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The Russian Navy and the War in Ukraine

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Up until the onset of the war in Ukraine (on February 24, 2022), Russian President Vladimir Putin perceived Russia's maritime strategy to be a significant factor affecting the Russian global hold. A greater maritime domain meant a decisive factor in the country's economic and social advancement. The Russian Navy in precise has a great executive control over this domain. In the Black Sea arena Russian Navy had been considered as the stable and powerful force, especially compared to the Ukrainian Navy, which was considered weaker.

The Russian Navy's involvement in the war in Ukraine (defined by Russia as a "special operation"), intended in its initial planning stages and along the first phase of combat (which lasted for roughly 50 days), to be an integral part of the Russian campaign. The fleet's strengths led to a successful contribution to the campaign on the "southern" front, which became part of the overall campaign. In this context, the Russian navy was expected to play a central role in defeating the Ukrainian navy.

The Russian Navy's advantages were essentially based on a superior alignment of forces in the face of its Ukrainian counterpart's shortcomings. When the former Soviet Black Sea fleet was divided up (after negotiations lasting until 2007), Ukraine received only approximately a fifth of the naval vessels in question. Additionally, the Russian navy on the "southern" front relied on renewed control of the Port of Sevastopol (after the annexation of Crimea by the Russian Federation in 2014). This control of the Crimean Peninsula thus extended the considerable Russian control over eastern territories on the Ukrainian coast, especially in light of the Russian control of the Kerch Strait – a chokepoint connecting the Black Sea to the Sea of Azov. A bridge built by Russia over this strait (opened in 2018) was a symbol of Russia's sovereignty over Crimea, and another step on the road to realizing its ambitions to take complete control of Ukraine. After the initial attack in 2022, the Russian Navy was tasked with completing the Russian takeover of the entire Ukrainian coast, particularly in the west, from the Gulf of Odesa to the estuary of the Danube in the south (on the Moldova-Romania border).

The Russian naval forces' successful advancements in combat were halted after 50 days mainly due to the surprising sinking of the Slava-class "*Moskva*" cruiser, the Black Sea Fleet's flagship vessel (on April 13, 2022). Until the sinking of the "*Moskva*", the Russian navy dominated the Black Sea, particularly through a naval blockade. This blockade resulted in an almost complete stoppage of commercial shipping activity from and to Ukrainian ports. This move affected the global food and raw materials market and has additional global implications, including energy-related issues – which soon affected

the increase in global market prices, transportation, shipping insurance, inflation, and the world economy. In this context, additional political and military implications such as restrictions on navigation in the Turkish Straits, as well as the involvement of other international forces (such as Iran), became evident.

The port of Odesa (in western Ukraine), being the home port for the Ukrainian Navy, was one of the blockade's key targets and under threats of a Russian attack, including attacks on civilian infrastructures. The Ukrainian fear of a Russian takeover of the city of Odesa and its port led to defensive measures on their part. These included the scuttling of a Krivak-III class frigate in order to prevent its capture by the Russian Navy.

It is therefore evident that in the first phase of combat, the expectation from the Russian Navy was to serve as a forward vanguard force in the maritime and coastal context at the west of the "southern" front as part of the overall campaign. The completion of the takeover of this western area by Russia could have allowed it the potential for decisive control over most of the Ukrainian coastal areas: the Crimean Peninsula coasts (since 2014), as well as the western shores of the Sea of Azov. Russian control of these areas, even before the beginning of the campaign in Ukraine, offered it a hold, in practice, on about two-thirds of the Ukrainian coastline (about 2,700 km, see Figure 1). The completion of Russia's takeover of the entire coast was therefore planned to be realized through the navy: in the maritime context (at first) and the coasts of the Gulf of Odesa and the western arena as a whole (as a continuation of this). It seems that the responsibility of handling this area was entrusted mainly to the Russian Navy at the very beginning of the campaign; this is partly related to the Russian Navy advantage of being based in the nearby port of Sevastopol.

The dominance of Russian naval activity has, as mentioned, largely been undercut since mid-April following the sinking of the "*Moskva*" cruiser. After this event, a Russian understanding was formed that the Russian navy does not have sufficient ability to respond to the determination of Ukrainian forces, which are equipped with technological means and relied on Western knowledge. In this context, the commander of the Black Sea Fleet was dismissed (in mid-August), while his deputy was killed (earlier in late March). Furthermore, the main naval force retreated toward Russian shores in the eastern Black Sea, particularly to the port of Novorossiysk and to the protectorate southeast of the Crimean Peninsula. This move intensified as the Ukrainian forces advanced and threatened from the Ukrainian coast, toward the center of the Crimea region, especially on the western coast, near the port of Sevastopol.

Thus, the Russian Navy, together with land forces and additional Russian army forces, found themselves withdrawing (since the end of summer 2022) in face of Ukrainian

attacks aided by the West (mainly indirectly and directly as well). However, it is clear that nothing is yet determined regarding the results of the campaign in question, and that we do not yet know when it will end.

Figure 1: Map of the Ukrainian coast, the "southern" Russian front[1]

Background

Putin's reign, up until the attack against Ukraine (on February 24, 2022), was characterized by the Russian president's efforts to promote Russia's position of power in the world in general, including in various maritime domains. It is possible that Putin's childhood in the port city of Saint Petersburg, which was founded (in the 17th century) by Tsar Peter the Great – founder of the Russian Navy, shaped Putin's (psychological?) belief in the great importance of the sea for Russia, and in the power of the Russian Navy in particular. Great ambitions shape the Russian maritime policy, which works well with Putin's economic worldview. This is a distinct foundation when it comes to Russia's strategic strength, securing the regime's stability and continuity, and in the context of the freedom of action it has in the international arena.[2] Putin has identified a number of constitutive moves related

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1   Source: Map of Ukraine with Cities, Wikimedia common, update March 6, 2022

2   Richard Connolly, and Michael Kofman, "What Putin Learned from the Soviet Collapse: To Preserve Its Global Ambitions, Russia Is Managing Its Economic Limits", *Foreign Affairs*, December 29, 2021.

to the maritime domain and has sought to leverage these to bring about the utilization, development and enhancement of the economic infrastructures at sea. A few of these projects were supported by Putin personally, though some of them were only partially implemented (on a civil or military level). Among the clear examples of development, we can refer to the development of the Northern Arctic Ocean, which can be seen as a high priority resource when it comes to Russia's maritime interests. This intention expresses an aspiration to bring about the utilization and extraction of natural resources from the sea. This is in view of global climate change, which, in recent years, has accelerated, causing a decline in ice sheets. This is how the opportunity to capture the 'Northern Sea Route' also known as the "Russian Suez Canal" was seized. The development of this route was planned to be implemented in two main stages: the immediate and first was based on the takeover of the shipping route with a fleet of Russian icebreakers (approximately 50 vessels), some of which are nuclear powered. Several vessels intended for this purpose are still under construction. Pursuing this course of action involves high costs. The second phase is meant to be implemented later and will be based on the expected melting of the glaciers, which will allow over-exploitation of the resources in the area, alongside the usage of the northern shipping route as a resource in itself, connecting East Asia to Northern Europe (with relative savings compared to the use of the existing route – through the Suez Canal). Both phases involve the establishment and enhancement of the Russian infrastructure along the coasts of the Arctic domain, which has been under vigorous development in recent years. The northern front, with an emphasis on the Arctic Sea, was also defined as "vital" in the updated Russian Naval doctrine (published in late July 2022, around the celebration of Russian Navy Day).[3] The development of this domain included the infrastructural-energy integration of floating power plants (with nuclear propulsion) that had been placed or were intended to be placed in the area and to enable its full function. Among the other projects implemented in the Northern domain is the laying of the pipeline system for supplying gas to Europe ("Nord-Stream 2") on the ocean floor, even though this system was sabotaged at the end of September 2022, as a consequence of the war in Ukraine.[4] The peak of military training activity and weapon tests in the northern arena is attributed to the "Umka-21" maneuver that took place in March 2021, during which an attack was conducted by three Russian submarines at the same time.[5]

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[3] Official Internet portal of legal information Electronic passport of the Federal State Mass media registration certificate No. FS77-47467 information Service No. FS77110096. Retrieved December 8, 2022.

[4] Matthew Sparkes. "Nord Stream gas pipe explosions were sabotage, say investigators", *NewScientist,* November 18, 2022.

[5] TASS, "Arctic Exercise Umka-2021 Shows Russian SSBN Can Deliver Massive Strike", *Naval News*, April 10, 2021.

Russian military power has been somewhat modernized in recent years, although this development has proved to be limited in the context of the war with Ukraine. Such developments were partially based on previous operational experience of Russian forces over the years (for example: in Afghanistan 1979-1989, Chechnya 2000, Georgia and Abkhazia 2008, Ukraine, including Crimea 2014, Donbas and Luhansk 2014, Syria 2015, Armenia 2021). However, this experience proved to be of only limited significance in its implications for the current campaign in Ukraine. It is possible that the Russian experience in the previous military operations, many of which were carried out without significant interference or intervention on the part of other countries, gave Russia even more motivation to begin the current move against Ukraine. In addition to this, it is possible that the American withdrawal from Afghanistan in August 2021, interpreted by Russia as a weakness on the part of the United States and the West, added to and contributed to the Russian move in Ukraine.

Differences in development and equipment in the various branches of the Russian army were evident even before the campaign in Ukraine began. The Navy, as a strategic force that was supposed to enable the implementation of the global-economic moves in the spirit of the aforementioned Putin initiatives, was developed in parallel to the investment in aviation and space forces and was therefore equipped, or at least so it was claimed, with platforms and warfare means. Putin has demonstrated personal involvement and concern for some of these processes and has led them. On July 31, 2022, Putin claimed as part of Russian Navy Day, that supersonic "Zircon" missiles "will be operationally integrated by the navy in the near future".[6] The integration of these missiles is also expected to be included in the Russian nuclear submarines' weapon arsenal. Thus, the fleet was equipped with long-range precision cruise missiles (LACM) and ground-guided missiles (RS-SS-N-30A Sagaris). Some of these were installed on ground platforms, submarines and first-line surface vessels. The High Command in Moscow and in the Naval Headquarters in St. Petersburg made sure to establish an Anti-Access/Area Denial (A2/AD) ground infrastructure and holding centers on the various coasts. Thus, for example, the Russians gained control of the eastern Mediterranean Sea on the Syrian coast, during which defense measures against adversaries were integrated as well, based on establishing control in the Tartous port, the Khmeimim air base to the north, and in the other outposts that Russia maintained on the Syrian coast. In addition to this, counterattack capabilities of LACM missiles were developed by submarines and field units from the Caspian Sea and the eastern Mediterranean. 'Kalibr' missiles were incorporated in project 21631 of M-Buyan corvettes as well, as in project 22800 of Karakurt corvettes. Project 06363

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[6]   Official Russian Internet Portal of Legal Information, Ibid.

improved Kilo submarines were also fitted with these missiles, as well as Project 885/ Project 08851 Yasan/Yasan-M missile-armed submarines.[7]

As part of its modernization attempts, Russia has aimed to promote the integration of advanced weapons. Some of these were even used in pioneering combat operations in the war in Ukraine. This is how a hypersonic missile from the Kinzhal system was launched for the first time (on March 18) against the Ukrainian forces' depot of land to air missiles (SAM).[8] It has been claimed that this accurate hit resulted in ten deaths. Since the beginning of the war, Russia, and Putin himself in a number of cases, have voiced threats (and warnings) about Russia's possible use of nuclear weapons. It should be noted that beyond these measures that have long been at its disposal, Russia has, in recent years, led an effort to promote plans to modernize its nuclear weapons with the intention of incorporating them into a variety of land, air, and naval launchers.[9] This was probably the case in the construction of Borei class-A submarines (Project 955A) with nuclear propulsion that were in relatively advanced development stages and could carry Bulba missiles. The *Belgorod* (K-329) and the *Khabarovsk* (project 09851) submarines were also designed to carry Poseidon autonomous nuclear torpedoes.[10] On March 22, 2022, the President of the United States, Joe Biden, revealed Putin's possible intentions to also use chemical and biological means.[11]

In conclusion, it should be emphasized that the annexation of the Crimean Peninsula (2014) significantly improved Russia's military naval and coastal position in the Black Sea. Russia gained the potential to widely deploy controllers in Crimea as well as to improve coastal systems and control the Sea of Azov. As mentioned above, the Black Sea Fleet benefits from a relatively accelerated development; intended to allow Russia to impose a naval blockade, in order to increase Russian control and maritime access to and from Ukraine, although the implementation of this move proved to be limited on a political, economic and practical level.

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[7] James Hackett, Nick Childs, and Douglas Barrie,"If New Looks could kill: Russia's military capability in 2022", *IISS*, February 15, 2022.

[8] Gareth Jennings, "Ukraine Conflict: Russia Employs 'Hypersonic' Missile for First Time", *Janes*, March 21, 2022.

[9] Maxim Strachak, "Year 2021 in Review: The Results of Russia's Nuclear Weapons Modernization", *Eurasia Daily Monitor,* 19:6, January 25, 2022.

[10] Thomas Nilsen, "Russia's Nuclear Submarine Construction Reaches Post-Soviet High", *The Barents Observer*, January 6, 2022; Thomas Nilsen, "World's Longest Nuclear Submarine Handed Over to the Russian Navy", *The Barents Observer*, July 8, 2022.

[11] Natalia Zinets and Pavel Polityuk, "Russian Strikes Turning Mariupol into 'Ashes' as West Plans More Sanctions", *Reuters*, March 22, 2022.

The Campaign in Ukraine

The naval combat in Ukraine reflected Russia's original intentions. The entire range of activities that Russia has engaged in since the beginning of the campaign in Ukraine on non-naval fronts, has even been defined as war crimes against the citizens of Ukraine and seems to be inconsistent or reflect specific discretion. It is possible that this situation was due to either the campaign complications in the 'field' or miscalculated orders.[12]

The coastal and maritime control of the Black Sea and the Sea of Azov is a product of Russia's continuous long-lasting takeover of the area. This also has some influence on the Mediterranean as a whole, which has been under permanent Russian grip in recent years (for example: in Syria and Libya, and the development of civilian and semi-civilian outposts such as power plants in Egypt, Turkey and Algeria, as well as intentions in regard to Port Sudan). Alongside the investment in infrastructure, the deployment of military vessels, for example in the Adriatic Sea, has been renewed since July 2022.[13] Although over time it will be necessary to rely on technological aid and armaments delivered from the North Sea regions, since the passage – if only for supplies from the Black Sea – is blocked at the Turkish Straits, and the Mediterranean Sea – with an emphasis on Tartous – lacks sufficient infrastructure for the maintenance and supply of submarines, for example.[14] On the other hand, the presence of NATO fleets in this maritime area, with an emphasis on the Black Sea, including those based in countries such as Romania, Bulgaria, and even Turkey, which are members of the alliance, also affects the balance of forces in the entire maritime arena.

On the maritime level, the preliminary Russian takeover of more than half of the Ukrainian coast (which is over 2,700 km long) has, as mentioned, since 2014, surrounded the Crimean Peninsula, and since 2018 the Sea of Azov area. The inauguration of the longest bridge in Europe – the Kerch bridge (19 km) above the strait of the same name – connecting the Black Sea to the Sea of Azov – granted Russia full control over the passage of vessel traffic under the bridge, in the strait. Since the beginning of the war in Ukraine, the Sea of Azov, including Mariupol, its main port city, has been subjected to Russian offensive activity from the sea as well, similarly to the rest of the eastern Ukrainian coast.

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12 James Holmes, "The Question The World Is Asking: Is Vladimir Putin Rational ?", *19fortyfive*, March 12, 2022.

13 *Decode39*, "The Russian Threat in the Med: Italy's Chief of Defence Speaking", August 22, 2022.

14 Ibid, as well as in Colleen Graffy, "Who will control the Black Sea?", *GIS*, October 11, 2022; H. I. Sutton, "Russia Forced to Reduce Navy In Mediterranean As Ukraine War Drags On", *Covert Shores*, August 24, 2022.

It is worth noting here that Russian control of the Sea of Azov prodives full control over the (currently) exclusive navigation outlet, which connects the Caspian Sea with the Sea of Azov via the Volga and the Don Rivers (Figure 2). The Caspian Sea (in Russian zone) as well as the Sea of Azov and the Black Sea were defined as "vital" and "important" areas (respectively) in the revision of the Russian naval 2022 doctrine.[15]

It should be taken into account that Iran's involvement in helping Russia will increase the scope of maritime activity in the Caspian Sea routes as a whole, as well as in those of the Volga-Don, as a channel for transferring supplies to Russia. The war-oriented naval activity has an impact on the shipping traffic there, and this may also affect the continuation of shipping in the Black Sea and Mediterranean routes (while passing through the Turkish Straits). Not surprisingly, Putin himself inaugurated the Kerch Bridge, which due to its importance was significantly sabotaged (on October 8 2022), although navigation in the strait was not blocked as a result.
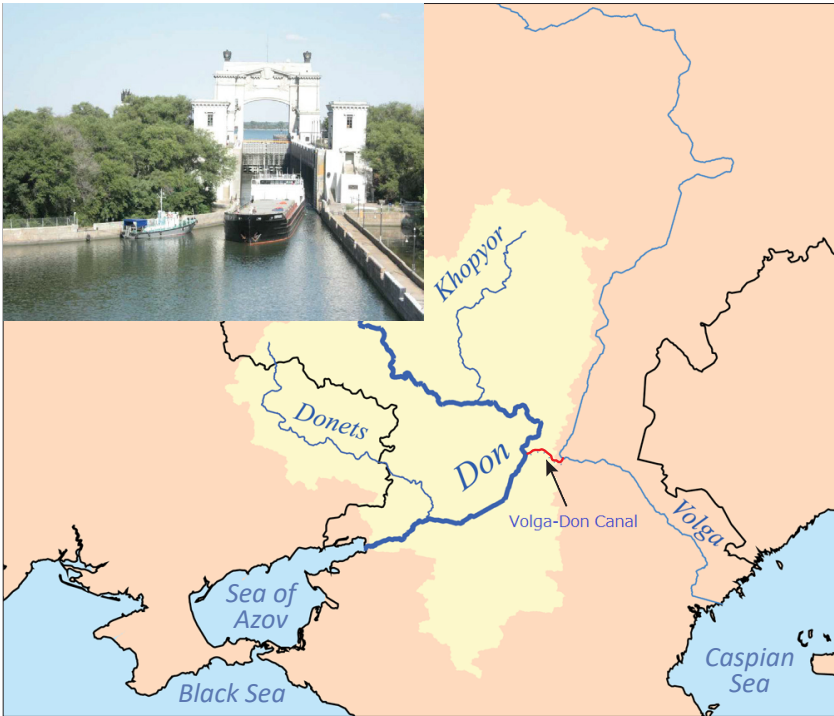

Figure 2: The shipping route connecting the Caspian Sea with the Sea of Azov and the Black Sea through the crossing of the Volga and Don rivers and the canal connecting them. In the picture is gate number 14 of the Volga-Don Canal

15   Official Russian Internet Portal of Legal Information, Ibid.

The Completion of Russian Hold or Control over Most of the Ukrainian Coast

As mentioned, the Russian control of the Ukrainian coast extended from the Don-Bass areas in the Russian sphere of influence adjacent to the Sea of Azov, approaching the Ukrainian coast on the Crimean Peninsula. These two sections of the Ukrainian coast make up about two-thirds of its total length, while the third part to the west is the Gulf of Odesa (Figure 3), and the coastline between the two deltas of the (northern) Dnieper and (southern) Danube rivers on the Moldovan border. The Ukrainian coast can be divided into three sub-areas as described above or alternatively into 8 segments made up of different shore segments.

The city and port of Odesa (in the west) dominate not only the sea to the southeast but also serve as an outlet for the Dnieper River north of Odesa, which leads to the important port city and shipyard, Mykolaiv.

The assembling of Russian naval forces on the eve of the outbreak of the campaign in Ukraine was probably intended to obtain naval and coastal control in this (more distant) western region. This is in view of the Russian Navy's advantages, since it has deployed forces in the Black Sea (since the end of December 2021).
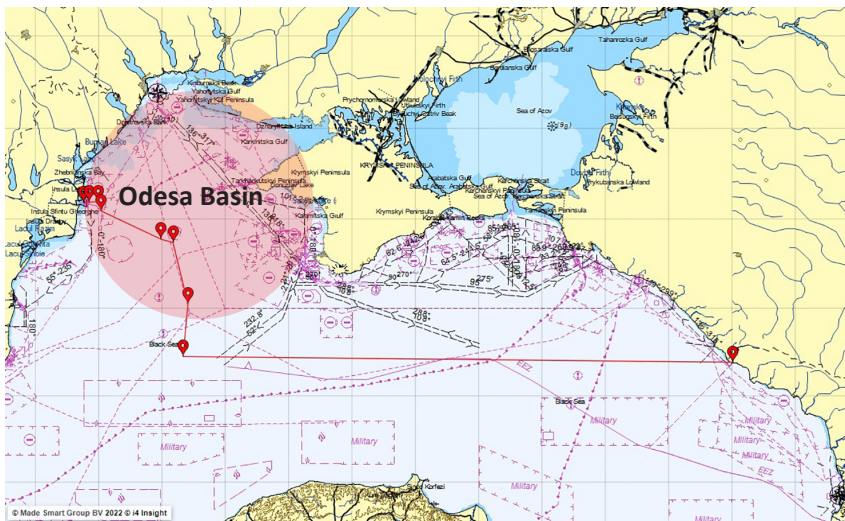

Figure 3: The Ukrainian coast, with emphasis on the basin of Odesa west of the Crimean Peninsula[16]

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16   Source: "Russia – Ukraine War: Impact on Shipping", *North, Industry News*, November 29, 2022.

The planned Russian control of the Ukrainian home port in Odesa and the maritime and coastal areas adjacent to it was supposed to be a symbol of the occupation of the Ukrainian government – since it is the home port of the opposing navy (which may serve as an analogy to Kiev – the country's capital).

The Russian deployment toward the western Ukrainian coast was therefore expected to lead to the finalizing of its control over the entire Ukrainian coast, up to the estuary of the Danube River. The implementation of this hypothetical situation was supposed to give Russia a strategic advantage in the entire Black Sea area, serving as a gateway from/to the eastern Mediterranean to the Indian and Pacific Oceans (via the Suez Canal) and the Atlantic Ocean (via the Strait of Gibraltar). However, the freedom of military navigation in the straits was limited by Turkey, which also maintains control regarding the safety of navigation and the transportation of cargo – with an emphasis on dangerous goods and cargo being shipped in these straits.

To the extent that the Ukrainian coast as a whole would have been under 'extensive' Russian control, there would have been the potential to establish the Russian borders in relation to the entire 'southern' front, vis-a-vis its (physical) neighbors in the Black Sea: Moldova and Romania, but also Bulgaria and Turkey.

For this reason, Russia made sure to demonstrate its control in the western Black Sea arena, as part of a pioneering act at the beginning of the campaign, while taking advantage of the navy to operate from its forward base in Sevastopol. This move included attempts at a Russian takeover of the Ukrainian outpost on Snake Island in the south of the basin in question (near the estuary of the Danube, on the Romanian border). That is to say, an outpost with strategic control over the navigation at a crucial junction in the southwestern area of the Black Sea, which would have improved the Russian hold in the front even more.

Additional naval actions that Russia initially took in order to deepen its control in the area also included ground attacks, firing Land Attack Cruise Kalibr Missiles (LACM) from surface vessels as well as submarines.[17] Along with these, naval maneuvers were carried out by a group of participating forces of first, second and third line vessels – which included 6 landing crafts, air means, stationary means on the coast, along with other hybrid weapons used by the navy, as well as the Russian army (including conventional weapons, cyber weapons, subversion and more). However, despite the concentration of

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[17] H. I. Sutton, "Russian Submarines Launching Kalibr Cruise Missiles At Ukraine", *Covert Shores*, April 21, 2022.

means for a naval landing in the Odesa area at the beginning of the campaign,[18] the move itself was not yet realized.

Characteristics of the "Southern" Naval Campaign

A striking aspect of Russian activity on the "southern" front against Ukraine, in relation to the other combat fronts, is the fleet's combined naval and coastal capabilities. The Sea of Azov, the Black Sea and the Straits were defined as "important" to Russia, in the Russian naval doctrine, as (obviously) related to the very existence of the campaign in Ukraine.[19] This intention was therefore mainly attributed to the description of the activity near the shores of the Black Sea, the Sea of Azov, the central river basins which are centers for extensive maritime trade, such as the Dnieper and Dniester, the Volga-Don which also allows sailing to the Caspian Sea, and the Kerch and the Bosphorus Straits. The aforementioned Snake Island offers control over the Danube estuary in the southwest of the Black Sea. Even though the Kerch Bridge was attacked in early October, so far no significant effect of this event has been noted in regard to shipping activity in the strait. This situation may change, and if it does, civilian vessels may be damaged and shipping traffic may be disrupted. Such a precedent was set when Russia announced a change in its policy (on October 29), and its withdrawal (which lasted in practice for only two days) from the shipping arrangement concerning the 'grain export corridor' (implemented through Turkish mediation since the beginning of July 2022 – Figure 4). This change (and the pushing up of the end of the above arrangement period, originally scheduled for November 15) was due not only to the damage to the Kerch Bridge but also to the Ukrainian attack (on October 29) on the port of Sevastopol. Putin accused Ukraine of "exploiting" the 'grain corridor' route when carrying out that attack, which was based on unmanned platforms; vessel and aircraft activity was synchronized and resulted in damage to Russian platforms both inside and outside the port (see details below). However, after two days the grain corridor was reopened.[20]

Located along the entire Ukrainian coast (some 2,700 km long) are central ports and trade cities, which allow for the export of Ukrainian grains, raw materials and products, by way of maritime trade, including the shipyard industry itself, which manages the production of civilian as well as military vessels (dating back to the Soviet period). It

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18 H. I. Sutton, "Evidence of Russia's Planned Amphibious Landings in Ukraine", *Covert Shores*, March 1, 2022.

19 Official Russian Internet Portal of Legal Information, Ibid.

20 "Russia Says It's Suspending Participation in Grain Deal With Ukraine", *New York Times*, October 29, 2022; "Beacon on the Black Sea", United Nations, Black Sea Grain Initiative Joint Coordination Centre, Retrieved December 18, 2022.

seems that the Ukrainians have been able to develop unmanned vessels as part of mainly self-manufactured weapons, as a response to the current needs, especially because the Ukrainian Navy is relatively small it did not possess many weapons at the beginning of the war. To this was also initially added the blockade of Ukrainian ports as well as the fear of a Russian takeover. The use of unmanned vessels, which due to their relatively small dimensions can be launched from a variety of positions and locations, is an alternative solution that has been successfully implemented, both for ports' closure and in view of the lack of other manned solutions in the possession of the Ukrainian Navy.

Figure 4: The grain corridor rout agreement as formulated in July 2022 between Russia, Ukraine, Turkey, and the UN[21]

Such an unmanned Ukrainian vessel was used in the western area of the Crimean Peninsula as early as September 26, 2022. On October 29, the Ukrainians used at least 7 similar devices, which attacked vessels in the Sevastopol area, and probably damaged the flagship of the Black Sea fleet, the "*Admiral Makarov*" destroyer (that replaced the "*Moskva*", which as mentioned, was sunk in April). A landing craft and another vessel, probably civilian, were also damaged. This attack is unique not only in the combination

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of unmanned (sea and air) means, but also in the ability to synchronize their attack both outside and inside the port.[22] This move can be summed up as Ukraine's impressive identification of operational needs. It should be noted that on November 8, 2022, another attack was carried out in the Novorossiysk area, which was also attributed to an anti-aircraft missile that hit a coastal energy transportation terminal near the port.[23]

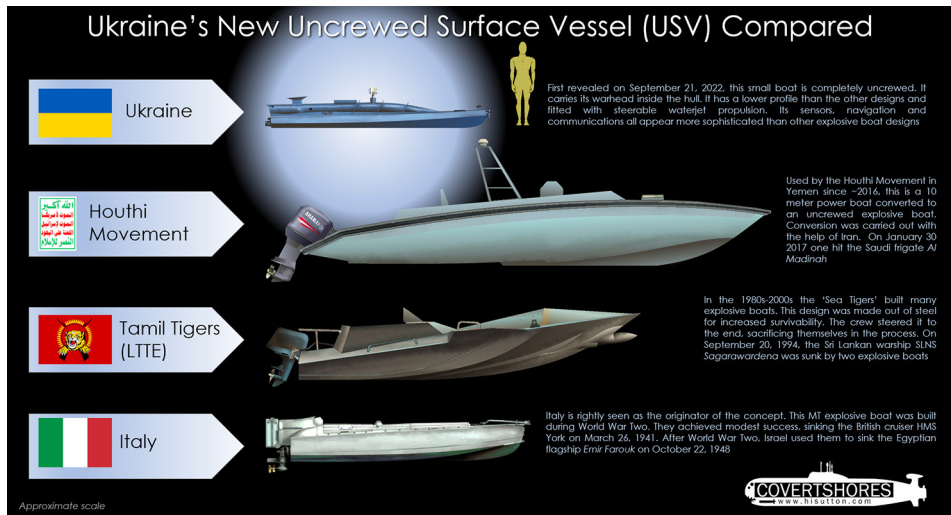Figure 5: An unmanned Ukrainian vessel[24]

Figure 6: A comparison between the Ukrainian unmanned surface vehicles and other unmanned surface vehicles [25]

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[22] H. I. Sutton, "Why Ukraine's Remarkable Attack on Sevastopol Will Go Down In History", *Naval News*, November 17, 2022; H. I. Sutton, "Ukraine's New Drone Boats That Will Change Naval Warfare, Explained", Video.

[23] H. I. Sutton, "Ukraine's Maritime Drone Strikes Again: Reports Indicate Attack on Novorossiysk", *Naval News*, November 18, 2022.

[24] H. I. Sutton, "Ukraine's New USV Compared", *Covert Shores*, September 22, 2022.

[25] Ibid.

The Black Sea / the Significance of Ports and Infrastructure for Russia – Background

The location of the ports and infrastructure along the Ukrainian coast reflects the importance of Ukraine's accessibility to the sea throughout the year. Being aware of these factors, Russia planned that its actions in the 'southern' front would lead to territorial-coastal continuum. The expectation from the Russian navy to gain control over the entire western basin began on February 24 on Snake Island. Although operation on this island was a practical expression of the beginning of the campaign, in practice, the western coastal hold did not reach full realization for Russia, neither on Snake Island nor in the western region of the Ukrainian coast in general.

The beginning of the 'special operation' (as named by the Russians) during the winter (end of February) of 2022, probably intended to take advantage of the 'General Winter' factor. Apparently, the aim was to add pressure and influence on the consumers of Russian energy in Europe. In Russia's estimation reducing its supply of gas at the peak of consumption season was expected to provide in exchange some criticism and opposition to Russia's actions in Ukraine. Even though this assumption proved to be wrong during the previous winter, the main consequences were economic. The implications for the current winter are not yet clear, however predictions are not optimistic. Russian influence on maritime traffic was also evident, with an emphasis on trade in the Black Sea and the Ukrainian ports, allowing all year-round activities in terms of the weather. Such availability has been affected by other circumstances, for example, Russia's (temporary) withdrawal from the Grain Corridor Deal.

The Black Sea, as well as the Russian naval and coastal units deployed in it, has, in recent years, been nurtured by President Putin. His (personal) involvement also contributed to the equipping of the naval forces there, and to holding demonstrations of force (maneuvers) in which he participated. Thus, the Russian national interests that prioritized the Black Sea Fleet rightly established an expectation from this fleet for more control and influence in the region, and even more so in the context of the campaign in Ukraine.[26] This expectation was disappointed by the time the two fleet flagships: the "*Moskva*" cruiser and probably also the "*Admiral Makarov*" destroyer were sunk and damaged (respectively) during the fighting.

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[26]   Ido Gilad, "The Russian Navy – Central Trends in 2019 and their Implication in the Middle East", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel 2019/20* (Haifa: Maritime Policy & Strategy Research Center, University of Haifa), p. 3.

Additional possible background tying Russia and Putin personally to the Black Sea, might refer to the assets he has accumulated in the city of Sochi, the capital of the "Russian Riviera" on the Black Sea coast. This region in where Putin arranged for the hosting of the Winter Olympic Games there (2014). He has often spent time and hosted extensive political activities there in recent years. (It is possible that his personal fondness for the Black Sea can be seen as a parallel to another coastal area – of the northern Baltic Sea, in St. Petersburg, which also influenced him and is where he grew up).

Maritime Aspects of the Campaign in Ukraine

The Geostrategic Maritime Aspect

Russia's naval/coastal move was part of the overall campaign in Ukraine from the start. This fact caused Ukraine to hasten and raise arguments against Russia (as early as February 26), and turn them into an appeal to Turkey (a member of NATO), to exercise its right under the Montreux Convention (1936).[27] The treaty permits Turkey in times of war, or if Turkey recognizes a threat that could badly affect navigation, safety or security – to prevent sailing in the Turkish Straits, and in regard to military vessels categorically. Turkey's response did indeed lead to its exercise of control preventing the passage of military vessels. This caused the Russian fleet in the Black Sea to remain there, in effect blockaded. Without being able to reach the Mediterranean Sea for supplies, or vice versa – to gain assistance and reinforcements from other vessels that had to enter the Black Sea.

On the other hand, Turkey became an intermediary between the parties at war regarding the regulation of shipping in the 'grain corridor', the formation of which has made it possible since July 2022 to export grains from Ukraine. The Turkish involvement proved to be important again at the end of October, when Russia announced that it was withdrawing from the said arrangement, alleging that it had been violated by Ukraine while taking advantage of the shipping corridor in question to attack Russia with unmanned vessels on October 29. Two days later the deal was resumed.

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[27] Articles 20 and 21 of the 1936 Montreux Convention indeed refer to "In time of war" states in which the Turkish government as the coastal state will have entire discretion regarding granting the right of passage to military vessels and submarines in a floating state in a case in which "should Turkey consider herself to be threatened with imminent danger of war". Note: The threat of blocking shipping on the part of Turkey may probably be relevant even not in times of war, and even subject to "security" whims that can be a reason (even if a false one) for which a delay or stoppage of the passage of security vessels or carriers of dangerous material will be imposed, even if ostensibly, And subject to 'civilian' reasons of sailing safety, load, etc.

Turkey's appearance on the scene points to the significance of its unique position and importance which determines the traffic regime in the Straits (in practice). This demonstrates the complex bilateral relations between the parties. The stoppage of military vessel navigation in the straits has implications, as mentioned, regarding shipments related to military cargo as well. A previous Turkish threat to block the straits to Russian military vessels should be mentioned here as well. This took place in December 2015, following the downing of a Russian Sukhoi 24 in Syria by Turkish forces, and a Russian threat to retaliate against Turkey as a result.

The damage to merchant fleet vessels in the Black Sea during the first days of the campaign (a tanker, two bulk carriers, and a merchant ship flying different flags: Turkish, Japanese, Moldavian, and Estonian) led to the halting of trade traffic to Ukraine (also for insurance coverage reasons). On February 26, a Russian merchant ship was also detained by the French Navy in another maritime area – the English Channel, as part of the sanctions announced by the European Union on Russia.

International Reactions and Involvement

International reactions were significantly expressed on an economic level in the international arena in the context of global inflation – due to the disruption in the supply of raw energy and its products as well as raw materials and their products, including food from Ukraine (itself). The global shipping implications for the crisis were evident in more than just the response to local damage to the abovementioned ships raising different national registration flags. On a global level, an obvious need for countries to organize and promote their own interests is evident – these needs are mainly economic but also political. An alternative solution was required for the supply of energy and its transportation from alternative sources, for example through Turkey. Thus, it has become necessary to utilize alternative sources of energy in the sea as well, and transport them through the sea or by sea from Turkish ports in the Black Sea – using tankers, or alternately through the network of gas pipelines in the Black Sea (from east to west). It should be mentioned that a gas pipeline – albeit in the North Sea – was sabotaged as a consequence of the overall campaign. Three explosions hit the "Nord Stream" pipeline transporting gas from Russia to Northern Europe (at the end of September 2022). This act was allegedly attributed to Russia but noy yet determined.

The relationship between Iran and Russia continues to fuel the crisis in Ukraine, by supplying of unmanned aircrafts and possibly guided missiles. Iran may benefit from the assistance it provides to Russia in the maritime domain. Among these benefits are the maintaining of navigation and shipping in the Caspian Sea, from and to the Black Sea toward the Mediterranean. Russia has been maintaining the navigation on this

sailing route thus far, however in this context, the Iranian involvement may raise more consequences, even beyond the operative ones as indicated.

The Operative Maritime Aspect

As mentioned, the southern front of the Russian attack on Ukraine was expected to include maritime activity. In addition to the moving of naval forces as part of the preparations, which will be mentioned below, Russia also relied to a large extent on infrastructures that it had previously held on to in the Black Sea, such as in Georgia and the Crimea, which it occupied about eight years earlier. The inauguration of the bridge (2018) over the chokepoint in the Kerch Strait, at the time, was accompanied by the naval conflict between the Ukrainians and the Russians – who then attacked a group of three second-line vessels of Ukraine. These were confiscated, as their teams were imprisoned in Russia for about a year. Even though the Kerch Bridge was damaged by Ukraine on October 8 (Figure 7) and harmed Russian sovereignty and the project that Putin personally supported (and even inaugurated), no lasting effect on shipping traffic in the strait was evident afterward.

Figure 7: The Kerch Bridge explosion on October 8[28]

As for the moving of naval units to the Black Sea prior to the "special operation" – with an emphasis on first-line vessels, were included three Kilo-class submarines in which Kalibr naval missile launches were used as well – it became evident that vessels were also

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28   H. I. Sutton, "Attack On Kerch Bridge: Initial Geolocation Of Damage", *Covert Shores*, October 8, 2022.

concentrated in the Mediterranean Sea, including three Kilo submarines, two Salva-class *Gorshkov* and *Udloy* cruisers. Furthermore, a force of six landing craft and auxiliary vessel forces were positioned there as well.[29] The Russian naval outpost at the Syrian port of Tartous has been used as a hub for the deployment of naval units and missiles in a coastal position. At the Khmeimim air base (on the Syrian coast) Tu-22M3 BACKFIRE-C aircraft armed with Kinzhal supersonic air-to-sea missiles were deployed. On March 20, it was also reported that a nuclear-powered 'Akula' submarine had arrived in the Mediterranean Sea.[30] Accumulating naval forces of the Russian Navy into the Black Sea has therefore begun (since the end of December 2021) and gained a relatively large number of vessels. The Russians claimed that this was a planned maneuver, and these various vessels were meant to participate in it.

A peak in the Russian naval presence could be identified during March 2022 when some 15 Russian vessels were present in the Gulf of Odesa (on the southwest Ukrainian coast) split between three secondary task forces (Figure 8).
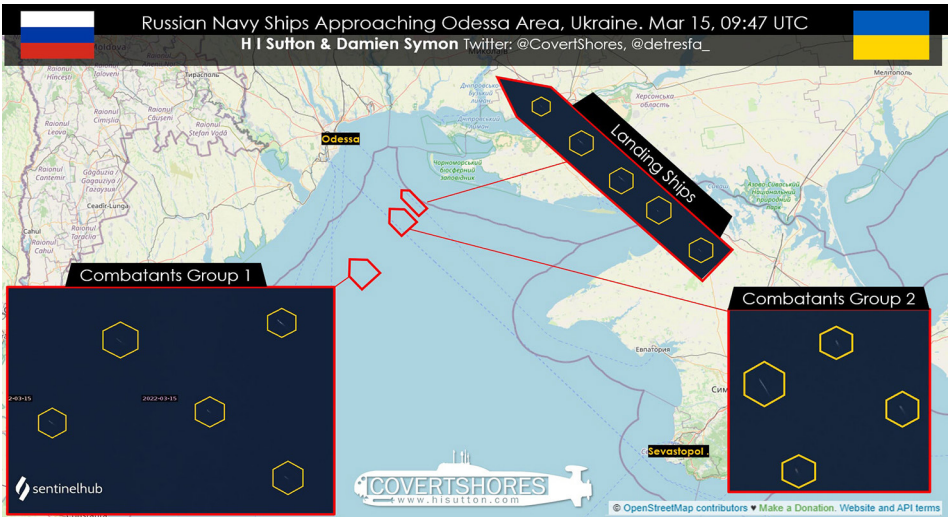

Figure 8: The layout of Russian vessels in the Gulf of Odesa in March (March 16, 2022)[31]

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29   H. I. Sutton, "Russian Navy Make Significant Pre-Positioning Moves", *Covert Shores*, February 17, 2022; as well as in a YouTube video (which he edited), "Russian Navy Build Up in Mediterranean: What You Need to Know".

30   "Russian Navy Akula class submarine deployed in the Mediterranean Sea", *itamilradar*, March 20, 2022.

31   H. I. Sutton, "Russian Navy Landing Ships Seen Approaching Ukrainian Coast Near Odessa", *Naval News,* March 15, 2022.

The first defining naval event, the sinking of the "*Moskva*" cruiser, occurred on April 14 and was characterized as a game changer on the naval operational level. Apart from the political consequences that followed, in view of the involvement of other participants (such as Turkey, which manufactured drones that were probably part of the attack, alongside information from other foreign parties which were involved and influenced the course of action). It seems that additional operative consequences were related to the Russian naval forces' change in naval operations.

Another significant event (on October 29) apparently included damage to the *Admiral Makarov* frigate and at the operative level was a demonstration of Ukraine's tactical implementation of combat-related lessons. It is possible that Ukraine identified weaknesses and corrected them during the campaign, and partially implemented these corrections in the case of the sinking of the *Moskva* cruiser (in which the use of missiles and drones was combined). The next step included a more complex launch in which vessels and unmanned aircraft were used in a synchronized manner, as in the attack on the *Admiral Makarov* frigate. In addition, incidents of attacking unmanned vessels by smaller drones were noted as well.

Furthermore, significant Russian infrastructure elements have been developed and established in recent years in the area. The most prominent are the outposts in Tartous port, the Khemimim airfield and the Syrian coast as a whole (since 2015). All serve as an infrastructural-logistic and operational base for the benefit of Russia and its naval activities in the entire Middle East arena. They are intended to be seen as related, thus affect the Black Sea arena as well.[32] It is worth recalling that the east Mediterranean basin was identified as "important" in the 2022 Russian naval doctrine update. This is logical given the holding onto the Syrian coast along with the ongoing campaign in the Black Sea.

The Russian presence in Syria alongside Iranian forces, which in recent years share and coordinate their mutual activities, might be the background for Iran's involvement in the campaign in Ukraine, including in the context of using unmanned explosive aircraft manufactured by Iran (as apparent since the end of October). The need for integrating the Iranian equipment in Russia's order of forces was due Russia's lacking of such measures beforehand. In addition, a supply of Iranian-made precision guided missiles to Russia was mentioned as well. Several reports also refer to the integration of Iranian experts

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[32]   Ido Gilad, "The Activity of the Russian Navy in 2018 in the Middle East", in Shaul Chorev and Ehud Gonen (eds.), *Maritime Strategic Evaluation for Israel* 2018/19 (Haifa: Maritime Policy & Strategy Research Center, University of Haifa, 2019), pp. 104–105; Gilad, "The Russian Navy – Central Trends in 2019 and their Implication in the Middle East," pp. 8–9.

in the campaign alongside Russia. Thus, it is worth referring to the significance of Iranian involvement in the campaign, which entitles Iran to the status of a regional power.

The Tactical Aspect

The maritime aspect of landing operations initially included a concentration of second line vessels, including six Ropucha-class landing ships. The Russian landing from the sea in the Mariupol district met with some success, while the main objective of the planned landing in Odesa was not realized. Additional landing targets included the Kherson River and Mykolaiv Port alongside other locations, including Snake Island (Zmiinyi, on February 24). During this Russian activity, the deputy commander of the Black Sea Fleet, Admiral Andrey Paliy, was killed in Mariupol (on March 20).[33]

- The combination of sea mines, that were drifted toward the Romanian coast and even toward the Bosphorus strait, resulted, at least in part, from the activity of the Ukrainian side itself.

- The control of the Sea of Azov allows various and local forces of the Russian Border Guard, as well as landing forces, to operate in and from it. In this context, it is worth mentioning the 'apparently local' activity under the Kerch bridge (November 2018) which had international geostrategic implications, even though the parties involved at the time were relatively local (on both sides – Ukrainian and Russian).

Examples of Tactical Maritime Hits

- On March 16, it was reported that the *Vasily Bykov* corvette had arrived at the port of Sevastopol (about 140 miles from Odesa) after it had been hit 9 days earlier, around March 7, by Ukrainian Grad artillery fire.[34]

- Dozens of Marines from the Ukrainian 36th Unit were killed in Mykolaiv port.[35]

Tactical aspects that have been implemented since the sinking of "*Moskva*" and also incorporated a self-made Ukrainian missile (the 'Neptune'), as well as the equipping with U.S. made Harpoon missiles, a probably self-made unmanned vessel, as well as unmanned aircraft made by Turkey. On the Russian side, there were attempts to obtain vessels that had been confiscated from the Ukrainian Navy, and to integrate weapons that were in short supply and installed on various platforms and included fire protection systems.

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[33] Ben Kesslen, "Top Russian Naval Chief Born in Kyiv Reportedly Killed in Battle", *New York Post*, March 20, 2022.

[34] Tom Ough, 'We F------ Hit Them!' Ukraine Gets Revenge on Russian Warship that Attacked Snake Island Soldiers", *The Telegraph*, March 7, 2022.

[35] Michael Schwirtz, "Russian Rocket Attack Turns Ukrainian Marine Base to Rubble Killing Dozens", *New York Times*, March 19, 2022.

In the area of active attack, land-based missiles were integrated into extended launch platforms, including the integration of Iranian-made means (unmanned aerial vehicles and precision-guided missiles) for the first time.

Conclusion

Russia's actions on the southern front initially integrated naval and coastal means. The Russian Navy was expected to provide an effective response in the west of its assigned area, i.e., the western arena (which is relatively remote from the front). The naval forces should have served as a potential solution to bridging these range gaps, taking advantage of their forward hold on the Crimean Peninsula with an emphasis on Sevastopol and its naval access. Russian control through its navy was supposed to provide great advantages for Russia to achieve full control of the northern Black Sea area, on military, political, and economic levels.

The Russian goal was to gain control of the entire Ukrainian coast – with an emphasis on the southwestern front, at the center of which is the Gulf of Odesa – this was the plan at the beginning of the campaign in the Snake Island incident. At the beginning of the campaign, the Black Sea, Mediterranean Sea and Caspian Sea fleets launched some of the first Russian military attacks on Ukrainian infrastructure. However, after 50 days of fighting in this area, the Russian fleet suffered a considerable blow due to the *Moskva's* sinking. It is clear that this was the beginning of the second phase of the naval campaign – which has since been characterized by the relative withdrawal of the Russian fleet.

The maritime/coastal area in question is unique in its geographical structure, since the area contains many dominating, or alternatively, dominated shipping hubs. There are bays, straits, peninsulas (Crimea), closed seas (Azov, Caspian), river estuaries (Dnieper, Dniester, Danube), and dominating islands (Snake Island). There are also strategic, military and civilian facilities (ports, terminals, energy assemblies, communication lines, etc.) located in this area. The naval combat arena in question is littoral (in general) – with a limited and relatively dense terrane (unlike the open sea). Hence, a combination of a variety of forces in the various complexes of activities (marine or coastal) is required to give these forces effective weight within the required response.

It is evident that the naval consequences developing amid the campaign and emerging, as a result, are internalized by both sides and are affected by the learning . The dynamic aspects of the events since the outbreak of the campaign until now are evident. It is worth noting that integration and self-development of weapons continue to emerge and are being adopted as unique solutions. The dynamic marine activity continues. An expression of this is evident in the Russian threat to withdraw from the "Grain Corridor" deal. This

means potential exposure of commercial vessels and commercial transport at sea, in the future, to threat and excessive risk from Russia. For its part, Russia demonstrates considerable aggression against infrastructure targets, including civilian targets. Shipping is included in this, even though damage to the export of food at the beginning of the campaign was and will continue to be a threat with global significance, which will probably lead Russia to sabotage this equation only in distinct extreme situations.

The combat in Ukraine is significantly expressed in the updated Russian naval doctrine (2022). This arena is divided into three levels of importance. The doctrine mentions "vital" areas for Russia – among which is the Caspian Sea. On the other hand, the Sea of Azov, the Black Sea and the Straits were defined as having "important", i.e., merely asecond degree of importance. The eastern Mediterranean, together with shipping routes along Africa and Asia, were also categorized as "important" regions in the updated naval doctrine.[36]

It follows that all the central points linked to the campaign in Ukraine are specified in the updated naval 2022 doctrine. Thus, they reflect the importance of both the area and the campaign in Ukraine for Russia. The status of the Caspian Sea and its maritime uses were emphasized in the doctrine as well. These may well indicate trends of strengthening ties with Iran, including in the maritime arena in question, if only as a result of various shipments, including weapon shipments, which may be used in the current war against Ukraine. However, the success of using these routes (as far as the Black Sea) may be an incentive for Iran to work to expand their distribution toward other destinations in the Middle East.

Potential Russian-Iranian cooperation in the maritime transport context may be based on the advantages of Russia's forward deployment in the region. In this context, it is worth noting the existing Russian hold on the Tartous port on the Syrian coast. It was defined in the 2022 naval doctrine as a "permanent base". However, despite the permanent hold on Tartous (since 2015), the infrastructure in place, while had been developed since then, has not yet become a full alternative in terms of the facilities and capabilities of providing infrastructure and the full techno-logistic service as attributed to the Black Sea. This gap is even more evident in view of the blockade imposed by Turkey on the passage of military vessels through the Turkish Straits.

In relation to Israel, the recommendation that has been raised in the past, to preserve coordination relations with Russia is even more significant in light of aspects that have a great impact on the maritime arena which emerged during the past year.[37] This

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36   Official Russian Internet Portal of Legal Information, Ibid.

37   Gilad, "The Russian Navy – Main Trends in 2019 and their Implications in the Middle East", pp. 22–23.

(multilateral) coordination could possibly be upgraded, for example, if Israel is regarded as an acceptable potential mediator, agreed upon by both sides (Russian and Ukrainian)

Among the main considerations in favor of continuing the coordination are:

1. The relevant clauses in the updated Russian naval doctrine (July 2022), according to which Russia continues to show, if only in theory, a great interest in the various maritime areas in the Middle East.

2. Russia continues to establish its grip on the eastern Mediterranean, with an emphasis on the Tartous port and the Syrian coast.

3. Russia continues to maintain, despite the campaign in Ukraine in the past year, coordination with key regional players, some of these efforts have even become more significant (such as coordination with Turkey), and others were strengthened even more as a result of the campaign and included the expansion of cooperation and alliances (with an emphasis on Iran). For this reason, beyond the coordination of positions and activity that was particularly evident in Syria, common interests were discovered and developed, including cooperation regarding the campaign in Ukraine, cooperation in the Caspian Sea, mainly in regard to maritime transportation and infrastructure development respectively, equipping and supplying weapon assemblies, and more.

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