The Russian Navy in the 21st Century

The Legacy and the New Path

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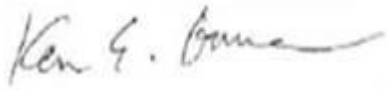

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Abstract

In this CNA occasional paper, Russian military journalists Konstantin Bogdanov and Ilya Kramnik look at the development of the Russian Navy in the context of the ongoing modernization of the Russian armed forces by studying the causes, contradictions, and consequences that affect the navy and the fulfillment of its mission. This report examines the status, mission set, and development strategy of the Russian Navy by showing the continuity that links modern concepts and current constraints to the views and issues of the late Soviet era. The paper analyzes naval modernization in Russia over the past 30 years and examines key obstacles that have repeatedly kept the navy from implementing its ambitious renewal strategies. The report also provides a plausible and realistic mission set that the Russian Navy could fulfill under its current development guidelines.

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Introduction

The development of the navy occupies a major place in the modernization of the Russian armed forces. It is not possible to understand the processes unfolding in Russian naval modernization without studying the causes, contradictions, and consequences that affect the navy and the fulfillment of its missions.

This paper examines the status, mission set, and development strategy of the Russian Navy by showing the continuity that links modern concepts and current constraints to the views and issues of the late Soviet era.

We show the correlation of the main issues of naval modernization in Russia over the past 30 years and highlight ways to address them. We examine key obstacles that have repeatedly kept the Russian Navy from implementing its ambitious renewal strategies. We also provide a plausible and realistic set of tasks that the Russian Navy could fulfill in the form in which it is developing now.

The Phantom Soviet Navy

Russia's naval doctrine and shipbuilding programs are rooted in the late 1980s. The Soviet Navy at that time faced the need for a total renewal of both its technology and its concepts of combat application. The ideas born at that time, combined with the results of thirty years of scientific and technological progress, still mostly define the current state and the future of the modern Russian navy.

We won't describe here the classical "Great Navy of Admiral Gorshkov" of the year 1985, when Sergey Gorshkov left his post as the navy's commander-in-chief as the USSR leadership was beginning the Perestroika political and economic reform. This problem was widely discussed in many works that formed a clear image of the Soviet Navy, from both apologetic and critical positions. The long public discussion between the "adherents of a national anti-carrier concept" and those who wanted "to do the same things as in the United States," when cleared from all the corporate interests and specific narrow technical interpretations, gives a sufficient image of the Soviet Navy of the 1980s as a combat system.

In this paper we are mostly interested in the views that the command of the Soviet, and subsequently the Russian, Navy had during the "post-Gorshkov" period. Due to the specifics and relevance of some of the activities, those views have not yet been covered in the open press. Nonetheless, we can draw some general conclusions on what the Soviet Navy was to become at the turn of the century, and what Russia has taken from those plans for its current navy.

By the end of the 1980s, the Soviet Navy was concerned with the task of fully withdrawing its first-generation ships (built before the beginning of the 1960s, being withdrawn as of 1988) and partial withdrawal of the second-generation ships (built before 1975, being withdrawn as of the beginning of the 1990s). The navy was downsized: obsolete ship types were decommissioned and were replaced by a smaller number of new ships that had fundamentally new combat capabilities. Such actions were in line with the decrease in political tension between the Soviet Bloc and the West starting in 1985. Similar processes took place in other branches of the Soviet armed forces: large numbers of older assets were replaced by smaller numbers of newer, higher-quality assets. This was called the "defense sufficiency" principle.[1]

At that time, a certain imbalance in military development was also acknowledged: the massive introduction of both surface ships and submarines in the previous 10 or 15

[1] А. Петров, "Жизненно важно," *Морской сборник*, no. 2 (1996).

years was not followed by an adequate increase in naval bases and ship repair facilities, as emphasized by then newly appointed navy commander-in-chief, Vladimir Chernavin.[2] Programs for the further development of the Soviet Navy in the 1990s were supposed to correct the situation, especially with regard to ship repair facilities.[3]

By the second half of the 1980s, the Soviet Navy had overcome its obsession with specialized types and was steadily designing universal combat ships that were meant to replace the decommissioned second-generation ships.

Such standardization unfolded most prominently in the submarine forces. After Gorshkov's resignation, the main navy command critically revised the further development guidelines for fourth-generation submarines. The navy refused to develop specialized submarines[4] and, at the same time, launched the redesign of the Yasen-class nuclear-powered multipurpose submarine (project 885 "Yasen") that was to replace both attack submarines (SSNs) and cruise missile submarines (SSGNs).[5] This type of submarine is still the single fourth-generation nuclear-powered multipurpose attack submarine being built.

At the same time, the prospective set of both ballistic missile submarine (SSBN) and submarine-launched ballistic missile (SLBM) projects was reduced. Apart from the modernization of the Typhoon-class SSBN (project 941 "Akula") through the installation of the SS-NX-28 (D-19UTTH Bark missile system with R-39UTTH SLBM), the initial 1980s plans provided for the creation of two other solid-fueled SLBMs—one with a single maneuverable reentry vehicle ("West"), and another with a multiple independently targetable reentry vehicle (MIRV) ("Ost," or "Storm," in various sources)—with two new SSBN projects designed for those missiles.[6] But towards the end of the 1980s, those projects were mostly either cancelled or combined with concurrent changes to requirements. The fourth-generation Borei-class submarine project (project 955 "Borei") was then set to receive the D-31 SLBM system that was

[2] Г. Костев и И. Костев, "Реальность и прогнозы. Атомный подводный флот России на пороге перемен, " *Морской сборник,* no. 6 (2002).

[3] М. Климов, "Еще раз о мифах послевоенного кораблестроения," *Независимое военное обозрение,* 16 фев. 2015.

[4] Ю. Апальков, *Подводные лодки советского флота 1945-1991,* Том III (Москва: Моркнига, 2012).

[5] А. Антонов, "Многоцелевые подводные лодки на пороге XXI века," *Гангут*., no. 14 (1998); М.. Барабанов, "Quo vadis, российский флот?" *Экспорт вооружений,* no. 2 (2003).

[6] Ф. Новоселов, "От Брежнева до Путина," *Военно-промышленный курьер*, 2 июн. 2004; *Морские стратегические ракетные комплексы,* (Москва: «Военный парад», ОАО «ГРЦ Макеева», 2011).

also in development at that period.[7] According to Soviet plans, 14 Borei-class SSBNs were going to replace all of the existing strategic nuclear submarines by 2014.[8]

The first heavy aircraft-carrying cruisers were expected to play a prominent role in the 1990s. They included two conventionally powered Admiral Kuznetsov-class carriers (projects 1143.5/1143.6, *Admiral Kuznetsov* and *Varyag*), and a series of Ulyanovsk-class nuclear-powered cruisers (project 1143.7). The inclusion of such ships in the navy was meant to increase the combat resilience of the blue-water-zone task forces, which the Soviets had intended to do since the 1970s. Soviet heavy aircraft-carrying cruisers were designed first of all to give air cover to naval combat groups and heterogeneous anti-carrier strike forces (surface ships + SSGNs + naval strike aircraft with antiship missiles) and their antisubmarine warfare (ASW) assets, with "pure" strike missions being secondary. In any case, the multipurpose aircraft carrier battle groups formed from the ships of these classes were supposed to become the base of the blue-water fleet.

[7] В. Мурко, "Как сокращали морские стратегические ядерные силы.," *Proatom.ru,* 22 июн. 2009, http://www.proatom.ru/modules.php?name=News&file=article&sid=1856.

[8] Апальков, *Подводные лодки.*

Figure 1. Admiral Kuznetsov

Source: Russian Defense Ministry[9]

Even then, large surface ships, such as the Kirov-class nuclear-powered battlecruisers (project 1144 "Orlan") and Slava-class guided missile cruisers (project 1164 "Atlant") were not considered as potential core ships of fourth-generation carrier groups, though voices for building new ships of these classes could be heard in the mid 1990s.[10] One should bear that in mind when analyzing the reasons that the plans for

[9] "Завершено восстановление технической готовности ТАВКР «Адмирал Флота Советского Союза Кузнецов»," Министерство обороны Российской Федерации, Jun. 15, 2016, http://mil.ru/et/news/more.htm?id=12087318@egNews&_print=true.

[10] И . Капитанец, "Сбалансированный флот России, " *Морской сборник*, no. 7 (1994).

modernizing the Kirov-class heavy nuclear-powered cruisers and building new ships (project "Leader") have appeared in recent Russian shipbuilding programs.

By the beginning of the 1990s, after the USSR had collapsed, a concept based in the views of the previous period appeared. The navy in the next shipbuilding phase would receive serial ships of two main classes: blue-water-zone multipurpose ships (standard displacement 6,500 tons; so-called "destroyer/frigate class")[11] and green-water-zone multipurpose ships (standard displacement 1,800 tons).[12]

According to the developers, both classes were meant to be equipped with vertical launching systems (VLS) for supersonic antiship missiles, long-range cruise missiles, and antisubmarine missiles. This was the natural next step for the development of the third-generation surface-to-air guided missile weapon that had bulky vertical revolver launchers (Kinzhal and Fort, in development from the end of the 1970s). It also reflected a long-time need to eliminate the "zoo" of specialized launch systems for different kinds of strike weapons (antiship missiles, antisubmarine guided missiles). As the experts from the First Central Navy Research Institute have pointed out, the idea was to transfer the decision of which weapons to load on a ship from the ship design stage to the point at which the task force command staff is assigning combat missions before sailing.[13]

Even these disparate examples can show the main direction in which the Soviet Navy was taking development of its naval warfare systems, as presented by its command in the 1990s. Apart from unifying weapons systems and cutting down the list of ship types, the navy paid special attention to the development of a new generation of command & control and combat management systems both for single ships and for ship brigades and squadrons. These systems were to be more deeply integrated with external targeting sources.

After the Granat (3M10) nuclear long-range cruise missiles were successfully deployed, the navy became seriously interested in conventional sea-launched long-range cruise missiles. The 3S14 VLS for Kalibr and Onyx missile weapons systems was proposed for prospective and modernized ships as early as 1989–1990.[14] The development of

[11] Н. Новичков и В. Никольский, "ВМФ России: состоится ли возрождение. Части I-III," *Военно-промышленный курьер*, 10, 24, и 25 июл. 2012.

[12] В. Кузин и В. Никольский., *Военно-морской флот СССР 1945-1991* (СПб: Историческое морское общество, 1996); В. Патрушев, "«В угоду» национальным интересам.," *Морской сборник*, no.9 (1996).

[13] Кузин и Никольский, *Военно-морской флот СССР*.

[14] С. Овсянников и В. Свиридопуло, "Советский суперэсминец третьего поколения. Часть 3: Отличительные особенности пр. 956," *История корабля* 3, no. 1 (2005); Ю. Апальков, "Часть 1: Авианесущие корабли. Ракетно-артиллерийские корабли" в *Корабли ВМФ ССР,* Том II. (СПб.: Галея-принт, 2003).

Kalibr itself, including the 3M14 dual-capable long-range cruise missile, had begun in 1986.[15] At that time the doctrinal shift toward precision-guided conventional missiles and "fleet versus shore" deep operations was already evident.

Thus, by the time the Soviet Union collapsed, the Soviet Navy was well equipped with a fully renewed portfolio of military development ideas that had they been consistently implemented in the 1990–2000s would have upgraded its combat capabilities and reduced its lag behind the U.S. Navy.

[15] Апальков, *Подводные лодки.*

A Decade of Ideas, But Not Ships

The collapse of the USSR, the disintegration of established defense industry production chains, and growing public finance deficits all had an impact on the Russian Navy. First, all the plans for a major modernization of the navy were buried. Second, the long overdue radical change in the concept of combat use and approaches to shipbuilding could proceed without major resistance from existing military bureaucratic structures. This required political will and concentration of qualified military thought, but in the 1990s there were certain problems in the constructive combination of these two factors. Third, international arms-control agreements on the reduction of strategic offensive weapons played a role in naval development.

Let's elaborate on the last point. The Strategic Arms Reduction Treaty signed in January 1993 (START II) prohibited the development of land-based MIRVed intercontinental ballistic missiles (ICBMs) and heavy ICBMs, but didn't constrain the development and deployment of MIRVed SLBMs. With the benefit of hindsight, we know that START II never entered into force—but at the beginning of the 1990s the situation was viewed quite differently, and influenced the navy's development plans.

Models of Russian strategic nuclear force development immediately showed the growing role of the sea-based leg of the triad. According to the START I Memorandum of Understanding, in autumn 1990 only 27.3 percent of all warheads of the Soviet strategic nuclear forces (2,804 units) were deployed on SLBMs. According to navy experts, the entry into force of the START II agreement was meant to increase the percentage of the sea nuclear component up to 55–58 percent of all the warheads of the Russian strategic nuclear forces.[16]

On the one hand, it was an evident argument for increasing the government's emphasis on the navy and grounds for modernizing naval forces in order to establish the SSBNs' combat resilience, which in its turn gave birth to the concept of enlarging the maritime "geographical security zone" near the country's borders,[17] as needed for effective actions of the SSBNs. On the other hand, it gave way to the search for alternative ways of development as an interest in sea-launched long-range cruise missiles arose; unlike the air-launched cruise missiles, they were not covered in the START I and START II

[16] Капитанец, "Сбалансированный флот России,"; В. Патрушев, "Наши подводные силы сегодня," *Морской сборник*, no. 3 (1997).

[17] М. Моцак, "Непрямые действия флота при мирном разрешении вооруженных конфликтов," *Морской сборник*, no. 11 (2000).

agreements. The experts quickly realized the special role such weapons could play in being an alternative means for the strategic deterrence under START II conditions.[18]

These events naturally increased the navy's interest in the conventional long-range cruise missiles already present at the end of the 1980s. Consequently the fate of the universal vertical launcher equipped with 3M14 missiles was mostly decided: this program received doctrinal support and became firmly established in the new naval plans.

The programs for submarine force modernization were reduced and unified in an even more radical way than had been planned in the last years of the USSR's existence. Both prospective programs (Borei-class SSBN and Yasen-class nuclear-powered multipurpose attack submarine) were accepted as the main programs but were realized in different ways.

SSBNs had priority in terms of building and equipping, but immediately faced problems with the missile system that was not yet ready for deployment. As a result, in 1995 the planned D-31 missile system was replaced with the D-19UTTH Bark (initially intended for modernization of the Typhoon-class SSBNs), which proved to be closer to readiness. (One must bear in mind that this choice was not between a ready missile and a not-yet-ready missile, but between the first stage of flight development tests and traces on the drawing board.) But by 1998 the Bark project had been officially cancelled: the missile was declared oversized,[19] as it required a serious redesign of the Borei-class SSBN (particularly a change in hull forms, due to the appearance of a "hunch") which could not fit such a big missile. Instead, the Bulava tender was launched for a smaller solid-fueled SLBM: it was 30 tons, according to the statement of work (37 tons eventually), instead of Bark's 80 tons. The refurbishment of Typhoon-class SSBNs was abandoned.

In terms of nuclear-powered multipurpose attack submarines, the fitting-out of third-generation ships—the Akula-class (project 971 "Shchuka-B") and Sierra II class (project 945A "Kondor") SSNs, and the Oscar II class (project 949A "Antey") SSGNs—became a priority. At that moment the submarine force was deemed temporarily sufficient, so the focus was on decreasing rather than increasing the number of submarines (with the understanding that in the near future all design and development work on fourth-generation nuclear-powered multipurpose attack submarines had to be finished and their serial construction started).

In developing the surface naval forces, the country immediately had a few problems to solve, all of which were burdened by the critical lack of funding. The first issue was the mass withdrawal of ships from operational deployment, due to the combination of

[18] Б. Макеев, "Перспективы отечественных МСЯС," *Морской сборник, no.* 4 (1996).

[19] В. Дворкин, "Как ракетчик ракетчику," *Независимое военное обозрение*, 20 фев. 2009.

existing Soviet plans for decommissioning the first- and second-generation ships and the financial difficulties of the 1990s. Russia had to quickly compensate for its shortage of combat ships. Another issue was the lack of time for modernization. Moscow's shortage of finances and the general disintegration of the Soviet defense industry didn't allow for the design and development work on the most-needed prototypes of weapons and naval warfare systems intended for fourth-generation ships to be finished on time. Investment in these systems was required if Russia wanted to remain at a level near that of the United States, at least in terms of quality of ships if not quantity of ships.

Eventually the idea of serial construction of modernized third-generation combat ships was rejected, and the navy thereafter concentrated on projects that could serve as "drivers" for needed design and development works on fourth-generation naval warfare systems. In a situation of financial crisis and a poorly tuned defense industry management system, this was probably too much for the government to take on. One must remember that by the year 2000 even the current needs for maintenance of the navy's missile systems were receiving only 30 percent of needed financing.[20]

This led to the failed attempt at starting serial production of Novik-class frigates (project 12441 "Grom"). After the analysis of the possibilities, two sets of requirements were formed: one for a blue-water-zone multipurpose ship ("Fregat-NP"),[21] including a maximum range of solutions from the 12441 project, and another for a green-water-zone ship ("Korvet-1").[22] The latter was considered a cheap mass substitute for the more difficult and costly project 12441.[23]

[20] В. Остапенко, "Огневая мощь ВМФ. [Беседа с начальником УРАВ ВМФ Г. Еремеевым.]," *Морской сборник*, no.7 (2000).

[21] "Пояснительная записка к бухгалтерской отчетности ОАО «Северное проектно-конструкторское бюро» за период с 01.01.2010 по 31.12.2010," Центр раскрытия корпоративной информации, https://www.e-disclosure.ru/portal/FileLoad.ashx?Fileid=365483.

[22] Ю. Апальков, *Противолодочные корабли* (Москва: Моркнига, 2010).

[23] М. Барабанов, "И целого флота мало," *Росбалт*, 17 сен. 2007, http://www.rosbalt.ru/main/2007/09/17/413702.html.

New Reality and Old Troubles

In 2000, *Foundations of the Naval Policy of the Russian Federation Until 2010,* the first official document establishing at least some strategic guidelines for the navy, was introduced. The document could be considered an unclassified version of the naval strategy. It has been amended twice: in 2012 for the period until 2020, and in 2017 for the period until 2030.

It is this period, framed by the publication dates of the first and the third documents, which is of interest in this section of the report. It encapsulates the first shipbuilding programs developed and launched in Russia and the greater part of a large-scale government armament program in which around 5 trillion rubles[24] (US$ 165 billion in 2010) was allocated to the navy, 2.35 trillion (US$ 78 billion) of which went directly toward shipbuilding.[25]

The first two doctrinal documents were fairly general in nature. They mostly formulated the tasks of reconstruction and restoration of the navy and shipbuilding industry's potential, giving indisputable priority to the naval strategic nuclear force and submarine force operations. Analogously, the first version of the doctrine included a priority scale for shipbuilding and the development of the navy. The priorities were as follows:

- SSBNs
- Nuclear-powered multipurpose attack submarines
- Multipurpose combat ships
- Battle management, communication, intelligence, surveillance, target acquisition, and reconnaissance systems

The idea of defending the Russian coastal area as well as ensuring its economic interests in the World Ocean is present in the 2000 and 2012 versions, but they do not give any concrete methods or means for resolving these tasks and do not discuss how the tasks would manifest in deterrence policy.

[24] *Государственные программы вооружения Российской Федерации: проблемы исполнения и потенциал оптимизации*, Центр анализа стратегий и технологий, Аналитический доклад, 2015, http://www.cast.ru/files/Report_CAST.pdf.

[25] "Проект программы военного кораблестроения России разработают к ноябрю.," *РИА Новости,* 5 сен. 2013, https://ria.ru/defense_safety/20130905/960992560.html.

An important change in these key priorities occurred in the early 2000s. The START II Treaty was ratified by Russia in 2000, but it never came into force: after the U.S. withdrew from the 1972 ABM Treaty, Moscow declared its denunciation of the agreement. This extended the life cycle of ground-based heavy ICBMs, enabled Russia to quickly manufacture and deploy the new RS-24 Yars ICBM with MIRVs, and decreased the importance of the naval "leg" of the nuclear triad compared to the perceptions formed of it in the previous decade.

The period of the early and mid 2000s, which saw low levels of military confrontation and increased levels of cooperation between major countries in the fight against international terrorism, could hardly be called prosperous for the Russian Navy. The decrease in importance of the naval leg of the nuclear triad in the medium term, combined with as yet insufficient funding, led to delays in the main navy programs, which are launched measuredly, one after another. An additional problem was created by the fact that the 2001–2010 State Armament Program (GPV-2010), established in 2002, regarded the naval leg of the triad and the expansion of weapon exports as main priorities, while up to two-thirds of the funding went toward maintenance (acquisition of components, consumables, ammunition, etc.).[26]

Overall expert assessments demonstrate[27] that the shipbuilding industry in the mid 2000s received no more than half of the total funding it could have claimed within the framework of existing Ministry of Defense orders. The increase in funding at the very end of the 2000s and, especially, since the beginning of the 2010s (after the launch of the 2011–2020 State Armament Program) revitalized shipbuilding and resulted in new hulls being laid down. However, it has reflected only indirectly on the readiness of naval warfare systems, making it clear that the problem is not in the allocation of funds but in the development of new electronic systems.[28]

The plans for constructing large surface combat ships in the frame of GPV-2020 were disrupted almost entirely. Indeed, disruption was virtually programmed to occur right from the start, and many were aware of this. The reasons for this probably lay in the underdeveloped production chains and in the incomplete development of new naval weapons and electronic systems. The inconsistency of the navy command also played a role: in changing the technical specifications on ships, it increased the variety of ship classes and postponed the beginning of serial construction of fully developed projects. From 2014 onward, political factors had an impact as well: the supply of diesel engines

[26] А. Фролов, "Будущее российских вооружений," *Индекс безопасности*, no. 96 (2011).

[27] Р. Пухов, "О некоторых проблемах военно-морского строительства и реформы кораблестроительной отрасли," *Газета.ру,* 9 июл. 2007, https://flot.com/nowadays/concept/ref26.php.

[28] К. Богданов, «*Железо» нового флота России*, Российский совет по международным делам., 2014, http://russiancouncil.ru/analytics-and-comments/analytics/zhelezo-novogo-flota-rossii/.

from Germany and gas turbines from Ukraine was halted. Yet the imposed sanctions did not create this situation, but rather merely acted as additional catalysts.

It is well known that GPV-2020 envisioned the building of six Admiral Gorshkov class frigates (Project 22350) and 16 Gremyashchiy-class corvettes (Project 20385) in addition to two Admiral Gorshkov class frigates and four Steregushchiy-class corvettes (Project 20380), which were promised to be completed before 2011.[29] Later, these plans were amended due to the halt in diesel engine supplies from Germany. Thus, in the Severnaya Verf ("Northern Shipyard") only two Gremyashchiy-class corvettes were laid down and the construction of two other Steregushchiy-class series hulls was resumed, while only Steregushchiy-class corvettes were built at the Amur Shipbuilding Plant.

Figure 2. Project 20380 "Soobrazitelny" Corvette in the English Channel, April 2017

Source: Wikipedia[30]

[29] "'Северная верфь' построит для ВМФ России 10 корветов типа 'Гремящий," *РИА Новости,* 1 фев. 2012, https://ria.ru/defense_safety/20120201/554030833.html; "Амурский судостроительный завод построит четыре корвета для ТОФ," *РИА Новости,* 9 дек. 2014, https://ria.ru/defense_safety/20141209/1037321373.html.

[30] "Файл:NavalParade2017 02.jpg," Wikipedia, Jul. 30, 2017, https://ru.wikipedia.org/wiki/%D0%A4%D0%B0%D0%B9%D0%BB:NavalParade2017_02.jpg.

At present (early 2018), only five Steregushchiy-class corvettes have been delivered, three of which are within the framework of GPV-2020 and none of which were laid down after 2010. Realistically, in addition to the ships mentioned in the previous paragraph, two Admiral Gorshkov class frigates and five or six corvettes, only one of which will be a Gremyashchiy-class ship, can be commissioned by 2021. In relation to this, the navy has noted a low level of industry preparedness for the realization of major shipbuilding programs as well as the lack of a unified government technological policy which is in sync with GPV-2020.[31]

The most interesting consequence of those delays was the phenomenon nicknamed the "Kalibrization of the navy" (from the name of the Kalibr system).[32] The introduction of green-water ships with this missile system (Gepard-class frigates or project 11661K missile ships, Buyan-M class corvettes or project 21631 small missile ships, and now a serial order for the Karakurt-class corvettes or project 22800 small missile ships) looked even more remarkable in light of the delay in building major ships.

One should not infer, however, that this decision—namely, to equip coastal protection ships with strategic cruise missiles—is a purely stop-gap solution like accepting export projects. It was a well-thought-out application of doctrinal positions. We noted earlier that even in the latter half of the 1980s, the Soviet Navy had already contemplated the transition to widespread use of long-range cruise missiles in the fleet, including non-nuclear ones. The depression of the 1990s pitched the Russian Navy backwards, drastically restricting the spectrum of blue-water combat missions. Paradoxically, it is precisely this which has forced a shift in attention toward activities in the near-field zone along the periphery of maritime borders. Indeed, the natural trend of inputting modern precision-guided weapons was additionally enhanced by the collapse of the Soviet ocean fleet.

What's more, "Kalibrization" was inscribed in views that were just then taking shape on the conduct of operations, which considered a broad swathe of peripheral areas (up to 1,500 km from the country's borders)[33] as a strategic forefield. A detailed investigation of the principles of this "extended strategic defense"—including active offensive operations with the broad use of precision-guided weapons in the "geographical security zone"—go beyond the scope of our article, but they are comparatively well parsed in other research papers.[34] We also note here a similarity

[31] В. Чирков, "О реализации программы военного кораблестроения ВМФ РФ," *Морской сборник*, no. 1 (2014).

[32] А. Мозговой, "Нестерпимый жар «Калибра»," *Национальная оборона,* no. 9 (2015).

[33] Кузин и Никольский, *Военно-морской флот СССР*.

[34] See: S. Boston and D. Massicot, *The Russian Way of Warfare*, RAND Corporation, Perspectives, 2017, https://www.rand.org/pubs/perspectives/PE231.html.

between the "Kalibrization" ideology and certain elements of the concept of "distributed lethality." In any case, ideas about distributing strike weapons over a large number of distinct launch platforms were already being considered by Russian naval science in the late 1990s and early 2000s.[35]

A special place in this process was occupied by the Buyan-M class corvettes. Constructed as "river-sea"-class ships—and, because of this, suffering from subpar seaworthiness—they had the capability for operational maneuvering on internal waterways (one must recall that they are being built in central Russia, in the Zelenodolsk Shipyard in Tatarstan). Ships of this type can quickly cover the distance between all of the major western seas bordering on or within Russia (the Caspian, the Black Sea / Mediterranean, the Baltic and the Northern). The range of the Kalibr-NK cruise missiles—up to 2,600 km—creates the potential for power projection, enabling the Russian Navy to destroy targets practically all over the Eurasian region west of Pamir and in Northern Africa.[36] Indirect evidence of heightened attention to this question can be found in the studies that appeared around 2010 which looked into the possibilities for inter-theater maneuvers of naval forces via the use of internal waterways.[37]

However, if there is a "support" part of naval strategy consisting of the defense of the near-peripheral zone, there must also be an "offensive" one in the form of overseas operations. Complex naval strategy, based on the concept of the "geographical security zone" in concert with universal expeditionary forces, was already being discussed at the turn of the 2000s.[38] Since the end of the 2000s, the navy has recognized the necessity of full-scale overseas operations and has accordingly been reevaluating the concept of amphibious forces, previously regarded as flank support for the army, as a potential solution.

The collapse of the USSR brought an end to Soviet plans for the development of the navy, including the reform of amphibious forces. However, it did not stop the process of learning from foreign experience in utilizing these forces. Conflicts of various scale, from the 1991 Gulf War to the 2003 invasion of Iraq—including such small operations as Restore Hope, Deny Flight, Assured Response, Determined Response, and others—were closely scrutinized, including in regard to the application of the amphibious forces.

[35] С. Конопатов, "Новые технологии в военном деле дают возможность победить, не отрываясь от монитора," *Морской сборник*, no. 8 (2008).

[36] И. Крамник, "«Распространение смерти»: российская и американская версии," *Защищать Россию*., 19 окт. 2015, https://defendingrussia.ru/a/rasprostranenije_smerti_rossijskaja_i_amerikanskaja_versii-4099/.

[37] И. Гордеев, "Особенности проводки кораблей по судоходным каналам и шлюзам при осуществлении межтеатрового маневра сил флота по внутренним водным путям," *Морской сборник*, no. 7 (2010).

[38] Моцак, "Непрямые действия флота."

Firsthand experience in conducting expeditionary/amphibian operations during this period was limited to the involvement of navy and marine forces during the Georgian-Abkhaz War. The Black Sea Fleet facilitated the evacuation of civilians, the supply of humanitarian aid, aid to and protection of the commercial fleet, and the emergency evacuation of the logistics center from the Nokra island of the Dahlak archipelago in the Red Sea in the winter of 1991.

Only in the second half of the 2000s, when a long-term counterpiracy operation was deployed near the Horn of Africa, was Russia forced to turn its attention once more toward expeditionary forces. In the absence of nearby logistics centers, the navy used ships that were not the most appropriate for such tasks—for the most part, antisubmarine destroyers and frigates. A large part of the campaign in the Horn of Africa area was carried out by the ships from the Pacific, Northern, and Baltic Fleets. As the Black Sea Fleet had an insufficient number of modern surface warships, it participated in the operation in only a limited capacity.

Figure 3. BPK "Marshal Shaposhnikov, an active participant in anti-piracy operations

Source: Ilya Kramnik

The lack of Russian bases forced the Russian government to start negotiations with France about basing Il-38 maritime patrol aircraft at the French base in Djibouti.[39] These talks did not, however, end in success. An aircraft or helicopter carrier could have served as a partial substitute for a base, but there simply were none available.

The Five-Day War with Georgia in 2008 became a key catalyst in the new attempt to refurbish the amphibious forces. The participation of Russian marines was in fact limited to a small-scale raiding operation in ports, the aim of which was to destroy the ships and vessels of the Georgian Navy. Even with a political solution, they could not have counted on anything larger, like a beachhead assault and a subsequent inland advance: the complete absence of air support and the fact that Georgia had its own air forces made any relatively large scale landing very risky.

At the Euronaval exhibition in Paris in the autumn of 2008, commander-in-chief of the Russian Navy Vladimir Vysotsky was already announcing the possibility of acquiring foreign amphibious vessels. The potential options being considered were the Dutch Rotterdam-class LPD, the Spanish *Juan Carlos I*, and the South Korean Dokdo class. However, in July 2009, the first reports emerged about negotiations for constructing four Mistral-class amphibious assault ships. At first, there was talk about building one ship in France and the other three in Russia with a gradual increase in domestic production, and then about a "2+2" scheme. In the end, a contract was finalized in 2010 for the construction of two ships in France with the possible construction of two others in Russia under a license.

The agreement served the following goals:

- Procurement of modern means for supplying the naval infantry and providing over-the-horizon landings with air support, including at long distances from proprietary bases
- Procurement of modern command and control ships
- Familiarization with modern radio-electronic systems, including combat information and control systems and battle management systems
- Familiarization with new technologies in military and commercial shipbuilding, and utilization of the knowledge in order to modernize the industry

As a result of the political-military conflict in Ukraine in the spring and summer of 2014, the agreement was not fulfilled and both ships that were built went to the Egyptian Navy. At the same time, the latter two of the four identified aims were achieved. The information that was acquired during the building and equipping of

[39] "РФ попросила Францию разместить на ее базе в Джибути 2 самолета Ил-38," *РИА Новости,* 31 окт. 2012, https://ria.ru/defense_safety/20121031/908323823.html.

Russian Mistrals became the jumping-off point for the independent design of new combat ships in Russia.

The building of nuclear submarines significantly slowed in the 2000s. In fact, over the entire decade, the navy received only one new nuclear submarine: the K-335 *Gepard*, in 2001. The K-152 *Nerpa*, which was formally commissioned in 2009, cannot be counted, as it was designated for lease to India. The construction of the subsequent Akula-class SSN and Oscar II class SSGN was never completed.

This came about for a host of reasons. The K-335 was completed according to a modified design due both to the changing requirements for nuclear submarines and to the necessity of replacing suppliers who were no longer cooperative and equipment that was no longer being produced. For the most part, this also pertained to the K-152. The completion of the remaining hulls would have required more serious changes in the project that ultimately led to a decision to use the framework of the hull structures and parts of the auxiliary systems to build new submarines. Thus, the framework of the pressure hull for the project 971 K-337 *Kuguar* SSN was used in the construction of the K-535 *Yuri Dolgorukiy* SSBN, while the technological framework for the K-333 *Rys* of the same project was used in the construction of the K-550 *Aleksandr Nevskiy* SSBN. The partially constructed K-139 *Belgorod* (Oscar II class SSGN) was laid down once more in 2012 and is being rebuilt under a new project as a "research" submarine (special mission submarine with UUV).[40]

Simultaneously, the laying of serial hulls for new nuclear submarines projects began during this period: the Borei I class *Aleksandr Nevskiy* and *Vladimir Monomakh* were laid down in 2004 and 2006, while the Yasen-M class *Kazan* SSN/SSGN was laid down in 2009. Work also resumed on the main submarines of these projects. This step was preceded by a serious reworking of said projects with respect to the altered state of the industrial base and the necessity of introducing new weaponry and equipment.

The key task of this period was to facilitate mid-service repair for the entire remaining fleet of Delta III class (project 667BDR "Kalmar") and Delta IV class (project 667BDRM "Delphin") SSBNs. The submarines of the latter project will be equipped with the new liquid-fueled R-29RMU2 Sineva SLBM, which would maintain the potential of the navy strategic nuclear forces. Several multipurpose submarines of the Akula, Sierra, Victor III and Oscar II classes have also undergone repairs. Clearly, this decision, combined with the laying of a fourth-generation nuclear submarine, consumed most of the funding devoted to maintaining the nuclear submarine fleet and made it impossible to continue the construction of Soviet-era designs.

[40] Д. Литовкин, "ВМФ получит самую большую атомную подлодку в мире," *Известия,* 21 апр. 2017.

It is especially necessary to say a few words about the fate of Naval Missile Aviation. It was quite possibly the most important leg of Gorshkov's "anticarrier triad": by the end of the 1980s, the overall salvo of long-range antiship missiles for the Naval Missile Aviation was, by various estimations, 940–1,300 missiles, while the salvo for all surface ships and submarines was a mere 600–640.[41]

However, in the 1990s and 2000s, the Naval Missile Aviation fell into disrepair. While maintaining minimal organizational structures, it lost significant combat capability and most of its aircraft, and, naturally, its weapons and airborne systems did not undergo modernization. If by 1991 the Naval Missile Aviation comprised four air divisions (12 antiship air regiments comprising almost 370 Tu-22M3, Tu-22M2, and Tu-16 aircraft), by 1995 it came down to 145 Tu-22M2 and Tu-22M3 planes, of which no more than 75 were mission-capable.[42] By the early 2000s, the total flight experience for a single crew of the Naval Missile Aviation did not exceed two hours per year.

As a result, as part of the military reform launched in 2009, the Naval Missile Aviation was fully eliminated from the Naval Aviation structure by 2010 and the Tu-22M3 aircraft were transferred to Long-Range Aviation. Though the aircraft retained their antiship missions,[43] the planning of operations that utilized Tu-22M3 aircraft became complicated: it now required interservice communication at the Strategic Command level. From the standpoint of military construction, the navy lost direct influence on the development of naval missile aviation, while the air force remained largely uninterested in aircraft for these types of missions.

The development of other components of Naval Aviation mostly followed the path of gradual reduction in flight crews and structural reorganization. The latter resulted in the consolidation of the Naval Aviation and fleet Air-Defense forces, which in turn made it possible to create a unified regional Air-Defense command. This manifested most saliently in the North-Eastern Group of Troops and Forces (former Kamchatka Flotilla), where MiG-31 interceptors were incorporated into the Naval Aviation.[44] The aircraft underwent practically no modernization whatsoever. Only in the 2010s did the navy begin to order the installation of the Novella system on Il-38 patrol aircraft, the modernization of Ka-27 helicopters, and the construction of 28 Su-30SM fighters to replace Su-24 in naval assault air regiments. It should be noted that, among the

[41] М. Климов, "Авиация — падчерица ВМФ," *Независимое военное обозрение*, 25 мая 2007; Кузин и Никольский, *Военно-морской флот СССР*.

[42] А. Артемьев, "Крылья над морем (цикл статей)," *Авиация и космонавтика* (2006-2009).

[43] А. Михайлов, "ВВС России займутся уничтожением авианосцев," *Известия*, 16 сен. 2012.

[44] Артемьев, "Крылья над морем."

priorities for the development of the Naval Aviation, the creation of special airborne strike platforms with an antiship weapon will not be significant until at least 2030.[45]

In 2017, a third version of the *Foundations of the Russian Federation Naval Policy Until 2030* was released. Compared to the two previous documents, this one is much more concrete, while also being extremely ambitious. Among observers, the document has provoked a skeptical reaction and an assessment of the text as "setting unreasonable goals."[46]

Putting aside that politicized and sometimes even blatantly opportunistic part of the document which compiles a list of threats to national security (that is, the foundations of the proposed strategy), one should note that in *Foundations 2030,* some doctrinal aspects—discussed above as de facto in effect—are legally enshrined for the first time. Thus, the document offhandedly declares that the Russian Navy strives to rate second among the world's naval fleets, all the while formulating this declaration in an uncompromising way: "Russia will not tolerate the substantial superiority of any other country's navy."

Foundations 2030 also officially enshrines the rules for the navy's use of non-strategic nuclear weapons. In accordance with current military doctrine, it states that demonstrating willingness to use tactical nuclear weapons is an efficient deterrent of military conflict escalation. This document includes the navy's ability to cause critical damage to the adversary via the use of tactical nuclear weapons among indicators of the effectiveness of naval policy.

Conventional precision-guided weapons also play significant role in strategic deterrence: long-range cruise missiles are named in the document as the navy's main weapons until 2025, after which hypersonic cruise missiles and "unmanned vehicles" will take on that status. It should be particularly noted that a turn to the "fleet versus shore" mission is clearly formulated in the context of mass deployment of long-range cruise missiles within the navy.

The only vague part of *Foundations 2030* is related to the description of the Russian Navy's oceanic operations. From the text, it can only be construed that such operations should exist. What's more, only a few aspects of these operations are outlined:

- Establishing and supporting a network of overseas naval bases
- Building aircraft carriers

[45] "«Развитие ВМФ невозможно без взгляда в дальнюю перспективу» [Беседа с главкомом ВМФ В. Чирковым]," *Национальная оборона*, no. 6 (2013).

[46] А. Никольский, "Новая военно-морская доктрина ставит чрезмерные цели," *Ведомости,* 23 июл. 2017.

- Testing independent operations of navy ship groupings in distant areas of the world's oceans
- Establishing a system of material and technical support and supply to these groupings

The Mediterranean Sea, the Near East, the Caspian Sea, and the Arctic are named among the most important regional priorities for the navy's oversea presence. The latter part mentions work on building dual-use bases in distant regions which both civilian ships and the navy can use (along with the coast guard of the FSB Border Service).

It is easy to note that two major vectors which extend from the Soviet period—the creation of carrier battle groups around hypothetical carriers and the establishment of expeditionary forces as an instrument of overseas navy operations which are limited in duration and scale—fit this set of requirements for oceanic zone presence quite well, fulfilling them almost entirely. At the same time, it is obvious (both stylistically and factually) that both of these missions are ultimately broad and are set before the navy "for growth," unlike the priority tasks of securing the combat stability of SSBNs and deterrence in the peripheral "geographic security zone." The only difference could possibly be in the execution of practical Syrian-type expeditions for which the corresponding capabilities and infrastructure are actually being created.

The Russian Navy's Missions Today and Tomorrow

Proceeding from all that was outlined above, we will now lay out in broad strokes the primary categories of Russian Navy's missions in the modern era.

The navy's strategic nuclear forces' duty during peacetime and their use during war remains the indisputable priority. Strategic nuclear deterrence definitively determines the hierarchy of navy missions. Even in the times when less than a third of all nuclear warheads were going to the sea-based "leg" of the strategic triad, this mission remained a central one. At present, navy strategic nuclear forces should receive approximately two-thirds of all warheads while maintaining the limitations of the New START (depending on the ratios of breakout potential for MIRV missiles). If these restrictions are lifted and there is a realistic assessment of the deployment of existing and new fully equipped strategic missiles, this fraction would still be extremely high—at least one-half.

The navy's second complex task is that of ***supporting the "geographical security zone,"*** entailing a series of interconnected functional sub-tasks. The most important of these is the comprehensive support of navy strategic nuclear forces with surface ships, submarines, coast missile forces, naval aviation, and intelligence resources (measurement and signature intelligence, or MASINT, and and signals intelligence, or SIGINT). Setting up SSBN bastions during a period of threat remains the most crucial element of the navy's activities. However, other elements are also emerging, especially with the appearance of conventional long-range precision-guided weapons.

Conventional deterrence has only recently appeared among the navy's missions, as it was doctrinally established only in 2014. New classes of conventional precision-guided strike weapons have appeared: long-range air-based and sea-based cruise missiles, sea-based and shore-based antiship missiles, and "Iskander-M" tactical ballistic and cruise missile systems. Conventional weapons provide the navy with additional flexibility in carrying out strategic deterrence missions, including preemptive strikes. Missions of conventional deterrence in combination with "geographical security zone" support also include the counteraction of air-based and space-based strike weapons (including both existing and prospective long-range cruise missiles, as well as hypersonic missiles and boost-glide systems) and their delivery platforms, which entails the integration of air defense and ballistic missile defense.

The next mission of the navy is the ***protection and facilitation of maritime economic activities***. It is not hard to see that this mission also partially overlaps with the support of the "geographical security zone," especially in protecting coastal communications,

fishing, and infrastructure for fossil fuel extraction on the sea floor. Here, special attention should be paid to navy operations in the Arctic region, where purely economic issues intersect with the missions of forming bastions for SSBNs and protecting the green-water zone from the enemy's submarines, which are equipped with long-range cruise missiles and prospective unmanned vehicles aboard.

The navy's actions in the oceanic zone are often proclaimed as important by the Main Navy Command, but for a variety of reasons, outlined above, they will be very limited in nature. Among these missions, the ***"projection of power" in key regions*** stands apart. This mission not only introduces requirements for expeditionary forces and landing craft large and small but also raises the issue of protecting these forces in the deployment zone or during sea transit. Thus, there is meaningful substance to the creation of multipurpose oceanic task forces, including aircraft carriers and long-range cruise missile–equipped ships.

The navy's offensive activities that take place farther from the "geographical security zone"—i.e., outside the context of operational support, including in the oceanic zone—are connected to the mission of creating the forward line of active defense. They entail the deployment of antiship and antisubmarine weapons systems to disrupt the activities of adversary naval groupings, as well as the use of long-range cruise missiles for strikes on land-based targets. In this scenario, both nuclear- and conventional-tipped weaponry is utilized.

At this stage, we should transition to an analysis of the Russian Navy's prospects in connection with the new State Armament Program (2018–2027, GPV-2027) as well as the program for the period until the 2030s. By 2027, the navy will receive much less money than it was allocated under GPV-2020. It has been announced that standard funding for different armed forces branches under the GPV-2020 will be equalized under the new program.[47] If one takes this declaration literally, then, taking into account the funding of Program-2027, it will allocate a maximum estimated value of 3.2 billion rubles (if the funding is divided equally among the six areas of ground forces, air forces, air-space defense, navy, strategic missile forces, and "multi-service and other," as it was in GPV-2020).

However, if equalization of funding is interpreted in a less straightforward way, and rather takes into account the aggregate funding in the framework of the soon-to-be-completed GPV-2020, then reports saying that ground forces and airborne forces will receive up to a quarter of total Program-2027 funding should be duly considered.[48] Then the navy could receive less than 3 billion rubles before 2027. It should be noted that this in essence reflects not a decrease in the funding of the navy but rather the

[47] И. Сафронов и А. Джорджевич, "19 триллионов принимают на вооружение," *Коммерсантъ,* 15 ноя. 2017.

[48] И. Сафронов и А. Джорджевич, "Десант и пехоту сделают финансово устойчивыми," *Коммерсантъ,* 18 мая 2017.

maintenance of the *de-facto* situation with funding: after the period of 2014–2015, navy funding in the GPV-2020 was substantially cut (this can be seen in the above-mentioned change in shipbuilding programs), while the funding that was made available went to the airborne forces and ground forces.

This instance was also reflected in the planning of the new GPV. According to announcements by the Ministry of Defense,[49] the 2018–2027 priorities for military shipbuilding are:

- Green-water ships with precision-guided cruise missiles
- SSBNs
- Multipurpose nuclear attack submarines

This roster mostly supports the concept of navy construction described above and characterizes quite well both the real capacity of the state budget and the state of the industry. It is easy to see that the navy is mostly interested in the mass serial construction of small-scale ships with long-range cruise missiles—that is, the continuation of the "Kalibrization" policy within the framework of the establishment of a "geographical security zone" near its borders. It was also declared that, although on the more distant horizon (within the framework of the "Program of the Military Shipbuilding Until 2050"), the navy's numbers will not change significantly, it will be better equipped and its combat capabilities will grow. All of this also attests to a very limited quantity in upcoming naval construction. Parallels can be drawn to Russian naval development in the late 19th century, as described in the Appendix.

The development of the Borei III class SSBN (project 955B "Borei-B") with updated capabilities (in particular with the installation of a new water jet propulsion system) was provided for within the framework GPV-2027. The lead SSBN was going to be laid down in 2023 and commissioned in 2026. At least four such submarines were set to be constructed in all—possibly five, if the definition of "series" was interpreted in strict accordance with the rules (that is, not counting the lead vessel of the project). In spring 2018, however, the decision was changed: the Borei III program was cancelled and an additional series (supposedly, six hulls)[50] of Borei II class SSBNs (project 955A "Borei-A") were set to be built. This would bring the overall number of Borei-class SSBNs, including those being completed through the GPV-2020, up to 14 hulls. In the

[49] "Приоритетом морской части новой Госпрограммы вооружения станут корабли с высокоточными ракетами и атомные подводные лодки," Официальный сайт Минобороны РФ, 29 ноя. 2017, https://structure.mil.ru/structure/forces/navy/news/more.htm?id=12152815@egNews.

[50] "Источник: Россия построит еще шесть атомных стратегических подлодок класса 'Борей-А,'" *ТАСС,* 21 мая 2018, http://tass.ru/armiya-i-opk/5218417.

beginning of the 2000s, the demand for Borei-class submarines was estimated at 10–15 hulls.[51]

The operations of SSBNs in bastions within the "geographical security zone" will require not only improvements in ASW capabilities on green-water ships and maritime patrol aircraft, but also the creation of an underwater surveillance network. The decision to develop a Joint State System of Underwater and Surface Surveillance (EGSONPO) in Russia was made in the 2000s and then again in the 2010s.

In essence, this is about creating an analog to the U.S. next-generation SOSUS system. In 2016, there were already reports of the development and deployment of the technical instruments of such a system, which was created within the framework of the "Garmoniya" project.[52] The system collects and analyzes data from the automatized seafloor stations equipped with multi-element active and passive hydroacoustic reconnaissance systems. The seafloor systems are not stationary objects but rather are stealthily deployed from submarines in the necessary areas. The system also incorporates information exchange via satellite.[53]

According to experts, the priority mission of the "Garmoniya" system is to provide underwater situational awareness in the Arctic. In 2016, a second serial stationary sonar system, MGK-608M, was deployed, with the remote part placed at the maximum distance of 160 km from the coast line.[54] At least four such systems are set to be deployed.

The key critical problem of submarine force development remains the emergence of new multipurpose nuclear submarines. As of early 2018, the navy formally had 27 nuclear-powered multipurpose attack submarines, from six projects: Victor III (671RTMK "Shchuka"), Akula (971 "Shchuka-B"), Sierra I and II (945 "Barrakuda" and 945A "Kondor"), Oscar II (949A "Antey"), Yasen (885 "Yasen"). Of those 27, about half either are in repair or are scheduled for repair, while 6–8 of the other half are mission capable. With such limitations, the submarine forces cannot guarantee that they can fulfill the tasks that the navy requires of them, whether they are protecting SSBNs in bastions, tracking adversary SSBNs, or following their carrier strike groups.

Over the next several years, the number of third-generation submarines, as well as the diversity of submarine projects, will naturally and noticeably decline. The navy will

[51] В. Кравченко и А. Овчаренко, "Морские СЯС России в условиях действующего договора СНВ-2," *Морской сборник*, no. 8 (2000).

[52] А. Рамм, "Россия разворачивает глобальную систему морского слежения," *Известия*, 25 ноя. 2016. № 221.

[53] А. Михайлов, "Российский флот услышит вражеские субмарины через спутники," *Известия*, 20 июл. 2016.

[54] "На Северном флоте появится второй стационарный гидроакустический комплекс," *FlotProm*, 11 авг. 2015, https://flotprom.ru/2015/%D0%93%D0%B8%D0%B4%D1%80%D0%BE%D0%B0%D0%BA%D1%83%D1%81%D1%82%D0%B8%D0%BA%D0%B04/.

have no more than 10 Soviet-era nuclear-powered SSNs. What's more, six new Yasen-M class SSN/SSGNs will be built from 2018 through 2022. They were ordered under the auspices of GPV-2020 and will join the class leader Yasen-class submarine K-560 *Severodvinsk,* which was commissioned in 2013. One way or another, the number of nuclear-powered multipurpose attack submarines in the lineup—not even talking about the number of submarines technically fit to carry out missions—is considered entirely insufficient.

Figure 4. Project 885M SSGN K-561 "Kazan" during its first foray on sea trials

Source: Russian Defense Ministry[55]

The modernization of 8–10 Soviet-era nuclear-powered multipurpose attack submarines along with the construction of 7 Yasen/Yasen-M class submarines could provide the navy with 15–17 modern submarines, which would allow the maintenance

[55] "АПЛ Северного флота «Северодвинск» (проект «Ясень») успешно поразила береговую учебную цель крылатой ракетой «Калибр»," Министерство обороны Российской Федерации, Mar. 30, 2016, http://mil.ru/et/news/more.htm?id=12084257@egNews&_print=true.

of 8–10 submarines in constant combat readiness while reducing class diversity. This number is nevertheless considered insufficient. A possible step in these circumstances is to continue the construction of Yasen-M class SSN/SSGNs with a few improvements. The industry's mastery of these submarines in combination with a reduction in price for a number of key components in the course of serial production expansion made it possible to reduce the overall price of each submarine. This makes it possible to order two to three more hulls of this project in 2018–2019, with a subsequent pivot toward building a new-generation submarine. Lastly, in the 2020s, the issue of modernizing the Sierra/Sierra II class SSNs could reemerge, as their titanium pressure hulls could allow this decision to be delayed for decades.

The question of developing a fifth-generation nuclear submarine in Russia arose as early as 2013–2014. Subsequently, some sources spoke about an SSBN, while some media talked about preparations for building some kind of "universal" submarine, which would combine both strategic and multipurpose capabilities. What's more, it is well known that the navy aims to develop a fifth-generation SSBN in the 2020s as well as a new SLBM which would go into serial production after 2030.[56]

The name "Husky" has been put forward in the media as an identifier for this fifth-generation universal nuclear submarine. The lead submarine of this new generation must be laid down sometime between 2020 and 2021. Open-source information on this project comes down to the following points:[57]

1. There is talk of planning a family of three main classes of nuclear submarine: the SSBN and two multipurpose classes (a SSGN cruiser and an "underwater hunter" equipped with mines and torpedoes).

2. The new submarine family will be unified by common service and auxiliary systems, including a propulsion system as well as combat management and sonar systems.

3. The family's main project will be a nuclear-powered, multipurpose attack submarine equipped with mines and torpedoes and the capability to launch missiles with a submerged displacement in the vicinity of 8,000–9,000 tons from torpedo tubes with a speed of 32–33 knots. The submarine should also be capable of transporting frogmen and their vehicles. The SSGN and SSBN projects are remarkable for their launchers for the corresponding missiles.

4. It is not out of the question that the SSBNs of this generation will have universal launching systems that accommodate either a single ballistic missile or

[56] "«Развитие ВМФ невозможно»."

[57] И. Крамник, "Подводный дефицит," *Lenta.ru*, 16 июл. 2017, https://lenta.ru/articles/2017/07/15/notenoughmoney/.

transport and launch containers for five to seven guided missiles of different types.

5. The submarines will be quite conservative in terms of propulsion. They will be able to use the block steam turbine units with pressurized water reactors which are being developed on the Yasen-class and Borei-class submarines currently under construction.

6. The budget of the project must allow for the construction of no fewer than 16–20 nuclear-powered multipurpose attack submarines (with a possible continuation of the series) with approximately three new keels laid over two years and a full production cycle of four to four-and-a-half years. Thus, we can expect the first new-generation SSN to be commissioned no earlier than 2026–2027 and the last one to appear in the mid 2030s.

7. The presence of the new-generation SSBN will allow the rearming of the navy strategic nuclear forces to continue in the 2030s if Russia and the U.S. do not come to a compromise on further reducing strategic offensive arms.

8. It is evident that the fifth-generation underwater platform will be developed as a combat system with broad utilization of autonomous and unmanned underwater vehicles.

The refurbishment program for non-nuclear submarines intended for missions in the enclosed theaters of the Baltic, Black, and Mediterranean Seas, in the Sea of Japan, and near the Arctic and Pacific coasts also raises certain questions. The evident lack of preparedness of the Lada-class diesel-electric submarine (project 677 “Lada”), a project on which many hopes were laid, has forced Black Sea and Pacific submarine force formations to be rearmed with submarines pertaining to the previous project (project 636.3, Improved Kilo II class). The order on these submarines, which already consists of 12 units, could be increased.

Figure 5. SSK B-237 "Rostov-on-Don"

Source: Wikimedia Commons[58]

They should have been replaced by a new project, termed the "Kalina." In 2016, it was announced that the construction of these submarines, which have air-independent propulsion, would begin in 2018. One year later, however, during the Saint-Petersburg International Maritime Defence Show on June 28, 2018, the deputy commander-in-chief of the Russian Navy, vice-admiral Victor Bursuk, stated that contracts for two serial Lada-class submarines would be signed soon. The navy intends to build them in the *Admiralteiskye Verfi* («Admiralty Shipyards»), commission them before 2025, and subsequently continue the series. The fate of the "Kalina" project was never mentioned.

[58]"File:«Ростов-на-Дону».jpg," Wikimedia Commons, Dec. 15, 2015, https://commons.wikimedia.org/wiki/File:%C2%AB%D0%A0%D0%BE%D1%81%D1%82%D0%BE%D0%B2-%D0%BD%D0%B0-%D0%94%D0%BE%D0%BD%D1%83%C2%BB.jpg.

In conjunction with news coverage of the start of sea testing of air-independent propulsion systems which were developed in Russia, it could be inferred that the domestic industry had somehow managed to solve the key problems which impeded the serial construction of modernized Lada-class non-nuclear submarines equipped with these propulsion systems.

Taking into account the priorities described above, the chief vector in shipbuilding under the GPV-2027 will be building landing crafts for expeditionary forces. Since the mid-2010s Russia has been developing two concepts for an LHA.[59]

The framework of one of these concepts calls for the building of an LPD modeled on the Dutch Rotterdam class. The LPD would have a displacement of approximately 15,000 tons, with an air grouping of up to six helicopters and a well dock for two to four small landing craft. This ship is intended to facilitate the transfer and landing of a battalion of more than 500 marines with weapons and vehicles. The second concept calls for building an amphibious assault ship with classic carrier architecture, a full-length flight deck, and a displacement of around 30,000 tons. This ship should have a larger air grouping (approximately 20 helicopters), thus realizing the concept of a quick, over-the-horizon landing in two waves: the vehicles, heavy weapons, and some of the troops can be delivered by sea on landing craft; and the rest of the troops with light weaponry can be delivered by air. A ship of this type can hold over 900 people.

The Syrian campaign of 2015–2017 clearly demonstrated the navy's need for high-grade ships for expeditionary forces. Thus, it is highly probable that the laying of new ships will take into account an analysis of the logistics experience gained in the Syrian war. As reported by sources in the defense industry, the construction of two amphibious assault helicopter carriers (their type and characteristics are unspecified) will begin at the Severnaya Verf in St. Petersburg in 2020. The shipyard is being modernized in order to implement this program. The lead ship should be commissioned in 2024 and the second one in 2026.[60]

Under these conditions, the navy's program for developing expeditionary forces should eventually result in the use of aircraft carriers as the basis of carrier battle groups. A multipurpose carrier battle group protects communication lines for the forces' deployment and provides support in the area. Thus, we can talk about the phased development of naval oceanic forces through developing combat systems for

[59] И. Крамник, "С опозданием на 10 лет," *МИЦ Известия*, 15 янв. 2018, https://iz.ru/694802/ilia-kramnik/s-opozdaniem-na-10-let; *Годовой отчет ПАО «Невское проектно-конструкторское бюро» за 2016 год*, «Невское проектно-конструкторское бюро», 2017, http://www.nddb.spb.ru/rus/%D0%9E%D1%82%D1%87%D0%B5%D1%82.pdf.

[60] "Источник: строительство вертолетоносцев начнется на 'Северной верфи' в 2020 году," *ТАСС,* 10 янв. 2018, http://tass.ru/armiya-i-opk/4863362.

expeditionary offensive groupings toward the creation of multipurpose carrier battle groups, of which, if necessary, landing crafts can also become a part.

The construction of an aircraft carrier becomes even more relevant, as not only the first-tier powers, but also many second- and third-world states have naval strike capabilities which require air cover. The absence of this kind of ship could critically affect the Russian Navy's ability to conduct overseas operations in the necessary areas. The Royal Navy was almost affected in that way during the 1982 Falklands War: the decommissioning of the aircraft carrier *Ark Royal* (R09) in 1979 deprived Britain of its last carrier with capabilities for conventional takeoff and landing fighters (F-4 Phantom II). The Brits themselves saw the potential of the Invincible-class "Harrier Carrier" as very limited.

In light of this and in accordance with the doctrine of aircraft carrier development in the Soviet Navy, it is possible to assign the following missions to an aircraft carrier:

- Task force air defense: a "long arm" that can defeat antiship missiles, antiradar missiles, and guided bomb carriers before they enter the drop zone and while they are still well beyond the range of ship's air defense
- ASW operations: a round-the-clock watch of antisubmarine helicopters in the conflict zone, establishing a headquarters for hunter-killer forces, and providing command and control of the hunter-killer group ships
- Long-distance reconnaissance, communication and targeting: expanding the horizon in the interests of group (fleet) command through the use of reconnaissance equipment on carrier-based multipurpose fighters, AEW aircraft, helicopters, and UAVs
- Strike missions in relation to sea and coastal targets—which take last place, given that the navy's main strike weaponry will be concentrated in universal vertical launching systems and submarines, both under construction and set to be built

Thus, as during the Soviet era, the primary role of aircraft carriers is to increase the combat stability of non-aircraft-carrying ships that constitute the basis of the navy's might. This includes covering bastions, strike groups and hunter-killer groups, communications, and the area of amphibious force operations.

Nevertheless, the desire of the navy to have aircraft carriers at its disposal is limited by overall economic capabilities and by the fact that, in the general list of priorities for Russia's military buildup, carrier battle groups are in the line entitled "if extra money appears." A certain industrial and technological reserve for the construction of carriers was reinforced while re-equipping the aircraft carrier *Vikramaditya* (formerly *Admiral Gorshkov*) for the Indian Navy; however, the realization of those capabilities in the serial construction of new aircraft carriers will require significant time and resources.

According to expert assessments, a single "full-scale" aircraft carrier will cost 350 to 400 billion rubles, while a single multipurpose carrier battle group as a combat system —including the air grouping and escort ships—will exceed 1 trillion rubles.[61] The country lacks a range of key technologies necessary for the construction of this kind of aircraft carrier, including an electromagnetic aircraft launch system, carrier-based AEW and ASW aircraft, carrier-based drones, and short takeoff and vertical landing aircraft. This would necessitate several hundred billion rubles more for design and development.

The only aircraft carrier in the Russian Navy, *Admiral Kuznetsov,* has been in operation since it first entered into the ranks and should already be undergoing a major overhaul with modernization. Initially, the navy planned to have the ship undergo modernization after its return from the Syrian campaign in 2017, but the work was later postponed to 2018.

The cost of modernizing the ship was estimated at between 50 and 65 billion rubles, of which up to 30 billion should go to the corresponding design and development.[62] The process would take at least three years.[63] This project was deemed excessively expensive. At the moment, the task is to restore the technical readiness of the ship with the selective modernization of weapons and electronic systems,[64] after which *Kuznetsov* will serve for at least another 10 years.[65]

Another potential element of a multipurpose carrier battle group—the "Leader: missile cruiser project—is being developed in parallel. It is, in fact, a large multipurpose ocean ship, and at one time it was commonly called a "destroyer." It is widely known that, initially, two basic variants were being considered: a gas-turbine option and a nuclear-powered option. The former was consequently abandoned. The displacement of the design options varied between 10,000 and 15,000 tons, while the conversation

[61] А. Хазбиев, "С моря на сушу [Беседа с заместителем директора Центра анализа стратегий и технологий К. Макиенко]," *Эксперт*., no. 34 (2017).

[62] А. Рамм, Д. Литовкин., Е. Дмитриев, "«Кузнецову» продлят срок службы.," *Известия,* 17 мар. 2017; "На ремонт и модернизацию авианосца "Адмирал Кузнецов" выделят до 50 млрд рублей," *Интерфакс,* 3 июн. 2017, http://www.interfax.ru/russia/565172.

[63] "Ремонт с модернизацией авианосца "Адмирал Кузнецов" начнется до июля 2017 года," *ТАСС,* 3 мар. 2017, http://tass.ru/armiya-i-opk/4067315.

[64] "Крамник И. Роддом для длинной палубы.," *Известия*, 12 окт. 2017, https://iz.ru/657548/ilia-kramnik/roddom-dlia-dlinnoi-paluby.

[65] Е. Гладышев и А. Емельяненков, "Из Заполярья с гарантией. [Беседа с заместителем гендиректора Центра судоремонта «Звездочка» О. Антушевым.]," *Российская газета,* 16 окт. 2017.

subsequently focused on making a 14,000-ton ship.[66] In August 2017, leaders of the United Shipbuilding Company announced the approval of a draft design for the ship.[67] The ship will supposedly be equipped with a prospective air-defense system based on the S-500, which sets a principally new type of mission for the navy: missile defense against ballistic missiles and hypersonic weapons.

The need for ships of this class is still debatable. With the funding allocated to the navy in the GPV-2027—and taking into account the serial construction of project 22350M frigates (so-called "Super-Gorshkovs"), submarines, and helicopter carriers, as well as work on designing an aircraft carrier—the construction of even a lead ship cannot be seriously discussed until 2027.

This ship is not mentioned in well-known publications on the GPV-2027, at least not in the context of the period before 2025, after which, according to sources in the defense industry, the lead ship can be laid.[68] In 2014, sources in the defense industry reported that the "Leader" series would include 12 hulls (6 for the Northern Fleet and 6 for the Pacific Fleet), but that the lead ship would be commissioned no earlier 2023–2025.[69]

In 2015–2016, the start of construction on the first ship was moved first to 2017, then to 2018. In the spring of 2017, there were reports about the project's exclusion from the GPV-2027. They were subsequently refuted, but it was pointed out that the funding for it in GPV-2017 would be substantially reduced, although the "Leader" program would receive some money to support the project.[70] Thus, in the natural course of events (which can be considered optimistic), the serial construction of the "Leaders" will unfold no sooner than the early 2020s and 2030s and will occupy most of the 2030s.

This is indirectly confirmed by the draft of the "Shipbuilding Industry Development Strategy through 2035," recently published by the Ministry of Industry and Trade of

[66] "Ходаренок М. «Постоянно изыскиваем резервы, чтобы выполнить майские указы» [Беседа с заместителем министра обороны Ю.. Борисовым]," *Gazeta.ru,* 27 дек. 2016, https://www.gazeta.ru/army/2016/12/27/10441301.shtml.

[67] "Минобороны утвердило эскизный проект перспективного эсминца 'Лидер,'" *РИА Новости,* 23 авг. 2017, https://ria.ru/arms/20170823/1500912289.html.

[68] "Источник: техническое проектирование эсминца 'Лидер' начнется после 2020 года," *ТАСС,* 10 янв. 2018, http://tass.ru/armiya-i-opk/4863374.

[69] "Источник: ВМФ России собирается заказать 12 эсминцев типа 'Лидер,'" *ТАСС,* 21 окт. 2014, http://tass.ru/armiya-i-opk/1520956.

[70] "Источники: эсминец 'Лидер' пока останется в госпрограмме вооружений," *FlotProm,* 26 апр. 2017, https://flotprom.ru/2017/%D0%9E%D0%B1%D0%BE%D1%80%D0%BE%D0%BD%D0%BA%D0%B087/.

Russia.[71] It notes that all design and development on the aircraft carrier and the "prospective destroyer" (i.e., "Leader" missile cruiser program) will be postponed until 2025 and the construction of such ships will begin no earlier than 2035, due to a significant reduction in defense funding.

As far as heavy ships in the GPV-2027 are concerned, there will be an emphasis on the thorough modernization of Kirov-class nuclear-powered battlecruisers. Four are in existence (*Kirov*, *Admiral Nakhimov*, *Admiral Lazarev*, and *Peter the Great*), of which only one, *Peter the Great,* is mission capable. The modernization of *Admiral Nakhimov* began in autumn 2014 and should end in 2021.[72] The Granit antiship missiles were removed from the hull and ten 3S14 VLS modules are be installed, from which up to 80 missiles with various purposes can be fired.[73] The cruiser's ammunition will include both existing missiles (3M14 long-range cruise missile, 3M55 Onyx supersonic antiship missile, and antisubmarine guided missile), and the 3M22 Zirkon hypersonic cruise missile, which is in development.

[71] "Строительство надводных кораблей дальней морской зоны могут отложить до 2035 года," *ТАСС,* 4 июл. 2018, http://tass.ru/armiya-i-opk/5345466.

[72] "Ремонт 'Адмирала Нахимова' завершат к 2021 году," *FlotProm*, 28 сент. 2017, https://flotprom.ru/2017/%D0%A1%D0%B5%D0%B2%D0%BC%D0%B0%D1%8817/.

[73] "Модернизированный атомный крейсер 'Адмирал Нахимов' сможет нести до 80 единиц ракетного оружия — главком ВМФ," *ТАСС,* 2 сент. 2013, http://tass.ru/politika/670220.

Figure 6. TARKR "Admiral Nakhimov" under repair

Source: Russian Defense Ministry[74]

In 2020, before work was completed on *Nakhimov*, *Peter the Great* will be sent for modernization. The re-equipment of the ship will take four to five years. The idea that the work would proceed twice as fast as that on *Nakhimov* has been especially highlighted, as "the financing has been allocated for the project."[75]

The real cost of *Nakhimov*'s modernization is not known for certain. In late 2012 it was estimated at no less than 50 billion rubles, 20 billion of which accounted for the

[74] "Ремонт и модернизацию тяжелого атомного ракетного крейсера «Адмирал Нахимов» планируется завершить до 2020 года," Министерство обороны Российской Федерации, Jan. 13, 2017, http://mil.ru/conference_of_pro/news/more.htm?id=12108290@egNews.

[75] "Источник: модернизация тяжелого крейсера 'Петр Великий' начнется в 2020 году," *ТАСС,* 29 янв. 2018, http://tass.ru/armiya-i-opk/4910823.

cost of new weapons systems.[76] However, it is evident that this amount can only be perceived at the current moment as greatly underestimated. Additionally, with the increase in prices in the shipbuilding industry by the end of the 2010s, the sum should be at least 60–70 percent higher.

As for the two remaining ships of this class, the lead ship *Kirov* has not been at sea since 1991 and is designated to be scrapped. *Admiral Lazarev* was withdrawn from the combat ranks of the navy in the late 1990s. Her fate at the moment is indeterminate: both scrapping and overhaul with modernization are being considered. Presumably, the navy and industry are waiting to assess the experience with *Nakhimov* to make a final decision.[77]

The formation of a "geographical security zone" and blue-water zone missions will necessitate boosting the construction of the main classes of unified ships equipped with modern precision-guided weapons, including long-range cruise missiles. This, as we have already noted, is connected with the disruption of plans for building these kinds of combat units in 2001–2020.

According to Vladimir Korolyov, the navy commander-in-chief, the largest series of blue-water zone ships should be project 22350M frigates (Super-Gorshkovs). Project 22350M will have increased displacement (up to 8,000 tons)[78] and more powerful weapons, which will alter the size of the so-called "prospective multipurpose ship of destroyer/frigate class" discussed above. When leaders of the shipbuilding industry mention project 22350M, they use the evasive euphemism of "a frigate performing the functions of a destroyer."[79]

Initially, it was reported that navy intends to acquire at least 15 project 22350 and 22350M ships, while the plans for project 22350 construction by 2020 resulted in eight hulls.[80] Later, in connection with the delay in the readiness deadline for the lead ship,

[76] И. Коновалов, "Восстановление «Адмирала Нахимова» обойдется в 50 млрд рублей," *Известия,* 26 сент. 2012.

[77] "«Армия-2017» раскрыла «военные тайны»," *VladNews*, 29 авг. 2017, https://vladnews.ru/ev/vl/4189/115278/armiya_raskryla.

[78] "ВМФ: Новые фрегаты на базе проекта 22350 получат водоизмещение 8000 тонн.," *FlotProm*, 29 июн. 2017. https://flotprom.ru/2017/%D0%9C%D0%BE%D0%B4%D0%B5%D1%80%D0%BD%D0%B8%D0%B7%D0%B0%D1%86%D0%B8%D1%8F23/.

[79] "Модернизированные фрегаты проекта 22350 смогут выполнять задачи эсминцев," *ТАСС*, 1 июл. 2017, http://tass.ru/armiya-i-opk/4380248.

[80] "Главком ВМФ: флот получит новую модификацию фрегатов типа 'Адмирал Горшков,'" *ТАСС*, 12 дек. 2014, http://tass.ru/armiya-i-opk/1643430.

plans changed: only four project 22350 ships would be built at the Severnaya Verf by 2025, while the rest would be constructed under project 22350M.[81]

Note that ships of 4,000–5,000 tons have been omitted from the shipbuilding program. In fact, there was a reevaluation of the basic lineage of projects as it was understood in the late 1990s: the serial construction of project 11356 frigates for the navy is not called for, while project 22350 has been curtailed in favor of the much larger project 22350M. At the same time, at the "bottom" of this blue-water zone there is the project 20386 "blue-water zone corvette," more resembling a "mini-frigate."

Obviously, the construction of corvettes will continue, as their current number is completely inadequate for conducting missions in the green-water zone. At the same time, the project 20380/20385 family has already split into several types of ships, differing in weaponry and naval electronic systems, and, most likely, in the missions they conduct. In the framework of navy missions and the restoration of ship numbers, this segment of the shipbuilding program should be considered one of the priorities for the 2020s at the very least. It has been repeatedly pointed out that the shipbuilding programs are missing a small ship, which could be described as a "brown-water corvette," focused primarily on ASW in the coastal zone.[82]

Until the 2030s, naval aviation development prospects will be linked to the creation of a number of aircraft prototypes including a new shipborne helicopter, a carrier-based AEW aircraft, and a multipurpose aircraft (the so-called "Perspective Air Complex for Shipborne Aviation"). The 2020–2030 period will see the launch of "optionally piloted" aircraft and the increasingly widespread use of UAVs in the navy.[83]

[81] "Второй фрегат проекта 22350 'Адмирал Касатонов' будет передан флоту в 2018 году," *ТАСС,* 16 мая 2017, http://tass.ru/armiya-i-opk/4254999.

[82] М. Климов, "Гидроакустическая печаль," *Военно-промышленный курьер,* 12 мар. 2015.

[83] "«Развитие ВМФ невозможно.»"

Conclusion

Below, we formulate the key issues and trends in the development of the modern Russian navy for the period of the GPV-2027 and after.

1. The current outlook on the missions and the structure of the Russian Navy, the layout of a variety of ships, and the main weaponry and electronic systems were largely formed 25–30 years ago for the Soviet Navy. Economic and financial difficulties prevented the timely implementation of this restructuring (i.e., in the mid to late 1990s). This is a certain "catch-up" development in relation not only to the rivalry with the U.S. Navy but also to Russia's own vision, formulated during another military and political age.

2. The change in the geopolitical situation, however, has not eradicated the aforementioned trends in the use of naval force in combat or the trends in global military and technical development. This renders the Soviet and early post-Soviet calculus still relevant, and the question is now merely how to balance the amount of state financing and the ability of the industry to master serial production of the ships and onboard systems that realize these calculations in practice.

3. The GPV-2020 shipbuilding plan has almost completely failed (with the exception of naval strategic nuclear forces). On the one hand, this fact will lead to the transfer of planned construction to the subsequent GPV-2027, after some unavoidable adjustments. On the other hand, this is a traumatic experience, limiting the navy's ambitious development planning for 2030. In fact, if the problems of unfinished construction and lack of combat ships are left for the next decade to solve, they will be the main drain on the dwindling resources that the state can allocate to the navy's needs. Therefore, some cuts in serial construction and harsh decisions in relation to selecting critical priorities for naval buildup are unavoidable. Equalized budget division in all directions is likely to give way to a calculated concentration of resources in key areas which have a solid foundation in terms of combat missions and technologies at their disposal and will be accompanied by strict control over deadlines.

4. Inconsistency in the choice of typical surface ship projects has led to the proliferation of types (this is especially noticeable with the project 20380 corvette family), with a simultaneous reduction in the size of the series. This in turn has led to a rise in the cost of serial combat ships, the extension of their construction periods, and a sharp increase in spending on operations and maintenance. This traditional malady of the Russian Navy will obviously become one of the biggest challenges for shipbuilding in the 2020s, when the task of

equipping the navy with large, homogeneous series of combat ships should be resolved.

5. Naval construction in the 2000s suffered from underfunding, and the appearance of funds after the launch of the GPV-2020 led to development imbalances associated with the uneven rate of navy refurbishment and varying levels of industrial capability. The equalizing of these imbalances should be recognized as the most important task for the navy in the 2020s, not counting the development of the navy's strategic nuclear forces and ensuring their combat stability. In particular, aside from the serial construction of ships with long-range cruise missiles for the green-water zone, the navy urgently needs massive investments in naval base infrastructure and ship repair, as well as the bolstering of auxiliary and antimine defense forces.

6. Military and political leaders have changed their approach to the problem of building large oceanic zone ships. This is connected primarily to a critical reassessment of shipbuilding and defense industry capabilities as well as with the failure of the overall mission to provide the navy with fourth-generation green- and blue-water ships in the 2001-2020 period. In recognizing the inevitability of the emergence of multipurpose carrier battle groups—which will include aircraft carriers and missile cruisers—in the Russian Navy, the country's leaders have deprioritized these costly projects and delayed their implementation to the very end of the GPV-2027 (and possibly further).

7. Besides the navy's strategic nuclear forces, the mass construction of green-water zone ships with both nuclear and conventional long-range cruise missiles is the lead priority for the period up to around 2030 in the context of the "geographical security zone" concept. They are called on to solve the tasks of both conventional deterrence and power projection while supporting limited-scale overseas operations.

8. The navy has fully reevaluated both the negative and positive experiences of improvised expeditionary groups in remote areas. From the standpoint of available technologies, it is the most practical and most accessible part of the shipbuilding program, as it concerns large combat units. Official missions for naval policy related to ensuring presence in remote areas of the world's oceans and localized success in Syria—along with a new class of conventional precision-guided weapons—also support this vector.

9. The situation favors the development of fifth-generation submarine forces. The emergence of new naval reconnaissance and armed combat systems associated with the ever-more-active pervasion of unmanned underwater vehicles will call for unified, modern platforms for their utilization.

10. In terms of prospective technological solutions for shipbuilding, the transition to the modular design of weaponry, electronic systems, and propulsion elements is often mentioned. This approach continues the line propounded in the late 1980s: enhancing the versatility of combat surface ships and submarine forces and constructively unifying their respective projects.

Appendix A: A Brief Historical Sidestep

The conditions under which Russia is starting to implement both the general naval strategy and the new program of naval construction in the framework of the GPV-2027 are not unique. In 1881, the Russian Empire introduced a new program of shipbuilding under similar circumstances. Russia had to bring its fleet out of the crisis brought on by the unsuccessful outcome of the Crimean War (1853–56) and the problems of the political and economic transformation of Russia during the Great Reforms of Alexander II.

The program was adopted under extremely unfavorable economic conditions. Russian finances were undermined by the Russo-Turkish War (1877–78), industry was also in far from the best condition, and even available opportunities were not used to the utmost.

So, Foreign Minister Gorchakov's memorandum of 1870 to abandon the terms of the Paris Peace Treaty, which prohibited Russia from having naval forces on the Black Sea, was not bolstered by an adequate shipbuilding program. This meant that Turkey, despite its limitations (and despite the active operations of Russian mine-laying ships and torpedo-boat tenders), had superiority on the sea during war. This superiority did not save it from defeat, but the weakness of the Black Sea Fleet prevented Russia from terminating the war by taking Constantinople and destroying its longtime enemy once and for all: it had nothing with which to counter the British Mediterranean Fleet's main forces, which appeared in the Bosporus.

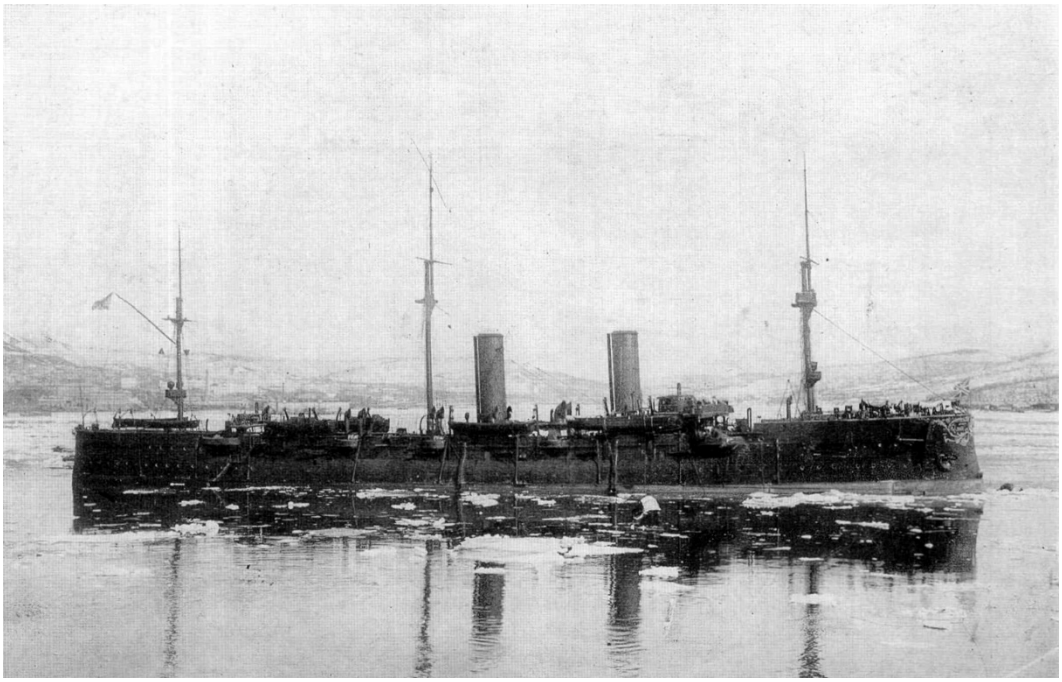
A special council which met to work out the shipbuilding program for 1881 assessed the situation sensibly:

> Russia should not play the same weak role at sea as it did in the last Russo-Turkish War. It should be ready to meet the enemy outside the waters by its shores, be it in the Baltic or in the Black Sea (...) Political necessities are born quickly; with the difficulty of building modern Russian ships, there will be nothing to supplement those forces which we will have at the time of the declaration of war.

The council proposed solutions with respect to the then-relevant theater of military operations. Active defense was deemed to be the main task of the navy in case of war. In the Baltics, it was necessary to prevent a blockade of the Russian coast and to ensure the transition to an offensive position on the sea at the first opportunity. In the Black Sea, the navy's task was to gain command of the sea and, if necessary, conduct a strategic landing operation in the Bosporus.

In regard to the Far East, the council concluded that it was necessary to maintain a permanent flotilla of light forces there and to develop a base and repair infrastructure which would, if necessary, allow the deployment of a squadron of ships from the Baltic or Black Sea fleets in the region. At the same time, in case the rivalry with the British Empire transitioned into a "hot" phase, the Russian military leadership continued to actively build cruisers whose main task was to inflict maximum damage on British seaborne trade.

Figure 7. Russian armored cruiser "Rurik," 1904



Source: Wikimedia Commons[84]

The basis of defense in the main (Baltic) theater became the so-called "Central Mine & Artillery Position" (CMAP), formed in peacetime by the forces of the fleet and coastal artillery with the addition in wartime of a complex system of multi-level minefields. Adjusted for time and technology, the CMAP can be considered a remote predecessor of the modern anti-access/area denial (A2/AD) zones.

In fact, we can draw a direct analogy with the current situation, in which the key task of the navy is the defense of its own coast (or more precisely, taking into account the changes in combat naval capabilities, the broad "geographical security zone") and

[84] "File:Ryurik-feb-mar1904.jpg," Wikimedia Commons, May 14, 2008, https://commons.wikimedia.org/wiki/File:Ryurik-feb-mar1904.jpg.

setting up bastions. In parallel to this, a small "strike core" is deployed to solve military and political issues overseas.

Unfortunately, though the goals proposed by the 1881 council were sensible enough, they were mostly negated by analytical mistakes and less-than-successful execution. The former, more evident in hindsight, could have been compensated for by a more comprehensive realization of the prescribed tasks. Having built a sufficiently large number of battleships, Russia did not manage to create a truly mission capable navy by the beginning of the Russo-Japanese War in 1904. All areas had their shortcomings, from the insufficient training of both commanding officers and crews to the unsatisfactory conditions of Vladivostok's base infrastructure. Active development of the latter had been advocated in 1881.

Any historical analogies are quite superficial, and it would be incorrect and unwise to apply 2018 conditions to the 19th century. However, one cannot help but mention certain parallels. Just like the Russian navy of the early 1880s, the modern Russian navy now can only carry out combat missions in its own green-water zone, having very limited capabilities for overseas military operations compared to its main opponents. Just as in the 19th century, Russia is obliged to develop its armed forces in the circumstances of serious economic limitations, technological backwardness, and a weak industrial base. The situation is further aggravated by the fact that while the weakness of domestic industry in the 19th century could be partially compensated for by orders placed abroad—including in Great Britain, Russia's chief adversary—nowadays, it is virtually impossible to expect such generosity from geopolitical competitors.

Such a situation is partly compensated for by an advanced scientific base. The level of military naval developments puts Russia among the leaders in certain spheres (unlike in the 19th century), while the presence of the strategic nuclear forces makes the frontal conflict with the chief potential adversary highly unlikely.

Nonetheless, one should bear in mind that in 1904–1905, Russia lost the sea war not to Great Britain but to its minor ally, and its defeat was chiefly caused not by a lack of warships but by problems in infrastructure, organization, and command.

A series of problems which were characteristic for the Russian Navy in this period were subsequently reproduced in the Soviet Navy and remain to this day. Among these are:

- Non-seriality and diversity of the main classes of combat ships, which impede the establishment, command, and control of balanced units
- Infrastructure problems in main base areas, complicating the process of repairing combat ships and maintaining their readiness

- Insufficient development of commercial shipbuilding, which no doubt affects the navy's industrial capabilities overall as well as its level of technological development

The *Foundations for the Naval Policy of the Russian Federation,* which was approved in the summer of 2017, coincides in many areas with the 1881 council's conclusions. Yet, despite all of the problems, Russia now finds itself in a better position than it was in at the beginning of the Alexander III's rule: it has the capability to physically destroy any enemy in the case of an open conflict, and it is one of the two world leaders in the development and production of conventional weapons.

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