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Russia's Naval Build-up at Lake Ladoga

NATO Must Increase Its Long-range Fire Capabilities in the Baltic Sea Region

Helge Adrians

Russia apparently aims to be capable of attacking targets in the Baltic Sea region from Lake Ladoga, which is located north of Saint Petersburg and only 40 kilometres from the Finnish border. Since 2023, Russia has been evaluating the deployment of corvettes equipped with cruise missiles there. Such warships have already carried out strikes deep into Syria and Ukraine. Their recent deployments to Lake Ladoga could complicate the defence of NATO's north-eastern allies. Simulated launches were reportedly conducted for the first time in autumn 2024. However, NATO still lacks information about Lake Ladoga. Developments there underscore the need for conventional long-range fire capabilities into Russia's strategic depth to deter Moscow effectively.

After Russia's annexation of the Crimean Peninsula in March 2014 in violation of international law, two decades of cooperation between all Baltic Sea nations ended. Since then, a new phase of confrontation has prevailed. Following the attack on the two Nord Stream pipelines in September 2022, this confrontation has taken place primarily on the seabed. The Baltic Sea states suspect Russia of deliberately spying on and covertly sabotaging their critical undersea infrastructure. Therefore, their focus lies on alleged research vessels and merchant ships behaving suspiciously. However, little attention has been paid to the fact that Russia is building up capabilities on the edge of the Baltic Sea. This also poses a threat to critical infrastructure, both at sea and ashore.

Small missile ships with huge firepower

In October 2023, the magazine *Krasnaya Zvezda*, an official publication of the Russian Defence Ministry, reported that two warships had spent a considerable amount of time in Lake Ladoga the previous month. This information was not unusual at first. Since the 1950s, weapon systems have been tested in this inland body of water that covers almost 18,000 square kilometres and is the largest in Europe. The lake is also part of a strategic network of inland waterways known as the Unified Deep Water System of European Russia (UDWS). It connects the Baltic Sea with the White Sea in the Arctic Ocean, among others. Therefore, small warships regularly cross Lake Ladoga as a shortcut instead of sailing around

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Scandinavia. What makes the report in *Krasnaya Zvezda* noteworthy, however, is the information of which units were in the lake and why.

The *Sovetsk* and the *Odintsovo* are two relatively new corvettes of the *Karakurt* class. Along with the slightly older but otherwise similar *Buyan-M* class, these are officially designed for anti-surface warfare in the littorals. Compared to their Western counterparts, these ships exhibit two notable characteristics: They are small enough to be deployed on rivers but have an eight-cell vertical launch system for guided missiles. It can be used to fire cruise missiles of the *Kalibr* series. One variant can hit land targets at a distance of up to 2,500 kilometres. In October 2015, Russia surprised the world when three *Buyan-M*-class corvettes in the Caspian Sea, among other vessels, attacked targets 1,500 kilometres away in Syria , which was then controlled by Islamist organisations. The corvettes thus have the same qualitative striking power as US Navy cruisers or destroyers twice as large. As of January 2025, Russia has 11 units of the *Karakurt* class and six of the *Buyan-M* class in service. The Russian government plans to procure nine more ships of the latter.

The *Sovetsk* and the *Odintsovo* are part of Russia's Baltic Fleet. Their home port is Baltiysk in the exclave of Kaliningrad. According to *Krasnaya Zvezda*, the corvettes undertook "experimental combat duty" in Lake Ladoga. The initial objective was to reach the lake from the Baltic Sea via the Neva River, which traverses Saint Petersburg, without the assistance of tugboats that are normally required due to the strong currents. Upon arrival in the lake, the crews had to contend with the sparse logistical conditions of an unspecified naval base abandoned since 2004. According to a Russian military blogger, this was likely Lakhdenpokhya to the north-west of the lake, only 40 kilometres from the Finnish border. From here, the corvettes did various exploration tours to familiarise themselves with the waters.

Safe space for the Baltic Fleet

The objective of these efforts was explicitly articulated in *Krasnaya Zvezda*: protection. This function is enabled by Lake Ladoga's strategic position on the edge of the Baltic Sea. Since Finland's defeat in the Second World War, the lake has been surrounded by Russian territory, and its access is controlled by Moscow. Therefore, reconnaissance on the ground is difficult for opponents and feasible only via sensors such as satellites.

This seclusion creates a significant Western intelligence deficit regarding activities on the lake. Foreign warships, Uncrewed Surface Vehicles (USVs) or drifting mines are unable to enter the pool, thereby precluding direct endangerment of Russian units. The units' detection is further complicated when they conceal themselves in the rugged archipelago in the north of the lake or manoeuvre unpredictably. This is exacerbated by stealth technology. The vessels are equipped with close-in weapon systems, mounted on the upper deck or intended to be retrofitted. In addition, there are several air defence sites in the surrounding area, which have been reinforced during the war against Ukraine. While these systems are primarily intended to shield the metropolis of Saint Petersburg, they also cover Lake Ladoga.

Russia's emphasis on protection is likely informed by its operational experiences in Ukraine. Although Kyiv lost most of its warships following the annexation of Crimea in 2014 and the Russian invasion in 2022, the Ukrainian armed forces succeeded in keeping the Russian Black Sea Fleet at a distance through land-based anti-ship missiles and sea mines. This effectively created space for USV kamikaze attacks, a tactic which Ukraine initiated in October 2022 and has pursued intensively since its 2023 summer offensive. Without a blockade of Ukrainian territorial waters, Russia was unable to execute the broader amphibious landing it had initially planned. Consequently, the Black Sea Fleet has been able to fulfil only one prerequisite for achieving sea control:

striking land targets. In this context, the corvettes of the *Karakurt* and *Buyan-M* classes play a significant role. However, two have been damaged by Ukrainian strikes in the Black Sea, and one has been destroyed.

The imperative of protection is further underscored by Finland's accession to NATO. Russia's full invasion of Ukraine prompted Helsinki to abandon its long-standing policy of military non-alignment and to apply for NATO membership in May 2022. Finland formally joined the alliance in April 2023. The step entailed serious geostrategic changes for Moscow. Firstly, Russia's land borders with NATO increased by over 1,000 kilometres, eliminating what Russia perceived as a strategic buffer zone. Secondly, Western allies now possess the capacity to deploy troops in closer vicinity to Russian territory, facilitating potential strikes into its hinterland. Thirdly, the fact that the Gulf of Finland is now flanked by two NATO members, Estonia and Finland, increases the possibility of blockading the route to Saint Petersburg. This corridor has seen a considerable rise of economic significance after the EU increased sanctions against Russia.

In the event of a conflict, such a blockade would mean the division of the Baltic Fleet. Russia maintains a strong coastal artillery equipped with anti-ship cruise missiles in Kaliningrad, but Sweden, Poland and Finland's capabilities should not be underestimated, while the three Baltic states are in the process of acquiring them. This would make naval operations extremely risky for both parties, likely resulting in a swift reduction in ship movements. In turn, Kaliningrad could be subjected to artillery bombardment from Poland and Lithuania, resulting in Baltiysk becoming indefensible by Russia. An escape westward would be equally risky, as it would mean passing the Danish straits.

Given these circumstances, it is improbable that the Baltic Fleet could attain sea control in a confrontation with NATO. The utilisation of Lake Ladoga would offer the opportunity to safeguard small ships of the fleet, therefore preserving a minimum of operational autonomy. This would enable support for land operations, as seen in Ukraine.

Deterrence against Finland

One week after the publication of the article in *Krasnaya Zvezda*, the Kremlin-aligned daily newspaper *Izvestia* disclosed additional details. It reported that the deployment of the *Sovetsk* and *Odintsovo* was linked to a study commissioned by the Russian Ministry of Defence. The study examined operational benefits of the *Karakurt* and *Buyan-M* classes within Lake Ladoga. The article cited Russian experts who speculated that these measures were specifically directed against Finland.

Helsinki's decision to join NATO apparently caught Moscow off guard. Russian plans to strengthen defences along the border first became public in December 2022. Until Finland's formal accession to NATO in April 2023, no significant developments such as troop redeployments had been observed. The fact that corvettes equipped with land-attack cruise missiles were utilised to survey Lake Ladoga in September 2023 appears threatening at first glance. After all, the firepower of a single unit of the *Karakurt* or *Buyan-M* class is equivalent to the salvo of an entire missile battalion equipped with the *Iskander-K* system. Although this capacity is not sufficient for a large-scale bombardment, and the vessel would require extensively reloading in port, it could nonetheless contribute to coordinating attacks on critical infrastructure (Strategic Operation for the Destruction of Critically Important Targets, SODCIT).

The idea of SODCIT is to deter an adversary from continuing or escalating a conflict by influencing the morale of the political leadership or society through the destruction of key assets with as few casualties as possible. Such a strategy has been evident in Ukraine as a form of attrition warfare. According to Russian military theory, however, SODCIT may also

be employed during the period between peace and war, for instance through pre-emptive strikes. Corvettes are particularly well suited to this purpose.

However, a side note in *Krasnaya Zvezda* acknowledges that it is not operationally necessary to station these ships in Lake Ladoga to hold Finland at risk. Because of the considerable range of cruise missiles, it makes no fundamental difference whether they operate from Lake Ladoga or other, unnamed areas.

One of these alternatives is likely the White Sea. Since 2020, corvettes from the Baltic Fleet have seasonally transited from the Baltic Sea to the White Sea via the UDWS for training in cruise missile launching. The precise location of these exercises remains publicly undisclosed. The designated range was the Chizha training area on the Kanin Peninsula in the eastern Barents Sea, a few hundred kilometres away. The *Zelenyy Dol* of the *Buyan-M* class, accompanied by the *Odintsovo*, began the exercises in August 2020. It was followed in September 2021 by the *Sovetsk*, in August 2022 by its sister ship *Mytishchi* and in October 2023 by the *Serpukhov* of the *Buyan-M* class.

What the *Krasnaya Zvezda* omitted, however, is that there is a significant operational distinction between deploying corvettes in Lake Ladoga or the White Sea. The centres of the two bodies of water are separated by over 500 kilometres. From Lake Ladoga, it is possible to strike deeper into the western Baltic Sea, for example as far as eastern Germany. The flight time of cruise missiles from the lake would also be reduced, thereby shortening early warning times.

New bastion in the shadow of the Baltic Sea

Although some military bloggers as well as regional and specialist media outlets reported on the *Krasnaya Zvezda* and *Izvestia* articles, the presence of the *Sovetsk* and *Odintsovo* in Lake Ladoga went widely uncommented in the West. A paper on the Baltic Sea region by the renowned US think tank RAND, published in the summer of 2024, neither mentioned the lake by name nor depicted it on an included map. Shortly afterwards, however, it was confirmed that Russia intends to strengthen its military presence in the area.

In September 2024, the *Grad* and *Naro-Fominsk* of the *Buyan-M* class were deployed from Saint Petersburg to Lake Ladoga. A camera team working for *Zvezda*, a TV network run by the Russian Ministry of Defence, was on board. Subsequently, Western military bloggers circulated satellite images showing the ships at a floating jetty near Storozhevoye, north of Priozersk. This site is a testing facility for underwater systems operated by the state-owned arms manufacturer Gidropribor. A few days later, the Russian state news agency TASS reported that the deployment of the corvettes to Lake Ladoga was part of the large-scale, fleet-wide exercise *Ocean-24*, conducted that month. According to this report, the ships practiced jamming and carried out electronic launches of cruise missiles. There was no further mention of protection, the sole focus being on deterring NATO.

Whether Finland was genuinely impressed is debatable. When Russia had announced six months earlier, in April 2024, that it would deploy three missile battalions equipped with *Iskander-M* in the neighbouring region of Karelia, the Finnish response was markedly dismissive. A Finnish security expert wrote on platform X that he considered it absurd to position long-range fires closer to a declared enemy, thereby increasing their vulnerability.

Nevertheless, the threat posed by such deployments should not be underestimated, as detecting and engaging missile launchers is no trivial task. The situation in Kaliningrad is illustrative in this regard. Although almost entirely encircled by NATO member states, the systems stationed there for air and coastal defence possess the capacity to temporarily deny Western forces access to the area and constrain their freedom of movement within it (Anti-Access/Area Denial, A2/AD). The degradation of these systems would likely prove both time-

consuming and resource-intensive. Both factors would have adverse ramifications for the defence of the Baltic states, which are virtually locked behind Kaliningrad, thereby facilitating Russia's capacity to launch a full invasion or conduct SODCIT there. The situation may be similar for Finland if Moscow continues to expand its threat scenario in Karelia. The new bastion could either be activated simultaneously, thus posing a dilemma for the prioritisation of NATO's operational responses, or serve as a contingency option in the event that Kaliningrad falls.

The Russian corvettes constitute merely one element of this new bastion. In terms of their tactical deployment options, reports in *Krasnaya Zvezda* and *Izvestia* emphasised that these vessels could be moved across the UDWS like chess pieces. In addition to Lake Ladoga, this would extend to Lake Onega in the East. This is the second largest inland body of water in Europe and accessible via the Svir river. Alternative routes lead northwards via a canal to the White Sea and southwards via another canal and the Rybinsk Reservoir to the Volga. The river ultimately flows into the Caspian Sea and is connected by yet another canal to the Don. It flows into the Sea of Azov, a marginal sea of the northern Black Sea.

The military utility of the UDWS, frequently referred to during the Cold War, has historically been constrained by infrastructure and natural conditions. This stems from the quantity and structural condition of locks and bridges, as well as the depths and currents of the rivers. In the past, it required days or even weeks to redeploy warships across the UDWS. In the case of Lake Ladoga, an additional limitation is that it is typically icebound from November to May. In this regard, the corvettes will not fundamentally alter the geostrategic situation in that part of the Baltic Sea region. However, transits conducted under operational conditions in 2023 and 2024 can be interpreted as part of an evolving strategic posture.

Further Russian activities anticipated

Although Russia has disclosed its maritime intentions on Lake Ladoga, these declarations have not provoked any noteworthy response from Western actors. In terms of protection, such Western restraint is likely to align with Moscow's interest, though it does little to enhance Russia's deterrence posture. Additional Russian activities should therefore be anticipated in 2025. Drawing on previous years' experience, these are most likely to occur in September and October.

In the interim, it will be interesting to monitor the extent to which Russia's infrastructure is modernised or expanded. Although the Russian Navy announced the expansion of testing facilities on Lake Ladoga in 2017, this primarily concerned the installation of antenna systems. It is not publicly known where the corvettes have been moored, apart from Lakhdenpokhya in 2023 and Storozhevoy in 2024. However, the facilities at these sites are reportedly in need of refurbishment. According to satellite images, Storozhevoy can currently only accommodate two corvettes. An alternative site could be Vladimirovskaya Bay opposite Konevets Island, where a training area was previously maintained. In terms of water depth, Lasanen in the north-west sector of the lake may also prove suitable, as the state-owned arms manufacturer Okeanpribor operates a testing facility there. However, the corvettes appear to be unable to dock at its pontoons.

The ongoing war in Ukraine has once again underscored the strategic advantage of maintaining numerous small naval bases as opposed to a single large one. In summer 2024, Russia withdrew several ships of its Black Sea Fleet to the Sea of Azov, presumably to shield them from Ukrainian USVs. However, Kyiv was able to strike the Kavkaz ferry port on the eastern side of the Kerch Strait by using Unmanned Aerial Vehicles (UAVs). As an immediate result, Russia withdrew its units from the inland sea. In autumn 2024, Ukraine even succeeded in

striking the naval base at Kaspiysk on the western shore of the Caspian Sea. Through employing a light aircraft converted into a UAV, Ukraine reportedly inflicted damage on several warships.

It remains to be determined whether these developments will influence activities on Lake Ladoga. As long as Finland or other NATO members refrain from responding to Russia's activities in the region, Moscow retains several options for increasing its deterrence. Potential measures might include exercises involving reloading missiles under combat conditions. This would signal both operational readiness and endurance. To further underscore this potential, it would be logical to follow up the simulated launch of cruise missiles, either once again as an exercise towards Chizha or as a demonstrative contribution to operations against Ukrainian targets. In both scenarios, the coordination effort would be considerable as the missiles would traverse established air corridors. Such an action would be interpreted as a sign of determination.

Russian analysts have also discussed the potential deployment of conventionally powered submarines equipped with cruise missiles to Lake Ladoga. This is theoretically possible as Russia possesses the necessary vessels in the *Kilo II* and *Lada* classes. Units of the former have already been employed to strike land targets during the wars in Syria and Ukraine. The lake's average depth of 50 metres, with depths exceeding 230 metres in the northern basin, would also facilitate subsurface operations providing additional protection. It is worth noting that submarines have operated in Lake Ladoga since the Second World War.

Nevertheless, it appears improbable that submarines of the *Kilo II* or *Lada* class will be based there in the short to medium term. At present, the Baltic Fleet does not possess any of these units. They are currently under construction in Saint Petersburg, but their introduction has been repeatedly delayed due to technical complications. Furthermore, the logistical effort required to transfer a submarine to Lake Ladoga would be considerable, necessitating the use of barges and tugboats. This, in turn, precludes the possibility of rapid extraction of a submarine from the lake in a crisis scenario.

Closing the knowledge gap and strengthening deterrence

While most NATO members remain preoccupied with the deployment of long-range missile systems in Kaliningrad, Russia is establishing a second bulwark at the end of the Baltic Sea with comparatively modest effort. This segment of the marginal sea is likely to assume greater strategic relevance in 2025. The Baltic Sea states have abandoned their long-standing passivity towards Russian-affiliated research and commercial vessels suspected of espionage and sabotage. This shift raises the risk of escalation. Russia began with escort operations of tankers through the Gulf of Finland; an extension to the entire route from the North Sea to Saint Petersburg is likely. Signal jamming and spoofing as well as the use of UAVs could also increase.

It remains challenging to anticipate Russia's response, as the perpetrators of recent incidents have yet to be identified. Covert operations and overt military build-up are likely to proceed in parallel. Regarding the latter, it seems plausible that Moscow will issue threatening references to its missile arsenal, especially the coastal artillery in Kaliningrad. Established behavioural patterns would include issuing decisive statements or conducting snap exercises. One indicator of Russia's willingness to escalate may be whether, which and how many warships are deployed into Lake Ladoga or transferred via the UDWS to the White Sea.

Recent developments in the eastern Baltic Sea underscore the necessity for NATO to maintain credible deterrence. This requires the ability to conduct Deep Precision Strikes (DPS) using aircraft or missiles against targets in the Russian hinterland. At the present, most members of the alliance lack this capability.

However, the deficiency has been acknowledged, and several initiatives have been launched to address it. On 10 July 2024, during the NATO summit held in Washington, Germany and the United States announced their intention to deploy ground-based long-range fires capabilities of the US Army to Germany. Prior to this, the US Navy had already been conducting convoy protection drills involving the relevant launch vehicle on the Danish island of Bornholm on several occasions, indicating a potential deployment site. On 12 July, one day after the summit concluded, Germany, France, Italy, and Poland inaugurated the European Long-Range Strike Approach (ELSA) to procure their own ground-based medium-range weapons. Shortly afterwards, the United Kingdom and Sweden joined the initiative.

A comprehensive situational picture is essential for the deployment of long-range systems and thus for a credible deterrence. The procurement of those systems should therefore be accompanied by the establishment and enhancement of comprehensive surveillance covering the Baltic Sea region and its periphery. The objective is to minimise the interval between target identification and engagement. Initial steps in this direction are already evident.

The intelligence obtained should not be confined solely to military circles. Instead, it seems sensible to share findings from internal assessment with the public as part of strategic communication. This would allow Russia's activities, particularly in previously neglected areas such as Lake Ladoga, to be contextualised and counteract feelings of insecurity. The approach adopted by the British military intelligence service Defence Intelligence, serves as a notable example. Since Russia's full-scale invasion of Ukraine, it has been regularly publishing concise reports on current developments, which are subsequently disseminated by the UK Ministry of Defence via social media. Germany can already make a valuable contribution in this field, as it has assumed greater responsibility for security in the Baltic Sea region in recent years, for instance, through its role as Commander Task Force Baltic (CTF Baltic) coordinating maritime operations for NATO. The overarching aim is to eliminate any ambiguity that could be exploited by Russia.

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