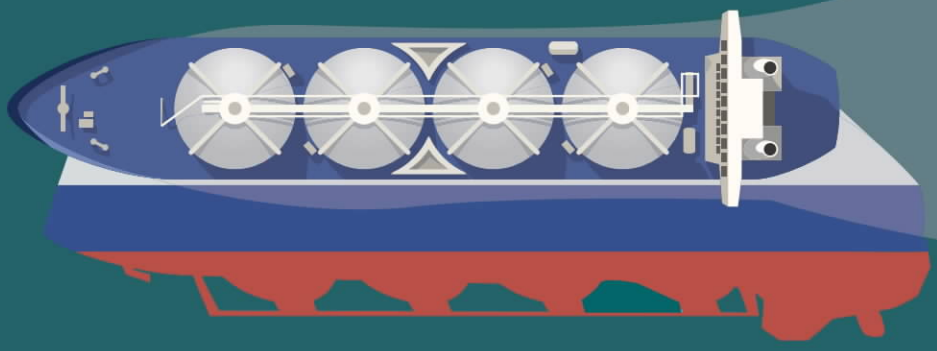
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Russia's Shadow Fleet under Pressure

Boosting the Impact of Western Sanctions

Elżbieta Kaca, Tymon Pastucha | Ed. Elżbieta Kaca



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Introduction

Restrictions on energy resources imposed by the G7+ coalition are **the key instrument in reducing Russia's ability to finance the war in Ukraine,** which **remains the central objective of the entire sanctions regime.** Prior to Russia's invasion of Ukraine in February 2022, oil and gas sales accounted for 40% of Russia's budget revenue (80% from oil and petroleum products and 20% from gas), with the EU being the primary buyer of these products. Four years into the war, due to the restrictive measures, the EU's share of Russian gas imports has fallen from 40% in 2021 to under 5% in 2025, while its share of Russian oil imports has fallen from 25% to 2–3%.

The most significant restrictions target the oil sector. **Aiming to curb Russia's oil revenues by making its exports more costly**—while avoiding a reduction in Russian production volumes and in result, potential volatility in the oil market—**the G7+ coalition introduced an embargo on Russian crude oil and petroleum products, along with a price cap on maritime transport services.** Due to Russia's significant presence in the global oil market, the coalition opted against imposing a total ban on these services in 2022, fearing it could lead to supply disruptions and price volatility. Russia accounted for around 11–13% of the global oil supply and 6–7% of international oil and petroleum product trade.

In response, Russia has expanded its "shadow fleet," deploying approximately 700 ageing tankers that operate outside international maritime standards. These vessels often sail without proper insurance, obscure their locations, and conduct ship-to-ship (STS) transfers to disguise the origin of their cargo. The **shadow fleet has become a key mechanism for mitigating the impact of sanctions**, while simultaneously generating significant environmental and security risks on a global scale.

To address this challenge, **the G7+ coalition has adopted measures aimed at restricting the fleet's operations.** Sanctions have been imposed on numerous tankers linked to Russia's shadow fleet, as well as on Russian and foreign entities that facilitate their activities. Several European countries have begun conducting insurance checks on tankers in the Baltic Sea and North Sea and have detained more than a dozen

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tankers in EU waters between 2025 and 2026. In January-February 2026, the US Coast Guard seized several Russian shadow fleet tankers, in international waters, for transporting Venezuelan and Iranian oil, both subject to US embargoes.

This report reviews the sanctions adopted by the G7+ coalition in the oil sector and against the shadow fleet, investigating the most significant consequences. It also analyses the environmental and security risks associated with the shadow fleet, providing a list of incidents involving it to date. The observations gathered form the basis of recommendations on how to further limit Russia's ability to effectively use the shadow fleet to avoid sanctions and continue financing its war effort. The main research on the Russian shadow fleet was conducted before the outbreak of the US-Israel war with Iran, but the resulting volatility in the oil market was analysed and incorporated into the drafting of the conclusions and recommendations. The authors hope that the collected data will inform decision-makers of future actions that could be taken to counter the shadow fleet more successfully.

Elżbieta Kaca

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Executive Summary

- **The G7+ coalition imposed far-reaching sanctions on the Russian oil sector, including an embargo on Russian oil and oil products as well as the introduction of a price cap on Russian seaborne oil.** This enabled the provision of G7-related maritime services to Russia under certain conditions. **Those restrictions have proven effective in constraining Russia's fiscal capacity**. Between 2021 and 2025, hydrocarbon revenues fell from 40% to 25% of its total budget income, declining nominally from 9.1 trillion roubles ($119 billion) to 8.48 trillion roubles ($108 billion). Adjusted for inflation, the real decrease reached 33%, underscoring the structural impact of sanctions on Russia's war-financing ability. However, the volatility in the oil market caused by the US-Israel war with Iran and the closure of the Strait of Hormuz has increased Russia's oil revenues, driven by higher demand from Asian countries and the temporary easing of US sanctions.
- The restrictions in the oil sector have forced Russia to redirect its export to new customers, primarily in China, India and Turkey, and to sell hydrocarbons at **a discount on Urals crude**, thereby reducing its revenues. **The income contraction was also an effect of higher transportation and insurance costs, reduced production and refining capacity due to sanctions and Ukrainian strikes on Russia's oil infrastructure, and broader downward trends in global oil prices.**
- **Russia, however, has to a large extent mitigated the effects of these issues by constructing a vast shadow fleet ecosystem** comprising at least 700 dedicated vessels. This fleet is characterised by opaque ownership structures, non-G7 insurers, positioning systems manipulation and STS transfers designed to obscure cargo origins and bypass the price cap.
- **The shadow fleet has created mounting environmental, safety and security risks on a global scale.** Poorly maintained and underinsured tankers pose the risk of collisions and spills, further increased by hazardous STS operations. They are also being used for sabotage and intelligence activities targeting critical infrastructure such as submarine power cables or telecommunication cables. The growing number of incidents, particularly in the Baltic Sea, illustrates the escalating threat to coastal states, which could face cleanup costs running into hun-

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dreds of millions of dollars, as well as disruption to energy and communications infrastructure and impediments to freedom of navigation at sea.

- **The G7+ coalition has imposed sanctions on the shadow fleet**. **Although they have raised Russia's export costs, they have not halted its operations.** Russia continues to adapt by reflagging vessels and diversifying routes, among other actions. **Stricter enforcement of restrictions in late 2025 and 2026 has forced Russia to sell oil at a lower price and increased logistics costs due to longer routes, bottlenecks, and premiums demanded by numerous intermediaries.** At the same time, Russia has strategically alternated between compliant and non-compliant logistics, leveraging Western shipowners to maintain stable export flows. The diplomatic pressure on flag states to delist Russian shadow fleet tankers has forced Russia to rely increasingly on stateless or falsely registered vessels, which in turn has expanded the possibilities for detaining such ships in international waters.
- **Persistent structural gaps in global maritime governance, such as weak oversight of tanker acquisitions, limitations on detentions under the United Nations Convention on the Law of the Sea (UNCLOS) and permissive flag registries, continue to enable the operations of Russia's shadow fleet.** These vulnerabilities enable intermediaries to acquire ageing vessels and quickly re-register them in jurisdictions with minimal regulatory oversight, thereby sustaining the anonymity and operational continuity of the shadow fleet.

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Recommendations

Given the volatility in the oil market caused by the US–Israel war with Iran, the G7+ coalition should seek to further constrain Russia's budget revenues by **lowering the price of its oil exports. This would require the enforcement of the price cap to be strengthened, with a particular focus on curbing the operations of the shadow fleet**. The overarching objective should be **to enhance maritime safety by strengthening the enforcement of international maritime law against shadow fleet activities**. Moreover, reducing the price cap on Russian oil products, mainly premium products such as diesel, kerosene and gasoline, from $100 to $75 per barrel would significantly cut Russia's revenues, as these fuels make up over 30% of its seaborne fossil exports. **Once the oil market has stabilised, the G7+ coalition should aim to reduce the volume of Russian oil exports.** Accordingly, action is recommended in three key areas.

Curb the operation of the shadow fleet and its entire ecosystem to avoid circumvention of energy restrictions by:

- **Expanding inspections and detentions of the shadow fleet in the Baltic Sea and North Sea, as this is the main route for Russian seaborne oil export.**[1] EU Member States and UK authorities could further intensify inspections and detentions of stateless tankers operating in the Baltic Sea and North Sea. To enhance operational capacity, it would be useful to strengthen the mandate of the European Maritime Safety Agency (EMSA) for collecting data on tankers and to conclude agreements between the EU and flag-of-convenience states, enabling comprehensive inspections and boarding.
- **Sanctioning any new tankers entering the shadow fleet, and the core of the network supporting its operation**, including ports, refineries, insurers, flag registration companies, oil traders, and shipping and logistics firms; shipyards servicing Russian tankers (e.g. in Turkey and the UAE); suppliers of spare parts, such as pumps, ballast systems and engine components to Russian shipyards; major

[1] The volume of seaborne crude oil exports from Russian ports in the Baltic Sea accounts for approximately 45% of Russia's total maritime oil exports in 2025, Russian_oil_tracker_ENG_January_2026.pdf.

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intermediaries involved in tanker purchases and leasing companies financing acquisitions for Russian entities.

- **Encouraging the US administration to introduce additional sanctions on the Russian shadow fleet**, coordinated with EU and UK measures. It would strengthen the overall impact of the sanctions regime while also increasing the US's competitive advantage in the global oil market. Sanctions could also target vessels and companies linked to Iranian and Venezuelan shadow fleets if transporting Russian oil.
- **Increasing diplomatic outreach to transit states and STS hubs.** A combined incentive and pressure approach should be used to engage key transit and STS transit locations. Measures may include offering support packages in exchange for limiting STS operations and stricter enforcement of technical standards for vessels, or alternatively, imposing sanctions on ports that regularly handle Russian oil.
- **Restricting Russia's ability to acquire new tankers.** To limit the expansion of the shadow fleet, EU Member States and the UK could introduce a list of high-risk countries to which tanker sales would be legally prohibited or tightly supervised.
- **Introducing G7+ coordinated incentives to encourage shadow tankers to transition into legal operations, and to promote the decommissioning and scrapping of outdated or high-risk vessels.** Incentives for dismantling older ships could include subsidies for scrapping tankers over 20 years old, for example. At the same time, legislators could indicate that delisting from sanctions regimes is possible if operators comply with restrictions and adhere to international maritime norms and standards.

Strengthen the enforcement of international and national maritime law (and its interpretation) to increase maritime safety and reduce illegal practices of the shadow fleet by:

- **Introducing stricter technical and environmental standards for older tankers** (20 years or more) entering territorial waters and exclusive economic zones (EEZs) at national and EU levels. Measures could include: additional certification requirements; higher financial penalties for non-compliance; establishing a list of authorised insurers for ships operating in European waters and a "black register" of high-risk vessels (e.g. AIS-dark ships, vessels over 20 years old, and vessels involved in unreported STS activity).
- **Countering frequent reflagging practices.** To address rapid and opaque flag changes, the EU, UK and their partners could:
    - advocate for mandatory full transparency of ownership chains (i.e. owner, operator, technical manager) at the International Maritime Organisation;

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- expand the mandate of the Financial Action Task Force (FATF) to include oversight of foreign ship registries and maritime service providers;
- continue coordinated G7+ diplomatic outreach to flag-of-convenience states, with stronger involvement from Japan and Canada, which have influence over global maritime standards.

Modify the G7+ approach on energy sanctions against Russia to reduce the volume of Russian energy exports once the oil market stabilises following the end of the US–Israel conflict with Iran, by:

- **Replacing the oil price cap with a ban on maritime services for crude oil and oil products.** This would be possible as the oil surplus on the market is forecasted to 2030.[2] The EU and the UK—potentially in cooperation with the US—could curb Russia's oil exports by adopting sanctions fully prohibiting maritime services for transporting Russian crude and petroleum products. Because Russia still relies partly on Western shipping and insurance, such a ban would restrict its export capacity, further raise transport costs, and reduce net revenues. This would, however, **require stronger enforcement to counter Russia's increasing use of the shadow fleet**. If the maritime services ban cannot be implemented due to political obstacles, **the oil price cap should be gradually brought down** until it reaches Russia's production break-even level of $30 per barrel.
- **Curbing demand for Russian oil through stronger pressure on major importers via further sanctions on third countries' ports, refineries and financial institutions involved in Russian oil trade.** Increase pressure on key buyers—China, India and Turkey—to raise the reputational and regulatory risks of purchasing Russian oil. Higher risk can deepen discounts on Urals and prompt governments, banks, insurers and brokers to limit exposure.
- Exceptions and exemptions within the sanctions regime should be progressively tightened by **imposing full financial restrictions on all Russian companies operating in the oil sector**—especially Lukoil. These measures should also be extended more broadly in a coordinated manner to cover all insurance and maritime entities that support the shadow fleet ecosystem, both inside and outside Russia.

[2] "Oil 2025. Analysis and forecast to 2030," International Energy Agency, 17 June 2025, www.iea.org.

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Dictionary

- **Aframax tankers**—Optimised for transporting crude oil on medium-distance routes, especially in regions where port size restricts very large vessels. They strike a balance between capacity and manoeuvrability, making them one of the most commonly used tanker classes worldwide.
- **AIS (Automatic Identification System)**—A shipborne tracking system that broadcasts identity, position, course and speed. Shadow fleet operators may switch it off or spoof it (false position IDs) to hide routes, port calls, or STS activity.
- **Beneficial ownership**—The natural person(s) who ultimately own or control a vessel through corporate layers. In shadow fleet structures, opaque ownership makes liability and enforcement (e.g., for spills or sanctions breaches) much harder.
- **Classification society**—An organisation that sets technical standards and certifies that a ship's hull and machinery meet them ("class"). The most reliable, such as Lloyd's Register and the American Bureau of Shipping (ABS), are affiliated with the International Association of Classification Societies (IACS). Shadow fleet tankers often rely on non-G7/EU or little-known class providers, reducing oversight quality and transparency.
- **Contiguous zone**—The maritime belt **12–24 nautical miles** (22–44 km) from the baseline where a coastal state may enforce laws on customs, fiscal, immigration and sanitary matters. In practice, it can be relevant for intercepting suspected falsified documentation or sanctions-evasion conduct.
- **EEZ (Exclusive Economic Zone)**—Up to **200 nautical miles** where a coastal state has sovereign rights over resources and specific enforcement powers (not full sovereignty).
- **False flagging**—When a vessel claims a nationality/flag it is not entitled to. Under UNCLOS-related boarding rules discussed in the report, false flagging (and statelessness) can open legal grounds for intervention.
- **Flag state**—The jurisdiction under whose laws the vessel is registered is deemed to be its nationality. A vessel must be registered only in one jurisdiction. The flag state is responsible for enforcing regulations over vessels.

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- **Flag hopping**—Repeatedly changing a vessel's flag to exploit weak oversight or disrupt monitoring and compliance checks.
- **Flags of convenience**—Flags of states (and ship registries) that offer low costs and rapid registration with limited scrutiny, like Gabon, the Comoros. The report notes these registries may neglect checks on ownership, vessel history, insurance, or sanctions exposure, enabling high-risk trade.
- **G7 sanction coalition (G7+)**—The group (notably the EU, US, UK and partners like Japan, Australia, Canada) coordinating restrictions on Russia's oil sector. It underpins the embargo and the service-linked price cap framework, as highlighted in the report.
- **Handymax tankers**—Versatile mid-sized vessels, typically used on routes where port depth or infrastructure limits the use of larger ships. Their size allows them to serve a wide range of regional and global ports while still carrying a commercially meaningful cargo.
- **IMO (International Maritime Organization)**—The UN specialised agency responsible for global shipping standards (safety, security, environmental performance). The report references an IMO General Assembly resolution (December 2023) that addressed/defined the shadow fleet and recommended actions for states.
- **International Oil Pollution Compensation (IOPC) Funds**—Intergovernmental organisations that provide financial compensation for oil pollution damage resulting from spills of persistent oil from tankers.
- **MARPOL**—The International Convention for the Prevention of Pollution from Ships, a core anti-pollution regime.
- **Oil products**—Refined petroleum products (e.g., diesel, gasoline, fuel oil) distinct from crude.
- **P&I insurance (Protection and Indemnity)**—Liability cover for third-party risks (pollution, wreck removal, cargo damage, crew injury)—90% of this coverage is provided by UK and US-based entities.
- **Port State Control (PSC)**—Inspections conducted by port authorities to verify compliance with international standards and documentation, the core of the execution of maritime law.
- **Price cap**—A sanctions mechanism that restricts maritime services (insurance, brokering, shipping support) unless Russian-origin seaborne oil/products are sold at or below a set ceiling.
- **Secondary sanctions**—Sanctions imposed on foreign individuals or companies that do business with a sanctioned party, even if those foreigners are outside the sanctioning country's jurisdiction.

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- **Ship registries**—Official national (or delegated) systems where vessels are registered and assigned a flag state, which then holds primary jurisdiction over the ship (certification, safety, labour, and compliance).
- **SOLAS**—The International Convention for the Safety of Life at Sea, setting minimum safety standards for ship construction, equipment and operation. It is a foundational reference point for maritime safety.
- **STS (Ship-to-Ship transfer/transhipment)**—The transfer of cargo (crude, oil products) between vessels at sea or at anchor, often used to blend cargoes or obscure their origin.
- **Suezmax tankers**—Designed to be the largest ships capable of passing through the Suez Canal fully loaded, without the need for partial unloading. Their dimensions maximise cargo capacity while staying within the canal's strict draft and beam limits.
- **Territorial waters/sea**—A zone extending up to **12 nautical miles** from the coast, where the state exercises sovereignty, subject to the right of "innocent passage" for foreign ships.
- **UNCLOS**—The UN Convention on the Law of the Sea: the main legal framework defining maritime zones (territorial sea, contiguous zone, EEZ, high seas) and enforcement rights.
- **VLCCs**—Massive ocean-going tankers built for long-haul transport of crude oil between major global production and consumption hubs. Their enormous capacity makes them highly efficient on intercontinental routes, especially between the Middle East and Asia or Europe.

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Methodology approach

This report evaluates the sanctions imposed by the G7+ coalition on the oil sector and the shadow fleet, outlining their primary effects and the associated environmental and security risks. The aim is to make recommendations that will further restrict Russia's use of the shadow fleet to evade sanctions and finance its war. Due to the scale of actions within the G7+ coalition, the scope of the analysis is limited to sanctions and actions taken by the EU, the US and the UK. In accordance with the International Maritime Organisation's approach, a shadow fleet is defined as an informal group of ships that operate outside the standard rules of oversight and compliance. These ships are used to conduct illegal or unreported maritime operations, particularly to circumvent sanctions, conceal the origin of cargo, or avoid security checks. This report discusses the nature of shadow fleets and assesses the sanctions and measures taken to combat them in light of the current restrictions in the oil sector.

The analysis is based on a mixed-methods research approach incorporating quantitative and qualitative methodologies. This includes desk research, data analysis, fieldwork, and several targeted, semi-structured interviews with selected decision-makers. Due to limitations in the available data, the report does not measure the efficacy of sanctions. Instead, it examines the major consequences of sanctions by selecting the most important indicators in this area. Furthermore, the report explores forward-looking policy options in response to the evolving risk posed by the shadow fleet. This methodological approach enables detailed information to be collected from primary sources, facilitating the drafting of feasible recommendations.

The report is based on publicly available data. The analysis of the activities and characteristics of tankers subject to EU, US and UK sanctions was partly developed on the basis of data from Vesselfinder.com and MarineTraffic.com search engines, which locate ships based on their AIS signals, as well as the TankerTrackers.com database. One limitation of conducting a comprehensive analysis of the consequences of the sanctions is that monitoring entities use various definitions and methods, as well as limited access to major industry data sources such as Argus Freight, Equasis, Kpler, Lloyd's List

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Intelligence, S&P Global Maritime Intelligence, Windward and satellite images.[3] However, the report analyses the secondary sources, such as research based on industry databases undertaken by other reputable institutions and companies involved in sanctions analysis wherever possible. Finally, some data is collected by national maritime authorities for their exclusive use, and is therefore not publicly accessible.

[3] See more information about monitoring tools of shadow fleet in: S. Woon, J. Ong, "Cil guide to tracking ships in the dark fleet," National University of Singapore, February 2025, https://cil.nus.edu.sg.

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Chapter 1. The G7+ Oil Sanctions and Their Impact on Russia

Tymon Pastucha

Western sanctions imposed on the Russian oil sector

In response to Russia's full-scale invasion of Ukraine, the G7+ coalition—comprising, among others, the EU, the United States and the United Kingdom—imposed far-reaching sanctions on Russia's oil sector (see: Table 1). The oil and petroleum products segment was prioritised due to its central role in Russia's economy; prior to 2024, it was estimated that 40–50% of budget revenues originated from taxes levied on this sector. These revenues helped to finance the Russian military build-up which enabled the invasion. However, the coalition also recognised Russia's substantial influence in the global energy market, with the country accounting for around 11–13% of the global oil supply and 6–7% of international crude oil and petroleum product trade.

Table 1

Major import and export bans in the oil sector (the EU, the US and the UK between 2022 and April 2026)

DATE	SANCTIONS
25 February 2022	The EU banned the export to Russia of specific goods and technologies in oil refining (around 50 items), and introduced restrictions on the provision of related services.
8 March 2022	The US prohibited the following under the Executive Order (EO) 14066: (i) the importation of Russian crude oil; petroleum; petroleum fuels, oils, and products of their distillation; (ii) new investment in the Russian energy sector by a United States person, wherever located; and (iii) any approval, financing, facilitation, or guarantee by a United States person, wherever located, of a foreign transactions as covered by EO 14066.

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DATE	SANCTIONS
13 April 2022	The UK prohibited the export of oil refining goods and technology (including oil catalysts) along with related technical assistance, financial services, funds and brokering services, to Russia or to any person connected with Russia.
3 June 2022	The EU introduced an oil embargo. This prohibited the import of Russian seaborne crude oil from 5 December 2022 onwards, and of refined petroleum products from 5 February 2023 onwards. Temporary derogations were granted to some countries. Member States that import Russian crude oil and petroleum products via pipeline were prohibited from reselling these products to other Member States or third countries. The UK has aligned with the oil embargo.
2 September 2022	The G7 finance ministers agreed to finalise and implement a comprehensive global prohibition on services supporting the maritime transportation of Russian-origin seaborne crude oil and petroleum products, except where the oil and petroleum products are purchased at or below a price cap established by an implementing coalition of countries composed of G7 members and other participating countries (the "Price Cap Coalition"). This was followed by relevant legislation in the EU, the US and the UK.
2 December 2022	Members of the Price Cap Coalition formally set the price cap on Russian-origin crude oil at $60 per barrel, applicable from 5 December 2022.
4 February 2023	Members of the Price Cap Coalition reached consensus on the maximum prices applicable from 5 February 2023 for seaborne Russian-origin petroleum products: - traded at a discount to crude oil is set at $45 per barrel; - traded at a premium to crude is set at $100 per barrel.
19 December 2023	The EU adopted a ban on LPG imports, applicable from 1 January 2025.
29 June 2024	The EU prohibited the import of crude oil from Belarus. It also introduced an export ban on goods and technologies suitable for use in oil refining.
10 January 2025	The US imposed blocking sanctions on two major companies in the oil and gas sector—Gazprom Neft and Surgutneftegas—as well as all their subsidiaries involved in upstream operations, processing and logistics. These were applicable from 27 February 2025.

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DATE	SANCTIONS
24 February 2025	The EU adopted the following restrictions as part of the 16th package of sanctions: - a ban on the temporary storage of certain Russian crude oil or petroleum products in the EU. This ban applies even if the oil price cap is respected and the buyer is outside the EU; - a ban on supplying goods, technologies and services for completing crude oil projects in Russia, such as the Vostok oil project; - a ban on supplying goods that support Russia's oil industry has been expanded to include software for oil exploration purposes, as well as related assistance.
24 April 2025	The UK prohibited the provision of specific software, technology, and related services to the oil sector.
18 July 2025	The EU and the UK lowered the price cap on crude oil from $60 to $47.60 per barrel and introduced a dynamic adjustment mechanism. Under the mechanism, on 1 February 2026, the price cap on Russian oil was lowered from $47.60 to $44.10 per barrel. An EU import ban was introduced on refined petroleum products made from Russian crude oil and originating from any third country (applicable from 21 January 2026).
October 2025	On 22 October the US imposed blocking sanctions (prohibiting any transactions) on Lukoil, Rosneft—two of the largest companies in the Russian oil sector—and their subsidiaries. Full enforcement began on 21 November and significantly hampered the companies' operations on global markets. On 15 October UK designated Rosneft and Lukoil, while on 23 October EU tightened transaction ban on Rosneft and Gazprom Neft.
24 February 2026	The UK imposed sanctions against PJSC Transneft, the operator of 80% of Russia's oil exports via pipelines.
March 2026	The US has temporarily eased sanctions against Russia. On 5 March, the US granted India a one-month licence to purchase Russian oil and petroleum products, despite the sanctions in place against Rosneft and Lukoil. On 12 March, the US granted a further one-month licence, permitting on a global market supply and sale of Russian crude oil and petroleum products (extended by one month on 17 April). Both licences covered only raw materials loaded onto vessels up to the date of their announcement.

Source: Own compilation.

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The central element of the sanctions was the **embargo on Russian oil and oil products**. The EU embargo was adopted in June 2022 and came into force in December 2022 (for crude oil) and in February 2023 (on oil products). Given the EU's significance as a major export market for Russian crude oil, this has to be considered the most consequential part of the punitive sanctions regime for Russia.[4] However, the ban applied exclusively to seaborne deliveries and also included limited (in scope and time) exemptions for countries such as Bulgaria and Croatia. Some transitional periods were also introduced, including a six-month wind-down for existing contracts. The EU granted a temporary exemption for pipeline deliveries to several Member States that were heavily dependent on Russian crude due to their geographical situation and inability to quickly diversify at an acceptable cost. Poland and Germany voluntarily halted pipeline imports in 2023, while the exemption formally ended for the Czech Republic on 1 July 2025. Hungary and Slovakia must phase out the import of Russian oil by the end of 2027. In December 2023, the EU introduced a ban on importing LPG, and in July 2025, on refined petroleum products made from Russian crude oil and originating from any third country. These measures contributed to a sharp decline in the value of EU imports of Russian oil and oil products, which fell from €84 billion in 2022 to a cumulative total of just over €23 billion over the next three years, 2023-2025.[5] Meanwhile, the United States imposed its own embargoes on Russian fossil fuels in March 2022, followed by the United Kingdom in December of that year.

Another key element of the G7+ coalition's sanctions was the introduction of a **price cap on Russian seaborne oil**, which was adopted in September 2022. This move prohibited the provision of services in support of the maritime transport of Russian-origin crude oil and petroleum products unless they were sold at or below the agreed cap. Enforcement relied on the fact that the majority of shipowners, insurers and service providers in global maritime trade are based in G7+ countries and are therefore required to comply with the legal regime established by those governments, including sanctions. The price cap aimed to achieve three objectives:

1. maintain a stable supply of Russian seaborne crude oil and petroleum products to global markets to avoid price volatility,
2. limit upward pressure on energy prices, and
3. reduce Russia's revenues and its ability to wage war.[6]

[4] "EU sanctions against Russia—explained," European Council, Council of the European Union, www.consilium.europa.eu.

[5] Russia Fossil Tracker, Centre for Research on Energy and Clean Air (CREA), www.russiafossiltracker.com. The total of €23 billion refers to EU imports of Russian crude oil, with a significant share of this amount recorded before the oil embargo entered into force in February 2023 (around ¼). More than 55% of this value was generated by pipeline imports to just two countries, Hungary and Slovakia, which continued receiving pipeline crude under temporary exemptions. Around 20% was attributable to the Czech Republic, which ended its imports in 2025.

[6] Oil Price Cap. Frequently Asked Questions as of 15 January 2026, European Commission, https://finance.ec.europa.eu.

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At their December 2022 meeting, G7 finance ministers set the crude oil price cap at **$60 per barrel,** with the measure scheduled to enter into force on 5 February 2023. A parallel cap on petroleum products was introduced at the same time, differentiated by product category: premium products such as diesel, kerosene and gasoline were capped at $100 per barrel, while discounted products such as fuel oil and naphtha were capped at $45 per barrel.

In July 2025, as part of the EU's 18th sanctions package, the EU and the UK (but not Japan or the United States) revised the crude-oil price cap in response to falling global oil prices, aiming to further reduce revenues flowing to Russia's energy sector. The cap was lowered from $60 to **$47.60 per barrel** with the aim of adjusting the value every six months (since February 2026 it has drop to **$44.10 per barrel**). Under the revised framework, the ceiling was set at 15% below the average export price of Russian crude oil. These changes came into effect on 3 September 2025. In addition, in 2025, the G7+ coalition imposed sanctions on major Russian oil companies with the aim of decreasing Russian oil exports (see: Table 2). Notably, US sanctions on Rosneft and Lukoil, coupled with the threat of secondary sanctions, aimed to discourage third countries from importing Russian oil. It is also worth noting that the EU, US and UK have individually targeted smaller Russian oil companies, but these measures have been coordinated to a lesser extent.

Table 2

Major Russian oil companies under financial sanctions, including transanction bans (EU, US and UK)*

COMPANIES	EU	UK	US
PJSC Rosneft Oil Company: a major state-controlled oil company	October 2025	October 2025	October 2025
PJSC Lukoil Oil Company: a large private oil company	–	October 2025	October 2025
PJSC Gazprom Neft: a subsidiary oil company of Gazprom	October 2025	January 2025	January 2025
PJSC Surgutneftegas: a company carrying out prospecting, exploration and production of hydrocarbons in three Russian oil and gas provinces, namely Western Siberia, Eastern Siberia and Timan-Pechora	May 2025	January 2025	January 2025
PJSC Transneft: the operator of 80% of Russia's oil exports via pipelines	March 2022	February 2026	February 2022

Source: Own compilation.

*All jurisdictions targeted also include subsidiaries of sanctioned entities.

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Furthermore, Western governments imposed technology export and transfer restrictions to cut Russia off from the essential resources needed for oil production and refining. These measures included bans on refinery technologies and tighter limits on equipment and oilfield services, especially for technically challenging deposits, as well as broader export controls on critical machinery, software and spare parts. The aim was to gradually erode Russia's ability to modernise, maintain and expand its oil sector, rather than causing an immediate drop in output. The sanctions aimed to reduce future supply by hindering work on mature fields, complex projects and refinery upgrades, thereby reducing efficiency and profitability. Their impact depended on the cumulative effects of rising costs, higher technical risks, and restricted access to expertise and components.[7] These pressures were exacerbated by Ukrainian strikes on Russia's oil refining infrastructure, which increased maintenance requirements at a time when specialist resources were becoming increasingly difficult to obtain.

The consequences of G7+ sanctions on the Russian oil sector

New export routes

Until 2022, Russia exported crude oil via three main channels: maritime transport (55–60%), pipelines (35–40%), and road transport (around 5%). European countries were the primary destination for these exports, receiving around 45% of Russia's crude oil in 2021 (see: Fig. 1). Exports of petroleum products, such as gasoline, diesel and LPG, relied even more heavily on maritime transport: approximately 70% were shipped by sea, 25% were transported by road and around 5% were delivered via pipelines. Prior to 2022, Russia was the EU's leading supplier of refined oil products, accounting for 35–40% of the bloc's imports, while the EU absorbed over half of Russia's total exports in this category. In the months preceding the full-scale invasion of Ukraine, the United States also emerged as a significant importer of Russian oil products, purchasing an estimated 10–15% of the Russian supply.

Following the introduction of the G7+ sanctions, Russia increasingly relied on maritime routes to export crude oil and petroleum products (see: Fig. 3-4), with seaborne shipments accounting for around 90% of the total Russian exports of oil and petroleum products. These flows were redirected to new markets, with China (32%), India (25%) and Turkey (11%) emerging as key buyers of Russian seaborne crude oil in 2024 (see: Fig. 2). Around 5% of Russian crude exports continued to supply Slovakia and Hungary

[7] J. Kluge, "From ad-hoc sanctions to strategic economic containment," *Economic Studies at Brookings*, July 2024, www.brookings.edu.

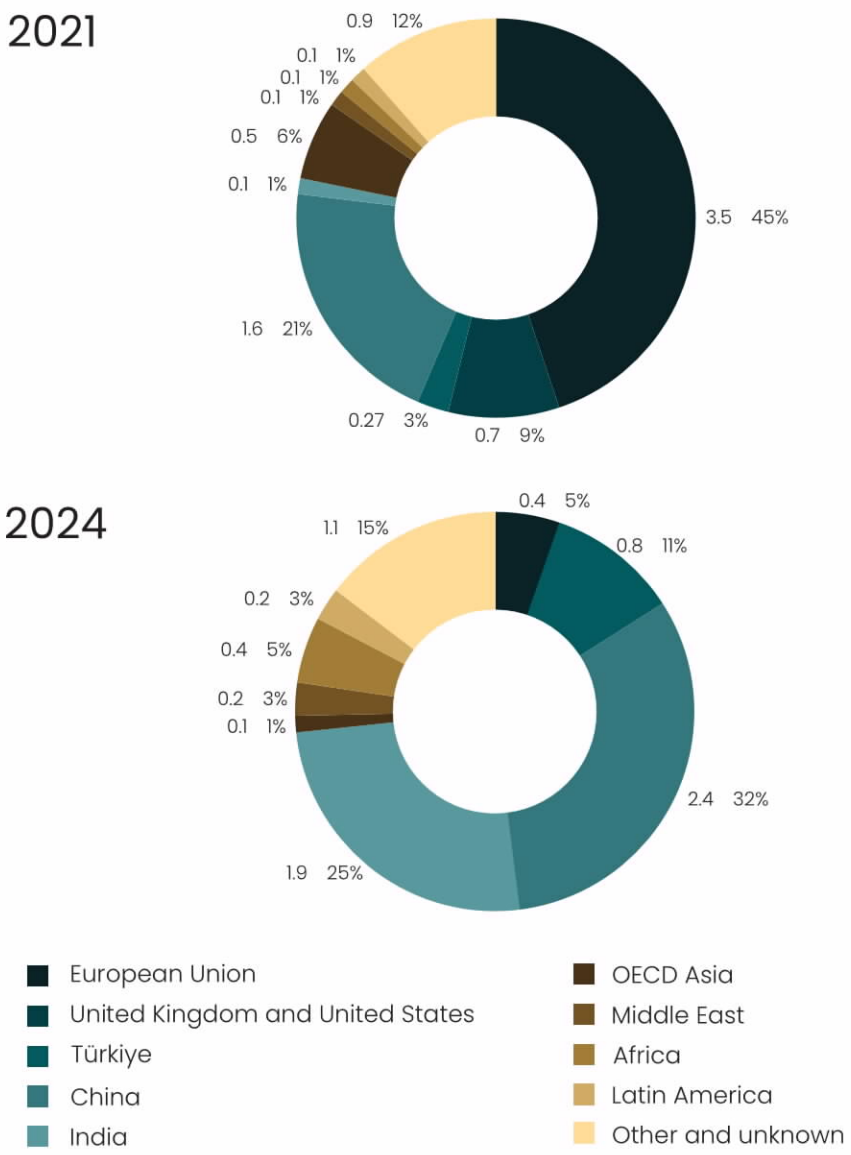
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via the Druzhba system. Turkey became the largest purchaser of Russian petroleum products, accounting for 26% of total exports (seaborne transported). Other significant importers included China and Brazil (each consuming 12% of Russia's exports), as well as India, Singapore, Saudi Arabia, the United Arab Emirates (UAE), Libya, Taiwan, Tunisia and Egypt.

Figures 1 and 2

Russian oil export destinations in 2021 and 2024.
Percentage share and export volume in million barrels/day



Source: Own compilation based on International Energy Agency data.*

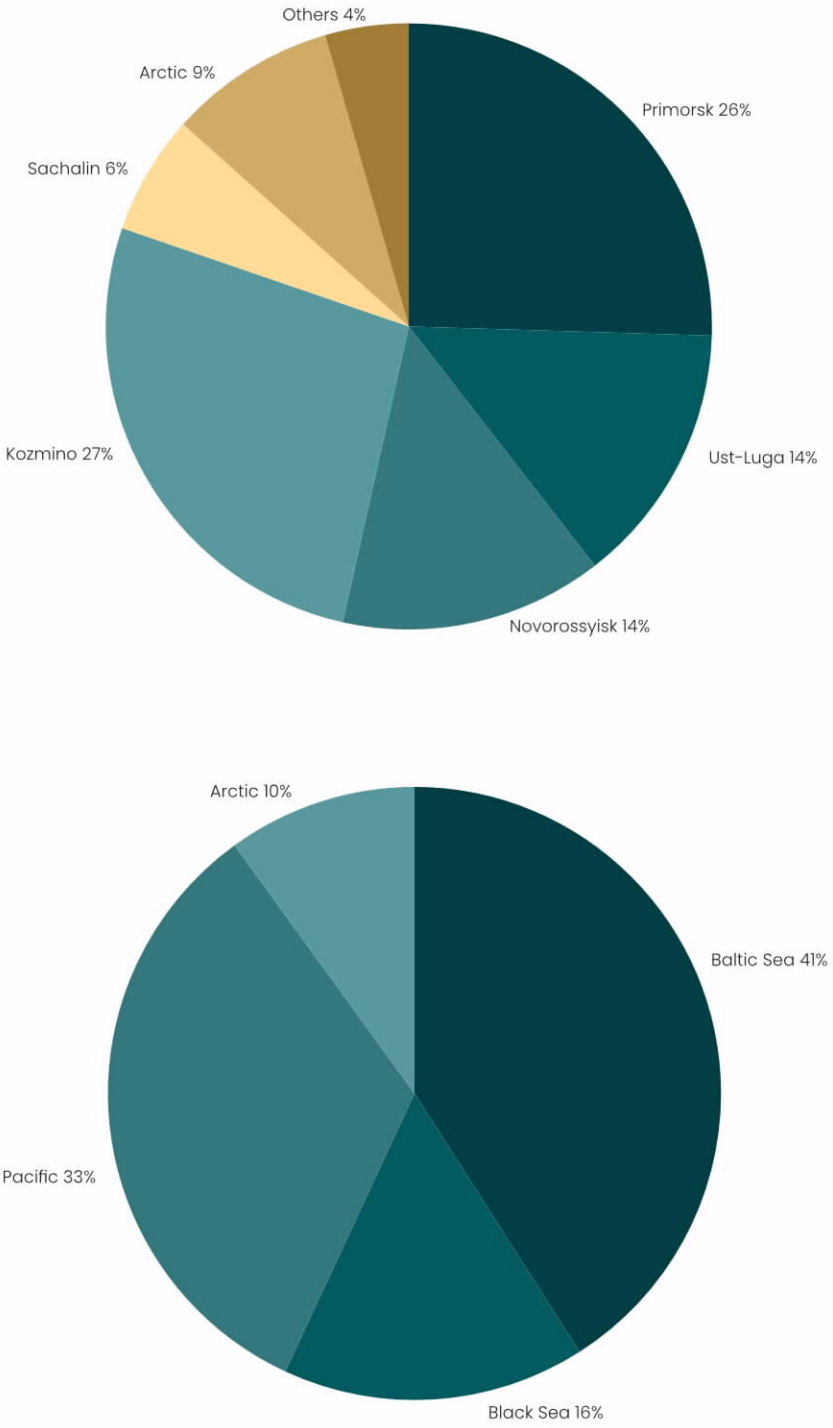
* Average Russian oil exports by country and region, 2021–2024, Data & Statistics, International Energy Agency, www.iea.org.

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Figures 3 and 4

Russia maritime oil export departing ports and ports region in 2025



Source: Own compilation based on Kpler and Argus data.

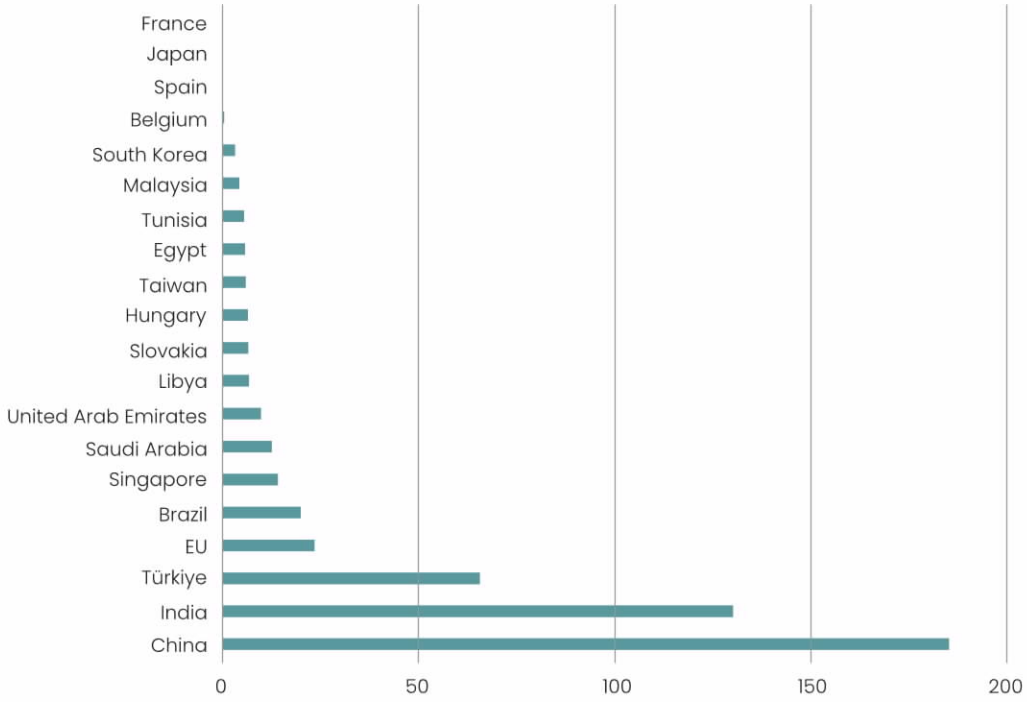
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From January 2023 to March 2026, the total value of Russian oil and oil product exports is estimated at €506 billion. Oil products make up about 40% of this figure, with crude oil making up the remaining 60%. Since the embargo, cumulative exports to China, India, and Turkey have reached €185 billion, €130 billion, and €65 billion, respectively (see: Fig. 5).

Figure 5

Value of oil and petroleum product exports to individual countries in January 2023 – March 2026



Source: Own compilation based on Centre for Research on Energy and Clean Air (CREA) data.

Limited production capacities

The G7+ sanctions targeting the oil sector, combined with Ukrainian attacks on Russia's energy infrastructure, have gradually forced Russia to reduce both oil production and processing. The scale of these declines has been partially mitigated by the technological knowledge accumulated from Western companies over the past three decades, and the use of mechanisms for sanctions evasion (like import through third countries).[8] Despite this, oil production fell by approximately 5% between 2022 and

[8] "Russia Did Most Oil Drilling in a Decade Even as Sanctions Hit," Bloomberg, 14 February 2023, www.bloomberg.com.

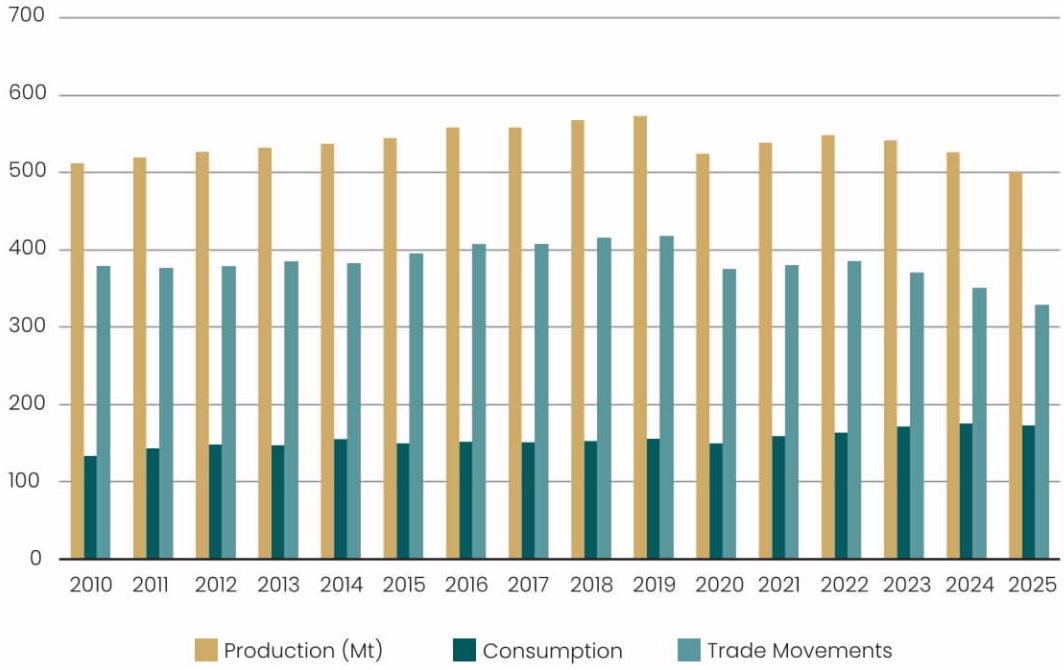
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2024, while exports decreased by around 10%. In 2024, processing volumes were about 4% lower than the average for the previous decade. This trend continued in 2025. (see: Fig. 6).

Figure 6

Russia's production, consumption and exports of crude oil and petroleum products in the years 2010–2025*



Source: Own study based on data from the Energy Institute's Statistical Review of World Energy.

* Data for 2025 based on Bloomberg.

The G7+ sanctions and the price cap mechanism have, however, delivered on their primary goal—to reduce the profitability of Russian oil exports (see: Fig. 7). In the first months of 2023, the price cap effectively forced Russia to sell oil at a value well below the Western-defined limit. This is reflected in the decline in export values (see: Fig. 7) and in the lower selling price of Urals crude, as illustrated in Fig. 8. Due to the loss of the European market and the need to redirect oil exports to more distant and less profitable destinations, Russia was compelled to sell Urals crude at a discount against Brent (see: Fig. 8). Prior to the Russian invasion of Ukraine, in the years 2015–2021, the Urals–Brent price differential was highly stable, typically ranging between $1 and $3 per barrel.[9]

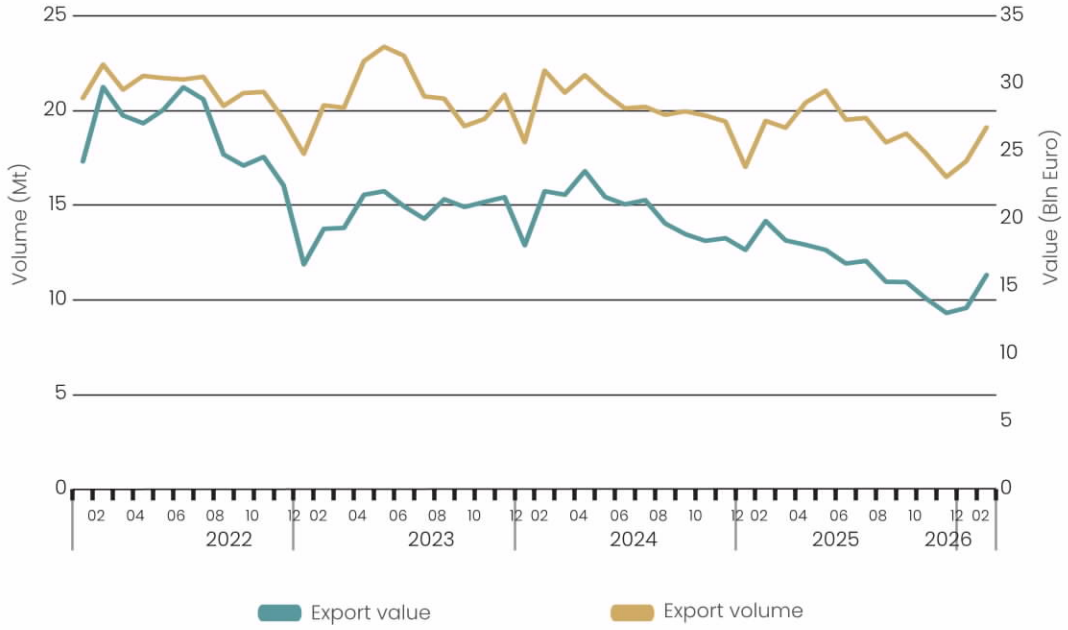
[9] See historical data on Urals and Brent prices at Urals Oil, Brent Crude Oil, Trading Economics, https://tradingeconomics.com.

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Figure 7

Comparison of the volume and value of oil and petroleum product exports from 2022 to 2025 by month



Source: Own compilation based on CREA data.

Technological degradation in the refining sector has been further accelerated by Ukrainian strikes on fuel-related infrastructure.[10] Throughout 2025 and into early 2026, subsequent Ukrainian attacks caused processing volumes to drop by more than 3%,[11] with November 2025 levels falling to 21% below the 2016–2024 average for that month. These attacks also disrupted logistics and created additional difficulties for exports (especially at late March 2026 with attacks on Terminals in Ust-Luga and Primorsk), contributing to a further decline in revenues. Although the full scale of material losses in the oil and energy sectors is difficult to assess, preliminary estimates suggested that in 2025 alone, damages exceeded $1 billion.[12]

[10] T. Pastucha, "Ukraine Strikes at Russia's Energy Sector," *PISM Bulletin*, No. 96 (2597), 2 September 2025; T. Pastucha, "Ukrainian Attacks Destabilise the Russian Fuel Market," *PISM Spotlight*, No. 20/2024, 19 March 2024, www.pism.pl.

[11] "Russia Using Spare Oil Refining Capacity to Offset Ukrainian Drone Damage—Sources Say," **Reuters**, 13 November 2025, www.reuters.com.

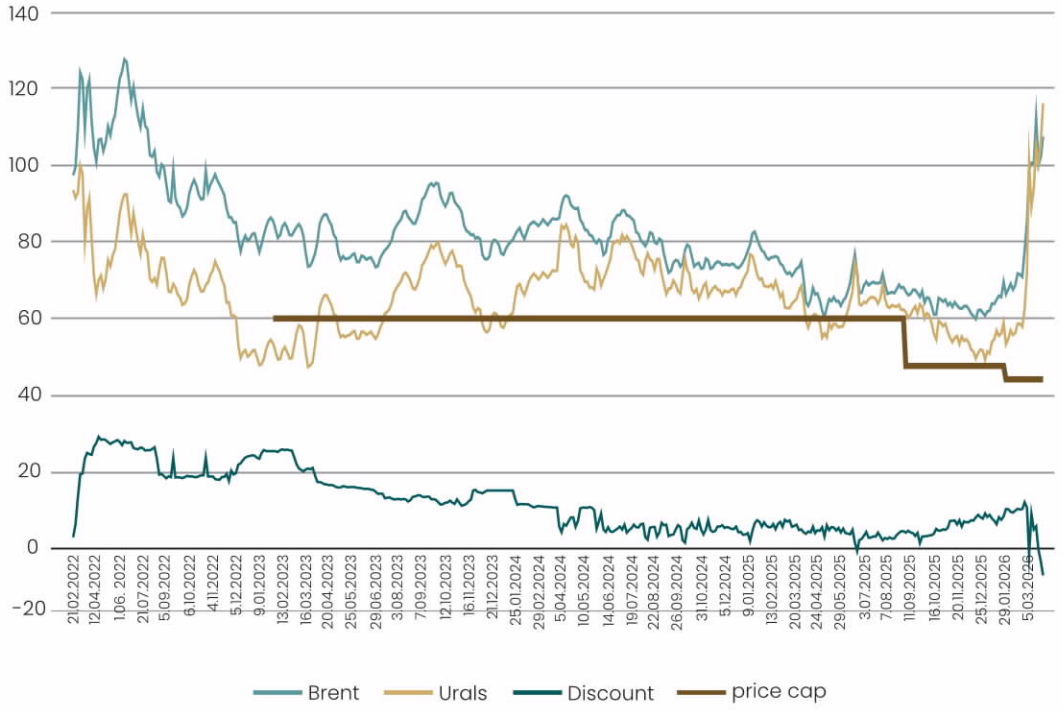
[12] "Ukrainian Strikes Cost Russian Oil Sector Over $13Bln in 2025, Insurers Say," *The Moscow Times*, 9 February 2026, www.themoscowtimes.com.

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Figure 8

Urals and Brent oil barrel values (weekly averages)



Source: Own compilation based on Brent/Urals Differential 2022-2026.*

* Brent–Urals Differential, Incorrys, https://incorrys.com.

Lower budget revenues

Prior to the invasion, in the years 2011–2021, revenues from taxes on the extraction, processing, and export of oil and gas accounted for roughly 40% of Russia's total budget revenues, with oil contributing around 80% and gas approximately 20%. Reflecting global commodity prices, this share reached about 50% between 2011 and 2014, and fluctuated between 36% and 46.4% in the years 2015–2019 (see: Fig. 9). These revenues enabled the government to maintain a budget surplus and accumulate resources in the Russian National Wealth Fund.

After 2022, however, the introduction of Western sanctions and heightened volatility in global oil and gas markets significantly altered this structure. Both the nominal value and the share of hydrocarbon-related revenues declined, reaching historic lows—below 30% of total budget revenues after 2024 and in period November 2025 to February 2026 even below 20% (see: Fig. 10). At the same time, taxes on oil production began to account for an increasingly dominant share of hydrocarbon revenues (around 90%). The ongoing shift in the composition of budget revenues also reflects, among other factors, the government's expansionary fiscal policy, subjugated to the political goal

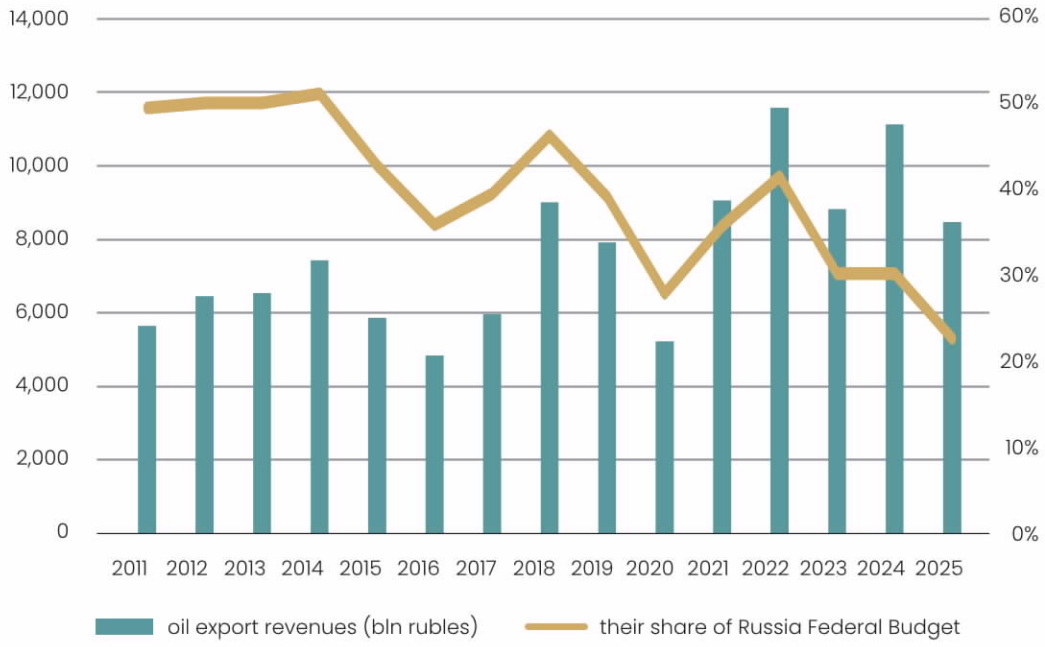
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of maintaining the war effort in Ukraine and shifting to a war economy, which has boosted tax inflows from sectors unrelated to resource extraction.

Figure 9

Oil and gas revenues from 2011 to 2025, shown as both a nominal value and a percentage of the budget, on an annual basis



Source: Own compilation based on data from the Russian Ministry of Finance.

However, these trends may change due to the global energy crisis and the very high prices of oil and oil products following the US and Israeli attack on Iran at the end of February 2026. The partial closure of the Strait of Hormuz has created high demand for Russian oil and oil products due to an oil supply shock in the Middle East. In March 2026, Russia succeeded in increasing the volume of its oil exports and removing the accumulation of blocked oil in shadow fleet tankers (following the temporary lifting of sanctions by the US) in Southern Asia. The energy crisis led to a nearly twofold increase in the price of Urals (to the highest level in 13 years, 116 USD/bbl) and a significant reduction in the discount against Brent, reaching the lowest levels since at least 2022. A comparable situation emerged in the refined products market. This resulted in substantially higher oil export revenues for Russia (around a 90% increase month-on-month)[13] and a corresponding boost to its state budget. However, a comprehensive evaluation of the

[13] L. Wickenden, I. Levi, P. Rushwood, "March 2026 — Monthly analysis of Russian fossil fuel exports and sanctions," CREA, 13 April 2026, https://energyandcleanair.org.

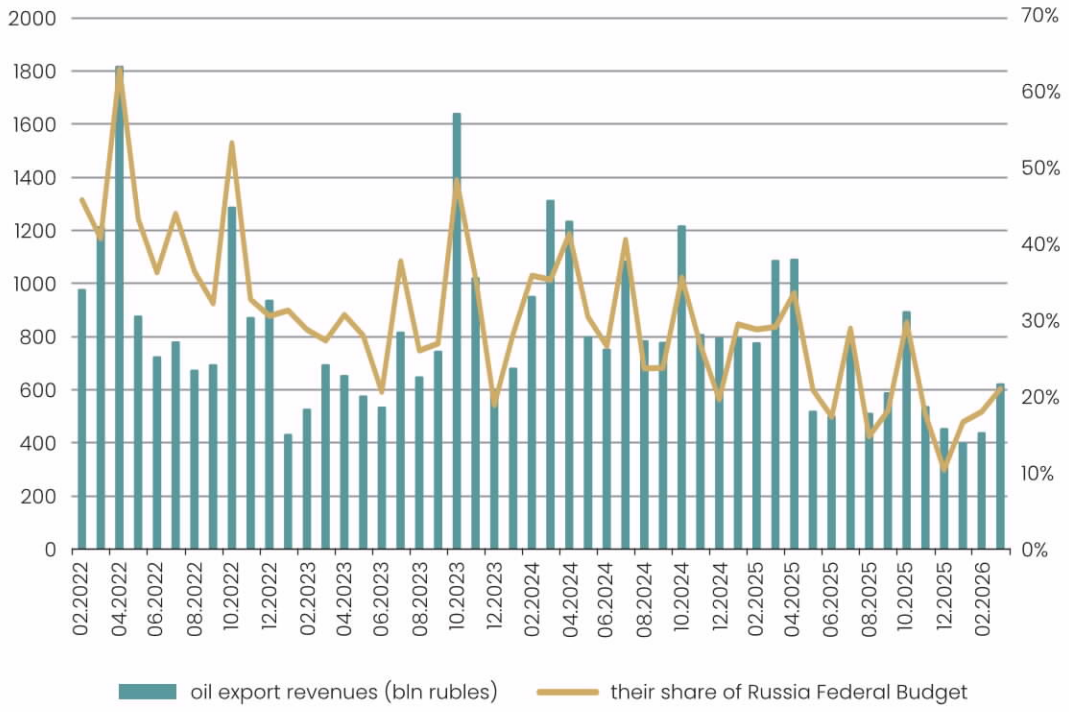
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situation was not feasible at the time of writing the report, and its outcome will be contingent on the trajectory and duration of the global energy crisis, as well as the efficacy of sanctions enforcement or Ukrainian attacks on oil terminals in Russia.

Figure 10

Oil and gas revenues from 2022 to 2026, shown as both a nominal value and a percentage of the budget, on a monthly basis



Source: Own compilation based on data from the Russian Ministry of Finance.

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Chapter 2. The Mechanism of Operation of the Russian Shadow Fleet

Tymon Pastucha

The genesis and definition of shadow fleets

The origins of the shadow fleet phenomenon can be traced to the early 2010s, when it emerged to facilitate oil exports from Iran and Venezuela (and partially North Korea). This shadow fleet largely consisted of 15–25-year-old tankers purchased cheaply by those states on the secondary market, often just before scrapping, and reflagged to jurisdictions with weak enforcement of safety and environmental standards. These vessels primarily supplied China and other Asian buyers, enabling the circumvention of sanctions. Following the EU embargo and the G7+ price cap, Russia began making heavier use of its shadow fleet, significantly expanding its operations. Until 2022, Russian oil exports had relied mainly on legally operating vessels, referred to as the "white fleet" (see: Table 3)—standard, insured, and class-certified tankers, many owned by EU or UK operators.

Currently, the term "shadow fleet" is used in reference to ageing tankers that are used by several heavily sanctioned countries to bypass restrictions. These vessels operate outside of standard maritime services, avoid flag and port inspections, lack full P&I insurance and have opaque ownership structures. They frequently change flags, manipulate AIS signals, conceal their identities and conduct risky or illegal STS transfers. Shadow fleet tankers have also been linked to interference with subsea infrastructure, unsafe navigation practices, and hybrid activities such as reconnaissance and sabotage. They may also be used for illicit arms and drug trafficking, and in the case of the Russian shadow fleet, for transporting stolen Ukrainian grain and cultural artefacts.

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Table 3

White, grey and dark fleet definitions

The white fleet (or cleared fleet)—Consists of ships that comply with safety, environmental and sanctions standards. These ships use reputable classification societies and insurers (P&I) from G7+/EU jurisdictions. These ships do not exhibit suspicious activity and often operate in ports with high levels of inspection and control.
The grey fleet—Includes tankers that are formally compliant with the law, for example, still insured by recognised P&I clubs, but that are heavily involved in high-risk trade. In the case of the Russian shadow fleet, these vessels, for instance, regularly call at Russian ports, transport oil sold at or close to the price cap and participate in STS transhipments or the "laundering" of oil origin. At the same time, they maintain a minimum level of transparency to avoid being blacklisted. These vessels might also be used for espionage and the illegal transport of other goods. It is believed that this type of fleet was established after 2022. Windward has identified over 1,000 grey ships worldwide. In many cases, it is also difficult to determine legality and sanctions compliance, as they often switch between white and grey fleet operations.*
The dark fleet—Covers ships that transport oil in a manner that clearly contravenes the sanctions regime (e.g. by trading above the price cap). They operate outside the main regulatory ecosystem, have no access to insurance or classification from G7/EU countries and use little-known or unrecognised classification societies. They also frequently change their name and flag, tamper with AIS, and systematically falsify the origin of their cargo.
The shadow fleet—A hybrid of **the grey and dark fleets**, combining elements of both semi-transparent, high-risk operations and outright sanction-evading practices. It functions as an ecosystem of vessels, operators, and intermediaries**.** The Russian shadow fleet is also used for hybrid operations, sabotage, and other illegal activities that go beyond the mere trade in oil. The IMO definition** of a shadow fleet is: ships that are engaged in illegal operations for the purposes of circumventing sanctions, evading compliance with

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safety or environmental regulations, avoiding insurance costs or engaging in other illegal activities, which may include:

- carrying out unsafe operations which do not adhere to international regulations and well-established and strict industry standards and best practices;
- intentionally avoiding flag State and port State control inspections;
- not maintaining adequate liability insurance or other financial security;
- intentionally avoiding commercial screenings or inspections;
- not operating under a transparent corporate governance policy that assures the welfare and safety of those on board and the protection of the marine environment;
- intentionally taking measures to avoid ship detection such as switching off their AIS or LRIT transmissions or concealing the ship's actual identity when there is no legitimate safety or security concern sufficient to justify such action.

Source: Own compilation.

* "Illuminating Russia's Shadow Fleet," Windward, https://windward.ai.

** International Maritime Organization (IMO). Resolution A.1192(33): Urging Member States and All Relevant Stakeholders to Promote Actions to Prevent Illegal Operations in the Maritime Sector by the "Dark Fleet" or "Shadow Fleet," adopted 6 December 2023.

Key characteristics of dark fleets: number, size, age and flags

The following sections provide an overview of global dark fleets, with the focus on the Russian one, mainly using the publicly available databases at TankerTrackers.com (as of December 2025).[14] The shadow fleets of Russia, Iran and Venezuela share similar methods of operation and export destinations, and to some extent, they use the same vessels or entities to provide services to the tankers.

Accurate appraisals of the size of the global dark fleet remain difficult, with estimates ranging from 600 to 1,600 vessels, depending on how it is defined.[15] According to TankerTrackers.com (December 2025), the shadow fleet comprises 1,480 active vessels, whereas before 2022, its number was approximately 600 vessels.[16] There are currently

[14] "Dark Fleet Stats," TankerTrackers.com, https://tankertrackers.com.

[15] "About the term Shadow Fleet—Dark Fleet—Grey Fleet," Marine Forum, 20 February 2025, https://marineforum.online.

[16] J. Horowitz, "A mysterious fleet is helping Russia ship oil around the world. And it's growing," CNN Business, 1 March 2023, https://edition.cnn.com.

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Table 4

The main class sizes of global dark tankers

CLASS SIZE AND APPROX. CARRYING CAPACITY (MLN BBL)	VESSELS IN OPERATION
 Handymax / MR 0.3–0.4	+/- 4250
 Panamax 0.35–0.6	+/- 450
 Aframax 0.6–0.75	+/- 1200
 Suezmax 0.6–0.75	+/- 700
 VLCC/ULCC 1.9–2.2/3–4	+/- 900

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KEY FEATURES, TYPE OF TRANSPORTED PRODUCTS	NUMBER OF SHADOW VESSELS	PERCENTAGE OF THE SHADOW FLEET TOTAL
Mainly petroleum products. High port flexibility; regional distribution, shorter routes	633	42.8%
Oil or oil products. Historically built to pass through the Panama Canal	97	6.6%
Crude oil or its products. A very popular type of tanker	366	24.7%
Oil. Typical on longer routes, adapted for navigation in the Suez Canal	151	10.2%
Oil. VLCCs are the backbone of trade between the Persian Gulf and Asia; they require deep-water terminals. ULCCs are niche vessels due to their size	233	15.7%



Source: Own compilation based on data from TankersTracker.com.

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over 1,300 unique vessels on sanctions lists, including 582 on EU sanctions lists, 761 on OFAC lists, and 555 on UK lists. By comparison, the global oil tanker fleet comprises approximately 7,500 vessels, including the shadow fleet.

The dark fleet (see: Table 4) is dominated by medium and smaller tankers: Handysize/Handymax (633 ships; 42.8%) and Aframax (366; 24.7%) together make up 67.5% of all vessels. Larger classes form a secondary tier, including VLCC/ULCC (15.7%) and Suezmax (10.2%). This structure is well-suited to sanctions evasion logistics. The prevalence of Handysize/Handymax and Aframax units provides operational flexibility—access to more ports, shorter regional routes, and frequent rotations—facilitating rapid changes in routing or port calls and supporting operations that depend on discretion or limited infrastructure ports. At the same time, the sizeable VLCC/ULCC segment shows the fleet's capacity for long-distance, high volume transport. However, sheer tonnage is less relevant for most Russian exports to Asia, where routes are shorter and economies of scale are not dictated by the need to navigate major chokepoints.

The dark fleet is composed largely of ageing vessels, operating beyond their typical 20-year economic life cycle and often lacking the rigorous technical oversight required by major insurers and reputable flag states. With construction peaking in 2003–2005, ships built between 2000 and 2009 account for 1,042 units, or roughly 70% of the fleet. Consequently, the fleet's average age is 22 years, significantly older than the 13.2-year average of the broader global tanker fleet in 2024.[17] This age structure compares unfavourably to the global average, with approximately three-quarters of the vessels at least 15–16 years old, and many exceeding 20 years. A significant share had previously operated in the "white fleet," being sold shortly before or after the EU embargo and price cap, often at prices well above scrap value. The advanced age of these vessels and their limited maintenance increase failure rates and accident risks. Older vessels also face restricted access to standard insurance and classification services, encouraging the use of alternative, less transparent arrangements.

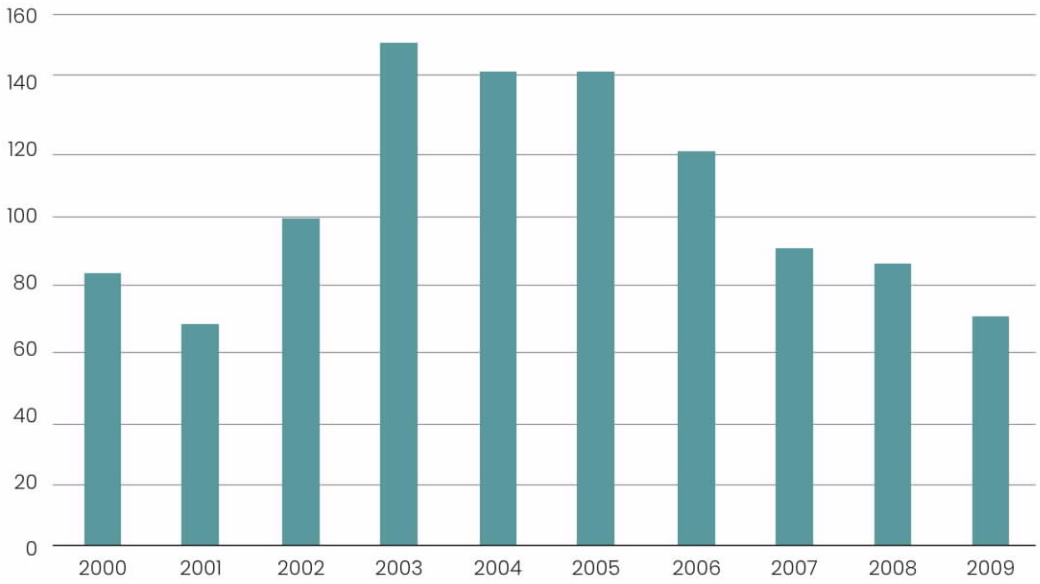
[17] B. Azhar, "Aging tanker fleet, 1–2% fleet growth mean fewer freight discounts on older ships," S&P Global, 26 August 2024, www.spglobal.com.

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Figure 11

Shadow fleet vessels by construction year (Top 10)



Source: Own compilation based on TankersTracker.com.

The fleet also displays a high concentration of ship registrations, a distinct geographical pattern of operations, and a markedly "vintage" profile. As of December 2025, the top 20 registries accounted for 1,251 vessels—around 84.5% of the entire shadow fleet. Panama (186 vessels) and Russia (182) were the largest registries, followed by Cameroon (103), Iran (98), Sierra Leone (95), Gambia (70), and Comoros (68) (see: Table 5). This concentration in a small number of jurisdictions enables mass reflagging and continued operation despite sanctions, exploiting registers with weaker oversight in areas such as safety control, ownership transparency, and information sharing.

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Table 5

Global dark fleet according to flag (TOP 20) in December 2025

	FLAG (REGISTER)	NUMBER OF VESSELS	SHARE IN THE FLEET
1	Panama	186	12.6%
2	Russia	182	12.3%
3	Cameroon	103	7.0%
4	Iran	98	6.6%
5	Sierra Leone	95	6.4%
6	Gambia	70	4.7%
7	Comoros	68	4.6%
8	Guinea	51	3.4%
9	Guyana	49	3.3%
10	Palau	49	3.3%
11	Curaçao	48	3.2%
12	Oman	37	2.5%
13	Barbados	35	2.4%
14	Hong Kong	33	2.2%
15	Liberia	28	1.9%
16	Benin	27	1.8%
17	Marshall Islands	27	1.8%
18	Aruba	26	1.8%
19	Cook Islands	21	1.4%
20	North Korea	18	1.2%

Source: Own compilation based on TankersTracker.com.



Routes and volume of transport

Data from 2025 show that maritime flows handled by the dark fleet are highly concentrated along routes involving states subject to comprehensive sanctions or facing an elevated risk of sanctions. The largest volumes are associated with shipments from Iran to China (1.67 mb/d), Russia to India (0.99 mb/d), Russia to China (0.89 mb/d) and Venezuela to China (0.64 mb/d) (see: Table 6). For context, the US Energy Information Administration estimates that global maritime trade in oil and petroleum liquids

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reached approximately 77.6 mb/d in 2023, around 60% of which was crude oil, while the total global oil supply was 100 mb/d.[18]

This concentration of flows highlights the functional role of the dark fleet as a transport system dedicated to sanctioned or high-risk exporters, particularly along the axis from the Middle East/Russia/Venezuela to Asia. The sizeable presence of a "Russia to Unknown" category (0.26 mb/d), alongside contributions from Gulf exporters and Kazakhstan, suggests a deliberate intention to obscure routing and attribution. These patterns are consistent with practices intended to conceal the identity of the exporter or final recipient, such as route masking, additional mid-stream transfers (transporting, storing, and processing hydrocarbons between production and refining), changes in declared destination ports or inconsistent reporting. From the perspective of sanctions-enforcing states, this creates an added analytical burden, as the challenge often lies not in regulation but in obtaining the hard data needed to attribute responsibility and bring specific operations under the sanctions regime.

Table 6

Main routes of the global dark fleet. Barrels per day carried by the vessels in 2025

ROUTES	AVERAGE VOLUME (BARRELS/DAY)	SHARE IN THE TOP 10 (VOLUME)	SHARE OF RUSSIA'S SHADOW EXPORT
Iran → China	1 672 880	34.2%	
Russia → India	991 502	20.3%	42.5%
Russia → China	893 427	18.3%	38.3%
Venezuela → China	642 930	13.1%	
Russia → unknown	264 295	5.4%	11.3%
Iran → UAE	120 041	2.5%	
Russia → Turkey	114 775	2.3%	5%
Saudi Arabia → China	74 647	1.5%	
Russia → Syria	64 347	1.3%	2.7%
Kazakhstan → India	52 788	1.1%	

Source: Own compilation based on data from TankersTracker.com.

[18] World Oil Transit Chokepoints, US Energy Information Administration (EIA), www.eia.gov.

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The development of the Russian shadow fleet

Russia's shadow fleet is directed from top political circles within a clearly centralised, state-driven strategic framework; institutions such as the National Security Council and major state-aligned firms, such as Rosneft, Lukoil, and Sovcomflot, play key roles in vessel acquisition and operation.[19] These actors rely on a dense network of Russian and third-country intermediaries to manage the fleet's activities. Sovcomflot, Russia's largest shipping company, has played a particularly significant role in this system, managing and supplying tankers used to transport commodities for illicit sale. Its operations depend on a web of subsidiary firms, including SKF Arctica, Invest Flot, Yuzhny Flot, and Sun Ship Management. Insurance coverage for the shadow fleet has also been provided by entities with ties to the Russian state, such as Ingosstrakh (formerly state-owned, currently private), which insured Sovcomflot's vessels. The high profitability for intermediaries in the trade of sanctioned oil, resulting from the risk of the procedure, influences the involvement of companies in the grey economy or criminal groups. Although links between the Russian state apparatus and intermediaries are often deliberately obscured, they have been increasingly documented in G7+ alerts[20], in justifications for sanctions designations, and by investigative journalists. 2Rivers Group, a UAE-based oil-trading group, for example, controls a large proportion of the vessels in Russia's shadow fleet: it enables shipments and exports of Russian oil, notably from the Russian state-owned oil company Rosneft, by concealing the actual origin of the oil. The shadow fleet is treated as a strategic resource that must be protected—the Russian authorities have indicated a willingness to use their navy to escort ships in sensitive areas.[21] Some vessels are additionally guarded by armed personnel on board, sometimes accompanied by a second vessel sailing alongside. Individuals performing these security roles are drawn from private intermediaries (including the Wagner Group) as well as the GRU (the Main Directorate of the General Staff of the Armed Forces of the Russian Federation), creating both direct and indirect links to the Russian state.[22]

Following the invasion of Ukraine and initial sanctions on the oil sector in 2022, Russia began chartering tankers from the Iranian and Venezuelan fleets. Meanwhile, EU shipowners, especially those from Greece and Cyprus, continued to transport Russian

[19] K. Engelen, "Casting Light on Russia's Shadow Fleet. Exposing a Sanctions Evasion Network at Sea," Royal Higher Institute for Defence, *Focus Paper* 54, September 2025, www.defence-institute.be.

[20] See, for instance, "Shadow Fleet Sanctions Evasion and Avoidance Network," Red Alert, National Crime Agency, July 2025, www.nationalcrimeagency.gov.uk.

[21] "Russia considers sending armed naval patrols to protect 'shadow fleet'," *Financial Times*, 18 March 2026, www.ft.com.

[22] "From Wagner to GRU, Russian Military Men Are Manning Moscow's Shadow Fleet, Investigation," Organised Crime and Corruption Reporting Project, 10 March 2026, www.occrp.org.

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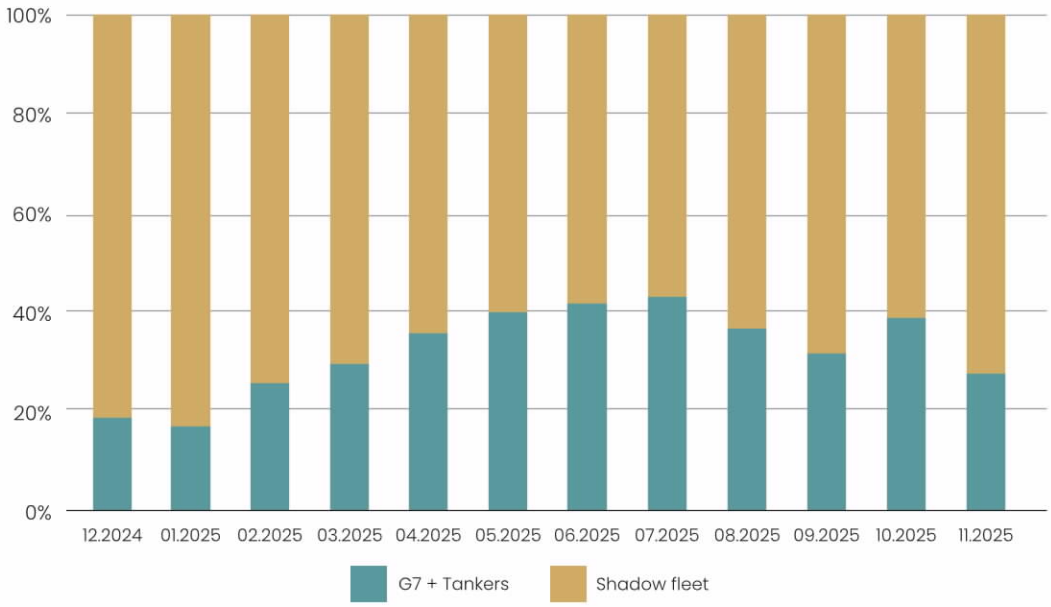
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cargo until the EU embargo took effect in early 2023. Russia also relied on its own fleet, including the 84 tankers owned by Sovcomflot.[23]

In response to the G7+ price cap and the EU embargo in 2023, Russia rapidly shifted to non-G7+ transport. Russian-linked entities purchased over 600 ageing tankers, primarily Aframax and Handysize vessels, at prices far exceeding their scrap value, and re-flagged them to more lenient jurisdictions. These vessels were integrated into a parallel shadow fleet ecosystem based on offshore ownership structures and newly established technical, financial and insurance management teams operating outside of Western jurisdictions.

Figure 12

Share of the G7+ fleet vs. the shadow fleet in Russian crude oil exports by sea (XII 2024 – XI 2025)



Source: Own compilation based on CREA data.

[23] "Russia's Sovcomflot says it plans to sell part of its fleet," Reuters, 6 May 2022, www.reuters.com.

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Although G7+ actors still dominated the transport and insurance of Russia oil exports in early 2023, as the shadow fleet expanded, their share fell sharply, resulting in lower export revenues during the first few months of the year. By 2024–2025, the shadow fleet had become the main carrier of Russian maritime exports. In April 2024, KSE Institute estimated that the shadow fleet handled around 83% of seaborne crude and 46% of petroleum products, with only 17% of crude still transported by G7+-linked vessels. Seasonal fluctuations persisted in 2025, with a temporary reduction in shadow fleet reliance during the spring and summer months (see: Fig. 12).

Operating model and deceptive practices of Russia's shadow fleet

Most tankers in the Russian shadow fleet are owned through opaque chains of shell companies, registered under flags of convenience, and serviced by non-G7+ insurers and classification societies, leaving many vessels with minimal oversight or even without proper insurance. This structure shields Russian exports from G7+ pressure, complicates sanctions enforcement, and involves higher technical and environmental risk.

Shadow fleet vessels routinely disable, manipulate, or spoof their AIS signals—especially during STS transfers—using false positions, multiple MMSI codes, and even fake IMO numbers to obscure routes and port calls. As a result, parts of their movements disappear from standard AIS datasets. Though filling in the gaps with satellite or radar imagery is possible, it is also expensive, analytically demanding, and cannot provide continuous coverage.

Monitoring the shadow fleet is inherently challenging[24] because AIS data is easily manipulated, while satellite imagery has limited coverage and resolution. Analysts must combine multiple data sources, with many cases still requiring manual verification. Definitions and methods vary widely across analytical organisations, with key tools often remaining proprietary, commercial, and inaccessible, making comparisons inconsistent. Meanwhile, ship operators continually adapt their tactics to evade detection.

The shadow fleet relies heavily on STS transfers in international waters or loosely regulated anchorages, where smaller tankers load oil in Russian ports and pass it to larger VLCCs in locations chosen to minimise scrutiny. During these operations, cargoes may be blended and documentation altered to mask the Russian origin. Former hubs such as the Laconian Gulf, Ceuta and Gibraltar have come under tighter oversight, pushing transhipments farther offshore or to new areas, including parts of Africa and Asia.

[24] S. Woon, J. Ong, "Cil guide to tracking ships in the dark fleet," National University of Singapore, February 2025, https://cil.nus.edu.sg.

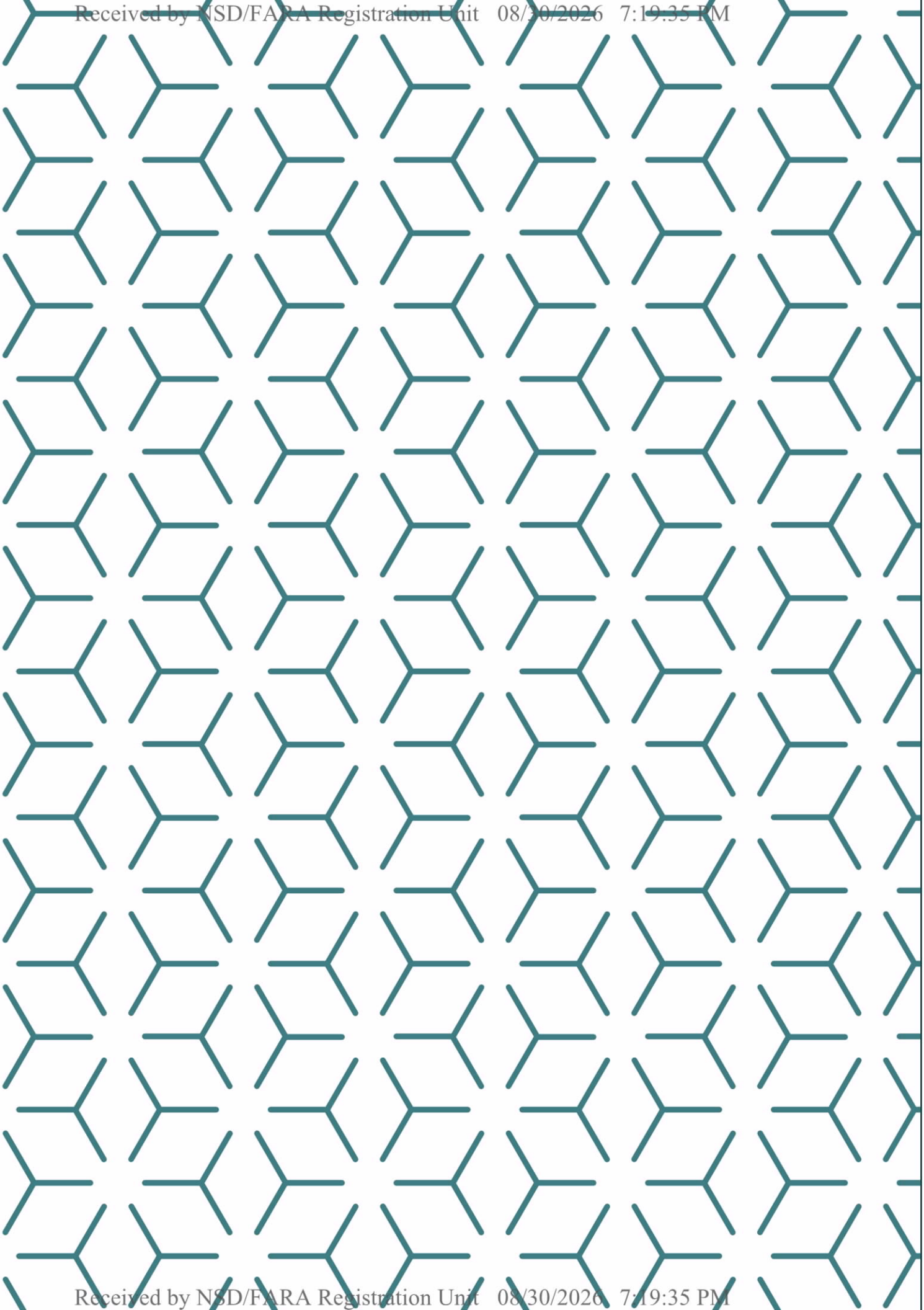
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To bypass the price cap, Russia-linked actors submit incomplete or misleading declarations to insurers and shipowners, claiming that oil is being sold within the permitted limit, while the real transaction occurs at a higher price, often via intermediaries in third countries. These intermediaries formally buy the cargo at a cap-compliant price and then resell it above the cap without providing further documentation, effectively obscuring the true value of the trade.

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Chapter 3. The Threats Posed by Russia's Shadow Fleet

Elżbieta Kaca

The rapid expansion of the shadow fleet has created a multidimensional challenge for maritime safety, environmental protection and regional security. Its opaque operations, ageing vessels and deliberate evasion of international norms significantly heighten the likelihood of accidents, pollution events and hostile activities at sea (see: Table 7).

Table 7

The major risk factors related to the shadow fleet

RISK FACTOR	MECHANISM	MAIN EFFECTS
Outdated, poorly maintained tankers	Engine/hull failures, corrosion, delayed inspections and repairs	Oil spills, water and coastal contamination, death of organisms
AIS disabling/ manipulation	"Invisibility" of ships to other vessels and services; difficulties with route tracking and identification	Collisions, groundings, risk of spills; delayed rescue response
STS transhipments	Unsupervised operations, in difficult weather conditions or in sensitive locations	Point/diffuse spill, local pollution, difficult clean-up operation
No P&I insurance / unclear ownership	No real civil liability coverage; difficulty in identifying the beneficial owner	Costs of clean-up operations are passed on to states and victims
Circumvention of certificates and inspections	False documents, circumvention of technical standards and audit procedures	Higher risk of accidents, spills, fires; more difficult attribution of blame

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RISK FACTOR	MECHANISM	MAIN EFFECTS
Untrained crews / lack of local pilots	Navigation and operational errors, poor communication with ports	Groundings, collisions, spills, breakdowns
Delayed reporting of incidents	Delays in alerting services; "obscuring" the circumstances	Greater extent of environmental damage
Hybrid activities: deliberate sabotage of undersea infrastructure	Intentional damage (e.g. dragging an anchor along the seabed), selection of highly sensitive and poorly monitored sections	Disruption of critical infrastructure
Espionage/intelligence use of tankers	Observation of ports and infrastructure hubs, monitoring of procedures and responses by services; possible equipping with communications interception devices	Support for sabotage activities (better target reconnaissance), difficult attribution
GNSS jamming/ spoofing and electronic pressure	Interference with satellite navigation or position spoofing—risk of course and navigation errors	Collisions, groundings, risk of spills and incidents in ports; increased VTS/SAR workload, undermining maritime safety

Source: Own compilation, 2025.

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Maritime safety

The shadow fleet poses a substantial threat to maritime safety. It is significantly more prone to incidents such as collisions, engine failures and groundings (see: Table 7).[25] These risks are further exacerbated by the fact that many of the vessels are old and poorly maintained, and often operate without the regulatory certifications required under international maritime conventions. Crew levels are often inadequate, too; for example, such tankers often sail without local pilots. The likelihood of collisions is increased by the deliberate disabling or manipulation of Automatic Identification System (AIS) transponders, which prevents the authorities and nearby vessels from accurately determining their position.[26] Shadow fleet tankers also routinely conduct high-risk STS transfers.

According to data from the Atlantic Council, vessels transporting sanctioned oil from various origins (Iran, Russia, Venezuela) were involved in approximately 48 incidents worldwide as of January 2024.[27] However, there is no regular reporting in this respect. Media reports indicate 25 incidents involving the Russian shadow fleet between 2022 and March 2026 (see: Table 8). The actual number of incidents might be higher due to the hidden nature of the shadow fleet operation. Moreover, in the absence of a publicly accessible database compiling such cases, it is impossible to identify broader patterns or reliably compare them with global incident figures. Allianz's annual reports show that the total number of reported shipping incidents increased by around 10% in 2024, rising from 2,963 to 3,310.[28] The highest concentrations of incidents were recorded in the British Isles, the Eastern Mediterranean and the Black Sea.

[25] A. Caprile, G. Leclerc, "Russia's 'shadow fleet': Bringing the threat to light," European Parliamentary Research Service, November 2024, https://europarl.europa.eu.

[26] E. Braw, "Russia's growing dark fleet: Risks for the global maritime order," *Issue Brief*, 11 January 2024, www.atlanticcouncil.org.

[27] *Ibidem.*

[28] "Safety and shipping review 2025. An annual review of trends and developments in shipping losses and safety," Allianz Commercial, https://commercial.allianz.com.

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Table 8

Incidents involving the Russian shadow fleet that were reported in the media in the years 2022–2026.*

NUMBER	DATE	LOCATION	VESSEL: NAME, FLAG, AGE
1	1 May 2023	Off the coast of Malaysia, South China Sea	Pablo, Gabon-flagged, 27-year-old tanker
2	17 May 2023	Danish Straits (off the coast at Langeland), Baltic Sea	Canis Power, Cook Islands-flagged, 18-year-old tanker
3	October 2023	Indian Ocean	Turba, Cameroon-flagged, 26-year-old tanker
4	3 December 2023	Strait of Malacca	Liberty (renamed after the incident to Vernal), Cameroon-flagged (changed flag after the incident to Sierra Leone), 26-year-old tanker
5	2 March 2024	Øresund, between Denmark/Sweden, Baltic Sea	Andromeda Star, Panama-flagged, 15-year-old tanker
6	23 May 2024	Dardanelles strait	Hera I, Comoros Islands-flagged, 19-year-old tanker
7	19 July 2024	35 miles north-east of the Singaporean island of Pedra Branca	Ceres I, São Tomé and Príncipe-flagged, 25-year-old tanker
8	August 2024	Vadinar refinery in India	Destan, Panama-flagged, 16-year-old tanker
9	15 December 2024	Off the Kerch strait, Black Sea	Volgoneft-212, Russian-flagged, 55-year-old tanker; Volgoneft-239, Russian-flagged, 51-year-old tanker

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TYPE OF INCIDENT	DETAILS AND CONSEQUENCE OF THE INCIDENT
Explosion	Part of the hull was blown apart by the explosion killing three crew. No major oil spill as tanker was empty due to unloading its cargo in China
Engine failure	Canis Power broke down (and was without power for six hours) while fully laden with 340,000 barrels of Russian oil; safety and environmental concerns raised in Denmark. The vessel has been used to ship US-sanctioned Iranian, Venezuelan and Russian oil
Engine failure	Vessel drifted for 2 days until repair
Tanker stranded, Rescue operation	The vessel ran aground while carrying nearly 1 million barrels of Venezuelan fuel oil. Risk of major environmental consequences if a spill had occurred. The tanker had previously falsified its location and had a history of port calls in Russia
Collision	Vessel collided with a small Bulgarian freighter (the Peace). There was no major oil spillage as the tanker was heading towards Russia unloaded (potentially to carry up to 700,000 barrels of crude oil)
Engine failure	Vessel experienced engine failure while transporting approximately 730,000 barrels of Russian crude from Novorossiysk to India, causing a 3-hour blockage of maritime traffic for emergency salvage operations
Collision	The tanker collided with the Singapore-flagged Hafnia Nile causing both ships to catch fire. Ceres I drifted away from the collision site while its tracking system (AIS) was deactivated. Located after two days by the Malaysian authorities. Aerial surveys showed minor oil spill traces at the collision site. Ceres I had previously engaged in dangerous and deceptive shipping practices while shipping Russian and Iranian oil
Engine failure	Vessel stuck in India for three weeks due to technical issues with its engine, was only able to berth and discharge its cargo of 80,000 tonnes of Russian crude oil after repairs were completed
Grounding, mazut spillage	Volgoneft-212, carrying 4,300 tonnes of low-grade heavy fuel oil (mazut), sank in the Black Sea amid stormy conditions, while Volgoneft-239, carrying 4,200 tonnes of fuel oil, ran aground. Total spillage of over 4,000 tonnes of oil products

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NUMBER	DATE	LOCATION	VESSEL: NAME, FLAG, AGE
10	26 December 2024	Between Estonia and Finland, Baltic Sea	Eagle S, Cook Islands-flagged, 18-year-old tanker
11	8–10 January 2025	Northern coast of Germany, Baltic Sea	Eventin, Panama-flagged, 19-year-old tanker
12	17 January 2025	Off Ceyhan port, Türkiye	Seacharm, Marshall Islands-flagged, 7-year-old tanker
13	December–January 2025	Danish, Finnish and German territorial waters, Baltic Sea	Jazz, Panama-flagged, 19-year-old tanker
14	9 February 2025	Ust-Luga port, Russia	Koala, Antigua & Barbuda-flagged, 22-year-old tanker
15	February 2025	Off Libya coast	Grace Ferrum, Liberia-flagged, 12-year-old tanker
16	15 February 2025	Savona, Italy	Seajewel, Malta-flagged, 16-year-old tanker
17	17 June 2025	Strait of Hormuz, Gulf of Oman	Adalynn, Antigua and Barbuda-flagged, 23-year-old tanker
18	27 June 2025	80 nautical miles off Libya	Vilamoura, Marshall Islands-flagged, 14-year-old tanker

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TYPE OF INCIDENT	DETAILS AND CONSEQUENCE OF THE INCIDENT
Allegation of sabotage/damage to subsea cables	Vessel was boarded by Finnish coast guard due to suspicion of damaging the EstLink 2 submarine power cable and four telecommunications cables connecting Finland to Estonia. Finnish prosecutors charged the captain and two officers with sabotage
Engine failure	The EU-sanctioned vessel was carrying 100,000 tonnes of oil when it experienced engine failure and loss of ability to manoeuvre. Risk of grounding necessitated rescue. Detained by German authorities and the ship and cargo were confiscated
Explosion	The vessel was damaged by an explosion suspected to be a limpet mine attack attached to the hull. The blast caused structural damage requiring shipyard repairs, but the vessel remained afloat and no oil spill occurred. The vessel had previously called at Russian ports
Engine failure	The Jazz reported experiencing engine problems three times in the Baltic Sea on its way from Russia to Skagen, with up to 50,000 tons of oil on board. Concerns were raised over sabotage as each reported issue took place in the vicinity of underwater cables
Explosion	The vessel suffered three unexplained engine room explosions. The vessel flooded and ran aground at its stern, though no oil spill occurred
Explosion	Two explosive devices damaged the hull below the waterline in the engine room area. Tanker left incapacitated following the explosion. The vessel suffered severe damage, lost manoeuvrability, and required salvage operations (towing). The incident was linked to the vessel's previous call at the Russian port of Ust-Luga
Explosion	While the vessel was anchored, it suffered a hull breach due to an underwater explosion, suspected to have been caused by a limpet mine. The vessel had previously called at Russian ports
Fire	Two tankers Adalynn and Front Eagle collided and caught fire, and the UAE intervened to rescue their crews. The incident coincided with increasing electronic interference in the Strait of Hormuz due to the Iran-Israel war
Explosion	The vessel suffered an unexplained engine room explosion. It was carrying 1 mln barrels of crude oil (loaded from Zueitina Terminal, Libya). The damage left the ship incapacitated. Towing operations took place, and no injuries or pollution were reported. The vessel had previously called at Russian ports

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NUMBER	DATE	LOCATION	VESSEL: NAME, FLAG, AGE
19	6 July 2025	Ust-Luga port, Russia	Eco Wizard, Marshall Islands-flagged LPG-carrier, 1-year-old tanker
20	25 August 2025	Russia, Chukotka Autonomous District, Anadyr River	Onemen, Russian-flagged, 41-year-old tanker
21	28 October 2025	Suez Canal	Komander, Russian-flagged, 21-year-old tanker
22	27 November 2025	Off the coast of Dakar, Senegal	Mersin, Panama-flagged, 16-year-old tanker
23	4 January 2026	Near Bozcaada, Turkey	Qendil, Oman-flagged, 20-year-old tanker
24	22 January 2026	Off the coast of Algeria, Mediterranean Sea	Progress, Russian-flagged, 19-year-old tanker
25	22 January 2026	South of Adra in the region of Almeria (within Spain's search-and-rescue zone)	Chariot Tide, Mozambique-flagged, 19-year-old tanker

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	TYPE OF INCIDENT	DETAILS AND CONSEQUENCE OF THE INCIDENT
	Explosion / ammonia leak	While docked at the terminal, the vessel suffered an explosion which caused a hull breach and a leak of liquid ammonia into the harbour. The incident forced a temporary suspension of port operations and raised environmental alarms in the Baltic region
	Explosion	The vessel suffered an explosion of flammable vapour, injuring two people
	Engine failure and grounding	The vessel suffered an engine malfunction and ran aground, temporarily blocking canal traffic. It was carrying 1 mln barrels of Russian crude. Several tugboats were deployed to refloat it
	Water ingress / Risk of sinking due to unexplained explosion	While it was carrying 39,000 metric tons of fuel from the port of Taman near the Kerch Strait, the vessel issued an SOS signal due to water ingress in the engine room, the result of an unexplained explosion. The Senegalese authorities deployed significant resources to prevent environmental contamination and secure the vessel. The vessel had previously called at Russian ports
	Grounding	For reasons unknown, the vessel began drifting toward the coast, running aground approximately 100 m from the shoreline. Two weeks before the accident, the vessel had been struck by a Ukrainian drone
	Mechanical issue	The vessel was adrift for at least one day, while carrying a cargo of about 730,000 barrels of Russia's flagship Urals crude
	Engine failure	The Chariot Tide's engine broke down and the boat was drifting without propulsion in international waters. It was escorted to Tanger Med port in Morocco by a Spanish rescue ship

Source: Own compilation based on media reports, as of 31 March 2026.

* Incidents marked in colour occurred when the potential of external interference was unclear.

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Environmental risks

The shadow fleet operation also poses a threat to the environment. Incidents and STS transfers in the shadow fleet heighten spill risks because these vessels often conduct complex oil-handling operations without proper oversight, safety standards, or emergency preparedness. Analysis of major global oil spills shows that they cause severe ecological damage,[29] harming organisms at all trophic levels—from plankton to seabirds and marine mammals—through toxic chemical exposure and physical contamination. They also have a significant impact on coastal, shoreline and benthic habitats, where oil can persist for long periods, impeding the recovery of the ecosystem. The long-lasting consequences of major spills can include mass wildlife mortality, habitat degradation and the slow regeneration of affected species. Moreover, the shadow fleet's insufficient insurance coverage creates a significant risk that coastal states or private entities may ultimately bear the financial burden of clean-up operations and compensation following maritime incidents. Under the International Convention on Maritime Search and Rescue, coastal states are obliged to assist persons in distress when a vessel is located within their designated area of responsibility. However, shadow fleet operators typically lack the P&I insurance required to cover third-party liabilities, such as crew injury, cargo damage, pollution and wreck removal. Most of the incidents involving Russian shadow tankers reported in the media between 2022 and 2026 (see: Table 8) concerned vessels that were not adequately insured. Oil spills represent the most severe financial risk. According to CREA estimates, clean-up costs resulting from an oil spill involving a typical shadow tanker could range from $859 million in Europe to $1.6 billion in Southeast Asia.[30]

To date, only a limited number of incidents have resulted in substantial costs being imposed on coastal states or private actors (see: Case Study 1). Nevertheless, a number of oil spills linked to the Russian shadow fleet in the Baltic Sea have raised serious environmental concerns. At least five Russian-associated tankers have left visible oil slicks in European waters, including the Baltic Sea, and have continued to operate with minimal disruption despite existing sanctions.[31]

[29] P. Keramea, G. Zodiatis, G. Sylaios, "Analysis of Major Global Oil Spill Incidents: Part 1—Environmental and Ecological Impacts," *Journal of Marine Science and Engineering*, Vol. 14, No. 2, 2026, p. 153.

[30] P. Katinas, L. Wickenden, "Ensuring an ecological disaster: 'Shadow' tanker spill could cost coastal states USD 1.6 bn," CREA, October 2024, https://energyandcleanair.org.

[31] V. Jack, C. Gambarini, L. Guillot, "Russia's blacklisted tankers keep dumping oil in Europe's seas," *Politico*, 6 October 2025, www.politico.eu.

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Case study 1

The Pablo tanker explosion, the incident off the coast of Malaysia, South China Sea

On 1 May 2023, the 27-year-old crude oil tanker Pablo, operating under the Russian and Iranian shadow fleets, exploded and then caught fire while transiting the South China Sea toward Singapore, off the coast of Malaysia. Fortunately, the tanker had unloaded its crude oil cargo in China and was almost empty when the explosion occurred. According to Kpler, the Pablo was carrying highly polluting heavy fuel oil, which likely originated in Russia via several transshipments on the high seas, including in the Strait of Gibraltar south of Spain. At the time of the incident, the vessel was registered under the flag of Gabon and owned by the Marshall Islands-based shell company Pablo Union Shipping. The tanker was scheduled for sale as scrap in 2018. However, the Pablo was sold and changed flags several times. The vessel did not have valid insurance, and its owners could not be contacted.

Reports have emerged of oil potentially originating from the wreck washing up on the coast of Indonesia. Due to the limited information available regarding the responsible party, no one could be held accountable. Since the explosion in spring 2023, the Pablo has been abandoned, with its deck torn, and left untended and adrift. It was not until January 2024, eight months after the explosion, that the vessel was towed to Indonesia for scrapping in the Port of Merak. This incident has led to calls within the International Maritime Organization for increased transparency and compulsory insurance for such vessels.

Source: Own compilation based on Le Monde, Bloomberg, Offshore Energy reporting, 2025.

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Security risks

Russia's shadow fleet is a security threat because its AIS-dark tankers are often suspected of being used not only for sanctions evasion, but also for covert intelligence gathering and potential sabotage of critical undersea infrastructure, making them both economic and hybrid-warfare tools. Several Russian-linked tankers have been detained for damaging subsea cables or suspected of doing so, either through negligence or deliberate action (see: Table 8, Case Study 2). The Baltic Sea and the North Sea are particularly vulnerable to such risks due to the concentration of critical infrastructure and heavy traffic along the Baltic oil transport corridor. Russia also used the shadow fleet as platforms for drones, which in September 2025 conducted reconnaissance of military facilities and critical infrastructure in Denmark, Germany, and Norway.[32] Military officials have warned that vessels can be easily fitted with communication equipment, including additional antennas and radio masts, which may facilitate espionage activities by enabling the interception of sensitive signals.[33] According to Lloyd's List reporting, the tanker "Eagle S" was equipped with devices capable of monitoring NATO naval vessels and aircraft (see: Case Study 2). Finally, there are growing fears over potential arms smuggling, as a 2025 investigation found that Russia-linked tankers and cargo ships—including those in the shadow fleet—had six times as many extended AIS outages as comparable European vessels.[34]

[32] F. Bryjka, "NATO and the EU Respond to Russian Maritime Sabotage", *PISM Bulletin*, No. 108 (2609), 9 October 2025, www.pism.pl.

[33] "Baltic Sea: the security risk posed by Russia's shadow fleet," Maritime Dependence, Bundeswehr, 26 February 2025, Hamburg, www.bundeswehr.de.

[34] D. Tokmetzis, J. Pinster, B. Schohaus, "Russia's dark fleet goes darker as fears grow over arms smuggling and sanctions evasion," *Follow the Money*, December 2025, www.ftm.eu.

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Case study 2

Infrastructure disruption in the Baltic Sea: The Eagle S anchor incident

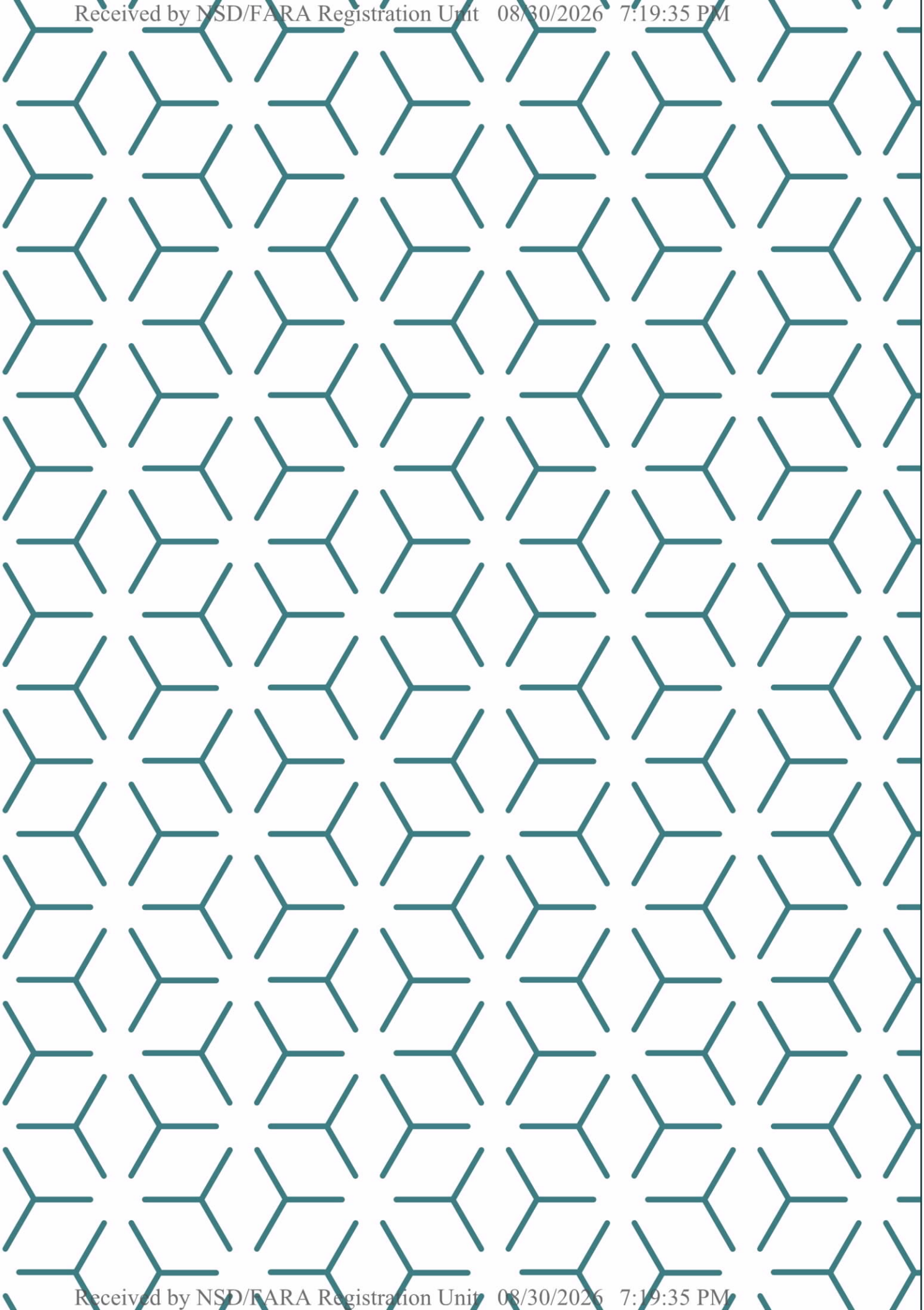
In December 2024, the Finnish police detained the tanker Eagle S, which was suspected of damaging the EstLink 2 submarine power cable and four telecommunications cables connecting Finland to Estonia by dragging its anchor. The tanker was flagged in the Cook Islands and had been greylisted and blacklisted by international organisations that document ship safety. The registered owner of the ship was the Dubai-based shell company Caravella LLC FZ, which claimed to be based at the luxury hotel The Meydan Centre. According to Lloyd's List, the Eagle S was equipped with listening and receiving devices intended for monitoring NATO naval vessels and aircraft.

A Finnish coast guard crew boarded the vessel, and an investigation was launched. This was the first time that a ship suspected of sabotaging undersea infrastructure had been taken into custody. According to the Finnish Transport and Communications Agency (Traficom), the Eagle S tanker was unseaworthy. Following a state port inspection, 32 faults were identified on the vessel, three of which were deemed critical, including fire safety violations, malfunctioning navigation equipment, and ventilation issues in the pump room. The vessel was released in March 2025. Having opened a preliminary investigation into the tanker's EU-sanctioned cargo, the Finnish authorities dropped the probe after finding that the crew had not intentionally steered the vessel into Finnish waters. The ship was also under investigation for severing subsea cables. Finland received a legal response from the Emirati owner of the ship, whose lawyers argued that the Finnish authorities did not have the right to seize the vessel, as the incident took place outside of Finland's territorial waters. In August 2025, Finnish prosecutors charged the captain and two officers of the tanker with sabotage, accusing them of dragging an anchor and cutting five undersea cables. In October 2025 the court ruled that it had no jurisdiction in this case and could not apply Finnish criminal law. The owners of the cables suffered a total of at least 60 million euros in immediate damage in the form of repair costs alone.

Source: Own compilation based on *Lloyd's List*, *Politico*, France 24, *Helsinki Times*, Reuters, https://war-sanctions.gur.gov.ua/ reporting.

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Chapter 4. Countering the Shadow Fleet: Sanctions and Other Measures

Elżbieta Kaca

Sanctions on the shadow fleet

The primary method employed by the EU, the US and the UK to restrict the activities of the Russian shadow fleet is to impose sanctions on its vessels, as well as on individuals and entities that support the fleet. This has been combined with bans on transactions involving goods and services (see: Table 9).[35]

Table 9

Timeline of sanctions on shadow fleet: EU, US, UK

EU sanctions:
- **9 March 2022**—the EU introduced restrictions on the export of maritime navigation, radio communication technology and specialised marine equipment, including sensors (the scope of the ban was extended further in several sanctions packages adopted in the years 2022–2025). It also added the Russian Maritime Register of Shipping to the list of state-owned enterprises subject to financing limitations, and introduced a provision for the prior sharing of information on exports of maritime safety equipment.
- **5 April 2022**—the EU adopted a ban on Russian-flagged vessels entering EU ports in the fifth package of sanctions against Russia, with exceptions applying for medical, food, energy and humanitarian purposes.
- **6 October 2023**—the EU prohibited transactions with the Russian Maritime Shipping Register as part of the eighth package of sanctions against Russia.

[35] The information collected based on the official websites of the European Commission, https://commission.europa.eu/index_pl, US Department of the Treasury, https://home.treasury.gov/, Foreign, Commonwealth & Development Office, www.gov.uk/government/organisations/foreign-commonwealth-development-office, December 2025.

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- **23 June 2023**—in the eleventh package of sanctions, the EU prohibited EU port access for vessels:
  - suspected of engaging in STS transfers in breach of the Russian oil import ban or the G7 coalition's price cap;
  - that do not notify the competent authority at least 48 hours in advance of an STS transfer occurring within the Exclusive Economic Zone of a Member State or within 12 nautical miles of that Member State's baseline coast;
  - that manipulate or turn off their navigation tracking system when transporting Russian oil that is subject to the oil import ban or G7 price cap.
- **18 December 2023**—in the twelfth package of sanctions, the EU introduced two obligations for EU tanker sellers. The first is to notify the authorities of all tanker sales to non-EU persons. The second is to apply for authorisation for tanker sales to persons in Russia or "for use in Russia," which would otherwise be prohibited.
- **24 June 2024**—in its 14th package of sanctions, the EU banned port access for vessels that support Russia's war in Ukraine, and the provision of services to them. This includes vessels of Russia's "dark fleet," which circumvent EU sanctions and the price cap by adopting deceptive shipping practices and showing complete disregard for international standards in order to sustain the development of the Russian energy sector. On 17 December 2024, 25 February, 21 May, 20 July, 23 October, 18 December 2025 and 23 April 2026, the EU added new vessels, as well as individuals and entities supporting the development of the shadow fleet, to consecutive sanctions packages. In total, the EU has blacklisted 601 vessels operating in the oil industry.
- **24 February 2025**—in its 16th package of sanctions, the EU prohibited the temporary storage or placement of Russian crude oil or petroleum products under free zone procedures in EU ports, closing a previous loophole for price-cap-compliant oil destined for third countries. Further, the EU introduced a full transaction ban on the Russian sea ports of Ust-Luga and Primorsk on the Baltic Sea, and Novorossiysk on the Black Sea, due to their ongoing role in facilitating "irregular and high-risk shipping practices" (23 April 2026: Murmansk and Tuapse were added).
- **23 April 2026**—the EU introduced stricter procedures for ship sellers and the possibility of legally scrapping shadow fleet tankers.

US sanctions:

- **31 March 2022**—the introduction of the rule that persons and entities determined to operate or to have operated in marine sectors of the Russian economy may be sanctioned. Based on this, the US designated dozens of Russian shipyards, marine electronics firms, and logistics companies in the years 2022–2025.
- **28 April 2022**—An entry ban was imposed on Russian-affiliated vessels, which applies to all vessels that sail under the Russian flag, are Russian-owned, or Russian-operated.

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- **12 October 2023**—for the first time, the US blacklisted two vessels that had used Price Cap Coalition service providers to carry Russian crude oil above the price cap (full financial sanctions and a ban on access to US ports). Furthermore, financial sanctions were imposed on entities managing designated vessels pursuant to Executive Order 14024. In consecutive sanctions adopted on 18 January, 8 February and 23 February 2024, as well as on 10 January 2025 (the biggest package of restrictions), the US added new vessels, as well as individuals and entities supporting the development of a shadow fleet.
- **3 and 30 July 2025**—the US blacklisted around 20 vessels transporting Russian oil that fell within the scope of sanctions against Iran's shadow fleet. In several packages adopted up to April 2026, the US added new vessels. In total, the US blacklisted 256 vessels transporting Russian oil and oil products.

UK sanctions:

- **1 March 2022**—the UK banned Russian-owned or -registered ships from its ports as well as the export to Russia of critical maritime industry goods, which encompassed navigation, avionics, marine propulsion, and other electronic equipment crucial for the maritime sector (the scope of the ban further widened in the years of 2022-2025)
- **13 June 2024** (in force from 31 July 2024)—the UK introduced its first sanctions targeting vessels in the Russian shadow fleet used to circumvent UK and G7 restrictions. In several packages adopted between September 2024 and February 2026, the UK added new vessels, as well as individuals and entities supporting the shadow fleet's development. Blacklisted ships are prohibited from entering a UK port, may be directed to move or dock, can be detained, and will be refused UK Ship Register access or have existing registrations terminated. In total, the UK blacklisted 568 vessels transporting Russian oil or oil products.

Source: Own compilation, PISM, as of April 2026.

Vessels

A total of 655 tankers associated with the Russian shadow fleet operating in the oil sector have been sanctioned: 568 by the UK, 601 by the EU and 256 by the US. However, there is limited overlap, with only 31.3% of these vessels designated by all three jurisdictions (see: Diagram 1). During the Trump presidency, the US was more reluctant to adopt further sanctions packages targeting the shadow fleet, blacklisting only 43 tankers carrying Russian oil as part of measures primarily intended to reduce Iran's oil revenues.

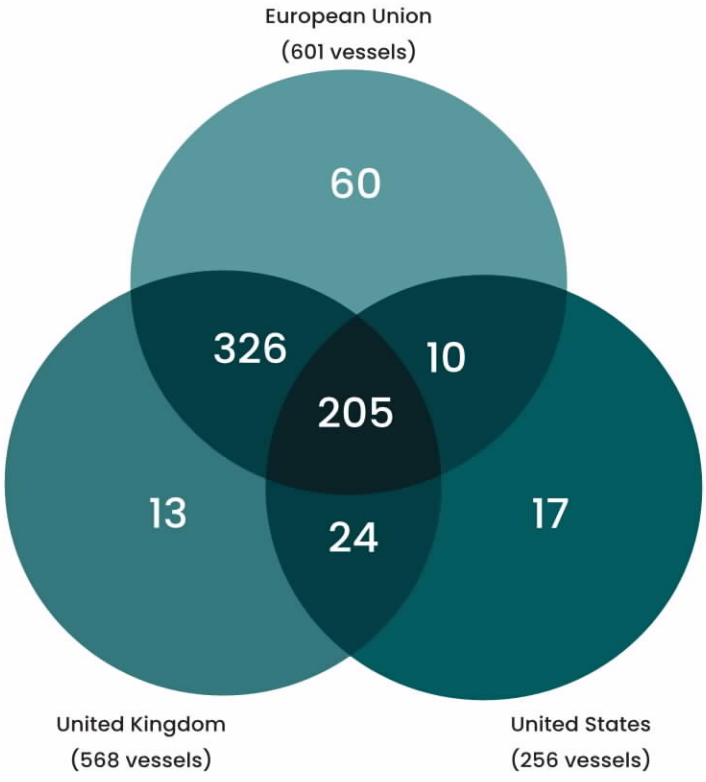
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Differences in the scope of sanctions stem partly from variations in legal standards across the UK, the EU and the US.[36] While all three jurisdictions prohibit sanctioned vessels from entering their ports, their designation criteria and the breadth of restrictions differ. The US targets vessels trading above the price cap and applies full financial sanctions, also blocking ships owned by entities or individuals that are already subject to sanctions. The EU lists vessels based on specific criteria (see: Table 9), such as supporting the Russian energy sector or engaging in high-risk activities, including STS transfers or disabling tracking systems. It also only bans EU entities from providing services to designated tankers and prohibits these vessels from entering EU ports. The UK focuses on vessels that breach the oil price cap or provide benefits to, or otherwise support, the Russian government. Notably, the UK has sanctioned several tankers identified during maritime inspections as holding fraudulent or non-compliant insurance. As in the EU, UK entities are prohibited from offering services to such vessels.

Diagram 1

The scope of alignment of sanctions on shadow tankers between the EU, the US and the UK (as of 28 April 2026)



Source: Own compilation based on EC, OFAC and FCDO sanctions lists.

[36] Answer given by High Representative/Vice-President Kallas on behalf of the European Commission to the Parliamentary question, 14 April 2025, www.europarl.europa.eu.

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Entities and persons supporting the shadow fleet

In total, several hundred Russian and third-country companies involved in supporting the operations of the shadow fleet have been sanctioned by all three jurisdictions, primarily through asset freezes. Nearly 80 of these entities were blacklisted by the United States under the Biden administration on 10 January 2025, and the EU, the UK, and several other countries subsequently adopted similar measures. Another significant step was the sanctioning by the UK on 24 February 2026 of 175 companies in the "2Rivers" oil network, one of the largest shadow fleet operators globally and a major trader of Russian crude oil. The majority of the sanctioned companies play a central role in enabling the fleet's activities, including shipping firms, oil traders, and vessel management companies. A smaller number of ports, brokers, insurers, reinsurers, ship registries, and refineries in third countries that purchase Russian oil in violation of sanctions have also been designated (see: Table 10). These entities were registered in the United Arab Emirates, China, Hong Kong, Mauritius, Vietnam and the Seychelles, among others.

All three jurisdictions have also imposed asset freezes and travel bans on dozens of individuals supporting the Russian oil sector, primarily executives of Russian energy and shipping companies. To a lesser extent, sanctions have also targeted vessel captains and foreign operators of shell companies and trading firms. An emerging trend is the blacklisting of entire networks of companies and individuals associated with the operation of the shadow fleet, as evidenced by the "2Rivers" network. For instance, regarding the tanker Blint, which transited the Baltic Sea in May 2025 without valid flag registration, the EU sanctioned the captain, the owner, Zhu Jian Shipmanagement (registered in Hong Kong), the manager, Sapang Shipping Inc. (registered in Mauritius), and Redbird Corporate Services (also registered in Mauritius), which provided corporate and trust services for the vessel.[37]

[37] R. Meade, "EU pursuit of shadow fleet facilitators could result in flag hopping surge," *Lloyd's List*, 21 July 2025, www.lloydslist.com.

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Table 10

Examples of sanctioned entities supporting the Russian shadow fleet

TYPE OF COMPANY	EXAMPLE
Shipping and vessel management firms that own, manage or provide shipping services to tankers	UAE-based firms like **Fornax** and **Stream**, sanctioned by the US, and **Sun Ship Management**, sanctioned by the EU and UK, which manage tankers for Sovcomflot, Russia's state shipping company
Ship registries—entities that register vessels under flags of convenience	The UAE-based company **Intershipping Services LLC**, which operates both the Gabon and Comoros shipping registers; sanctioned by the EU and UK
Insurance and reinsurance providers	Russian insurers such as **Ingosstrakh Insurance** and **Alfastrakhovanie Group**, which offer questionable P&I coverage to shadow fleet tankers, sanctioned by the EU. **Romarine AS**, a Norway-registered company, falsely claimed to provide insurance to dozens of shadow tankers
Overseas oil traders, ports and refineries	**2Rivers** oil network, one of the largest shadow fleet operators globally and a major trader of Russian crude oil, sanctioned by UK. UAE-based **Black Pearl Energy Trading LLC** (Black Pearl), sanctioned by the US; a major trader of Russian crude oil, including barrels priced above the price cap. Since 2023, Black Pearl is believed to have sold more than $2 billion worth of Russian crude oil and oil products. **Nayara Energy Limited**, an entity established in India and which operates an important refinery in Vadinar. That refinery is 49% owned by the Russian State oil company Rosneft, and is a major refiner of Russian crude oil; sanctioned by the EU. **Liaoyang Petrochemical Company** is a leading Chinese refining and chemical company that processes exclusively Russian crude oil. It is capable of processing millions of tonnes of Russian oil every year; sanctioned by the EU

Source: Own compilation.

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Tightening enforcement against the shadow fleet

Efforts to curb Russia's shadow fleet have evolved into a multilayered enforcement architecture encompassing international coalitions, regional security frameworks and national-level actions. Together, these measures reflect a shift from passive monitoring toward increasingly assertive regulatory, operational and diplomatic tools designed to raise the costs and risks of deceptive maritime activity.

International cooperation

International efforts to counter Russia's shadow fleet are centred on the G7+ Price Cap Coalition, which has shifted from basic sanctions coordination toward strengthening enforcement and transparency across the maritime sector. A key step for this shift in focus was the coalition's support for the IMO's 2023 resolution that formally defined the shadow fleet and set expectations for coastal and flag states, creating a shared regulatory baseline.[38] This resolution, for instance, urges coastal states to oversee STS operations within their territorial seas and exclusive economic zones, and to take appropriate action against non-compliant activities. By pressuring the IOPC Funds to enhance disclosure requirements and weigh the exclusion of vessels tied to sanctioned actors or deceptive practices, the coalition aims to compound the financial and legal liabilities of clandestine network operations. In November 2024, the governing bodies of IOPC Funds adopted resolutions to raise awareness of the risk of uninsured or unsafe ships,[39] though formal exclusion of vessels linked to sanctions evasion has not been adopted. In 2025-2026, at the IMO level, the issue under discussion has been the development of common standards for IOPC Funds in relation to the verification of the insurers and insurance certificates provided by the shadow fleet.[40]

Beyond regulatory pressure, the coalition has issued detailed advisories to governments and private industry, urging stricter due diligence in tanker sales, avoidance of sanctioned intermediaries, and improved internal compliance.[41] This diplomatic outreach has produced some results: coordinated engagement with major flag registries

[38] International Maritime Organization (IMO), Resolution A.1192(33) Adopted on 6 December 2023 (Agenda Item 13) Urging Member States and All Relevant Stakeholders to Promote Actions to Prevent Illegal Operations in the Maritime Sector by the "Dark Fleet" or "Shadow Fleet", wwwcdn.imo.org.

[39] "IOPC Funds' governing bodies adopt resolutions to raise awareness of the risk of uninsured or unsafe ships," IOPC Funds, 27 November 2024, https://iopcfunds.org.

[40] "The IOPC Funds: Meeting of the Governing Bodies (4-7 November 2025)," International Maritime Organization, https://comitemaritime.org.

[41] "Price Cap Coalition statements and guidance," European Commission, https://finance.ec.europa.eu.

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led, for instance, to Tanzania, Barbados and Panama deregistering more than 160 vessels, while Panama's decision to stop registering tankers older than 15 years further constrains the fleet's ability to reflag into permissive jurisdictions.[42] The establishment of the G7 and Nordic Baltic 8++ Shadow Fleet Task Force to enhance operational and political cooperation in March 2025 (formally convened for the first time in October 2025) reflects a shift toward more integrated monitoring and detection capabilities.

Security cooperation has intensified in response to sabotage incidents involving Russian vessels. NATO's Operation Baltic Sentry, launched in January 2025, aims to deter threats to undersea infrastructure through enhanced maritime and aerial patrols. In parallel, the UK introduced an AI-enabled monitoring and alerting system within the Joint Expeditionary Force framework,[43] providing real-time tracking of shadow fleet activity across the English Channel, North Sea, Kattegat and Baltic Sea, and sharing alerts with JEF and NATO partners.

Regional cooperation

Since 2023, the EU has shifted its posture toward Russia's shadow fleet, moving from passive monitoring to more assertive enforcement. The core of this approach is tighter surveillance and information-sharing among Member States (see: Table 11). The EU is exploring ways to strengthen the legal basis for enforcement. Based on an EEAS non-paper presented in October 2025, the EU adopted in December 2025 a declaration clarifying Member States boarding rights of vessels without nationality, the insurance checks and endorsing the possibility of concluding agreements with flag states to enable pre-authorised boarding operations in high seas or Member States EEZs.[44] However, the absence of clear legal grounds for immobilising non-compliant vessels remains a major obstacle. To coordinate these efforts, the EEAS appointed a special shadow fleet coordinator and began reviewing the mandates of EU maritime missions—such as IRINI, ASPIDES and ATALANTA—to integrate tasks related to countering the shadow fleet.

[42] G. Saiz Erausquin, T. Keatinge, "Countering Shadow Fleet Activity through Flag State Reform", RUSI, 2 September 2025, www.rusi.org.

[43] JEF is a multinational military partnership focused on rapid response and security in Northern Europe, comprising ten member nations (Denmark, Estonia, Finland, Iceland, Latvia, Lithuania, Norway, the Netherlands, Sweden, and the UK as the Framework Nation).

[44] Declaration of the European Union and its Member States on making full use of the international law of the sea framework relating to threats from the "shadow fleet" and to the protection of critical undersea infrastructure, Council of the European Union, 15 December 2025, https://data.consilium.europa.eu.

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Table 11

EU enforcement measures to counter the shadow fleet

MEASURE / TOOL	DESCRIPTION	PURPOSE / EFFECT
Amendment to the 2022 Vessel Monitoring Directive (2025)	Introduced a mandatory ship-reporting system for all vessels, including those merely transiting EU waters. Ships must report insurance details	Strengthens oversight of shadow fleet vessels and ensures compliance with safety and sanctions rules
SafeSeaNet (hosted by EMSA)	EU-wide information exchange platform for monitoring shadow vessels. Integrated with IMS	Enhances situational awareness and supports coordinated enforcement
Integrated Maritime Services (IMS)	Provides near-real-time vessel tracking using AIS, LRIT, and other systems; detects illegal STS transfers and AIS manipulation. Can integrate Copernicus Earth observation data and ROV imagery	Improves detection of evasive practices and maritime safety violations
EU Common Information Sharing Environment (CISE)	Facilitates data exchange among Member States' maritime authorities	Strengthens cross-border cooperation and coordinated responses
European Defence Agency's Maritime Surveillance project	Supports shared maritime surveillance capabilities	Enhances defence-related monitoring of shadow fleet activity
Sanctions Coordinators Forum	Brings together Member States and international partners to discuss compliance and counter-evasion measures	Ensures consistent sanctions enforcement and policy alignment
EU naval missions (CSDP)	Monitor shadow fleet activity as part of broader maritime security operations	Adds operational capacity to detect and deter illicit maritime practices

Source: Own compilation based on European Parliament questions on the shadow fleet put to EEAS and EC, 2026.

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In the Baltic Sea region, operational cooperation has advanced significantly under the NB8++ format, with states expanding intelligence-sharing regarding insurance documentation, flag histories, and vessel movements in high-risk zones. Joint requirements introduced in December 2024, obliging suspected shadow vessels to present proof of insurance in key maritime chokepoints have increased scrutiny,[45] while the Voluntary Insurance Reporting Mechanism has enhanced transparency for ships accessing European ports. By mid-2025, authorities had requested insurance documentation over 2,500 times, though the credibility of the documents submitted in response remains unverified.[46] In June 2025, the group also announced it would prioritise taking action within international law against stateless or falsely flagged vessels in the Baltic Sea and North Sea.[47]

National level

Several coastal states have introduced national restrictions. Greece's crackdown on high-risk STS operations in the Laconian Gulf, supported by military enforcement, sharply reduced illicit transfers.[48] These actions draw their legitimacy from the IMO's resolution urging coastal states to police STS activity within their territorial seas and EEZs. From 2024 to 2026, various EU Member States intercepted and attempted to detain multiple shadow fleet tankers, the majority of which were subsequently released (see: Table 12). Such detentions remain relatively rare due to the risk of escalation—Russia has increasingly resorted to military posturing to protect its tankers. For example, in May 2025, a Russian Su-35 fighter jet escorted the tanker Jaguar through the Estonian Exclusive Economic Zone, while two Russian naval vessels maintained a presence in the Gulf of Finland.[49] In June 2025, a Russian warship reportedly used a falsified identification signal while transiting the English Channel alongside the tankers Sierra and Naxos, which are subject to UK sanctions.[50] In Spring 2026, Russia deployed armed

[45] A joint statement by the Nordic-Baltic 8++ countries (Denmark, Estonia, Finland, Germany, Iceland, Latvia, Lithuania, the Netherlands, Norway, Poland, Sweden and the United Kingdom) on further action to counter Russia's "shadow fleet," 16 December 2024, www.gov.uk.

[46] R. Meade, "More than 90% of shadow fleet ships are producing insurance certificates when challenged," *Lloyd's List*,11 July 2025, www.lloydslist.com.

[47] Statement from the Nordic-Baltic 8++ on joint action to further counter Russia's shadow fleet, 20 June 2025, www.gov.uk.

[48] B. Giannopoulus, "Greek Navy Extends Advisory to Prevent Ship-to-Ship Oil Transfers," *Greek News Today*, 9 May 2024, https://greekcitytimes.com.

[49] J. Parker, "On the front line of Europe's standoff with Russia's sanction-busting shadow fleet," BBC, 19 November 2025, www.bbc.com.

[50] N. Davies, J. Cheetham & M. Murphy, "Russian naval ship 'disguised' itself while passing through English Channel," BBC, 24 June 2025, www.bbc.com.

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military vessels along the lanes used by tankers carrying Russian oil, including several vessels in the Baltic Sea's Gulf of Finland and one in the English Channel.[51]

A harsher model has been adopted by the United States and the United Kingdom. Supported by special forces and other assets, the US Coast Guard seized two Russian shadow fleet tankers (Bella-1/Marinera and Sophia) in the Atlantic and Caribbean, respectively, both of which were being used to transport Venezuelan and Iranian oil subject to US embargo.[52] Together with three other vessel detentions, these actions formed part of the US blockade on sanctioned oil tankers entering or leaving Venezuela, announced on 17 December 2025. Notably, the seizure of Bella-1/Marinera between Scotland and Iceland was supported by the British Royal Air Force and Royal Navy.[53] Despite the tanker being escorted by the Russian navy, Russia refrained from using force to prevent its detention—widely interpreted as a sign of weakness that undermined its credibility. On 25 March 2026, the United Kingdom authorised UK Armed Forces and law enforcement officers to interdict vessels that have been sanctioned by the UK and are transiting through UK waters.

[51] A. Sytas, "Estonia says detaining Russia's tankers in Baltic Sea is too risky," Reuters, 10 April 2026, www.reuters.com; UK shadows Russian vessels through the English Channel, Royal Navy News, 5 March 2026, www.royalnavy.mod.uk

[52] F. Bryjka, "Detention of Russian 'shadow fleet' vessels by the US", *PISM Spotlight*, No. 3/2026, 8 January 2026, www.pism.pl.

[53] F. Bryjka, "Wielka Brytania podejmuje zdecydowane działania wobec floty cieni," *Depesza PISM*, 16 January 2026, www.pism.pl.

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Table 12

Cases of detention/attempts to detain Russian shadow tankers by country.

	COUNTRY	DATE	VESSEL INFORMATION
1	Finland	26 December 2024	Eagle S, Cook Islands-flagged, 18-year-old tanker
2	Germany	8–10 January 2025	Eventin, Panama-flagged, 19-year-old tanker
3	Estonia	11 April 2025	Kiwala (currently Boracay), Djibouti-flagged, 18-year-old tanker

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REASON FOR DETENTION	OUTCOME
Allegation of sabotage/damage to subsea cables. Vessel was boarded by Finnish coast guard under suspicion of damaging the EstLink 2 submarine power cable and four telecommunications cables connecting Finland to Estonia. Finnish prosecutors charged the captain and two officers of the tanker with sabotage	The vessel was released on 2 March 2025. Police handed their evidence to Finnish prosecutors, who charged the captain and two senior officers of the Eagle S with aggravated criminal mischief and aggravated interference with communications. While stating that the damage had occurred due to the failure of the anchor mechanism, the court ruled that it lacked jurisdiction and that it was not possible to apply Finnish criminal law to the case
The EU-sanctioned vessel carrying 100,000 tonnes of oil experienced engine failure and loss of ability to manoeuvre. It risked grounding and required rescue. It was detained by German authorities. After detention the vessel was later sanctioned by the EU under the 16th sanctions package on 25 February 2025, based on evidence that the Eventin had been used to transport Russian-origin crude oil or petroleum products and engaged in irregular and high-risk shipping practices.	German customs formally seized and confiscated the vessel and its cargo. However, due to an application by the vessel owner, the financial court temporarily paused the final decision on confiscation until the main proceeding completed. In December 2025, Germany's Federal Fiscal Court ruled that customs authorities cannot seize the tanker, citing doubts over the legality of any such action. A final decision in the main proceeding is still pending
Estonian navy forces detained and boarded the vessel for document verification, legal status checks, and a safety inspection. The vessel was suspected of being unflagged, which is a violation of maritime law. At the time of its seizure the tanker was flying the flag of Djibouti but authorities denied that the vessel was registered there. The vessel was already subject to sanctions from the EU, UK, Canada, and Switzerland	Released on April 28. During the inspection the Estonian Transport Authority received a confirmation letter from Djibouti that it would accept the vessel onto its registry until 7 May

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	COUNTRY	DATE	VESSEL INFORMATION
4	Estonia	14 May 2025	Jaguar, Curacao-flagged, 26-year-old tanker
5	France	27 September 2025	Boracay/Pushpa, Benin-flagged, 18-year-old tanker
6	United States	7 January 2026	Marinera (formerly Bella 1), no clear flag, 24-year-old tanker
7	United States	7 January 2026	M Sophia, Panama-flagged, 22-year-old tanker
8	Germany	10–16 January 2026	Arcusat (oil tanker with no clear identity)
9	United States	15 January 2026	Veronica III (formerly Galileo/Pegas), Russia, Guyana or Panama-flagged (disputed), 20-year-old tanker

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REASON FOR DETENTION	OUTCOME
The tanker—suspected of being an unflagged part of Russia's shadow fleet — entered Estonia's exclusive economic zone (EEZ) on the Baltic Sea, ignoring orders from Estonian authorities	There were plans to board the Jaguar, but the operation was called off midway. A Russian Su-35 fighter jet violated Estonian airspace to shield the tanker, prompting Portuguese Air Force F-16s, serving the Baltic Air Policing mission, to scramble from Ämari Air Base and conduct a reconnaissance flight alongside other Estonian aircraft. The tanker eventually left for Russian waters without being boarded
The Boracay was off the coast of Denmark when unidentified drones forced the temporary closure of several airports in Denmark. France seized the Russian-linked shadow fleet tanker Boracay based on violations of EU sanctions, maritime safety laws, and territorial sovereignty	The captain of the vessel was charged by French authorities. The Boracay was detained on September 27 and released October 2. A French court on March 30, issued an arrest warrant and a one-year jail sentence in absentia against the Chinese captain
The US had been chasing the tanker Bella1/Marinera from December 2025 after it refused inspection and attempted to bypass the US naval blockade and illegally transport Venezuelan oil. Russia reflagged it, painted its colours, issued protests, and sent warships, but US forces boarded the ship on 7 January, in international waters between Iceland and the UK	The vessel has been moved into UK territorial waters. The captain (a Georgian national), and first officer were taken into US custody and will be prosecuted there
The tanker was carrying Venezuelan oil despite the US embargo	The US Coast Guard seized the vessel and escorted it to the US. After around 20 days however, the vessel was returned to Venezuelan authorities
Arcusat abruptly changed course as it approached German waters en route to the Gulf of Finland. German federal police forced the oil tanker to turn around, citing irregularities in its documentation and identity	Marked the first time a European country blocked a ship from entering territorial waters in the Baltic Sea due to suspicion of its belonging to Russia's shadow fleet
At the time of interception, the tanker was not carrying sanctioned oil, but it had previously passed through Venezuelan waters and was operating in defiance of President Donald Trump's quarantine of sanctioned vessels in the Caribbean	The vessel was seized

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	COUNTRY	DATE	VESSEL INFORMATION
10	United States	20 January 2026	Sagitta, Liberia-flagged (disputed), 21-year-old tanker
11	France	22-24 January 2026	Grinch, Comoros-flagged, 22-year-old tanker
12	United States	9 February 2026	Aquila II, Panama-flagged (disputed), 22-year-old tanker
13	Belgium	1 March 2026	Ethera, Guinea-flagged, 18-year-old tanker
14	Sweden	12 March 2026	Sea Owl I, Comoros-flagged, 19-year-old tanker
15	France	20 March 2026	Deyna, Mozambique-flagged, 21-year-old tanker

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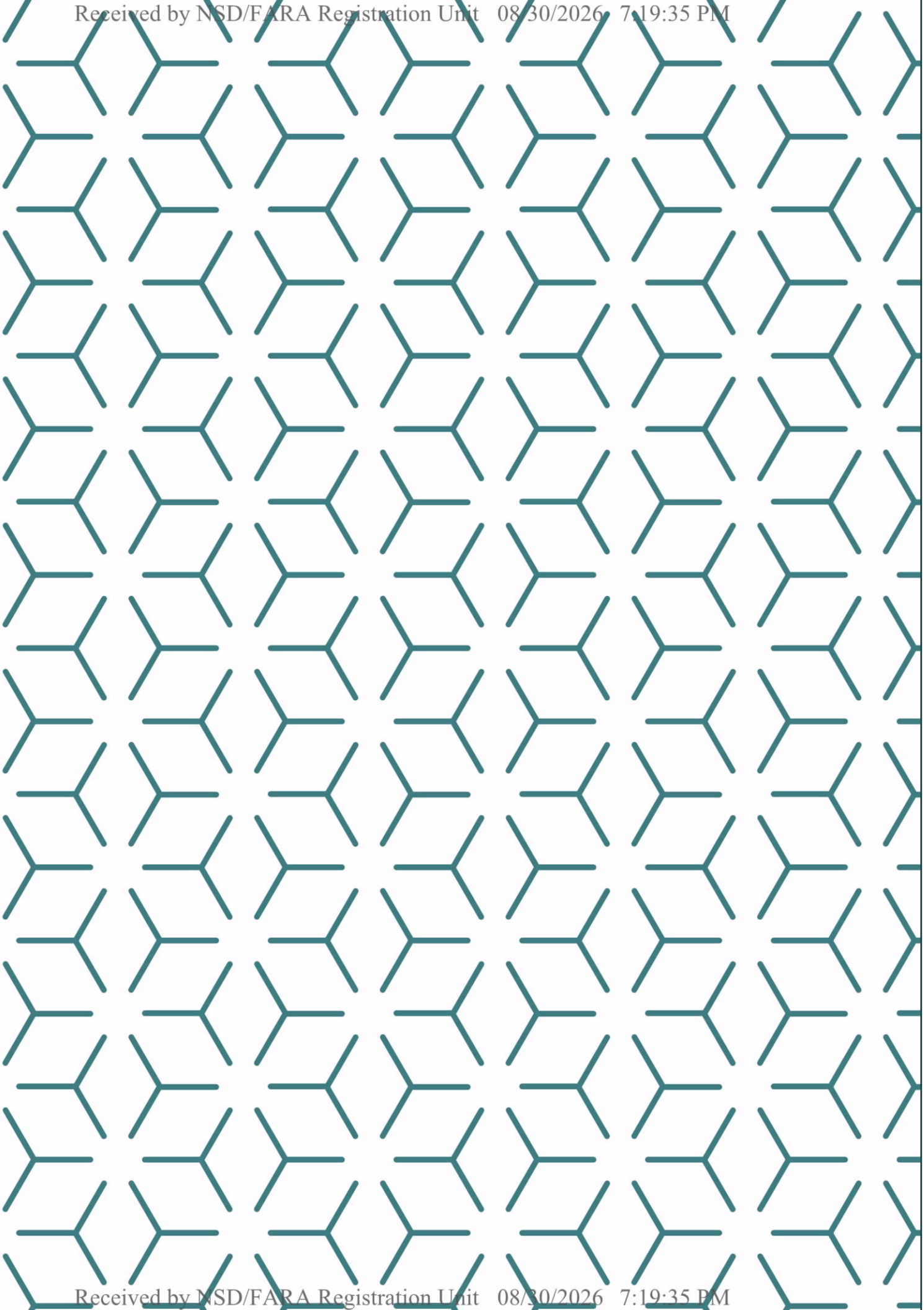
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REASON FOR DETENTION	OUTCOME
Despite the US embargo, the vessel had been exporting fuel oil out of Venezuela. The sanctioned tanker had been also involved in Russia's oil export operations	The vessel was seized
The Grinch, already subject to international sanctions, was suspected of flying a false flag	The French maritime authorities seized the vessel, releasing it on 17 February 2026 after a fine of several million euros was paid
The Aquila II was operating in defiance of President Trump's established quarantine of sanctioned vessels in the Caribbean	The vessel was tracked and hunted from the Caribbean to the Indian Ocean, where it was seized and placed under US control
The tanker was sailing under a false flag with false documents	A total of forty-five violations were identified, including the use of false certificates and sailing under a false Guinean flag. Belgium imposed a €10 million ($11.61 million) bail. The tanker will be allowed to sail again once the sum has been paid and a follow-up inspection has confirmed compliance, including securing a flag state, obtaining valid certificates, and resolving the technical issues
The EU-sanctioned tanker was suspected of sailing under a false flag. It was not carrying any oil at the time of its detention	The coastguard boarded the Sea Owl and took control of the ship in Swedish waters. The ship's captain was detained, and a criminal investigation has been opened against him by the Swedish court
The EU-sanctioned tanker was suspected of flying a false Mozambican flag	The Deyna was intercepted near Spain's Balearic Islands with the help of Britain and formally accused of registration irregularities by the Public Prosecutor's Office in Marseille. The investigation is ongoing

Source: Own compilation.

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Chapter 5. The Consequences of Sanctions on the Shadow Fleet

Tymon Pastucha, Elżbieta Kaca

To evaluate how sanctions have affected the shadow fleet, several interconnected issues must be examined. The core question is whether these measures have succeeded in limiting the fleet's operations, driving up the cost of Russian oil exports, and complicating the logistics of evasion. Key indicators for comparing the pre- and post-sanctions environment include transport costs, the extent of shadow fleet involvement in Russian oil shipments, and the Urals–Brent discount. A full assessment, however, remains impossible, as the impact of sanctions is intertwined with broader market dynamics such as global oil prices, seasonal demand fluctuations and OPEC decisions.

The operational use of the shadow fleet in Russian oil exports

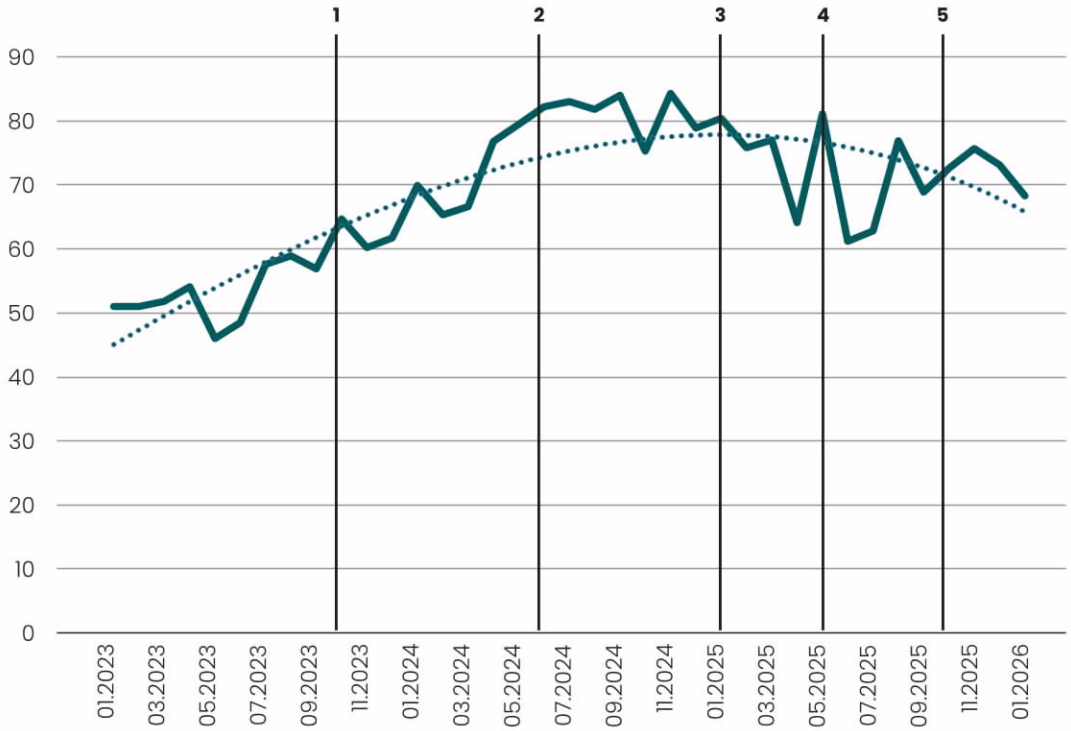
To determine whether sanctions have reduced the operational use of the shadow fleet, two metrics are particularly relevant: the share of seaborne volumes transported outside the G7/P&I insurance ecosystem, and the absolute volume of oil carried by the shadow fleet between 2023 and 2026 (see: Fig. 13-14). Only the largest sanctions packages introduced by the US, the EU, and the UK (January, May, and October 2025) were effective in producing a temporary decline in the shadow fleet's role in Russian oil exports and a corresponding drop in transported volumes. However, following the January and May 2025 sanctions packages, this decline was met with renewed growth and an increasing reliance on previously sanctioned vessels. This pattern highlights the high adaptability of Russia's maritime logistics, which shift between "price cap compliant" and shadow fleet operations depending on enforcement pressure and cost dynamics.

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Figure 13

Shadow fleet share of seaborne volumes
(proportion transported outside the G7/IG P&I ecosystem)



Source: Own estimation, based on S&P Global Commodities at Sea and Maritime Intelligence Risk Suite.

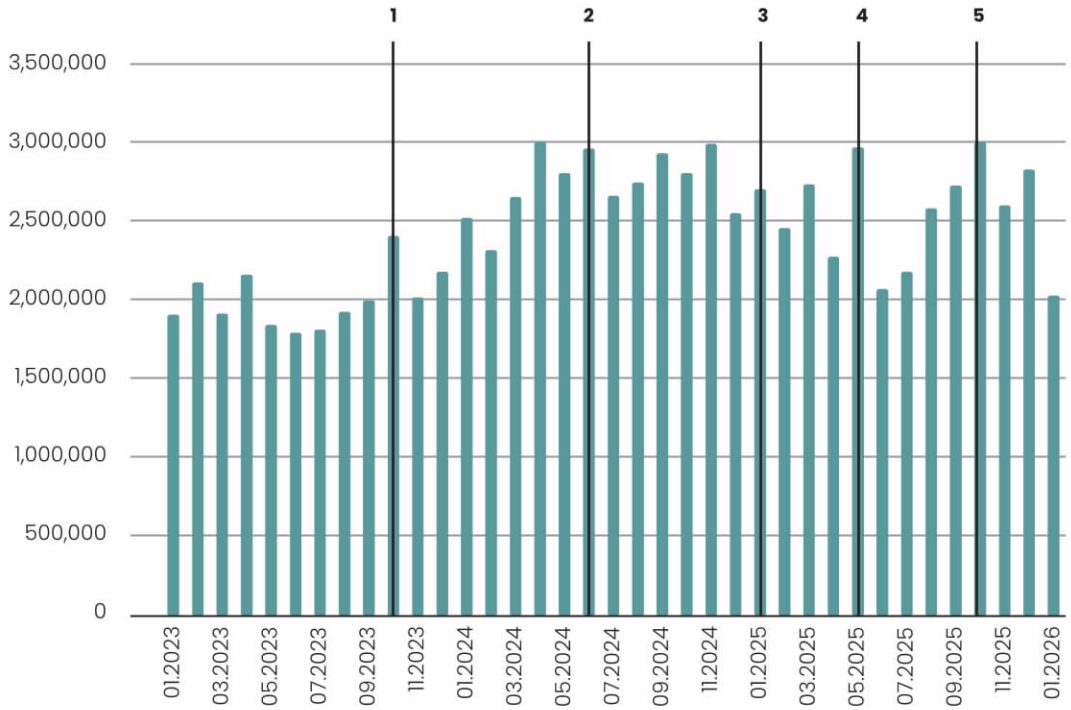
1. First US sanctions on vessels and intermediaries, followed by more sanctions in January and February 2024
2. First EU and UK sanctions on the shadow fleet
3. The biggest package of US sanctions on vessels, intermediaries and producers
4. The biggest EU and UK sanctions packages against the shadow fleet
5. US sanctions on Rosneft and Lukoil, and EU, UK sanctions on the shadow fleet

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Figure 14

Volume of oil transported by the shadow fleet from 2023–2025 (weekly)



Source: Own compilation based on S&P Global Commodities at Sea and Maritime Intelligence Risk Suite.

1. First US sanctions on vessels and intermediaries, followed by more sanctions in January and February 2024

2. First EU and UK sanctions on the shadow fleet

3. The biggest package of US sanctions on vessels, intermediaries and producers

4. The biggest EU and UK sanctions packages against the shadow fleet

5. US sanctions on Rosneft and Lukoil, and EU, UK sanctions on the shadow fleet

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The above findings support the argument that Russia and its associated networks have repeatedly adapted to sanctions. This has involved an intensification of flag-hopping (as described in Chapter 6), modifying routes, conducting STS transfers, and using blending practices to obscure the origin of cargo. These adjustments have gradually eroded the efficacy of G7+ restrictions. According to CREA, in the first three quarters of 2025, sanctioned tankers transported 44% of Russia's crude oil exports. Meanwhile, non-sanctioned shadow fleet vessels accounted for 26%, and G7+ owned or insured ships accounted for 30%. In February-March 2026, the majority of Russian crude oil exports were carried by sanctioned shadow vessels (respectively, 56% and 62%).[54] A PISM analysis[55] of 623 sanctioned tankers (as of October 2025 – April 2026) found that, while some may have manipulated their reported positions, 76% were transmitting AIS signals, with only 24% "going dark" by disabling their transponders. This suggests that vessel operators have limited concern regarding detection, or they are using advanced spoofing techniques to mislead observers regarding their location.

Rising costs of selling Urals

Russia's net revenue from Urals crude exports is the residual value after accounting for intermediary margins, quality differentials, and inflated post-2022 logistics and sanction-related costs. While using the shadow fleet largely enables Russia to bypass the G7 price cap, the rising operating costs of these vessels, combined with a widening Urals discount, directly compress Russia's gross profit per barrel.

The Urals discount (also known as the price differential) refers to the price spread between Urals and Brent, specifically reflecting how much less Urals costs per barrel relative to the Brent benchmark. Evidence suggests that tighter sanctions on the shadow fleet correlate with a widening Urals discount (see: Fig. 16). The overall discount on Russian oil has increased following the announcement and implementation of sanctions—primarily those imposed by the United States. Market reactions to EU and UK measures have been more muted. When enforcement intensifies through vessel-level sanctions, refinery or insurance restrictions, the cost and risk of transporting Russian crude rise, forcing Russia to offer deeper discounts to maintain export volumes. Traders also factor in the likelihood of shipment delays, detentions, or cargo rejection, further widening the discount. These spikes, however, have typically been temporary, lasting up to several months, which suggests a high degree of adaptability among Russia and its buyers.

[54] V. Raghunandan, "February 2026—Monthly analysis of Russian fossil fuel exports and sanctions," 12 March 2026; L. Wickenden, "March 2026—Monthly analysis of Russian fossil fuel exports and sanctions," 13 April 2026, https://energyandcleanair.org.

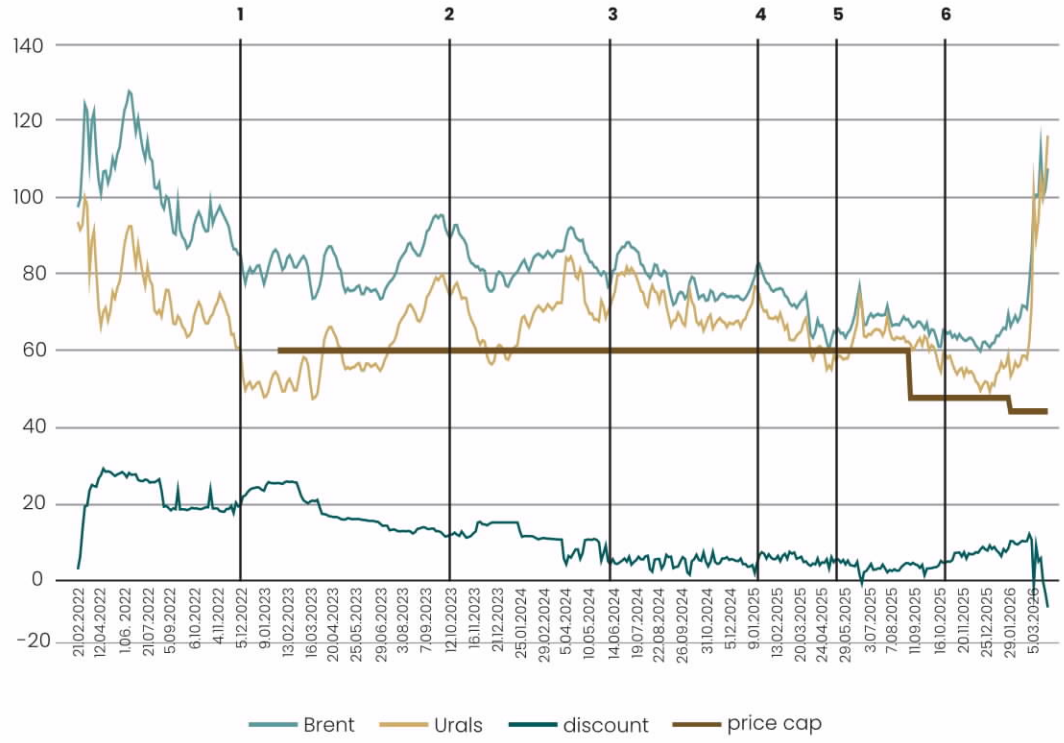
[55] Analysis based on Vesselfinder.com and MarineTraffic.com search engines, which locate ships based on their AIS signals.

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Figure 15

Urals and Brent oil barrel values (weekly averages)



Source: Own elaboration based on Brent/Urals Differential 2022-2025.*

* Brent/Urals Differential 2022-2026, Incorrys, https://incorrys.com.

1. EU import embargo and G7 price cap implementation
2. First US sanctions on vessels and intermediaries, followed by more sanctions in January and February 2024
3. First EU and UK sanctions on the shadow fleet
4. The biggest package of US sanctions on vessels, intermediaries and producers
5. The biggest EU and UK sanctions packages against the shadow fleet
6. US sanctions on Rosneft and Lukoil, and EU, UK sanctions on the shadow fleet

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Furthermore, Western sanctions have fundamentally altered the cost structure of Russia's oil-export logistics. Redirecting crude from short-haul European routes to distant markets such as India and China has sharply increased operational expenses. Pre-2022 voyages from Baltic ports to the EU covered 3,000–4,500 km; by 2022–2025, shipments to India required 12,000–14,000 km and to China 18,000–20,000 km. Longer distances translate directly into higher tanker demand, fuel use, crew time, and vessel wear. Shadow vessels command premiums for risk, secrecy, and sanctions-evasion services, which further inflates operational costs. These costs are driven by several mechanisms: STS transfers in international waters require rerouting, masking vessel locations, specialised equipment, and additional safety procedures, often causing delays. Complex corporate structures, built on shell companies in weak regulatory jurisdictions, raise transaction costs and reliance on intermediaries. Restricted access to Western insurance companies forces Russia to rely on fraudulent or low-quality providers, leading buyers to demand price discounts to compensate for the increased legal and operational risk. Moreover, Russia was pressured into purchasing more than 400 vessels for around $14 billion, heavily impacting its revenues.[56]

These combined factors have structurally raised the cost and risk profile of transporting Russian crude. In 2024, the EU import embargo and the G7 price cap produced a combined increase in Urals transport-related costs (including insurance and risk premiums) of approximately $13.70 per barrel—whereas under normal conditions, with standard tanker freight rates, the increase would amount to only a few dollars per barrel.[57] The introduction of major new sanctions packages—particularly those imposed by the United States—has triggered temporary spikes in freight rates, amplifying volatility across the logistics chain. For example, the cost of shipping Urals crude from Baltic ports to India rose from roughly $2–3 million per one-way voyage in 2021 to around $5 million in early January 2025. Following the imposition of US sanctions on the Russian shadow fleet, this cost surged to approximately $8 million.[58] Freight rates, however, are never driven by a single factor. They reflect a combination of interacting pressures, including disruptions in key maritime chokepoints such as the Red Sea and fluctuations in global tanker availability.

[56] C. Kennedy, "Moscow's Fading Shadow Fleet: Russian Oil Revenues are More Vulnerable than Ever," *Navigating Russia*, 7 May 2025, https://navigatingrussia.substack.com.

[57] D. Spiro, H. Wachtmesister, J. Gars, "Assessing the impacts of oil sanctions on Russia," *Energy Policy*, November 2025, Vol. 206.

[58] L. Nguyen, "Urals freight rates to India rise to 12-month highs, sources say," World Ports Organisation, 10 March 2025, www.worldports.org; "Tanker freight rates for Russian urals crude to India surge amid record exports," *India Seatrade News*, 8 October 2025, https://indiaseatradenews.com.

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Chapter 6. The Enforcement Gaps in Countering the Russian Shadow Fleet

Elżbieta Kaca

Despite the increased burden and costs, sanctioned vessels continue to operate in international waters, exploiting regulatory loopholes to avoid seizure. Key challenges to enforcement include Russia's continued ability to acquire new vessels, constraints on detaining sanctioned tankers and the persistence of flag-hopping practices.

Acquisition of shadow fleet tankers despite restrictions

Since 2022, Russia has expanded its shadow fleet by purchasing vessels from secondary markets in countries that are part of the oil price cap coalition, frequently using brokers or shell companies to obscure beneficial ownership. The EU's December 2023 ban on tanker sales to Russia aimed to stop this practice, but loopholes have allowed transfers to continue: when there is no explicitly identified Russian buyer, sellers only need to provide minimal documentation on the transaction. Consequently, between February 2022 and March 2025, more than 40% of the 343 tankers added to Russia's shadow fleet originated from EU sellers.[59] While Greek owners alone were responsible for over a quarter of these transactions, British, Cypriot and German owners were also involved in sales. Investigations have linked at least 230 ageing tankers—sold through intermediaries in India, Hong Kong, Vietnam and the Seychelles—to revenues of roughly $6 billion.[60] The network supporting the fleet extended beyond vessel transfers to, for instance, crewing agencies—eight based in Europe and twenty in Ukraine—supply-

[59] R. Brooks, B. Harris, "The race to sanction Russia's growing shadow fleet," Brookings, 25 April 2025; R. Brooks, B. Harris, "Where did Russia's shadow fleet come from?," Brookings, 27 February 2025, www.brookings.edu.

[60] D. Maragoudaki, E. Triantafyllou, "Shadow Fleet Secrets: How Greek tankers were used to transport Russian oil," *Solomon*, 2025, https://wearesolomon.com; "European Ships Keep Russia's Shadow Fleet Afloat," OCCRP, 4 February 2025, www.occrp.org.

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ing personnel.[61] Despite a slowdown in acquisition of new tankers related to reduced Russian demand, the KSE Institute reports that Russia was able to acquire 60 oil tankers and 55 petroleum product tankers between January and July 2025.[62]

For sellers, these transactions were driven by straightforward economic incentives. Strong Russian demand pushed tanker prices sharply upwards between 2022 and 2025. According to VesselValue data, Russia often paid two to three times the scrap value for older ships. Aframax and Suezmax tankers, usually valued at $10–15 million, were sold for $30–40 million. Between 2022 and 2023, the average annual price of older vessels increased by 40–45%.[63] This trend continued into 2025, with even 20-year-old vessels fetching substantial premiums—VLCCs reaching around $40 million and Aframax tankers $25 million.[64]

Meanwhile, a new "flexible fleet" has emerged to service multiple sanctioned exporters, including Russia, Iran and Venezuela. According to S&P Global,[65] 193 tankers transported crude and refined products from more than one sanctioned country in August 2025—a dramatic increase from 35 at the end of 2024. Notably, 96% of these vessels were operated by newly established, little-known companies registered in jurisdictions such as China, Hong Kong, the Seychelles, and the UAE. Growth has been primarily driven by larger vessels, including 50 VLCCs, 34 Suezmaxes and 67 Aframaxes/LR2s, which mainly carry Iranian crude to China and Russian crude to India.

Limits to detention of tankers in international waters

International law's guarantees of freedom of navigation and the right of innocent passage make it inherently challenging to prevent sanctioned shadow fleet vessels from entering territorial waters or the EEZ.[66] The primary legal framework for these principles is established by UNCLOS,[67] under which vessel rights vary across maritime zones

[61] "Russian shadow fleet investigation wins Daphne Caruana Galizia Journalism Prize," European Parliament, 21 October 2025, www.europarl.europa.eu.

[62] A. Kravtsev, Y. Pavytska, "Emerging and Unsanctioned Russian Shadow Fleet Tankers," KSE Institute, September 2025, https://sanctions.kse.ua.

[63] "Rise of Tanker Shadow Fleet and Impact on Vessel Demolition," AXSData, 1 October 2024, https://public.axsmarine.com.

[64] M. Johnson, "On an upward trend the values of tankers and in the background the "shadow" fleet," World Ports Organization, 19 August 2025, www.worldports.org.

[65] M. Lin, "Fuel for thought: Shadow tanker operators swing between sanctioned countries to support oil flows," 28 August 2025, www.spglobal.com.

[66] More about the legal aspects in: R. Tarnogórski, "Rosyjskie zagrożenia hybrydowe na Bałtyku – aspekty prawnomiędzynarodowe," PISM, to be published.

[67] The United Nations Convention on the Law of the Sea, www.unclos.org.

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(see: Table 13). In the EEZ and on the high seas, commercial ships enjoy extensive navigational freedoms. In territorial seas, however, their movement is limited to "innocent passage" and may be regulated by the coastal state. The contiguous zone also permits navigation, but grants coastal states additional enforcement powers.

Table 13

The passage rights of commercial ships in various maritime zones according to UNCLOS

MARITIME ZONE	DEFINITION (UNCLOS)	COASTAL STATE RIGHTS	COMMERCIAL SHIP RIGHTS	UNCLOS ARTICLES
Internal Waters	Waters landward of the baseline (ports, rivers, bays). Treated as part of the state's territory	Full sovereignty, the same as on land	No automatic right of passage; entry requires consent. Distress may justify entry	Art. 2, Art. 8
Territorial Sea (up to 12 nm)	Belt of sea adjacent to the coast, measured from baselines	Sovereignty over waters, seabed, and airspace. May regulate navigation, safety, environment, customs, and immigration	Right of innocent passage if continuous and expeditious, not prejudicial to peace, good order, or security	Art. 2, Art. 17–23
Contiguous Zone (12–24 nm)	Zone beyond the territorial sea where a coastal state may enforce its laws	Limited control to prevent and punish infringements of its customs, fiscal, immigration, and sanitary laws	Freedom of navigation continues, subject to enforcement measures if suspected of violations	Art. 33
Exclusive Economic Zone (EEZ, up to 200 nm)	Area beyond and adjacent to the territorial sea, not exceeding 200 nm	Sovereign rights for exploring, exploiting, conserving, and managing natural resources. Jurisdiction over the marine environment, scientific research, and installations	Freedom of navigation and overflight; laying of submarine cables and pipelines. Must respect the coastal state's resource rights	Art. 55–58, Art. 60, Art. 79

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MARITIME ZONE	DEFINITION (UNCLOS)	COASTAL STATE RIGHTS	COMMERCIAL SHIP RIGHTS	UNCLOS ARTICLES
Continental Shelf	Seabed and subsoil extending beyond the territorial sea, up to 200 nm or further if a natural prolongation	Sovereign rights over seabed resources	Ships may navigate freely above; they cannot exploit seabed resources without consent	Art. 76–78
High Seas (beyond EEZ)	All parts of the sea not included in EEZ, territorial sea, or internal waters	No sovereignty; governed by international law	Freedom of the high seas: of navigation, overflight, fishing, laying cables/pipelines, and scientific research. Must sail under the flag of one state	Art. 87, Art. 90–92

Source: Own compilation.

While coastal states are generally prohibited from restricting innocent passage or detaining foreign vessels, UNCLOS provides several exceptions (see: Table 14). Regardless of the maritime zone in which a vessel operates, statelessness and false flagging constitute grounds for action against shadow fleet tankers: a ship that changes its flag at sea loses its nationality and may be detained. Non-innocent passage—including illicit transfers or pollution—permits boarding within territorial waters. In the contiguous zone, authorities may intervene in cases of customs or sanctions evasion, while in the EEZ, they may act in response to environmental risks or interference with offshore installations. Notably, since March 2025, the EU has required foreign vessels operating in Member States' EEZs to carry EU-recognised insurance, with non-compliant ships barred from operating.

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Table 14

Boarding exceptions relevant for shadow fleet operation under UNCLOS

MARITIME ZONE	UNCLOS BOARDING EXCEPTION	EXAMPLES OF PRACTICAL IMPLICATIONS FOR SHADOW VESSELS	UNCLOS ARTICLES
Internal Waters	Unauthorised entry or violation of domestic law	Shadow fleet tankers attempting to dock in EU ports without proper clearance may be denied entry and inspected under national law	Art. 2, Art. 8
Territorial Sea (≤12 nm)	Passage ceases to be "innocent" if the loading or unloading of any commodity, currency or person is contrary to the customs, fiscal, immigration or sanitary laws and regulations of the coastal state; in a case of any act of wilful and serious pollution contrary to UNCLOS. A coastal state may require a vessel to leave or to submit to boarding	Shadow fleet tankers conducting ship-to-ship oil transfers, involved in sanction evasion or carrying illegal cargo, may be boarded under "non-innocent passage" grounds	Art. 17–19, Art. 25
Contiguous Zone (12–24 nm)	Boarding and punishment are permitted to prevent infringement of the coastal state's customs, fiscal, immigration or sanitary laws and regulations within its territory or territorial sea	Tankers suspected of undeclared oil cargo or falsified customs documents may be intercepted under contiguous zone enforcement	Art. 33
Exclusive Economic Zone (≤200 nm)	Boarding is permitted if a vessel pollutes, damages installations, or exploits resources illegally	Shadow fleet tankers with unsafe operations and oil spills may be targeted for inspection of insurance	Art. 56–58, Art. 60, Art. 73
Continental Shelf	Boarding is allowed if a vessel exploits seabed resources without consent	Shadow fleet vessels interfering with offshore platforms may be grounds for inspection	Art. 77–78

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High Seas (beyond EEZ)	Universal right of boarding if a vessel is: stateless, flying a false flag, engaged in piracy, slave trade, or unauthorised broadcasting	Statelessness and false flags are the usual basis for boarding shadow vessels	Art. 87, Art. 101, Art. 110

Source: Own compilation..

Furthermore, vessels involved in STS activities may be detained if they violate the International Convention for the Prevention of Pollution from Ships (MARPOL) Annex I,[68] do not have an approved STS Operations Plan, breach flag-state or coastal-state regulations, or pose a risk to safety or the environment. Port State Control authorities, flag administrations and coastal states may detain such ships until they are in compliance.[69] In territorial waters or EEZs, many states also demand prior notification and permits for STS operations, with non-compliance providing legal grounds for detention, fines or expulsion.[70]

In all such cases, if a vessel refuses inspection, the authorities may board it using proportionate force, pursue fleeing ships under the right of "hot pursuit," and impose penalties. Once fines have been paid and inspections have been successfully completed, further detention is prohibited; furthermore, UNCLOS Article 73 states that arrested vessels and their crews shall be promptly released upon the posting of a reasonable bond or other security.

Despite these mechanisms, EU coastal states remain reluctant to detain Russian shadow fleet vessels. This hesitation is driven by concerns about escalating tensions with Russia (as described in Chapter 4) despite the fact that the boarding of the Bella-1 and Marinera by the US and UK demonstrated that the Russian Navy is not capable of reliably securing these vessels. Other obstacles are the high cost of port storage, and legal constraints, as UNCLOS does not permit prolonged detention in port. Therefore, insurance checks in the Baltic Sea primarily function as monitoring tools to gather information rather than steps towards detention. To date, only a handful of detentions have occurred (see: Table 12, p. 52). In 2025-2026, Belgium, Estonia, Sweden and France (three times) briefly detained tankers on grounds of statelessness, releasing or waiting to release them once documentation was provided. In some cases, multimillion-dollar

[68] International Convention for the Prevention of Pollution from Ships (MARPOL), www.imo.org.

[69] "Ship-to-Ship (STS) Plan: Legal Requirements & Approval Guide," *Marine Public*, 2025, www.marinepublic.com.

[70] "Is ship to ship transfer legal?," *SunHelm Marine*, 8 April 2025, www.sunhelmmarine.com.

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penalties were imposed on vessels, and some crew members have been sentenced. On top of that, Germany detained the Eventin in January 2025, but the final confiscation outcome remains unresolved. Germany's Federal Fiscal Court ruled in December 2025 that customs authorities cannot seize the tanker, which has been anchored in Germany for almost a year, citing doubts over the legality of such action.[71]

Flag hopping

UNCLOS requires all vessels to be registered under a state flag, which entails responsibility for safety, labour standards, pollution control, and legal compliance. In practice, many states offer "flags of convenience," allowing registration with minimal oversight.[72] Such registries often neglect checks on ownership, vessel history, insurance, or sanctions exposure, and frequently outsource management to private firms with limited capacity. Some accept applications with scant documentation, enabling sanctioned or high-risk ships to operate. Currently, there are no binding international rules governing flag registration (see: Table 15).

The Russian shadow fleet exploits structural loopholes by extensively "flag hopping"—repeatedly changing their state of registration to obscure ownership and evade regulatory scrutiny. According to the maritime intelligence firm Windward AI, the beneficial owners of 60% of shadow fleet ships remain unidentified.[73] PISM analysis[74] indicates that, between 2022 and April 2026, 61% of sanctioned Russian shadow tankers (623 in total) switched flags at least twice, and frequently changed their names, owners or managers (see: Table 16). Of the 38 flags used in April 2026 (see: Table 17), the vast majority were issued by less reputable Port State Control regimes (i.e. Abuja MoU covering Western and Central African countries, and Riyadh MoU for the Persian Gulf states). These registries usually have a lower level of inspections or uneven enforcement, further undermining oversight.

[71] "German court blocks confiscation of 'shadow fleet' tanker Eventin," *The Insider*, 12 December 2025, https://theins.ru.

[72] G. Saiz Erausquin, T. Keatinge, *op. cit.*

[73] J. Parker, "On the front line of Europe's standoff with Russia's shadow fleet," BBC, 19 November 2025, www.bbc.com.

[74] Vesselfinder.com and MarineTraffic.com search engines, which locate ships based on their AIS signals.

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Table 15

Strengths and weaknesses of international mechanisms governing flag registration

MECHANISM	STRENGTHS	WEAKNESSES
IMO Member State Audit Scheme	- assesses implementation of IMO instruments, including flag state obligations - mandatory participation since 2016	- no binding corrective measures - does not address the practice of registry shopping - lacks tools to vet applications based on ownership or enforcement history
Paris MoU & Tokyo MoU	- rank flag states via white/grey/black lists based on inspection and detention records - poor performers face increased inspections or bans	- cannot prohibit registries from issuing flags - cannot prevent sanctioned or de-flagged vessels from re-registering elsewhere
Registry Information Sharing Compact (RISC)	- romotes information sharing among registries - includes major registries (Panama, Liberia, Marshall Islands)	- limited membership (13 registries) - reduced reach after the removal of the Cook Islands in 2025
Port State Control (PSC) Frameworks	- provides enforcement through port inspections and detentions - acts as a deterrent against poor compliance	- reactive rather than preventive - cannot directly regulate flag issuance
UNCLOS Articles 91 & 94	- establishes legal basis for ship registration and flag state responsibilities - requires a "genuine link" between ship and flag state	- "genuine link" requirement weakly enforced - no binding mechanism to define or enforce compliance
IMO Framework on Fraudulent Registrations	- provides guidance to prevent false or unauthorised flagging - raises awareness of fraudulent practices	- relies on states' enforcement capacity - no centralised global enforcement
Classification Societies	- set technical standards for vessel safety and compliance - influence flag registries indirectly via insurance and port entry requirements	- voluntary and commercially driven - not a regulatory mechanism

Source: Own compilation, PISM, 2025.

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Table 16

Percentage of Russian tankers sanctioned by the EU, UK and US that changed flags, name, owner and manager between March 2022 and April 2026

NUMBER OF CHANGES	FLAG (IN %)	NAME (IN %)	OWNER (IN %)	MANAGER (IN %)
1	23	33	39	25
2	24	32	32	22
3	21	15	11	17
4 and more (up to 9)	17	4	3	26

Source: Own compilation based on Vesselfinder.com and MarineTraffic.com.

Table 17

Declared flags of Russian tankers sanctioned by the EU, US, UK: TOP 20 (April 2026)

NUMBER	COUNTRY	NUMBER OF TANKERS WITH DECLARED FLAG
1	Russia	195
2	Cameroon	137
3	Sierra Leone	94
4	Oman	35
5	Panama	26
6	Comoros	15
7	Equatorial Guinea	15
8	Madagascar	11
9	Mozambique	11
10	Gambia	10
11	Guinea	8
12	Guyana	6
13	Azerbaijan	5
14	Curaçao	5
15	Palau	5
16	São Tomé and Príncipe	5
17	Vietnam	5
18	Benin	4
19	Cook Islands	3
20	Mali	3

Source: Own compilation based on TankersTracker.com, Vesselfinder.com and MarineTraffic.com.

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Data from multiple sources confirm a sharp acceleration in post-sanctions flag hopping. According to Lloyd's List, the average interval between reflagging events for shadow fleet vessels fell from 194 days in 2022 to just 45 days in 2025.[75] Among the 295 Russian tankers first sanctioned by the US, EU, or UK, CREA finds that 45% changed flags within three months and 59% within six months, with the highest frequency occurring when sanctions originated from the US or UK.[76]

As the G7+ pressure increased on open registries, shadow fleet tankers shifted towards smaller registries with limited maritime oversight, including Antigua and Barbuda, Barbados, Guyana, Honduras, Sierra Leone, and San Marino.[77] False flagging—fraudulent registration, use of defunct flags, or digital misrepresentation—has also become more widespread. CREA data[78] show that, in the first three quarters of 2025, 113 sanctioned Russian shadow fleet vessels operated under false flags, carrying 13% of Russia's oil exports. Malawi, which lacks a national registry, was the most frequently used false flag, followed by Benin, Guyana, and Comoros. The number of monthly cases increased significantly, rising from 19 in January to 110 in October 2025, and then fell to 63 in February 2026.[79] A significant number of such falsely flagged vessels transit the Baltic Sea, and such transits almost quadrupled throughout 2025.[80] Some ships even continued to claim Panama's flag after it removed sanctioned vessels from its registry in 2024.[81] However, detection of such cases remains difficult as MMSI numbers alone cannot verify a vessel's true flag status.

[75] B. Diakun, "Flag hopping hits unprecedented levels among sanctioned fleet," *Lloyd's List*, 25 April 2025, www.lloydslist.com.

[76] V. Raghunandan, L. Wickenden, "Flags of inconvenience: 113 vessels flying a false flag transported EUR 4.7 bn Russian oil in first three quarters of 2025," CREA, 27 November 2025, https://energyandcleanair.org.

[77] G. Saiz Erausquin, T. Keatinge, *op. cit.*

[78] V. Raghunandan, L. Wickenden, *op. cit.*

[79] V. Raghunandan, *op. cit.*

[80] "False flag Baltic transits almost quadruple throughout 2025," *Lloyd's List*, 6 February 2026, www.lloydslist.com.

[81] B. Diakun, *op. cit.*

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Conclusions

Elżbieta Kaca

The G7+ oil sanctions have reduced Russia's oil revenues, forcing a shift towards Asian buyers such as China, India, and Turkey. Although production has remained relatively stable, discounted Urals crude, longer transport routes, and damage to refining capacity have lowered income, with oil and gas now providing only about 25% of Russia's budget. However, the effectiveness of the G7+ sanctions has proven sensitive to geopolitical developments. Given Russia's significant share of the global oil market, the volatility triggered by the 2026 US-Israel war with Iran and the closure of the Strait of Hormuz has temporarily boosted Russia's oil revenues. This increase was driven by higher demand from Asian countries and the temporary easing of US sanctions.

To mitigate the sanctions, Russia has expanded its non-G7+ transport network, acquiring more than 700 ageing tankers and shifting most exports to the shadow fleet. This fleet relies on opaque ownership, non-Western insurers, AIS manipulation, and widespread STS transfers, enabling sanctions evasion and making international monitoring challenging.

The shadow fleet also poses growing maritime, environmental, and security risks on a global scale. Old, poorly maintained, and often uninsured vessels are more prone to collisions and spills, while AIS-dark operations and risky STS transfers heighten accident risks. Documented leaks in European waters and allegations of sabotage and intelligence gathering underscore the threat, especially in regions with dense subsea infrastructure.

Although G7+ sanctions specifically targeting the shadow fleet and its affiliated networks have not eliminated Russia's operations, they have made them more costly, complex, and volatile. Only the largest US, EU, and UK sanctions packages produced short-lived reductions in shadow fleet activity. Each time, Russia has rapidly adapted by shifting between price cap-compliant shipping and shadow fleet logistics. This resilience reflects flexible Russian practices and continued tolerance among buyers and service providers.

Sanctions on the shadow fleet have significantly increased the cost of exporting Urals crude. Stricter enforcement has widened the Urals–Brent discount, as higher transport risks, insurance limits, and the threat of delays force Russia to offer deeper price

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cuts. Longer routes to Asia, opaque logistics, and reliance on shadow fleet services have sharply raised expenses, with transport costs exceeding $13 per barrel during major sanctions periods. These effects are strongest after large US sanctions packages but diminish as Russia adapts—through ownership changes, reflagging, route shifts, STS transfers, and blending to obscure origin. Without sustained, coordinated enforcement—including pressure on actors in third countries—the impact erodes over time. Ultimately, while sanctions have not stopped Russian exports, they have reduced profitability and increased the fragility and cost of Russia's maritime supply chain.

Despite the reduced effectiveness of sanctions, sanctioned tankers still carry a large proportion of Russian crude oil, and most operators appear unconcerned about being detected. The fleet continues to operate widely by exploiting regulatory loopholes.

Firstly, efforts to block vessel acquisitions have fallen short. Russia continues to purchase ageing tankers—often at inflated prices—from EU and other international sellers through intermediaries and shell companies. This has enabled steady fleet growth and created a profitable secondary market for obsolete ships. At the same time, a broader "flexible fleet" has emerged, serving multiple sanctioned exporters (e.g. Iran) and operating through opaque firms registered in permissive jurisdictions.

Secondly, the ability of states to detain Russia's shadow fleet tankers is very limited, as UNCLOS guarantees broad freedom of navigation, especially in the EEZ and on the high seas, and allows intervention only in narrowly defined cases. Exceptions such as statelessness, false flagging, non-innocent passage, or environmental violations require substantial evidence and rarely apply. Tools like insurance checks, STS regulations, or enforcement in territorial and contiguous zones offer only limited leverage, while political caution and fear of escalation further discourage action. As a result, detentions remain limited, and the shadow fleet continues to operate largely unhindered in international waters, exploiting both maritime law protections and the reluctance of coastal states to enforce them.

Thirdly, Russia's shadow fleet exploits major weaknesses in the global flag registration system. Because UNCLOS sets minimal requirements and international bodies lack enforcement powers, vessels can reflag repeatedly with almost no scrutiny. This enables sanctioned tankers to obscure ownership, avoid inspections, and continue operating despite restrictions. Since 2022, flag hopping has surged: many sanctioned ships have changed flags multiple times, often adopting new names, owners, or managers. They increasingly reflag to small, weakly regulated registries, where oversight is minimal, and false flagging practices have grown. By 2025, these vessels were carrying a significant share of Russia's oil exports. Overall, permissive registries, weak global rules, and limited enforcement enable the shadow fleet to maintain operations through rapid, opaque reflagging.

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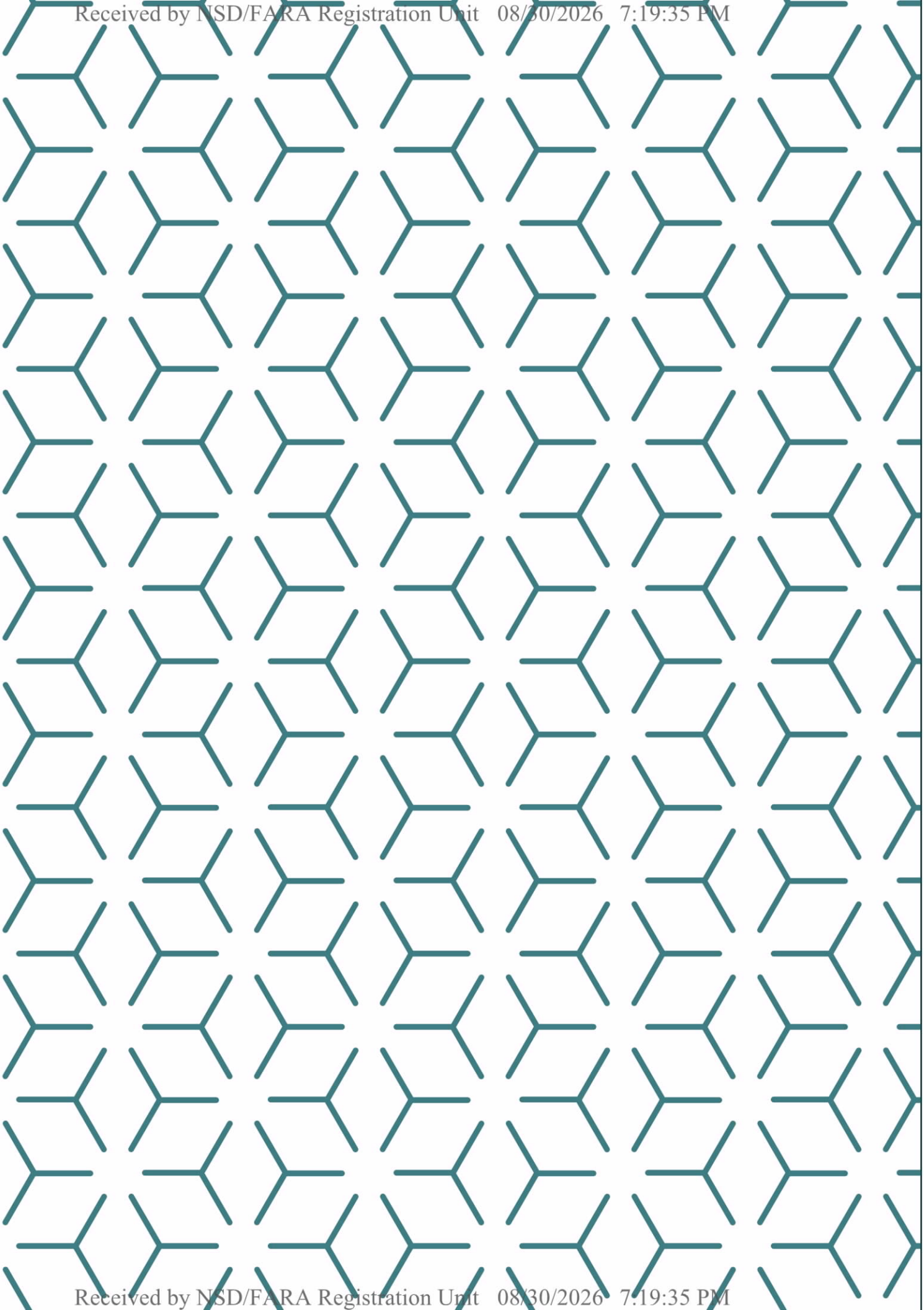
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The unchecked expansion of the shadow fleet also creates broader systemic risks that extend beyond immediate concerns about safety and sanctions evasion. As more vessels operate outside the remit of established regulatory, financial, and technical oversight, the likelihood of large-scale maritime incidents increases. These incidents could include spills or collisions capable of disrupting major shipping lanes or damaging critical subsea infrastructure. The persistence of opaque ownership structures and informal financing channels facilitates money laundering, corruption, and the infiltration of global shipping networks by criminal or intelligence-linked actors. Over time, the normalisation of these practices risks establishing a parallel, poorly regulated transport ecosystem that undermines international maritime standards, weakens the credibility of sanctions regimes, and erodes transparency in global oil markets. If left unchecked, the shadow fleet could become a permanent feature of global energy logistics, exacerbating geopolitical vulnerabilities and complicating crisis response in strategically sensitive waters.

In order to curb the operation of the Russian shadow fleet, once the oil market stabilises following the end of the US-Israel conflict with Iran, the G7+ should shift from applying a price cap to imposing a complete ban on maritime services for Russian oil. Furthermore, they should increase pressure on major importers and restrict Russian access to Western financial services. Simultaneously, the coalition should target the entire shadow fleet ecosystem—including new tankers, ports, refineries, insurers, registries, intermediaries, and STS hubs—and coordinate additional US, EU, and UK sanctions to limit circumvention. Stronger inspections, tighter control of reflagging, and stricter technical and environmental standards for ageing vessels would increase the operational risks faced by the shadow fleet and improve maritime safety. While this approach would not entirely eliminate the shadow fleet, it would reduce its usage for oil transport.

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