-russian-ship-performed-suspicious-manoeuvres-near-cable-sweden-2025-05-21/ (accessed: March 7, 2026).

60. Reuters (2025e), Estonia says Russia detained tanker in Baltic Sea, https://www.reuters.com/world/europe/estonia-says-russia-detained-tanker-baltic-sea-2025-05-18/ (accessed: March 7, 2026).

61. Roszak, M. (2022), Prorosyjski dystans Afryki, https://forsal.pl/swiat/rosja/artykuly/8402162,kraje-afryki-a-rosja-i-wojna-w-ukrainie.html (accessed: June 10, 2025).

62. Rudnik, F. (2024), Russia: Novatek is creating a 'shadow fleet' of LNG carriers, https://www.osw.waw.pl/en/publikacje/analyses/2024-09-02/russia-novatek-creating-a-shadow-fleet-lng-carriers(accessed: April 1, 2026).

63. Russian 'Shadow Fleet' Ups Risk Of Baltic Sea Spill, Finland's Border Guard Says (2024), https://www.rferl.org/a/finland-russia-ghost-oil-tankers/32901663.html (accessed: April 29, 2024).

64. S&P Global Commodity Insights (2025), Shadow tanker operators buy old ships, scrap older for fleet renewal, https://www.spglobal.com/energy/en/news-research/latest-news/crude-oil/120325-shadow-tanker-operators-buy-old-ships-scrap-older-for-fleet-renewal (accessed: June 9, 2025).

65. Saiz, G. (2025), RUSI Maritime Sanctions Taskforce Second Meeting Report, https://static.rusi.org/maritime-sanctions-taskforce-second-conference-report.pdf (accessed: June 9, 2025).

66. Soon, W. (2024), Zombie Tanker Turns Up at Northern Chinese Port Laden With Oil, Bloomberg, https://news.bloombergtax.com/internationaltrade/zombie-tanker-turns-up-at-northern-chinese-port-laden-with-oil(accessed: April 9, 2026).

67. Statement of Chairman Louis E. Sola—Registries Must Close Rolls to Shadow Fleet Vessels (2025), https://www.fmc.gov/ftdo/statement-of-chairman-louis-e-sola-registries-must-close-rolls-to-shadow-fleet-vessels/ (accessed: June 8, 2025).

68. Sweden Thinks Russian "Shadow Fleet" Tankers May be Used for Espionage (2024), https://maritime-executive.com/article/sweden-thinks-russian-shadow-fleet-tankers-may-be-used-for-espionage (accessed: April 29, 2024).

69. Szubrycht, T., Rokiciński, K., Mickiewicz, P. (2020), Morze Bałtyckie w polityce bezpieczeństwa Rosji, FNCE, Poznań.

70. The Guardian (2025), 'Hundreds in the Baltic': tracking the shadow fleet, https://www.theguardian.com/world/2025/sep/13/hundreds-baltic-tracking-russia-shadow-fleet-oil-tankers (accessed: March 7, 2026).

71. The Guardian (2025), NATO flotilla to protect undersea cables, https://www.theguardian.com/world/2025/jan/19/nato-flotilla-assembles-off-estonia-protect-undersea-cables-baltic-sea (accessed: March 7, 2026).

72. U.S. Department of the Treasury (2022), Limiting Kremlin Revenues and Stabilizing Global Energy Supply with a Price Cap on Russian Oil, https://home.treasury.gov/news/press-releases/jy1141 (accessed: December 14, 2024).

73. Weilun Soon (2024), Zombie Tanker Turns Up at Northern Chinese Port Laden With Oil, Bloomberg, https://news.bloombergtax.com/international-trade/zombie-tanker-turns-up-at-northern-chinese-port-laden-with-oil (accessed: June 9, 2025).

74. Zalesiński, Ł. (2025), Na rosyjskim pasku, „Polska Zbrojna", 16.07.2025.

75. Zyśk, D. (2025), Szwecja zaostrza kontrole na Bałtyku. Chce przeciwdziałać rosyjskiej flocie widmo, https://www.pap.pl/aktualnosci/szwecja-zaostrza-kontrole-zagranicznych-statkow-aby-przeciwdzialac-rosyjskiej-flocie (accessed: June 19, 2025).

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