

## Analysis of Russian shadow fleet data reveals

# RISK OF OIL DISASTER OFF GERMAN COAST

Wiebke Denkena, Oliver Worm  
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**With a pair of good binoculars, visitors to the Darß-Zingst peninsula or the island of Fehmarn can easily spot ships that belong to Russia's shadow fleet: the old, poorly insured tankers Russia uses to export oil. Loaded with hazardous cargo, these vessels sail daily along Germany's Baltic coast. Our findings show that the risk of an oil disaster has increased significantly in recent years.**

Since the EU halted imports of Russian oil, Russia has ramped up maritime shipping of crude oil. A sanctions package bars Western shipping companies and insurers from handling Russian oil exports priced above USD 60 per barrel.<sup>1</sup> Russia is bypassing these sanctions by using ships owned and insured by companies in countries that do not enforce them.

The shadow fleet consists of ageing, poorly maintained tankers.<sup>2</sup> Many of them are inadequately insured, raising questions about liability in case of an emergency.<sup>3</sup> Some ships don't even have up-to-date nautical charts on board.<sup>4</sup> Yet, they continue to transport hazardous cargo across global waters, often passing through protected areas. The largest tankers can carry volumes of oil equivalent to more than 100 Olympic swimming pools. A spill from one of these vessels would result in an environmental disaster of unprecedented scale.

Off Germany's Baltic coast, these tankers navigate some of the most hazardous waters in the region. The Kadet Trench, located northeast of Rostock, is a shipping corridor composed of deep seafloor channels. Essential for global trade, it serves as the main route for large oil tankers and cargo ships travelling through the Baltic Sea. It is one of the busiest shipping routes in the Baltic, but its narrow channels make it especially challenging and prone to accidents. Groundings and collisions are not uncommon.

Experts estimate that an oil disaster in the Baltic Sea is only a matter of time.<sup>5,6</sup> Given this, we sought to assess the actual risk of such an event. What insights do ship movement data provide about the situation off the coast of Germany? How prevalent is the shadow fleet in this area?

Our research focused on ships departing from Russian Baltic Sea ports such as Primorsk, St. Petersburg, Ust-Luga, and Vysotsk. These ships sail along the German Baltic coast, passing through protected areas like the Kadet Trench or the Fehmarn Belt. We specifically looked at east-to-west journeys, as ships on this route typically transport Russian exports. Our focus was on crude oil tankers due to their significant environmental risk. The data spans ship movements from 2021 to 2024 (Source: Lloyds Seasearcher) and includes additional vessel details (Sources: Lloyds Seasearcher and MarineTraffic).

### Ship movement data

The ship movement data is sourced from the Automatic Identification System (AIS), a tracking system that enables ships to transmit their position, speed, and other relevant information in real time. AIS was developed in the 1990s and became mandatory for larger vessels in 2000, as required by the International Maritime Organization (IMO). The system is used to monitor ship traffic, improve maritime safety, and manage environmental pollution.



Figure 1: Main Baltic Sea routes used by Russian crude oil tankers

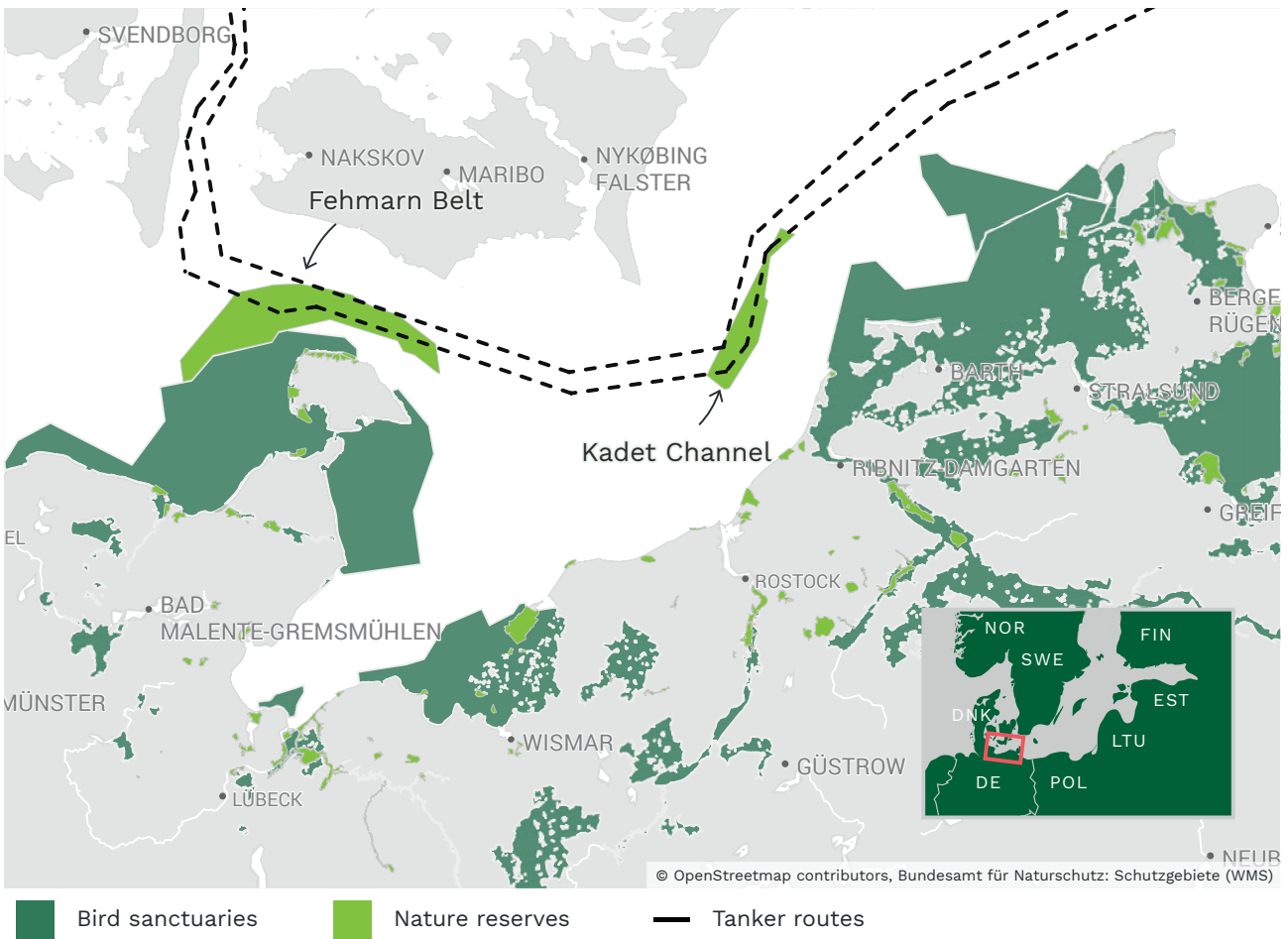


Figure 2: Main shipping routes of Russian crude oil tankers off Germany's Baltic coast

# Increased crude oil tanker traffic through the Kadet Trench

There has been a significant increase in crude oil tanker traffic off the German Baltic coast. Since January 2021, the number of tankers departing from Russia with crude has risen by 70 percent (see Figure 4). India and China have become major buyers of Russian oil, much of which is transported by sea through the Baltic and along the German coast.<sup>7</sup>

Last year, nearly 1,000 Russian oil-laden tankers sailed westward along the Baltic coast, averaging two to three ships per day. This is the highest number of Russian oil tankers ever recorded off the German coast.<sup>8</sup>

The rise in Russian crude oil exports is striking, especially considering the overall decline in shipping traffic from Russia. Since the beginning of the war, maritime activity between Russian Baltic ports and the German Baltic coast has decreased (see top chart in Figure 4). Container ships and other cargo vessels are now less frequent on this route (see bottom chart in Figure 4). The world's largest container shipping companies – Maersk (Denmark), CMA CGM (France), and MSC (Switzerland) – have largely suspended their services to Russia.<sup>9</sup> MSC is the only major company still operating in Russian Baltic ports, but the company has stated that it limits its transport to food, medical, and humanitarian cargoes.<sup>10</sup>

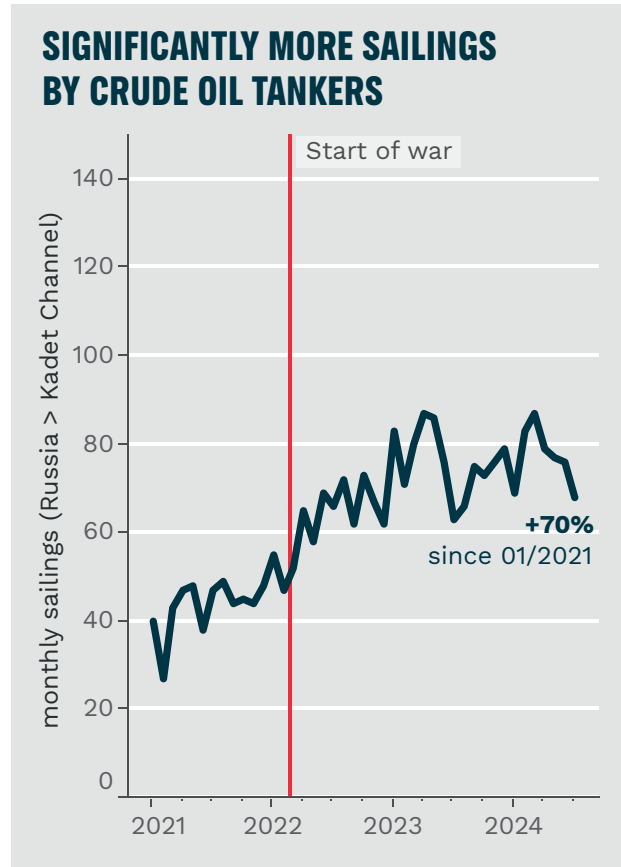


Figure 3

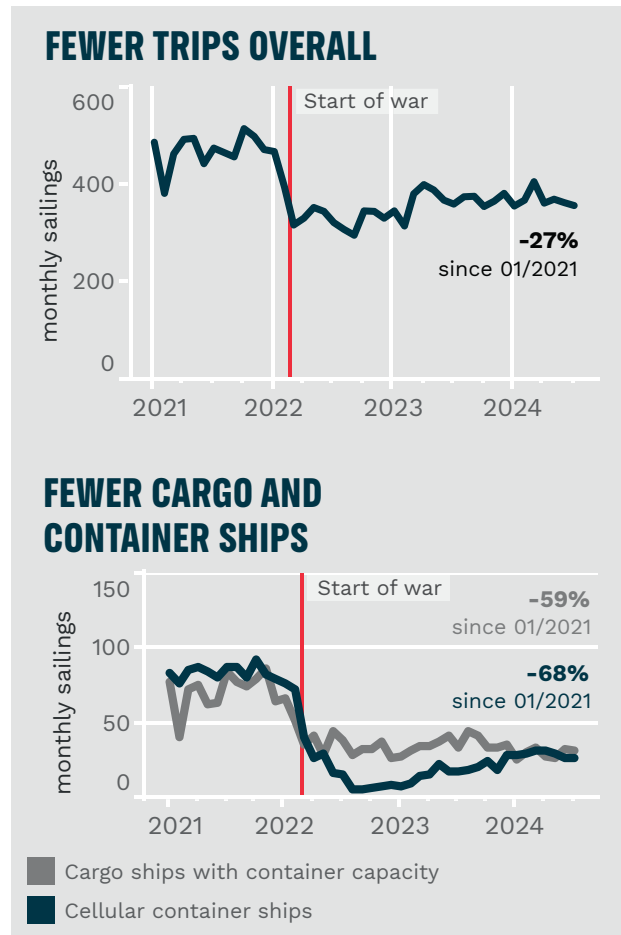


Figure 4

## Significant environmental risk from aging ships with inadequate insurance

Since the invasion, Russian exporters have increasingly been using older ships for crude exports from Baltic ports. In 2021, the average age of crude oil tankers was 8.9 years. However, by 2024, it had jumped to 16.6 years. Figure 5 shows a significant increase in the number of oil tankers travelling westward along the Baltic coast in 2023 compared to before the war. Many of these ships are now over 15 years old. As tankers age, they become more susceptible to wear and corrosion, which heightens the environmental risk.

At the same time, more ships are operating without insurance for specific risks like oil spills. Conventional ship insurance generally does not cover these damages (see Case Study 2). To fill this gap, many ship owners join a Protection and Indemnity Club for additional coverage. However, the data indicate that most oil-laden ships passing Germany's coast today lack this supplementary insurance. Last year, about two-thirds of these journeys were not protected by P&I insurance (see Figure 5).

## Many ships under flags of questionable reputation

Many crude oil tankers loaded in Russia are registered under flags of convenience, a practice where ship owners register their vessels in a country other than their own, allowing them to fly that country's flag (see Figure 6). These flags, from countries like Panama, Liberia, and the Cook Islands, offer low taxes, lax safety regulations, and minimal standards.<sup>11</sup> This makes them particularly appealing for substandard ships. At the same time, the registration process requires minimal information about the ship's ownership.<sup>12</sup> In July 2024, 40 percent of crude oil tankers transporting Russian oil along the German coast had opaque ownership structures. The issue is especially prevalent among ships flying flags of convenience.

Panama, Liberia, and the Cook Islands operate the three largest ship registries in the world, with vessels from around the globe sailing under their flags.<sup>13</sup> Therefore, it's not unusual to see these flags on the Russian export routes in the Baltic Sea. More remarkable, however, is the disproportionately large number of ships flying the flag of Gabon, a Central African

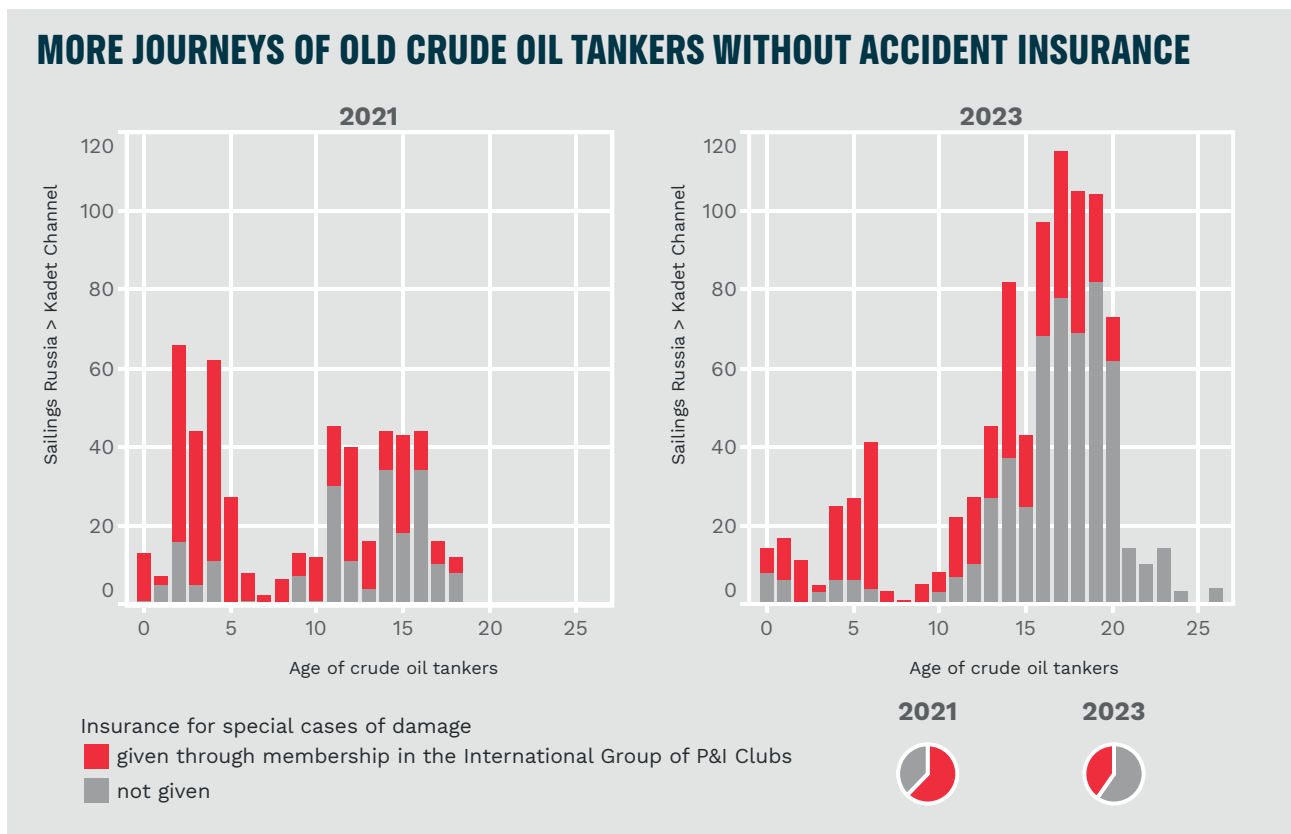


Figure 5

state. In July, 13 percent of Russian oil exports travelled along our coast under the Gabonese flag (see Figure 8).

Our data indicates that at the beginning of 2024, many ships switched from the Liberian flag to the Gabonese flag. The United States has increased pressure on the Liberian ship registry, which is based in the U.S., to enforce sanctions on Russian oil exports.<sup>14</sup> However, the Gabonese ship registry, with offices in the United Arab Emirates, Mumbai, Piraeus, and Hong Kong, continues to allow Russian oil trade under its flag, presumably above the price cap. According to S&P Global data, 98 percent of ships flying the Gabonese flag are involved in the Russian oil trade.<sup>15</sup>

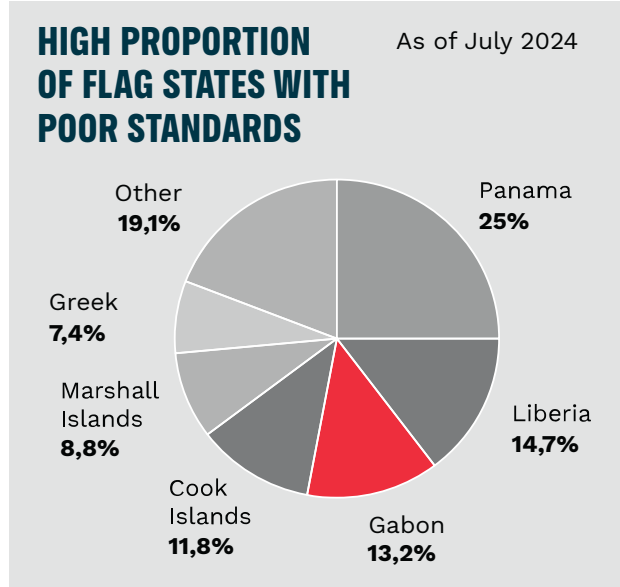


Figure 6: Breakdown of flag states for sailings from Russian Baltic ports through the Kadet Trench in July 2024

## Case studies

### Case 1: Three inadequately insured crude oil tankers off the German Baltic coast

On August 5, 2024, three crude oil tankers, aged 17, 18, and 19 years, all flagged in Panama, sailed westward along the German coast (see Figure 7). Together, they were potentially carrying up to 328,000 tons of crude oil. A spill of this magnitude could create a 0.1-millimetre-thick oil slick covering roughly 4,000 square kilometres – an area the size of Saarland, Hamburg, and Berlin combined. This estimate is conservative, as oil slicks can be thinner and spread over an even larger area.

The insurance status of many tankers in the shadow fleet used for Russian oil exports is often unclear. However, most of these vessels are known to lack membership in reputable Protection and Indemnity (P&I) clubs. Membership in these clubs provides additional coverage for incidents that standard shipping insurance typically does not cover, particularly accidents and oil spills.

According to leaked documents reviewed by the Financial Times, many Russian vessels travelling from the Baltic are insured by the Moscow-based insurance company Ingosstrakh.<sup>16</sup> The documents show that Ingosstrakh policies have clauses that

can easily invalidate claims in the event of an incident, particularly if the tanker is transporting oil sold above the established price cap. Many vessels, already inadequately insured by Ingosstrakh, also lack coverage from a P&I club. Without this extra protection, Germany and other coastal nations in Europe and Asia could face significant environmental risks and costs in the event of an oil spill.

The Naxos, which last travelled along the German Baltic coast in early August 2024, is insured by Ingosstrakh but does not have additional P&I coverage. An inspection in May 2024 revealed ten significant faults, including problems with the tanker's fire protection systems and deficiencies in the measuring and monitoring equipment essential for safe and efficient operation.

Name and IMO number	PANTA REI 19332781	NAXOS 9336426	SAGITTA 9296822
Vessel type	Crude oil tanker	Crude oil tanker	Crude oil tanker
Age	18 years old	17 years old	19 years old
Capacity (DWT)	115,536 tons	105,827 tons	106,433 tons
Flag	Panama	Panama	Panama
Owner	unknown	unknown	Sunne Company Ltd.
Insurer	unknown	Ingosstrakh (Moskau)	unknown
P&I club	-	-	-

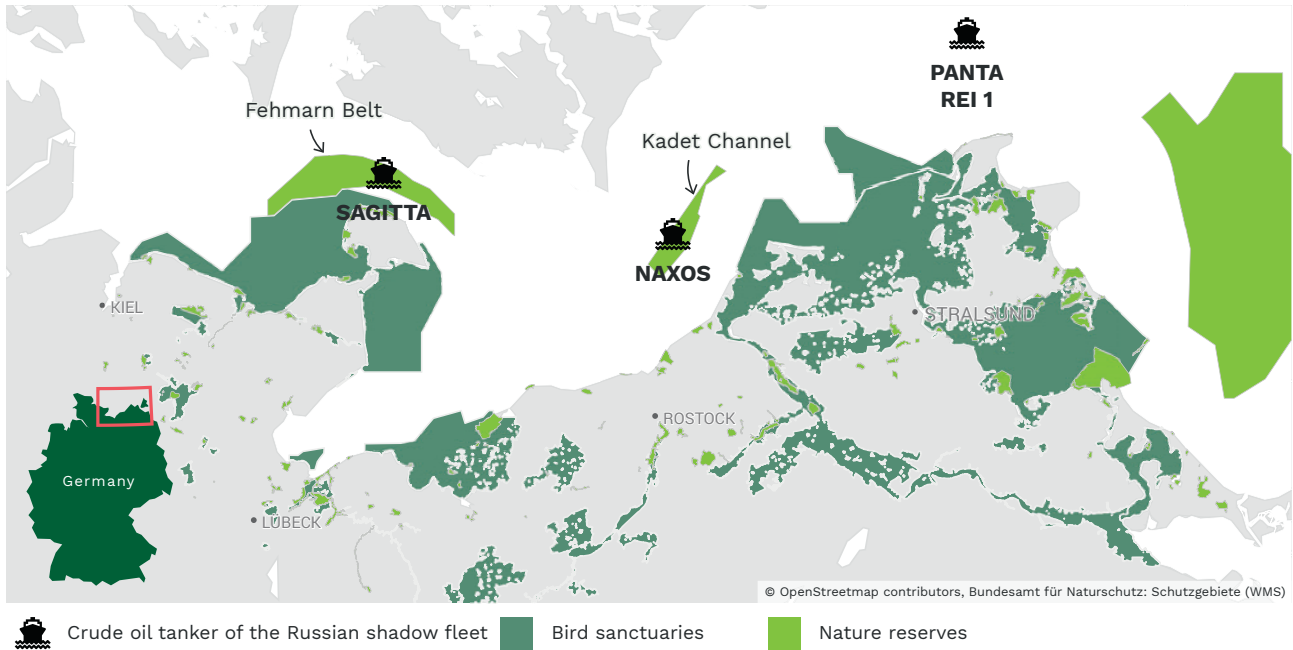


Figure 7 – case 1: Shadow fleet oil tankers off the German Baltic Sea coast on 5 August 2024 at 4:38 AM. The tankers pass through protected areas such as the Fehmarn Belt and the Kadet Trench. In the event of an oil spill, there is a high likelihood that nearby nature reserves and bird conservation areas along the coast would also be impacted.

## Case 2: Poor condition of shadow fleet tankers in the Baltic Sea

On August 22, 2024, the three oil tankers – the Nari Strength, the Ursus Arctos, and the Chilli – sailed past the German coast en route from Russia to global oil markets. By midday, they were in the Baltic Sea, with two tankers navigating through the protected areas of the Kadet Trench and Fehmarn Belt. Collectively, they were transporting up to 275,000 tons of oil.

The oldest tanker among them was the Chilli, built in 2004. This 247-meter-long vessel, sailing under the flag of Antigua and Barbuda, was transporting Russian crude oil to Yanbu, Saudi Arabia. The Chilli has a history of inspection issues, with Indian authorities noting significant corrosion on its hull in July 2023. In March 2024, six more defects were reported, including problems with the engine and the Inert Gas System – a safety system designed to prevent explosions caused by volatile oil vapours on tankers.

The second tanker was the Ursus Arctos, another ageing vessel in Russia's shadow fleet. It is an 18-year-old tanker measuring 251 meters and flagged in Liberia. It was fully loaded with crude oil and was heading to Port Said, Egypt (the final destination had not yet been reached at the time of publication). The vessel is owned by Solid Energy

Solutions DMCC, based in the United Arab Emirates. Unlike many other tankers in the shadow fleet, the Ursus Arctos has coverage through a P&I club insurance policy.

The Nari Strength, the youngest of the three tankers, was built in 2007, measures 195 meters, and sails under the flag of the Cook Islands. According to AIS-data at the time of publication, the ship is headed for Singapore. The actual owner of the tanker is unknown.

Name and IMO number	URSUS ARCTOS 9297369	CHILLI 9249130	NARI STRENGTH 9323352
Vessel type	Crude oil tanker	Crude oil tanker	Oil/chemical tanker
Age	18 years old	20 years old	17 years old
Capacity (DWT)	113,553 tons	109,295 tons	52,642 tons
Flag	Liberia	Antigua Barbuda	Cook Islands
Owner	Solid Energy Solutions DMCC (Vereinigte Arabische Emirate)	Coastal-Crest Shipping Ltd. (Antigua & Barbuda)	unknown
Insurer	unknown	unknown	unknown
P&I club	American Steamship Owners Mutual Protection & Indemnity Association	–	–

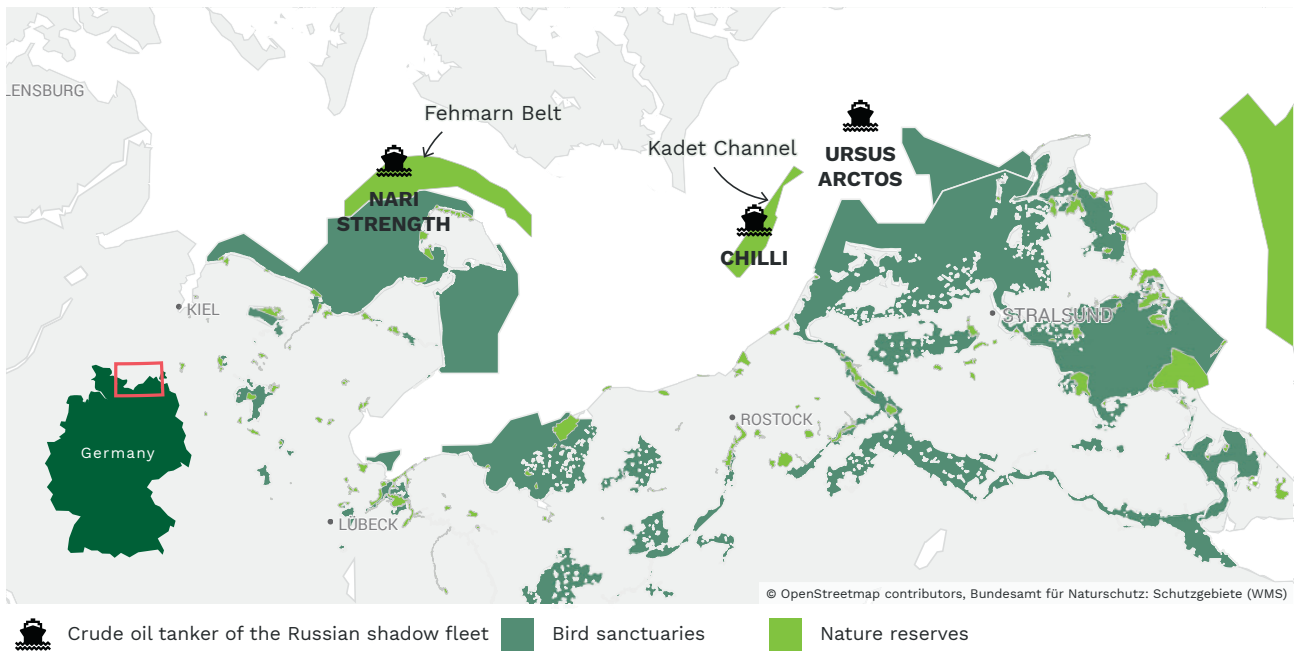


Figure 8 – case 2: Shadow fleet oil tankers off the German Baltic Sea coast on 22 August 2024 at 12:44 PM. The tankers pass through protected areas such as the Fehmarn Belt and the Kadet Trench. In the event of an oil spill, there is a high likelihood that nearby nature reserves and bird conservation areas along the coast would also be impacted.

## Conclusion

Since the beginning of the war, there has been a notable change in shipping traffic off the German Baltic coast. While pipeline deliveries of Russian crude oil to the EU have decreased, exports by sea have increased significantly. Currently, there are 70 percent more crude oil tankers passing along the German Baltic coast than in January 2021, with as many as three tankers frequently sailing off the coast simultaneously.

However, it's not just the volume of tanker traffic that has changed – the quality of the ships has also deteriorated. Today, the crude oil tankers navigating through protected areas like the Kadet Trench and the Feh-

marn Belt are, on average, much older than before the war began. They are often poorly insured against specific risks such as oil spills, have significant safety deficiencies, and sail under flags of countries notorious for lax oversight. This is an unintended consequence of the G7 sanctions, which ban Western shipping companies and insurers from handling Russian exports priced above the USD 60 per barrel cap.

**The data clearly indicate that the likelihood of an oil disaster off our coast is significantly higher than before the war. The lack of adequate insurance coverage greatly increases the risk that neighbouring Baltic states will be left to bear the financial burden of such an incident.**

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**Responsible for content:** Greenpeace Germany I Research & Investigations Unit, Nils Jansen,

**Text / Editor:** Wiebke Denkena, Oliver Worm, **Graphics:** Wiebke Denkena,

**Photo:** [M]: Greenpeace, **Layout:** Carla Brobst

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