

How to plan the development of the Navy Polish and British experiences



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Cover:

HMS Queen Elizabeth maneuvering at the Rosyth shipyard, the frigates HMS Daring and HMS Dauntless (Type 45) during the voyage, HMS Queen Elizabeth under construction in dry dock, ORP Albatros. Authors: Ministry of Defense, Ian Simpson, Andrew Linnett, Łukasz Pacholski.

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Introduction

The maritime environment has invariably remained a key facilitator in all kinds of globalisation processes for hundreds of years. Humanity has entered a new level of development of socio-cultural, economic, political and military relations because of the possibility of efficient use of waterways. Even now, when it would seem that modern technologies would have significantly reduced the importance of the maritime environment, it turns out that mankind continues to rely on the seas and oceans for political, military as well as economic issues. In 2020, almost 90% of all global trade products (by volume) were transported by water. These products also accounted for as much as 70% of the total value of global trade in the same year, which clearly shows how important the maritime domain still is¹.

It is the responsibility of the naval forces of individual countries to secure their territorial waters and ensure the safety and security of the countless trade routes scattered across international waters. Naval forces protect peace on the seas, and at the same time are an important instrument of influence projection of a given country – they minimise the risk of war and, in the event of its outbreak, they protect their territorial waters, the coast and important sea lanes of communication against enemy attack. In peacetime, the main reason for maintaining a strong and modern naval force is to effectively deter any possible aggression and to protect one's economic interests. The strength and potential of naval forces are primarily determined by the ships owned by a given navy. Their main purpose, abilities, age and

technical condition have a direct impact on the force projection possibilities. Therefore, having an extensive fleet is equally important to having the capability of servicing existing platforms and building new ones domestically. This gives states full strategic independence and allows for a “tailored construction” – that is building ships adapted to the unique conditions in which they will operate. The economic factors behind having your own shipbuilding industry, capable of building and maintaining warships, are as important as the military and strategic factors behind such a solution.

In this report, we have decided to look at the approaches to naval forces and domestic shipbuilding industries' in Poland and Great Britain. The United Kingdom, as a traditionally maritime power with a strong shipbuilding industry, will serve as a model and reference point for the Republic of Poland, in terms of planning and implementing assumptions for the long-term development of Polish maritime and industrial capabilities. The impact of the possible involvement of British companies and Her Majesty's government in the program for acquiring new multi-task frigates for the Polish Navy (codenamed “Swordfish”) will also be explored. If finalised, the British participation may serve as an effective way to obtain the shipbuilding know-how from British companies not only with regards to technical matters but also in the area of creating and implementing long-term strategies in the maritime domain, which, as this study shows, is what the Polish Navy and the shipbuilding industry need.

¹ “Handel morski w dobie pandemii: perspektywa branży morskiej”, *gov.pl*, June 2, 2020, accessed January 2, 2022, <https://www.gov.pl/web/gospodarkamorska/handel-morski-w-dobie-pandemii-perspektywa-branzy-morskiej>.

Chapter I

The approach of Poland to the development of Navy and its domestic shipbuilding industry

The purpose of this chapter is to discuss the current state of the shipbuilding industry in Poland, with particular emphasis on the warship building capabilities. This analysis will then be placed in the context of current strategies, challenges and needs of the Polish Navy (PN). The dynamically changing security situation in the Baltic Sea as well as in the Mediterranean and the Black Sea, combined with hybrid and terrorist threats against international trade routes, poses a serious threat to European security. The emergence of new threats in the maritime domain has forced the armed forces of European countries to revise the existing defence strategies and to modernise and strengthen their military fleets. After a long period of stagnation, Poland launched several modernisation programmes aimed at increasing the combat potential of the Polish Navy and also increasing the capacity to operate in the Baltic Sea and away from its territorial waters. In recent years, several programmes have been launched (with varying results) to acquire new or modernise existing warships, each time with the contribution of the domestic shipbuilding industry. However, the efforts made so far in this area, although they are a step in the right direction, do not meet a large part of the current needs of the Polish Navy as far as equipment is concerned.

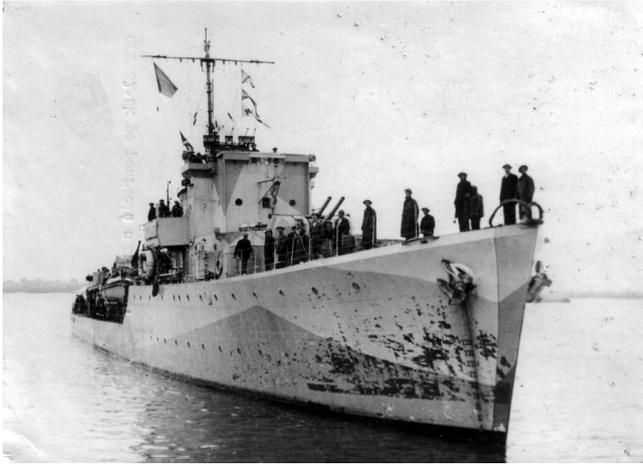
An effective way to quickly increase the capabilities of both the Polish Navy and the Polish shipbuilding industry would be to obtain contracts for a series of technically advanced ships, built in Polish plants with the support of foreign partners. Such a solution would allow the Polish Navy to acquire a proven foreign platform with a high degree of structure adaptation, especially when it comes to specific Polish requirements. Moreover, the implementation of a complicated project by the Polish industry with foreign support would certainly contribute to building competencies and experience that in the future will result in greater independence when

it comes to implementation of subsequent projects for the Polish Navy. Assuming they will be completed, the currently ongoing Swordfish program, which envisages the acquisition of three modern multi-role frigates by 2034, as well as the currently suspended Orca program, assuming the acquisition of new submarines, are good examples of a procurement policy that responds to urgent needs of the Navy while developing competencies and capabilities for the Polish shipbuilding industry.

1.1. History of the Polish Navy and the Polish shipbuilding industry

1.1.1 History of the Polish Navy

The history of military naval operations in Poland can be dated to 1463 when the joint Gdańsk-Elbląg fleet blocked entry to the Baltic Sea and subsequently destroyed the Teutonic Knights fleet. This skirmish, known as the Battle of the Vistula Lagoon, was both the first naval battle and the first ever naval victory in the history of the Polish Navy. The modern history of this type of armed force began on November 28, 1918, when on the order of the then Chief of State, Józef Piłsudski, the Polish Navy was formally established. Naval Colonel Bogumił Nowotny became the first head of the Navy Section at the Ministry of Military Affairs. However, Polish sailors had to wait almost an extra 2 years for the formal confirmation of Polish access to the sea. Unable to immediately begin constructing its sea-fleet, the Poles began the development of their naval forces with a smaller, river-based Vistula Fleet with motorboats and cutters left in Poland by the now-defeated German fleet. The first base of Polish naval forces was located at the Modlin Fortress near Warsaw, at the mouth of the Narew and Vistula rivers confluence.



ORP Ślązak in 1942. Author: Ministry of Information War Photo Service

In the years 1922-26, there was a significant expansion of the personnel and equipment potential of the navy, which then included 2 gunboats, 4 trawlers, 5 torpedo boats, 4 river monitors and 2 transporters. Some of the ships came from the former German fleet, while the rest were bought from foreign shipyards, among others, in France, Finland and Great Britain. In the second half of the 1920s, Polish shipyards gained independent production capacity, and so more domestic structures began to enter service. At the same time, the Marine Aviation Squadron was also formed in Puck to support the Navy in reconnaissance and search and rescue missions. The 1930s saw a leap in combat capabilities. In the years 1930 - 1936, 4 modern destroyers and 5 submarines, previously ordered in France and Great Britain, were delivered to Poland. At that time, Polish shipyards managed to build 6 minesweepers and began the production of domestic seaplanes and reconnaissance aircraft.

September 1, 1939, was a huge challenge for the Polish Navy, as well as for other types of the Polish Armed Forces. The heroic defence of the Polish coast lasted uninterruptedly until October 2 and ended with the capitulation of the defenders of the Hel Peninsula. During the heroic military campaign lasting over a month, some ships of the Polish Navy were evacuated to Great Britain. Others were either sunk or interned in Sweden. In the period until 1945, the Polish sailors served on board ships

borrowed from Great Britain, fighting as part of the Polish Forces in the West. They took an active part in combat operations until the last days of the war, including the landing of the Allied forces in Normandy. In total, in the years 1939-1945, Polish ships sailed a total of 1,2 million nautical miles, escorted 787 convoys, carried out 1,162 patrols and combat operations, destroyed 45 enemy ships and 20 aircraft. 450 sailors died during combat operations, which constituted almost 10% of all Polish sailors operating in the West.

After the war, the immediate reconstruction of the combat potential of the Polish naval forces began, initially including Western ships handed over by the Allies, as well as those built and used by the USSR. The restoration of the domestic shipbuilding industry was also initiated almost immediately in order to allow for at least partial independence from the supply of military equipment from abroad. At the same time, all decisions of the Navy Command, both operational and equipment-related, had to be consulted with the Supreme Command of the Red Army. In the first decades after the war, it was Soviet, not Polish sailors who held the highest command positions in our naval forces. Full dependence on USSR policies also meant that, instead of preparing for defensive operations on its territory, Poland was a part of a wider invasion plan on the West. According to these plans, in the event of a war with NATO, the Polish Navy was to be tasked with an amphibious landing on the Jutland Peninsula. These plans put the main emphasis (as far as armament was concerned) on landing ships, torpedo boats and naval assault aviation. Despite this impressive naval firepower in the times of the Polish People's Republic, it is clear that due to its strictly assault and amphibious character, these forces would have had a problem with conducting defensive operations in Poland's territorial waters.



ORP Warszawa (III), guided missile destroyer of the Polish Navy.
Author: Ireneusz Sobieszczuk

The period of political transformation in Poland, as well as the next several years can be described as the rapid degradation and loss of importance of the Navy in the Polish defence system. The dissolution of the Warsaw Pact and rapprochement with NATO forced Poland to completely change its defence doctrine, and to focus more on defending its own coast and securing the now-forming Polish interests at sea. As a result of these changes, amphibious landing units, as well as the combat part of the Polish Navy's aviation, were completely disbanded. Because of the economic crisis during the period of democratisation the ships of the Polish Navy were not properly serviced and repaired. Instead, they were systematically withdrawn from service, without introducing new platforms. It was related to both budget shortages and the collapse of a significant part of the domestic shipbuilding industry, which in the early years could not cope with the free market conditions that ended years of Government subsidies and centrally planned economy. Poland's accession to NATO in 1999, and the related need to adapt its forces to cooperate with the Allies, as well as the confrontational policy of the Russian Federation, forced decision-makers to devote more attention to the naval forces and their ability to protect Poland's interests both on the Baltic Sea as well as further away. Nevertheless, the launched modernisation process

still did not fully meet the scale necessary to rebuild PN's ability to project power in the Baltic Sea and other sea regions. The limited scope of modernisation plans was a result of many factors, although it seems that the most important one was a dangerous yet prevailing perception that naval forces are not crucial in ensuring the security of Poland.

1.1.2 History of the Polish shipbuilding industry

The modern history of the shipbuilding industry in Poland began in 1918 with Poland regaining its independence. Open access to the Baltic Sea allowed for the reconstruction of the maritime economy lost over a century earlier. Unfortunately, the new Polish authorities had a particularly difficult task, because within the new borders of independent Poland, drafted by the Treaty of Versailles of 1919, there were no large shipyards or even seagoing ports that could have provided Poland with full freedom of operations in the Baltic Sea². The largest and best-developed port, along with an equally impressive shipyard in Gdańsk, was partly in German and partly in Allied hands. The lack of existing infrastructure forced the new Polish authorities to build a port and shipbuilding facilities "from scratch". The first Polish port was located in Gdynia and the first Polish shipyards, designed to repair and build small river vessels, were built in Kraków and Modlin. It was not until the 1930s that shipyards capable of repairing and building ships capable of free navigation on the Baltic Sea were built.

² Jerzy Litwin, "Z historii stoczni i przemysłu okrętowego w Polsce. Początki", *Portal Morski*, June 19, 2014, accessed January 16, 2022, <https://www.portalmorski.pl/stocznie-statki/26080-z-historii-stoczni-i-przemyslu-okretowego-in-poland-beginnings-1>.

The most important ones include the Gdynia Shipyard, the Nauta Shipyard, the Fishing Shipyard and the Naval Shipyard, which was established to design and build the Navy of the Second Polish Republic³. The outbreak of the Second World War in September 1939 effectively thwarted plans for further expansion of the maritime infrastructure in Poland. Poles had to wait until 1945 for the revival of the shipbuilding industry, as well as for the beginning of the reconstruction of the Polish Navy. It was only then, in February 1945, that the Minister of Industry established the Maritime Department and the Maritime Operational Group (MOG). These bodies were to deal with the management of the shipbuilding industry in Poland after its complete liberation and the securing of the land and property of shipyards abandoned by Germans and seized and guarded by the Soviet army⁴.



The Gdańsk Shipyard in 1949. Author: Jan Bułhak

The beginnings of a revived maritime economy were not easy. Most of the shipyards and ports taken by the MOG were in very poor technical condition, caused by intense fighting and withdrawing German forces employing the scorched earth policy. There were also problems with numerous unexploded ordnance and port waterways being blocked by sunken or abandoned ships. The situation was further complicated by the fact that the

Soviet troops had to each time agree to transfer a given facility back under the control of the Polish authorities. Moreover, before such a transfer could take place, a significant part of specialised equipment (in the case of the Gdańsk Shipyard as much as 70% of all surviving machines) was dismantled and sent to the Soviet Union as war reparations. By the end of August 1945, the Maritime Department of the Ministry of Industry had already controlled 13 shipyards, including 11 located in Gdańsk, one in Elbląg and one in Gdynia⁵. As a result of economic assessments, it was finally decided that the facility in which the Polish maritime industry would be revived was the Gdańsk Shipyard. On September 13, 1945, the plant resumed its activity, focusing on the repairs of captured ships. At the same time, works were already underway on restructuring the remaining shipyards in Poland, including a large complex of plants in Szczecin. This task was facilitated by the fact that one of the shipyards there was already cleaned re-launched by the Russians in 1945 and then handed over to Poland in 1947. Thanks to the almost immediate operational readiness, and the fact that an unfinished hull of a German ship was found in one of the buildings, it was in the Szczecin Shipyard that the first Polish ship was launched following the end of WWII. The ship was named Oliwa, and later changed to Marchlewski. The first ship built entirely from scratch in Poland was the B30 project ore-carbon ship Sołdek, launched at the Gdańsk Shipyard on November 6, 1948⁶.

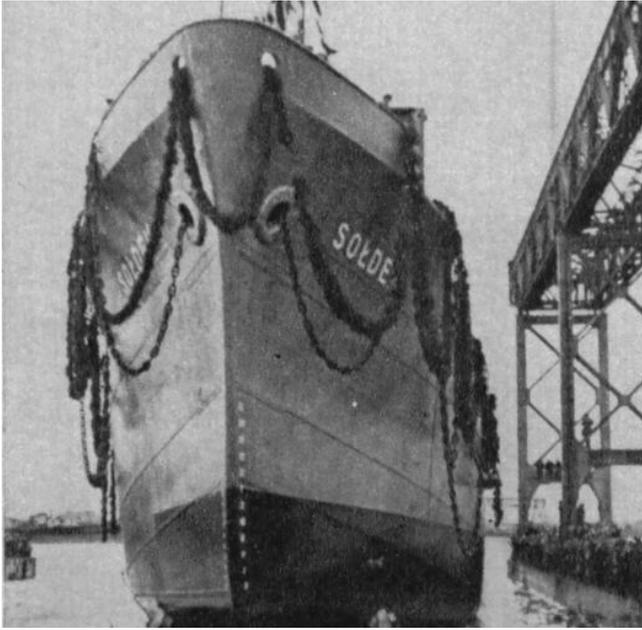
As time passed, more and more factories on the Polish coast gained production capacity and began building ships. In the first years after the war, these were mainly ships with steam turbines. In the 1950s, Poland became one of the main suppliers of naval vessels both to the countries of the Eastern Bloc and to Western Europe. The Polish speciality at that time was transport ships: bulk carriers, general cargo carriers, ore-coal carriers, as well as trawlers and coal carriers.

³ Jan Dudziak, Przemysław Kuciewicz, Jerzy Litwin, Sławomir Skrzypiński, Henryk Spigarski, *Polski Przemysł Okrętowy 1945-2000* (Gdańsk: Okrętownictwo i Żegluga Sp. z o.o., 2000).

⁴ Andrzej Trzeciak, *Stocznia Gdańska Miejsca Ludzie Historie* (Gdańsk: European Solidarity Center, 2019).

⁵ Dudziak, Kuciewicz, Litwin, Skrzypiński, Spigarski, *Polski Przemysł Okrętowy*.

⁶ Jerzy Litwin, "Z historii stoczni i przemysłu okrętowego w Polsce. Budowa statków - lata 1948 i 1950", *Portal Morski*, June 27, 2014, accessed January 20, 2022, <https://www.portalmorski.pl/stocznie-statki/26224-z-historii-stoczni-i-Przemysł-Okretowego-in-Poland-Shipbuilding-Years-1948-i-1950>.



Launching of SS Sołdek – the first seagoing vessel built in Poland after World War II. Author: public domain

However, from 1952 onwards, the largest shipyards also produced ships for the Polish Navy. One of the first units built for military purposes, constructed solely in Poland, was a patrol surveillance ship destined for the Borderland Defence Forces. Then, from 1962, the construction of warships for export to the USSR began in shipyards in Szczecin and Gdańsk. These were primarily auxiliary units – workshop, oceanographic and research ships, intended to support the Soviet space program. In the 1960s and 1970s, the construction of minesweepers, patrol boats, landing boats as well as missile and rescue ships also picked up pace. By 1989, Polish shipyards, including large plants in Szczecin, Gdańsk and Gdynia, had built over a hundred warships of various types⁷. The period of political transformation after 1989 marked the beginning of the collapse of the shipbuilding industry in Poland. The entire heavy industry, shipyards included, was doing particularly well in the realities of the centrally planned economy. Ship orders were prepared under multi-year plans, with mandatory orders for the USSR and other Eastern Bloc countries. The prices of individual products were set centrally, as was the exchange value of the currencies used to pay for the ordered units. There were also mechanisms of compensatory payments and cheap operating loans, which allowed the shipyards to

maintain high employment and financial liquidity. This situation changed dramatically in 1990 when Poland entered a turbulent period of systemic changes. The related economic crisis, hyperinflation and the almost immediate suspension of orders from the Eastern Bloc,, quickly led to the collapse of the shipbuilding industry in Poland in its existing form. Lack of new orders, financial problems of Polish ship-owners, and the impossibility of taking operational loans, as well as the withdrawal of subsidies and an the increase in the costs of earlier loans meant that some shipyards were forced to file for bankruptcy overnight, while others tried to survive despite gigantic debt and lack of short-term prospects for new orders. Thus began the period of restructuration and privatisation of shipbuilding plants that survived the first years of the new political reality. Despite numerous turbulences, as well as losing portfolios of orders and much of qualified staff, there were still some shipyards on the map of Poland that managed to survive the 1990s, and in some cases remained profitable throughout the entire economic crisis. One of these survivors was the Gdańsk's Remontowa Shipyard. After many perturbations, bankruptcies and takeovers of company properties by various investors, it finally also became possible to save most of the key shipbuilding plants in Poland – the Gdańsk Shipyard, the Naval Shipyard in Gdynia, the Northern Shipyard in Gdańsk and the Gryfia Repair Shipyard in Szczecin. Of the above-mentioned plants, the Gdynia Shipyard and Szczecin Shipyard have not survived to this day.



Kobben-class submarine and mine-hauling ship project 767 Lublin during maintenance works in Stocznia Marynarki Wojennej (2008). Author: Nikodem Nijaki (CC BY-SA 3.0)

⁷ Dudziak, Kuciewicz, Litwin, Skrzypiński, Spigarski, *Polski Przemysł Okrętowy*.

1.2. The Polish Navy and the shipbuilding industry today

1.2.1. Strategic assumptions

The Polish Navy is an essential element of Poland's military security and is one of the five types of the Polish Armed Forces. During an armed conflict, naval forces are tasked with defending the Polish coast, securing trade routes and critical infrastructure, as well as fighting hostile combat systems that threaten Poland's security. In the peacetime it is tasked with protecting sea lanes of communication, ports and other strategic infrastructure. It also contributes to upholding the international security and protection of Poland's interests abroad, as well as cooperation with allied countries in maintaining peace and freedom of navigation on international waters. While the Polish Navy operates predominantly in the Baltic Sea (this is where Polish sea areas and all trade routes are), it should be emphasised that Poland's domestic maritime forces are also prepared to conduct operations on other seas. Trade routes from North America and Asia are thousands of nautical miles long and often run through the territorial waters of several countries. The lack of freedom of navigation, e.g. on the Somali Peninsula, caused by piracy, can have the same economic consequences for Poland as the blockade of the trade route in the Baltic Sea – goods will not reach the port, thus threatening Poland's economic interests.

The tasks set for the Polish Navy, as well as the current challenges and further directions of development, are determined by several unclassified and classified documents. This paragraph will focus only on documents available in the public domain, issued by the Ministry of National Defence or the Chancellery of the President of the Republic of Poland. Although they do not contain detailed methods of operation, tactics and organisation of domestic naval forces, they sufficiently describe the challenges faced by the Polish Navy and contain a general vision of the further development of this branch of armed force.

The most important public document, dealing with issues related to the country's defence is the *National Security Strategy* (NSS), approved by the President of the Republic of Poland at the request of the Prime Minister. Its latest version was developed in 2020, thus replacing the earlier version from 2014. The latest version of the NSS is crucial from the naval perspective, as it already takes into account the geopolitical changes that have occurred in Europe and the world over the last 7 years. The most important of these changes include the illegal annexation of Crimea by the Russian Federation, as well as the hybrid and conventional threats posed by the systemic strengthening attempts by the Armed Forces of the Russian Federation. *The National Security Strategy* issued in 2014 only briefly noted the importance of the maritime domain and the need to expand the potential of the Polish Navy, fortunately, this trend is reversed in the NSS from May 2020, with numerous references to the need for securing maritime areas. Among the main threats and challenges for the Polish Navy, the document identifies the need to ensure energy security, the need to use Poland's location (440 km of coastline) for further development of the national economy and the need to balance the expansion of the Russian military potential in the Baltic Sea region⁸. Compared to other types of Polish Armed Forces, the Navy received relatively little attention in the document, but it should be noted that this is still a significant increase compared to similar documents from previous years.



President of the Republic of Poland Bronisław Komorowski during the signing ceremony of the National Security Strategy of Poland (2014). Author: president.pl

⁸ Biuro Bezpieczeństwa Narodowego, *Strategia Bezpieczeństwa Narodowego Rzeczypospolitej Polskiej* (Warsaw: Biuro Bezpieczeństwa Narodowego, 2000).



President of the Republic of Poland Andrzej Duda during the signing ceremony of the National Security Strategy of Poland (2020). Author: Jakub Szymczuk.

Best proof for the increased awareness of the importance of the Polish maritime domain in recent years is the more and more frequent mentions of it in official government documents, focusing on the challenges and modernisation needs of the Polish Navy. Some of these documents are conceptual and have no binding force, although the very fact of their creation emphasises that the decision-makers were aware of the growing strategic importance of seas and oceans. An example of such documents is *Poland's Strategic Concept for Maritime Security* (SCMS), developed by the National Security Bureau in 2017 and the *Defence Concept of the Republic of Poland* (DCRP), developed in the same year. The SCMS is extremely interesting in this aspect because it focuses in-depth on the analysis of the tasks and challenges facing the Polish Navy, both during the war and during potential crisis. It is also a summary of the postulates and observations contained in other documents dealing with the maritime domain in the Polish military doctrine. At this point, it should be also mentioned that although it is not a binding document, SCMS had a real impact on the above-mentioned shift towards greater prioritisation of the Navy among Polish decision-makers. This is also because this concept was developed by the presidential experts of the National Security Bureau – the same ones who worked on the most important strategic document

of the Republic of Poland, i.e. the above-mentioned National Security Strategy.

Poland's *Strategic Concept for Maritime Security* identifies several detailed threats to the maritime domain, thus showing what the classified operational priorities are for the Polish Navy. According to the document, the most important threats to the security of European maritime theatres are⁹:

- » challenging or selectively recognising general principles of international law;
- » terrorism, piracy and other deliberate unlawful acts at sea and in ports;
- » cross-border crime;
- » the proliferation of weapons of mass destruction (chemical, biological, radiological, nuclear);
- » the weakening of the conventional arms control regime and the system of confidence-building measures, creating conditions for the progressive militarisation of maritime areas;
- » an increase in the number of military and non-military incidents, e.g. hybrid operations, asymmetric operations, information and cyberspace warfare.

In turn, the most important threats to security of the Baltic Sea include¹⁰:

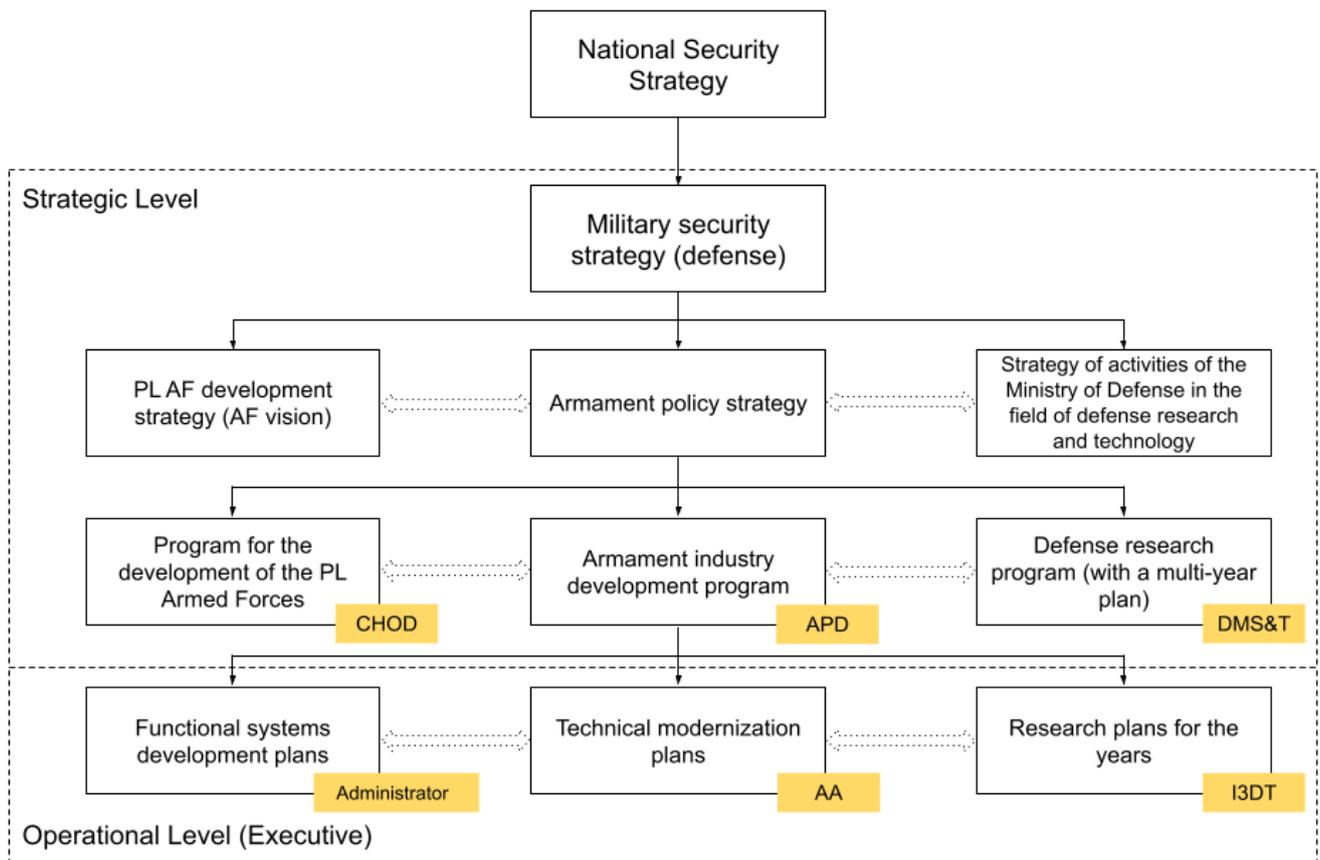
- » the militarisation of the Baltic region related to the development of Russian military potential, especially Anti-Access/Area Denial (A2/AD) capabilities in the Kaliningrad Oblast;
- » Russia's monopoly position in the area of energy supplies – some countries are too heavily dependent on imports of energy resources from the Russian Federation, as well as on Russian transport infrastructure;

⁹ Biuro Bezpieczeństwa Narodowego, *Strategiczna Koncepcja Bezpieczeństwa Morskiego RP* (Gdynia: Biuro Bezpieczeństwa Narodowego, 2017).

¹⁰ Ibid.

- » potential small-scale local conflict, such as hybrid or asymmetric warfare; interdependent wars;
- » pollution of the waters of the Baltic Sea – posing a threat to the marine ecosystem and the life and health of coastal inhabitants;
- » unauthorised or over-exploitation of marine resources, contributing to biological depletion of the sea, e.g. illegal fishing;
- » illegal exploration of wrecks and underwater objects (penetration of wrecks that are collective graves),

- » combined with the looting of archaeological or historical objects;
- » unregulated demarcation of the exclusive economic zones of the Baltic countries and restriction of access to certain types of straits used for international navigation;
- » forcing coastal and maritime investments by a state or a group of states that limit the economic ventures of other states in the region;
- » climate change.



CHOD - General Staff of the Polish Armed Forces ; APD - Armament Policy Department, MOD, DMS&T - Department of Military Science and Training MOD; OSF - Functional System Organizer; AA - Armaments Agency; I3DT - Inspectorate for Implementation of Innovative Defense Technologies

Fig. 1. Hierarchy and interdependencies of various documents concerning the modernisation procedures and general development of Polish military potential. Note: From 2022, it is the Armaments Agency, and not the Armament Inspectorate, which is responsible, inter alia, for creating the Technical Modernisation Plan of the Polish Armed Forces.

Source: R. Łukawski, *Rozwój sił zbrojnych i przemysłu zbrojeniowego*, "Przegląd Sił Zbrojnych", 2015, no. 4 p. 58.

Based on the operational needs reported by the commanders of individual types of armed forces as well as several classified strategies and documents, the *Technical Modernisation Plan of the Polish Armed Forces* (TMP) is created. It defines the purchasing and modernisation priorities for all types of armed forces. The impact of various documents on the TMP can be traced in Figure 1. *The National Security Strategy*, due to its nature, which covers a wide range of security issues, is not a detailed document. Therefore, based on the NSS, more detailed documents are being created that focus only on selected aspects. They include, among others, *The Development Strategy of the Polish Armed Forces* or the *Strategy for the Defence Policy*. It is only based on these more detailed strategic documents that studies containing specific action plans are prepared, such as the *Development Program of the Polish Armed Forces* developed by the General Staff of the Polish Armed Forces, the *Defence Industry Development Program* prepared by the Department of Armament Policy of the Ministry of National Defence, and the *Defence Research Program*, which is being developed in Department of Science and Higher Education of the Ministry of National Defence. *The Technical Modernisation Plan* is developed at the Armaments Agency and is the result of recommendations, assumptions and plans contained in all the above-mentioned documents, starting with the NSS. Although the TMP is a classified document (similarly to some of the above-mentioned documents on which it is based), according to the partially disclosed assumptions for 2017-2026, in the context of the Polish Navy, there are two important programs mentioned there that also appeared in other documents discussed above. These programmes are code-named Orca and Swordfish. The Orca program assumes the acquisition of new types of submarines that would be capable of launching cruise missiles. The Swordfish programme, on the other hand, assumes the acquisition of modern multipurpose frigates¹¹. The latest version of the *Technical Modernisation Plan of the Polish Armed Forces* was developed in 2020 and covers

the years 2021 to 2035. Although the full content of the document is not known, according to the statements of the representatives of the Ministry of National Defence, both Swordfish and Orca programmes are its important components¹².

1.2.2. The potential of the Polish Navy

Currently the Polish Navy largely consists of ships that remember the Cold War era as well as the turbulent 1990s. At the same time, the size of the Polish fleet has been systematically decreasing as older vessels were being decommissioned. This directly translates into more and more intensive use of platforms remaining in service, and thus their greater wear and tear. As of the beginning of 2022, the Polish Navy's fleet consists of about 35 warships, 26 auxiliary units and about 20 base floating platforms. Add to that the modern Naval Missile Unit (NMU), two anti-aircraft squadrons, two engineering battalions, two groups of sappers and the Naval Aviation Brigade (NAB). The average age of PN's ships is now over 30 years. This is worrying, as some of the structures in question were manufactured to serve no more than that. Due to the lack of funds for the comprehensive replacement of the most obsolete parts of our fleet, it should be expected that some of these ships will remain in line for at least one more decade. It is however noteworthy that Poland is not alone in operating its fleet beyond the originally designated lifetime.

¹¹ Ministerstwo Obrony Narodowej, "Plan Modernizacji Technicznej – mapa drogowa rozwoju Wojska Polskiego", *gov.pl*, February 28, 2019, accessed January 15, 2022, <https://www.gov.pl/web/obrona-narodowa/plan-modernizacji-technicznej-mapa-drogowa-rozwoju-wojska-polskiego>.

¹² Łukasz Pacholski, "Ministerstwo Obrony odpowiada w sprawie okrętów podwodnych", *Rzeczpospolita*, July 22, 2021, accessed January 9, 2022, <https://radar.rp.pl/wojsko-polskie/art17532071-ministerstwo-obrony-odpowiada-w-sprawie-okretow-podwodnych>.

The factor that distinguishes Poland in this field is the lack of comprehensive modernisation of some ships, which means that the already worn-out structures are not only in an unsatisfactory technical condition but also lose their combat capabilities. The best examples of such approach are the two largest warships of the Polish Navy – Oliver Hazard Perry frigates – ORP ‘Gen. K. Pułaski’ and ORP ‘Gen. T. Kościuszko’. They were commissioned into the US Navy in 1980, and then in the Polish Navy in 2000 and 2002 respectively. Since then, they have not undergone any major overhaul, despite the design favouring limited modernisation. Due to the ageing design with no prospects for modernisation and the inability to use their missile equipment (Poland does not have any RGM-84 Harpoon anti-ship missiles in stock and less than ten SM-1MR anti-aircraft missiles), it is estimated that both ships will remain in service until 2025 – 2030¹³.



ORP Gen. T. Kosciuszko leaving the port. Author: Łukasz Pacholski

The most important combat warships in the Polish Navy today are:

- » 2 x Oliver Hazard Perry missile frigates. Constructed in 1979 at Bath Ironworks, USA. ORP gen. T. Kościuszko and ORP gen. K. Pułaski are the largest ships in the Polish Navy. Due to the lack of modernisation and the lack of ammunition reserves, they cannot use anti-aircraft or anti-ship missiles. Both maintain anti-submarine warfare (ASW) capabilities;

- » 1 x anti-submarine corvette (project 620 Kaszub). Constructed in 1987 at the Northern Shipyard (now Remontowa Shipbuilding). In 2016, ORP Kaszub underwent a limited modernisation of its weapons by installing the Tryton 35 mm artillery set in place of the aft 23 mm ZU-23-2M Wróbel cannon;
- » 1 x patrol corvette (project 621 Gawron). Constructed in 2019 at the Naval Shipyard. ORP Ślężak was initially supposed to be a multi-purpose corvette, however, political, economic and conceptual turmoil caused the ship to be built for 18 years (2001-2019) and entered service without majority of offensive systems and effectors. The main armament of the ship is a stern-mounted 76 mm automatic cannon;
- » 3 x missile ships (project 660M Orkan). Constructed in 1992-1995 at the Northern Shipyard (now Remontowa Shipbuilding). In 2009, they were retrofitted with modern RBS15 Mk. 3 manoeuvring anti-ship missiles and modern electronics (operational readiness obtained in 2015). One ship can carry up to 8 RBS missiles simultaneously;
- » 3 x minehunters (project 258 Kormoran II). Constructed in 2017 and 2022 at Remontowa Shipbuilding. They are the most modern ships in the service of the Polish Navy. The decision has already been made to purchase 3 additional ships of this type.
- » 1 x submarine (project 877, NATO code name: Kilo). Constructed in 1986 at the Soviet Krasnoye Sormovo shipyard. Despite two serious accidents – a fire and a collision with a dry dock – the ship remains in active service. Currently at PGZ Naval Shipyard for comprehensive repairs. After the withdrawal of Kobben-class submarines in 2021 the only submarine of the Polish Navy.

¹³ Sławomir Zagórski, “Polska Marynarka Wojenna idzie na dno. Niemoc, chaos decyzyjny. „Jedyny nowy okręt ma charakter grillowo-bankietowy”, *Newsweek*, December 29, 2021, accessed January 12, 2022, <https://www.newsweek.pl/polska/spoleczenstwo/marynarka-wojenna-rp-zostala-niemal-bez-okretow-co-ma-polska-na-baltyku/0d97j2q>.

In the structures of the Polish Navy, two more units have a significant impact on the overall combat capabilities of the Polish fleet. The first is the Naval Missile Unit and the second is the Naval Aviation Brigade. The former is equipped with Naval Strike Missile subsonic anti-ship cruise missiles. Carried in containers placed on wheeled chassis, they are used to combat surface targets. NSM rockets are currently manufactured and serviced in Poland. The latter is equipped with 12 x M-28 Bryza aircraft of various types, including patrol and reconnaissance versions, and 10 x search and rescue (SAR) helicopters, including 8 x W-3WARM Anakonda and 2 x Mi-14 PŁ/R. The anti-submarine combat component of BLMW consists of 12 x ASW helicopters – 8 x Mi-14PŁ and 4 x SH-2G Kaman – frigates organic helicopters. While both the Bryza planes and the Anakonda helicopters are in good technical condition, the helicopters based on the Soviet Mi-14 platform (the average age of the airframe is 40 years) and the American SH-2G (the average age of the airframe is 30 years) should be urgently replaced due to the poor condition and exhaustion of their expected service-lives. Some of the outdated ASW and SAR helicopters will soon be replaced by 4 x AW-101 ASW / SAR helicopters¹⁴.



AW101 helicopter produced for the Polish Navy during flights at the British Yeovil airbase. Author: Leonardo

1.2.3. The current condition of the shipbuilding industry in Poland

In 2022, the shipbuilding industry remains an important component of the Polish economy, especially with regards to Poland's heavy industry. Although revenues from shipbuilding and associated infrastructure are incomparably lower than three decades ago, they should still be considered a success. The data from the Central Statistical Office show that in 2019 alone, the shipbuilding industry generated revenues of PLN 12.1 billion, which is the highest number in years¹⁵. The political transformation and the transition from a centrally planned economy to a free-market economy forced shipyards to make significant organisational changes. After years of perturbation, layoffs, restructuring and debt repayment, the shipbuilding sector in Poland has matured and fully adapted not only to the rules prevailing on global markets but also to the needs of these markets. This was no easy task, mainly because Asian countries quickly benefited from the collapse of the shipbuilding industry in Central and Eastern Europe and took over the orders from the former Eastern Bloc, at the same time offering competitive prices and speed of unit construction previously unknown in Europe.

The contemporary Polish shipbuilding industry resembles Western countries in terms of structure and portfolio of orders. In Poland, there is a division between private companies and those under the majority control of the State Treasury. A significant part of the orders for our shipyards – over 90% – come from foreign companies. Polish ship-owners and the Polish Navy are responsible for approx. 10% of all orders¹⁶.

¹⁴ Łukasz Pacholski, "Pierwszy śmigłowiec Leonardo AW101 dla Polski oblatany", *ZBiAM*, August 12, 2021, accessed January 8, 2022, <https://zbiam.pl/artykuly/pierwszy-smiglowiec-leonardo-aw101-dla-polski-oblatany/>.

¹⁵ Główny Urząd Statystyczny, *Rocznik Statystyczny Gospodarki Morskiej 2020* (Warsaw, Szczecin: Wydawnictwo GUS, 2020).

¹⁶ Jerzy Czuczman, „Sytuacja przemysłu stoczniowego w Polsce przed wystąpieniem COVID-19”, *Gospodarka Morska*, February 24, 2021, accessed January 7, 2022, https://www.gospodarkamorska.pl/files/company-files/224/Raport_J.Czuczman-przed-COVID-19.pdf.

Concerning the services offered by the public and private shipbuilding industry in Poland, they are based on three pillars – ship equipment (accounting for over 50% of all orders), repair services for existing ships (about 25%) and shipbuilding from scratch (25%). As far as the profitability of operations in each of the above-mentioned categories is concerned, private shipyards are the undisputed leaders here. In 2019, as much as 90% of the industry's revenues came from the orders of private entities. The shipyards owned by the Treasury to a large extent recorded losses, in the end contributing only to 10% of all revenues¹⁷. Although there are over 1,000 different companies in the shipbuilding industry in Poland, only a handful can independently build an entire or even a significant portion of ships for the Polish Navy. However a great advantage of the shipbuilding industry in Poland is the ever-present diversification of production. Thanks to that, when discussing the production capabilities of warships, we can focus both on plants oriented strictly in this type of production (e.g. PGZ Naval Shipyard) as well as those building civilian ships on a daily basis, but that at the same time have extensive experience in shipbuilding for military purposes. In the context of an urgent need to modernise a large part of the Polish Navy and the near-term prospect of large armaments contracts (e.g. the Swordfish program), the following plants have a potential that may, and even should, be used to modernise the Polish naval forces in the coming years.

PGZ Naval Shipyard

The history of PGZ Naval Shipyard (PGZ NS) dates back to 1922 (which makes it the oldest shipyard in Poland) and the Naval Port Workshops, which after regaining Poland's independence were moved from Modlin to Puck. It has existed in its present shape since 2017, when the state-owned arms consortium – Polska Grupa Zbrojeniowa

(eng: Polish Armaments Group) – bought the Naval Shipyard in Gdynia while it was in a liquidation bankruptcy. PGZ NS specialises in the design, construction, repair and modernisation of warships and other specialised ships used by the army and state services. Its location close to the Naval Port in Gdynia is an additional advantage when carrying out any repairs and reviews of ships for the Polish Navy. Since the takeover of the shipyard by PGZ in 2018, the plant received a large number of orders from the Ministry of National Defence. PGZ NS participated, to a greater or lesser extent, in the construction of the four newest ships in the Polish Navy – the ORP Ślężak patrol corvette and three Kormoran II class minehunters (ORP Kormoran, ORP Mewa and ORP Albatros). It has also carried out repairs, overhauls and modernisations of the majority of Polish warships including ORP Gen. K. Pułaski, ORP Orzeł and ORP Gen. T. Kościuszko. The next big order for the Naval Shipyard will be the construction, together with a foreign technology partner, of three modern missile frigates under the Swordfish program. The financial situation of the plant is stable, with the shipyard bringing profits to the State Treasury. In 2019, revenues amounted to PLN 113.5 million, while in 2020 revenues amounted to PLN 166.7 million¹⁸. The dock and coastal infrastructure of the shipyard combined with the experience in the field of building warships, means that PGZ NS is one of only two plants in Poland that can build, fully independently, large warships for the needs of the Polish Navy.



Naval Shipyard. Author: Nikodem Nijaki (CC BY-SA 3.0)

¹⁷ Ibid.

¹⁸ „Pełny zapis przebiegu posiedzenia Komisji Gospodarki Morskiej i Żeglugi Śródlądowej (Nr 61) z 28 września, 2021 roku”, *Kancelaria Sejmu, Biuro Komisji Sejmowych*, September 28, 2021, accessed January 17, 2022, <https://orka.sejm.gov.pl/zapisy9.nsf/0/DE33D2AB4CD878BAC12587660038A463/%24File/0171309.pdf>.



ORP Gen. T. Kościuszko in dry dock. Author: Łukasz Pacholski

Gdańsk Shipyard “Remontowa” – Remontowa Shipbuilding

The two largest private shipyards in Poland are the Remontowa Shipbuilding and Gdańsk Shipyard “Remontowa”. The similarity of names is not accidental and results from belonging to one group of companies – Remontowa Holding. In addition to owning two modern shipyards, it also includes numerous plants and smaller companies related to shipbuilding and offshore sectors. The main activity of “Remontowa” and Remontowa Shipbuilding shipyards is the design, construction, repairs and modernisation of ships. Although the majority of projects of Remontowa Holding are for various types of specialised ships for the civilian market, the shipyards belonging to the group have an extensive experience in the construction of military ships – It is there that, with the support of PGZ NS, all three minehunters of the Kormoran II class for the Polish Navy were built; as well as a whole series of B860 class Naval tugs. What’s more, the shipyards of Remontowa Holding built ships for foreign military and government customers, and are currently an important part of the Swordfish program, under which, together with PGZ NS, they will build three modern

multi-purpose frigates for the Polish Navy. In 2020, the revenues from the sale of Remontowa Holding’s products and services amounted to over PLN 2 billion. In practice this means that this group is responsible for almost 20% of the total revenues of the shipbuilding industry in Poland, placing it at the forefront of both European and global shipbuilding and repairing plants¹⁹. The technical and hardware facilities of Remontowa Holding place it as the second best plant, after PGZ NS, capable of building complex frigate-size warships independently or with the support of foreign partners.

Marine Ship Repair Yard Gryfia

Gryfia Shipyard is the largest shipbuilding facility located outside the Gdańsk-area. Located in Szczecin, it was established in 1952 as a result of returning the German shipbuilding infrastructure, used until the late 1940s by the Soviet army, back under Polish management. The ownership supervision over Gryfia is exercised by the State Treasury through the Companies Development Fund. The plant specialises in the construction, repair and inspection of ships, with a clear specialisation in commercial ships and passenger ferries. Gryfia has been building small patrol ships for the armed forces since the 1960s. In 2007, it delivered a series of five coastal patrol vessels to the Norwegian Coast Guard. Despite the experience in building modern ships, the yard is in a very bad financial situation. In 2019, it brought losses of PLN 8.87 million; which increased to PLN 23.6 million²⁰ in 2020. The plant has the competencies necessary to support the modernisation or independent construction of smaller, simpler ships of the Polish Navy, but in the current financial situation, its further operation is questionable.

¹⁹ J. Czuczman, *RAPORT: Sytuacja przemysłu...*

²⁰ Andrzej Kraśnicki, „Zamiast “klęski urodzaju” jest klęska stoczni Gryfia w Szczecinie. Rekordowa strata zakładu”, *Wyborcza Szczecin*, December 3, 2021, accessed January 5, 2022, <https://szczecin.wyborcza.pl/szczecin/7,34939,27526103,zamiast-klieski-urodzaju-jest-klieska-stoczni-gryfia-rekordowa.html>.



ORP Albatros under construction at Remontowa Shipbuilding in Gdansk. Author: Kam Trzeb (CC BY 4.0)

Nauta Shipyard

Just like the PGZ NS, Nauta is also one of the oldest Polish shipyards. Its roots date back to 1922 when the workshops for the construction of cutters and fishing boats were established by Franciszek Ledke. The shipyard located in Gdynia can build ships on its own, but due to the huge financial losses incurred by the plant on the occasion of such undertakings, it was decided that the shipyard would focus on repairs only. An example of unsuccessful orders for the construction of entire units was the TBN Artemis radio-electronic reconnaissance ship (SIGINT) project for the Swedish Navy. Delays, an increase in construction costs and the worsening situation of the shipyard meant that the unit built since 2017 left Gdynia in 2021 delayed, unfinished and unable to navigate independently (towed)²¹. As a state-owned shipyard, Nauta was for a long time under the control of the Polish Armaments Group. At that time, it was assumed that more military projects would be placed there – however, these plans did not materialise. The financial situation of the plant is bad; in 2018 it brought losses of PLN 51 million. In 2020, the loss increased to PLN 75.47 million, and the value of liabilities exceeded PLN 300 million. Composition proceedings with creditors completed at the end of 2021 reduced the company's

liabilities to PLN 100 million²². This plant may participate in the limited retrofitting of new platforms or renovation of the currently operating platforms of the Polish Navy.

CRIST Shipyard

The Gdańsk CRIST shipyard is the youngest plant described in this chapter. Established in 1990 by two specialists from the shipping industry, this privately owned facility is successfully engaged in the construction of specialist ships. Located on the former site of the Gdańsk Shipyard, the plant closely cooperates with several European shipyards, with particular emphasis on the French industry. The production of components for French plants made the CRIST shipyard one of the three largest Polish-French exporters. Although the plant does not build warships on its own, it closely cooperates in the production of components for the most modern military vessels in Europe. An example of such an order is the construction of 12 mine countermeasure ships (MCM) for Belgian and Dutch navies, which began in 2021. The shipyard has the competencies necessary to be an important subcontractor in projects for the construction of new warships for Poland. The plant is in a good financial condition, recording positive financial results both in 2019 and 2020.



Nauta Shipyard. Author: Braveheart (CC BY-SA 4.0)

²¹ Sławomir Zagórski, "Artemis" - niewykorzystana szansa polskich stoczni", *Geek Week*, February 16, 2021, accessed January 2, 2022, <https://geekweek.interia.pl/militaria/news-artemis-niewykorzystana-szansa-polskich-stoczni,nld,5053336>.

²² Wioletta Kakowska-Mehring, „Nauta zawarła układ z wierzycielami”, *Trójmiasto.pl*, September 24, 2021, accessed January 5, 2022, <https://biznes.trójmiasto.pl/Nauta-zawarła-układ-z-credits-n161781.html>.

1.3. Main problems and challenges for the future

1.3.1. Lack of a long-term planning for the development of the Navy

During the meeting of the Parliamentary National Defence Committee on March 16, 2021, the Secretary of State at the Ministry of National Defence, Wojciech Skurkiewicz, said that “the Polish Navy has sufficient operational capabilities only in the area of recognising and combating mine threats at sea. The operational capabilities of the Navy in the area of countering surface and underwater targets, as well as anti-aircraft and anti-missile defence are significantly limited”. This assessment is particularly important in the context of the ongoing conflict in Ukraine, which shows what an important role is still played by naval forces in contemporary armed conflicts. From amphibious landing operations to disrupting sea lanes of communications and supply routes, ending with the use of surface ships and submarines for missile attacks and anti-aircraft operations. In the context of Poland, the threat of blocking trade routes and Polish ports, as well as cutting off the territory of the Republic of Poland from the supply of energy resources by sea and subsea, seems particularly important. However, despite the lessons both from this and from previous armed conflicts, decision-makers in Poland seem to disregard the needs of the Polish Navy in terms of equipment and operational needs.

The Polish Navy experienced its greatest glory in the years of the Warsaw Pact. It was then that the sailors had at their disposal a fleet of modern amphibious ships, submarines and naval strike aviation operating modern fighters (MiG-21s). However, despite a good level of technical development, the Polish People’s Republic Navy was characterised by limited abilities to perform the most important goal, which was the protection of Polish territory and its territorial waters. The long-term strategic plans developed by the Supreme Command of

the Red Army assumed that the Polish Navy would be used for amphibious offensive operations, and its naval machinery should be composed of such capabilities and not the defensive ones. Understandably, this doctrine collapsed together with the collapse of the USSR and the dissolution of the Warsaw Pact, which instead of “strategic maturity” in the maritime domain, resulted in the process of degradation of the Polish Navy, which continues to this day.

This process was a component of several factors, including the need to adapt the operational and development strategies of the Polish Navy to the new geopolitical situation or budget shortages. However, the most important factor contributing to the unsatisfactory status of Polish naval forces was, and still is, the systematically perpetuated lack of a long-term system for planning the development of naval capabilities. This led to a situation in which the directions of naval development kept, and still keep changing practically year to year, and the Polish Navy, keeps receiving smaller and smaller budget, further perpetuating the inability to remedy the situation. Although from the first days after the fall of the “Iron Curtain” preparations were started for a complete change of the role of the naval forces in the security system of Poland, they had to change quickly yet again before Poland joined NATO. Similar changes occurred every time new Ministers of National Defence and the management of the Polish Navy Command were appointed. The lack of long-term strategic planning that could, and should be closely followed by the Government and naval commanders is best confirmed by the fact that strategic documents on this topic were not drafted at all, and if they already existed, they were treated like a set of recommendations and not as a long-term development strategy.

Evidence of such is numerous and includes widely announced plans for the construction of new types of ships, which were either cancelled or never went beyond the concept phase. The best example of a ship that fell victim to the changing approach of decision-makers was ORP Ślązak. Originally planned as the first in a series of multi-role corvettes, it currently operates in the Baltic Sea as an under-armed patrol ship that took 18 years to build. During its construction, the leadership of the Ministry of National Defence changed seven times, as did the approach to the warship. Attempts were made to first complete the ship as a corvette, then to cancel the programme and scrap the unfinished hull, until it was finally decided to finish the ship, but with a completely different configuration than originally assumed. This almost 20-year-old saga clearly shows the changing moods towards the Polish Navy among decision-makers.



ORP Piast during the maintenance works. Author: Łukasz Pacholski

An additional factor contributing to the slow pace of modernisation of this type of armed force is the lack of consistency in actions, if undertaken. The dissonance in the approach to the shape of the Polish Navy is best seen when comparing the documents concerning the Navy, which were developed by the environment of the President of the Republic of Poland (Department of the Armed Forces Supervision of the National Security Bureau) and the Ministry of National Defence. The public part of the Strategic Defence Review prepared by the

Ministry of National Defence in 2017 was an example of the marginalisation of the importance of the Polish Navy in the country's defence system – there was little space for the Navy, assigning it the task of counteracting amphibious landings on Polish territory and arguing more for coastal missile systems such as NSM rather than for the need to build surface warships. Moreover, according to the Defence Concept of the Republic of Poland, the development of the Navy was to be based on four pillars: coastal squadrons with NSM missiles, mine countermeasures forces, naval aviation and submarines. The lack of mention of the most important, it would seem, tasks of the Polish Navy was particularly visible, i.e. the protection of Polish shipping routes, especially in light of the growing diversification of natural gas and crude oil supplies, and once again – no mention of the need to modernise and purchase new surface ships. This approach was in contradiction with Poland's *Strategic Concept for Maritime Security* developed by the National Security Bureau in 2017. This document emphasised the need to implement allied obligations as the most important factor translating into Poland's security. Without surface ships – and preferably the size of frigates – this could have not been done. Representatives of the National Security Bureau already recommended the construction of a multi-purpose ship that would be able to carry universal systems of weapons and electronic equipment. The platform would have been capable of strengthening the national air defence system or commanding Special Forces operations during expeditionary missions far from the Baltic Sea. This peculiar discrepancy between the National Security Bureau and the Ministry of National Defence perfectly illustrates the state's powerlessness in terms of defining not only long-term strategies but even specific paths for the development of the Navy.

1.3.2. Lack of coherent policy towards the shipyards

Although the current problems of the Polish Navy stem mainly from the lack of a well-established long-term planning for its development, some of the responsibility for this state of affairs is also borne by civilian decision-makers, not directly related to the military. In the current economic situation, state-owned shipyards have a problem with maintaining profitability, which makes it difficult to fulfil both civilian and Polish Navy's orders (and if they do so, it is often associated with delays in both modernisation and construction of completely new ships).

Examples of delays in the modernisation of ships such as ORP Lublin and the construction of ORP Kormoran and ORP Ślężak are just a few of several problematic contracts. With a clear division of state-owned and private shipyards, the former seems to have the most problems with timeliness and solvency. This does not mean, however, that the managers of these shipyards are responsible for the difficult situation of the Polish shipbuilding industry, thus limiting the modernisation capacity of the Polish Navy. The poor financial and business situation of these plants is primarily the result of the lack of a coherent general strategy for the shipbuilding industry in Poland – both civilian and military.

Since the fall of the "Iron Curtain" and the adoption of the free market economy model by Poland, the shipbuilding industry in Poland has undergone a significant transformation. The difficult financial situation, the lack of government orders and the problem with functioning in the conditions of free-market competition, led to the collapse of many plants in the 1990s. The industry that used to be very profitable was saved by privatising some of the plants. The remaining ones were subject to debt restructuring and ownership transformations. Initially, this tactic brought good results, and some state-owned companies began to recover – profitability improved, and the profits from the construction and modernisation of

ships were allocated to the expansion and modernisation of the existing infrastructure. Thanks to these actions, the then two largest state-owned shipyards, Szczecin Shipyard and the Gdynia Shipyard, began to generate profits again. However, with the global economic crisis in the early 2000s, the boom ended and both plants, as well as several other smaller plants began to suffer recession. To stabilise the situation and save the industry from another collapse, the State Treasury took over some of the shipyards and launched a system of financing the production from the state budget. However, in 2008 Poland entered a dispute with the European Commission, which decided that the financial support granted to the shipyards by the State Treasury was an illegal form of public aid. This meant the need to return all the support provided, and de facto liquidation of the shipyards in Gdynia and Szczecin.



The launch of the FESCO Vladimir ship in the Stocznia Szczecińska Nowa shipyard.

Author: 7alaskan (CC BY-SA 3.0)

At the same time, private shipyards in Poland were profitable and had a rich portfolio of orders for specialised ships. The number of foreign orders was so large that the Remontowa Group and Crist Shipyard became significant players in the European shipbuilding market. In response to the poor functioning of state plants in the first decade of the 21st century, the government continued consolidation and restructuring activities, the pace of which slowed significantly after 2015.

The history of the Polish shipbuilding industry in the years 1990-2016 has clearly shown that even with appropriate financial support, state-owned shipbuilding companies are not able to achieve satisfactory profitability and operate in a stable manner in the conditions of a free market economy. The best evidence that the bad situation of state-owned plants was not only the result of unfavourable economic conditions, such as the economic crisis or cheaper production in Asian countries, is the fact that private plants completed dozens of orders in the same exact time and recorded an annual increase in profits and revenues. In this situation, it became clear that the bad situation of the shipbuilding industry in Poland was, and still is, the result of the lack of a coherent and long-term development strategy for this type of heavy industry. Although in the first three decades of post-communist Poland various actions were taken to improve the situation of the entire sector – financing, restructuring, consolidation, privatisation – it did not bring any positive changes in the long term.

The first real actions aimed at introducing a comprehensive and long-term strategy to improve the situation of the domestic shipbuilding industry were taken in 2016 by the Ministry of Maritime Economy and Inland Navigation, which developed and then implemented the “Act of July 6, 2016, on the activation of the shipbuilding industry and complementary industries”. The document systematised and expanded the support instruments for the shipbuilding industry, including tax changes. In addition, the development of the shipbuilding industry has been widely included in the content of the *Strategy for Responsible Development (SRD)* until 2020 (with a perspective until 2030). Although this document did not only concern the shipbuilding industry, the assumptions regarding the shipyards were included in several provisions of the SRD. The most important of these provisions is the one relating to the development of a concept to ensure the legal, organisational and financial framework necessary for the activation of the shipbuilding industry, and in particular for the development of scientific research and development centres examining innovative types of ships. However, despite the announcements

concerning the creation of a comprehensive development strategy for the entire shipbuilding sector, until the time of writing this study, i.e. March 2022, the assumptions of such a strategy have not been officially confirmed or made public. Despite these announcements, the trend of decision powerlessness accurately describes the approach of decision-makers since 1990, as a result of which, for 32 years of Polish shipbuilding plants operating in the conditions of a free-market economy, it was not possible to create a comprehensive strategy for its reconstruction and further development.

The bad financial situation of state-owned shipyards is the best proof that such a document is very much needed by the shipbuilding industry and that without it the long-term development of state-owned shipyards in Poland may turn out to be impossible. If it is created, the strategy for the Polish shipbuilding industry should focus both on the aspects of increasing its attractiveness for investment and exports but also act to build its competencies, so that Polish shipbuilding plants can be an integral part of the modernisation and expansion of the Navy. Without a well-functioning domestic industry, it will not be possible (financially, technically and politically) to maintain the high capabilities of the Polish Navy in the near and distant future.

1.3.3. Insufficient modernisation pace

Despite the slowly progressing comprehensive replacement of obsolete equipment with ships adapted to the requirements of the modern battlefield, it can be said with a high degree of certainty that the pace of these changes is insufficient. The dynamically changing geopolitical situation and the emergence of new threats, both in the global waters and in the native Baltic Sea require the Polish Navy to be able to adapt quickly and to operate away from its bases.

This multitasking can only be achieved through systematic investments in the expansion and modernisation of the fleet, i.e. replacement of the old and acquiring completely new equipment. The relatively quick and extensive expansion of anti-access systems (A2/AD) by the Russian Federation in the Kaliningrad Oblast, Moscow's expansionist energy policy, as well as the aggressive actions of the Russian army towards neighbouring Ukraine show that the potential enemy is actively modernising its resources, training and gaining new skills, at the same time not abandoning aggressive rhetoric towards Poland. This situation forces the acceleration of plans to expand the Polish naval capabilities. The most important areas on which the modernisation activities should focus are the development of anti-aircraft and anti-ship capabilities and the reconstruction of the lost submarine-operations potential.



NSM launchers operated by the Naval Missile Unit of the Polish Navy.
Author: Morska Jednostka Rakietowa

Currently the greatest weakness of the Polish Navy, which is also the most burning purchasing need, is the insufficient anti-aircraft capability. At present, Polish naval forces do not possess short and medium-range anti-aircraft capabilities, which in practice means that the Polish Navy cannot defend against air attacks if the aggressors operate at a distance greater than 5 km from the ship, i.e. practically always. In such a situation, even the most modern ships can easily fall victim to combat aviation and enemy anti-ship missiles. Of course, any

possible military operation in the Baltic Sea will be a combined effort of various types of the Polish Armed Forces, including aviation, although taking into account the potential need to use planes in different locations (their use, of course, does not solve the issue of defence against hostile manoeuvring missiles), the need for having Navy's own air defences becomes clear. At the moment, the only methods of protecting Polish ships against threats from the air are very short-range anti-aircraft systems of domestic production. The Grom and Piorun systems are fired from the ship's stationary anti-aircraft missile launchers or directly from the shoulder of the system operator. Both missiles have an effective range of approx. 4/5 km and can only be used against low-flying aircraft, drones or helicopters²³. They also cannot counteract highly-maneuvrable anti-ship missiles. The "last resort" in the event of an attack on Polish ships is the Close-In Weapon System (CIWS) Vulcan Phalanx, found only on Oliver Hazard Perry frigates (their Soviet counterparts AK-630 are also found on small missile ships of the 660M project). Assuming these systems are operational, their effective range is only 1.5 km. In addition to low-flying aircraft, Phalanx systems are also able to neutralise small boats and anti-ship missiles. The lack of systems capable of air defence at short and medium distances (10km – 50km and 50km – 100km, respectively) is a serious weakness of the Navy and means that our ships are not able to operate safely and independently in the waters of the Baltic Sea and other regions. The program for acquiring modern frigates (the Swordfish program) currently implemented by the Ministry of National Defence envisages the construction of multi-purpose frigates armed with anti-aircraft missiles, which would significantly contribute to strengthening of the potential of the Polish Navy, both in the case of its own operations and supporting joint operations carried out with other types of the Armed Forces.

²³ Rafał Muczyński, „ZMT dostarczą okrętowe wyrzutnie PPZR”, *MILMAG*, September 17, 2021, accessed January 3, 2022, <https://milmag.pl/zmt-dostarcza-okretowe-wyrzutnie-ppzr-tajfun/>.

The Navy's surface to surface fighting capabilities are in dire straits as well. At the moment, they are limited to the RBS15 Mk. 3 cruise anti-ship missiles, used by three Orkan class ships, as well as modern Naval Strike Missiles operated by the Naval Missile Unit. However, considering that manoeuvring missiles are currently the main effectors fighting the enemy surface ships, Poland should have at its disposal more missiles and more platforms ready to carry them – these can be both surface ships, submarines and land installations (such as the NMU). At the same time, serious consideration should be given when debating more land-borne missile systems. More versatile surface-launched systems should be considered as these will be useful also in areas other than the Baltic Sea and the Polish coastline. Both the Swordfish program, assuming the acquisition of three multipurpose frigates, and the Orca program (if implemented), assuming the acquisition of submarines, will include the possibility of carrying such missiles. Commissioning such ships into service would significantly contribute to the expansion of the Polish Navy's offensive potential.



Visualization of a multi-task frigate for the Polish Navy as part of the project "Swordfish". Author: Polska Grupa Zbrojeniowa S.A.

Underwater capabilities are yet another capabilities that the Polish Navy should give an urgent priority of rebuilding. In 2021, the last two Kobben-class submarines were decommissioned, reducing the count of the Gdynia's Submarine Squadron to a single Soviet 877E class submarine. Moreover, since it entered into service in 1986, ORP Orzeł has not undergone any in-depth modernisation adapting it to the modern battlefield. Up to now, the ship underwent over 20 renovations and ad hoc repairs, without anything more complex being changed or modernised. It also participated in two accidents requiring further comprehensive repairs²⁴. At the time of writing the above chapter (February 2022), ORP Orzeł is in PGZ Naval Shipyard, where repairs related to ballast tanks, propulsion and defective torpedo launchers are being carried out. Even after their completion, the ship will not be of significant combat value. From the second half of the 1990s, decision-makers planned to acquire new submarines for the Polish Navy. The latest episode of this saga was the Orca program, formally launched in 2012. Until now, however, the above-mentioned ships have not been acquired, and, what is worth mentioning, they were supposed to be built with a significant participation of the Polish shipbuilding industry. Despite the actual suspension of the program designed to provide Poland with new submarines, negotiations with Sweden began in 2020 to obtain a gap-filling solution until the completion of the Orca program. Two A17 submarines, however, did not end up in the Submarine Squadron and the negotiations were cancelled²⁵. Due to the lack of immediate prospects for obtaining a bridging solution, and taking into account the limited capabilities of ORP Orzeł, work on the acquisition of new generation submarines should be reactivated as soon as possible. Submarines, in addition to torpedo launchers, should be capable of firing cruise missiles, thanks to which the Polish Navy will also expand the anti-aircraft and anti-ship capabilities discussed above.

²⁴ Krzysztof Kowalczyk, "Wojsko odpowiada na "list marynarzy ORP Orzeł": Stworzył go ktoś niepowiązany z MW", *Dziennik.pl*, May 27, 2021, accessed January 5, 2022, <https://wiadomosci.dziennik.pl/wydarzenia/artykuly/8174601,orp-orzel-list.html>.

²⁵ Krzysztof Wilewski, "A17 – następcy Kobbenów?", *Polska Zbrojna*, December 13, 2020, accessed January 10, 2022, <http://polska-zbrojna.pl/Mobile/ArticleShow/32728>.

Conclusions

The Polish Navy is currently on the threshold of a historical technological change. Older ships, dating back to the 1970s, 80s and 90s, must be completely withdrawn from service within the next few years and replaced with modern structures, offering a qualitative leap in the existing capabilities. A large-scale modernisation program will allow the Navy to adapt to the realities of the modern maritime battlefield, by equipping it with modern means of attack, detection and self-defence. Although the replacement of obsolete ships began with the introduction of the Kormoran II and Ślężak class into service, it should be remembered that those are vessels intended for patrol tasks as well as mine and mine countermeasures missions, and not strictly offensive. Therefore, in the coming years, combat ships capable of destroying surface, underwater and land targets should be prioritised by the Ministry of National Defence and the commanders of the Polish Navy. Taking into account the most urgent modernisation needs and the already started programmes for acquiring new weapons, it seems natural that the Swordfish and Orca programs should be continued in the first place. Under the Swordfish program, the Polish Navy is to acquire three modern multi-purpose frigates, armed with effectors capable of destroying air targets as well as enemy ships. As part of the Orca programme, the domestic naval forces will receive modern submarines, also equipped with modern missiles. Achieving a positive conclusion of only these two programs will result in a significant expansion of the naval capabilities, filling in a way the gaps in the underwater, anti-aircraft and anti-ship capabilities.

When modernising the domestic fleet, the industrial aspect is as important as expanding operational capabilities. Poland has a hundred-year-old tradition of shipbuilding plants which, despite many perturbations, are still an important part of the Polish economy. During the Cold War, shipyards played a strategic role in the centrally planned economy as an important source of exports and thus dollars. The political transformation and the transition to a free-market economy hit the once-thriving shipping industry hard. However, despite the economic crisis of the 1990s, many shipyards survived the recession and are still operating today, building modern ships and generating profits. The broadly understood programme of modernisation of the Polish Navy, should take into account the large contribution of domestic shipyards, both state-owned and private. The already finalised orders for the Kormoran II and Ślężak class were carried out by public-private consortia of Polish shipyards with substantive and technological support from foreign partners. The effectiveness and efficiency of this strategy was confirmed during the tender for the Kormoran II class ships, which have already been completed and, at the time of writing the above report, are entering service in the Polish Navy. The participation of the Polish shipbuilding industry in the possible construction of modern frigates and submarines is not only economic patriotism, but also a unique opportunity to gain experience and knowledge, which in the future may be used to increase the independence of the Polish shipbuilding industry in the construction of modern warships, both for the Polish market and for potential foreign clients.

Chapter II

Royal Navy and its development strategy

2.1. History of the Royal Navy and British Shipbuilding

The Royal Navy has for centuries occupied a special place in the great strategy of the United Kingdom (formerly England) and has even become a part of British national identity. Unlike other former European powers – such as France, the Habsburg Empire, Prussia / Germany or Russia – forced to maintain strong ground armies, England – due to its location – focused on the development of the Navy from the end of the Middle Ages. It was then that Henry VIII decided to expand the fleet of warships armed with heavy guns – which at the end of his life numbered more than 40 ships – and established a maritime administration. Henry VIII is also associated with the construction of the shipyards on the Thames in Deptford and Woolwich and the construction of the Portsmouth Port, which is one of the oldest naval port in use to this day²⁶.

During the reign of Elizabeth I, the English fleet became the main line of defence and a tool for building the future British Empire. It was then that it had its greatest test to date, in the form of repelling the Spanish “Great Armada”, which was to land a huge amphibious landing on the shores of England, intended for the conquest of this country.

The English fleet received its current name of the Royal Navy during the reign of Charles II Stuart, and in the next two centuries, it focused mainly on the fight against France for the supremacy of the seas, which was only ended by the Napoleonic Wars. Then, in 1805, the Royal Navy ships under the command of Admiral Horatio Nelson in the Battle of Trafalgar crushed the Franco-Spanish fleet, saving Great Britain from an invasion from the continent for the second time. This battle also cemented the British rule of the seas for almost 150 years,

enabling the British to build a huge colonial empire²⁷. In 1889, through the Naval Defence Act 1889, the British parliament established the so-called two power standard obliging the Royal Navy to maintain at least the same number of battleships as the next two nations with the highest number of such ships.



Battle of the Saintes (1782). Author: Thomas Whitcombe

With the growing importance and strength of the Navy, the British shipyards also developed (at that time, apart from building ships, they also served as naval bases). In the 17th and 18th centuries, the most important shipyards of the Royal Navy, located in the British Isles (with time, shipyards were also built in the colonies) were:

- » Deptford Dockyard – between the 16th and 18th centuries the most important of the Royal Navy shipyards. In the nineteenth century, it gradually deteriorated due to the silting of the Thames River, and was finally closed in 1869;
- » Woolwich Dockyard – also a significant shipyard in the 16th and 17th century, closed for the same reasons as the Deptford shipyard;
- » Chatham Dockyard – founded by Elizabeth I, the shipyard played an important role during the Anglo-Dutch wars and gained importance again after the closure of Deptford and Woolwich shipyards and operated until 1983;

²⁶ “Henry VIII and his navy”, *Royal Museums Greenwich*, December 1, 2017, accessed January 23, 2022, <https://www.rmg.co.uk/stories/topics/henry-viii-his-navy>.

²⁷ The Editors of Encyclopaedia Britannica, “Royal Navy”, *Britannica*, January 23, 2020, accessed January 29, 2022, <https://www.britannica.com/topic/Royal-Navy>.

- » Sheerness Dockyard – Established in 1665 and intended mainly for replenishing stocks on ships, from 1720 also began to build naval units – closed in 1957;
- » Portsmouth Dockyard – considered one of the oldest shipyards in the world (founded by Henry VII, in the mid-18th century, it became the most important shipyard in the country, and during the next century it increased threefold) and is still operating today;
- » Plymouth Dockyard – Established in 1690, it is now home to the largest military port of the Royal Navy (Her Majesty's Naval Base Devonport). Although the construction of ships ended there in 1970, the shipyard still has facilities and infrastructure for the maintenance of ships, which are currently operated by Babcock International Group²⁸.

Before World War I, the most important British shipyards were joined by, inter alia, Rosyth which has survived to this day. In addition to the royal shipyards, private shipyards were also being built intensively, which, apart from merchant ships, also carried out orders for the Royal Navy.

An attempt to undermine British domination of the seas was made by Wilhelmine Period Germany. At the turn of the 19th and 20th centuries, the German Emperor Wilhelm II ordered the construction of an ocean fleet (German: Hochseeflotte), for which Admiral Alfred von Tirpitz, appointed secretary of state in the Reich Naval Office, was responsible. Despite significant investments in shipbuilding and rapid progress (the Imperial Navy was second only to the British fleet and in 1914 it had, among others, 35 battleships, 8 coastal defence battleships, 4 line cruisers, 9 armoured cruisers, 41 light cruisers), 143 destroyers, 70 torpedo boats and 28 submarines, and several dozen more were under construction²⁹). The German fleet never managed to undermine British control of the seas. Although during the largest naval battle of that war at the turn of May and June of 1916 near the Jutland Peninsula, the British Grand Fleet did not manage

to defeat the German navy grouping (and even suffered greater losses), Great Britain maintained the naval blockade imposed on Germany until the end of the war. Also during World War II, the Royal Navy, along with the Royal Air Force, prevented the Germans from conducting an invasion of the British Isles and fought with the Axis in waters around the world, including – above all – In the “Battle of the Atlantic”, considered the longest campaign of this war.



Sailors hang the flag of the Royal Navy on the seized German U-190 submarine, 1945. Author: Edward W. Dinsmore

During the Cold War, with the collapse of the British colonial empire, the size and importance of the Royal Navy declined (for example, in 1964, the previously independent Admiralty was transferred to the Ministry of Defence) and overtime its main task became to track Soviet submarines in the North Atlantic. In 1963, the first British nuclear-powered submarine, HMS Dreadnought, entered service, and since 1969, the British Navy has maintained a fleet of nuclear-powered submarines with SLBM (submarine-launched ballistic missile) missiles as the backbone of the British deterrence system.

²⁸ “Royal Naval Dockyards”, *Royal Museums Greenwich*, April 3, 2019, accessed January 30, 2022, <https://www.rmg.co.uk/stories/topics/royal-naval-dockyards>.

²⁹ „Armia Niemiecka w czasie I w. ś. 1914 – 1918”, *Armia Niemiecka*, June 24 2017, accessed January 29, 2022, <https://tnke.home.pl/armianiemiecka/index.html>.

The last glorious page in the history of the Royal Navy so far was the war for the Falklands in 1982, during which, in response to the armed occupation of the islands by the Argentine, the government of the United Kingdom decided to send a fleet of about 100 ships to the region along with its landing forces. After a series of heavy fights (the British fleet lost, among others, 2 destroyers and 2 frigates, and the Argentines lost a cruiser and a submarine), the British recaptured the islands and captured about 11,000 prisoners³⁰. After the end of the Cold War, the Royal Navy supported several allied operations, including in Iraq, Kosovo, Afghanistan and Libya.

The end of the Cold War was also a period of transformation for state-owned naval shipyards. According to information provided to the British Parliament by the Ministry of Defence in 1985, the tasks of the royal shipyards for the Royal Navy were:

- a) Refit, repair, maintenance and modernisation of Royal Navy vessels;
- b) Overhaul and testing of naval equipment, including those to be returned to the Director-General of Stores and Transport (Navy) for stock and subsequent issue to the Royal Navy;
- c) Installation and maintenance of machinery and equipment in naval establishments;
- d) Provision of utility services to Royal Navy vessels alongside the naval base and adjacent naval shore establishments; and
- e) manufacture of some items of ships' equipment³¹.

Thus, the traditionally combined status of shipyards and naval bases was already delimited at that time. In 1997, the last two state-owned naval shipyards (Devonport and Rosyth) were privatised.

Concerning private shipyards, under the Aircraft and Shipbuilding Industries Act 1977 they were nationalised

and merged into the British Shipbuilders consortium, which consolidated 27 shipbuilding companies and 6 marine repair companies. As part of the restructuring process, British Shipbuilders closed about half of its shipyards. The remaining ones were privatised by the end of the 1980s.

2.2. British navy and shipbuilding today

2.2.1. Strategic assumptions

Today, the British Navy still occupies a special place among other types of the United Kingdom's Armed Forces and is a tool for maintaining its superpower status. In the most important strategic document setting out the priorities and assumptions of the UK foreign and security policy – The Integrated Review of Security, Defence, Development and Foreign Policy – the Royal Navy is listed first (before Royal Air Force), as part of the 'Defending the UK and our people at home and overseas' objective as part of the broader mandate on 'Countering state threats: defence, disruption and deterrence'. According to the document, "The Royal Navy will remain active in the UK's territorial sea and Exclusive Economic Zone, including by investing in new capabilities to protect undersea CNI³²." The Royal Navy, in line with the new British strategy for "Global Britain" outlined in the Integrated Review, is not, however, to be solely defensive. According to the document, the UK is also expected to "deploy more ships around the world to protect shipping lanes and maintain freedom of navigation."

³⁰ "The British Army and the Falklands War", *National Army Museum*, May 17, 2020, accessed January 30, 2022, <https://www.nam.ac.uk/explore/british-army-and-falklands-war>.

³¹ "Devonport and Rosyth – Historic Hansard", *UK Parliament*, December 20, 2005, accessed February 5, 2022, <https://api.parliament.uk/historic-hansard/written-answers/1985/dec/20/devonport-and-rosyth>.

³² "Global Britain in a competitive age – The Integrated Review of Security, Defence, Development and Foreign Policy", p. 71, *UK Government*, July 2, 2021, accessed February 5, 2022, <https://www.gov.uk/government/publications/global-britain-in-a-competitive-age-the-integrated-review-of-security-defence-development-and-foreign-policy>.

In line with the UK strategy, "The Joint Maritime Security Centre will support this by strengthening operational maritime coordination across the government. The Royal Navy's Maritime Component Command in Bahrain will continue to ensure the flow of trade in the Gulf³³." It was also announced that it would contribute to wider maritime security, including in the fight against piracy off the coast of West Africa. The tasks of the Royal Navy, therefore, extend far beyond defending Britain's shores.



US aircraft carrier USS John C. Stennis (left) and the British aircraft carrier HMS Illustrious in the Persian Gulf, April 9, 1998. Author: Robert Baker

The great importance of the navy among other types of British armed forces and its global tasks, of course, result from the geography and colonial heritage of Great Britain. Even today, in addition to the main territory in the British Isles, the Royal Navy must protect a total of several dependencies of the British Crown³⁴ and British Overseas Territories³⁵. The United Kingdom also remains one of the largest global economies (5th place in the GDP index in nominal terms) and the 6th largest exporter in the world (with exports of nearly USD 900 billion) and one of the most important centres of global finance. Therefore, it is in the interest of the state to ensure the stability of the international system and the security of world trade and transport routes.

2.2.2. Royal Navy's potential

Currently, the Royal Navy consists of the following components:

- » Surface Fleet
- » Submarine Service
- » Fleet Air Arm
- » Royal Marines
- » Royal Auxiliary Fleet

The largest and most comprehensive (from the defence of own territory, through the projection of force and patrol tasks in distant parts of the world, to humanitarian missions) of the Royal Navy components is the Naval Fleet, with over 60 vessels, including 2 large aircraft carriers, 2 amphibious transport docks, 6 destroyers and 12 frigates (see table 1.). The main bases for British surface vessels are the ports of Devonport and Portsmouth.

The majority of the British surface fleet consists of modern and relatively young units (e.g. Type 45 destroyers from 2009, Albion-class ships from 2003, and Queen Elizabeth-class aircraft carriers from 2017). The oldest combat units are the Type 23 frigates, the first of which entered service in 1991 (the last – HMS St Albans – in 2001³⁶). Nevertheless, they will be replaced starting from the middle of this decade, by a new type 26 anti-submarine frigates (8 have been announced, 3 of which are under construction) and multi-purpose type 31 frigates (5 ships are planned at the moment, the first of which is under construction), when HMS Glasgow (first Type 26 Frigate) will enter service.

³³ Ibid. p. 73

³⁴ These include: Guernsey, Jersey and the Isle of Man.

³⁵ These include: Akrotiri, Anguilla, Bermuda, British Antarctic Territory, British Indian Ocean Territory, British Virgin Islands, Dhekelia, Cayman Islands, Falkland Islands, South Georgia and the South Sandwich Islands, Gibraltar, Montserrat, Pitcairn, Turks and Caicos, and Saint Helena and Ascension and Tristan da Cunha.

³⁶ "HMS ST ALBANS (F83)", *Royal Navy*, May 6, 2019, accessed February 13, 2022, <https://www.royalnavy.mod.uk/our-organisation/the-fighting-arms/surface-fleet/frigates/type-23/hms-st-albans>.

Table 1. Types of ships in the Royal Navy

Classification	Number / Class	Basic information
Surface ships		
Aircraft carriers	2 x Queen Elizabeth Class	displacement 65,000 tons, up to 40 aircraft on board
Landing ships-docks	2 x Albion Class	displacement 19,500 tons, possibility of transporting approx. 400 Marines
Destroyers	6 x Type 45 (Daring Class)	displacement 8,000 tons, 48 VLS, 2 Harpoon tubes
Frigates	12 x Type 23 (Duke Class)	displacement 4900 tons, 32 VLS, 2 Harpoon tubes, torpedoes
MCMVs	6 x Hunt Class 7 x Sandown Class	displacement 685 tons (Hunt type) - 600 tons (Sandown)
Patrol ships	16 x Archer Class 8 x River Class	Displacement: 54 tons (Archer), 1700 tons (River)
Research ships	5	displacement from 37 tons to 13,500 tons
Submarines		
Attack submarines	3 x Trafalgar Class 5 x Astute Class	displacement 5,300 tons, 5 torpedo tubes (Trafalgar) displacement 7800 tons, 6 torpedo tubes (Astute)
ICBM carrying submarines	4 x Vanguard Class	displacement 15900 tons, 16 Trident II D5 ICBM launchers

Table 2. Planned ships

Classification	Number / Class	Basic information
Frigates	8 x Type 26 (City Class)	Displacement: 6900 tons, 72 VLS, torpedoes, towed sonar
Frigates	5 x Type 31 (Inspiration Class)	Displacement: 5700 tons, 24 VLS
Nuclear missiles carrying submarines	4 x Dreadnought Class	Displacement 17,200 tons, 12 ICBM launchers

The Royal Navy's submarine fleet, as in the case of the US Navy, is already based entirely on nuclear-powered vessels. Currently, the British underwater fleet consists of 3 Trafalgar (withdrawal process under way) and 5 Astute subs, which will soon be joined by two more. The British submarine fleet is also responsible for nuclear deterrence, based on 4 Vanguard vessels with 16 Trident II D5 multi-head ICBM launchers each (during nuclear patrols, they normally carry 8 ballistic missiles with 40 warheads onboard)³⁷. All British submarines are based at HMNB (Her Majesty's Naval Base) Clyde.



British submarine HMS Ambush (Astute class) during the sea trials.
Author: Will Haigh

Regarding the development plans for the British submarine fleet, in addition to completing the process of replacing the Trafalgar class, the Brits are already in the process of replacing the Vanguard nuclear submarines. 2 of the 4 planned ships are currently being built by BAE Systems Submarines in Barrow-in-Furness. The first of the series, HMS Dreadnought, is scheduled to enter service at the beginning of the third decade of the 21st century.

Naval aviation has been of great importance in naval operations since World War II. The aviation potential of the Royal Navy consists of 8 squadrons of helicopters operating on AW-101 Merlin and AW159 Wildcat airframes (a total of about 30 of each of these types) as well as support and training squadrons. The British

Navy also includes modern F-35B multi-role combat aircraft, which will operate from new British aircraft carriers (each of them will be able to house 36 F-35s and 4 Merlin helicopters). This will significantly increase the operational capabilities of the Royal Navy, which after the withdrawal of vertical/short takeoff and landing Harrier GR.5 jump jets and Invincible-class light aircraft carriers, lost the ability to operate combat aircraft from its ships.

The Royal Marines are considered to be the elite in the British Armed Forces. The core of their combat potential is the 3rd commando brigade, which in turn consists of 4 commando battalions (40th, 42nd, 43rd, 45th) as well as reconnaissance, engineering, logistics and artillery units.

The potential of the British Navy is supported by the Royal Auxiliary Fleet, securing the logistics of the Royal Navy combat units. It includes a large hospital ship (displacement over 28,000 tons), 3 amphibious ships (each with more than 16,000 tons displacement and capable of transporting approx. 400 soldiers, 150 trucks and 24 tanks), a large supply ship (33,000 tons displacement) and 6 tankers that can supply fuel to other units.

2.2.3. British military shipyard industry

In addition to a strong and modern fleet, the maritime potential of the United Kingdom has traditionally also consisted of efficient naval shipyards. Today, the British military shipbuilding industry is completely private and the development and maintenance of the Royal Navy assets is carried out in a specific model of public-private partnership. Much of this industry has been consolidated into two major companies. The first is BAE Systems, one of the world's largest defence concerns, which owns 3 subsidiaries: BAE Systems Maritime – Naval Ships, BAE Systems Submarines and BAE Systems Maritime – Maritime Services.

³⁷ "Vanguard Class", *Royal Navy*, March 5, 2021, accessed February 6, 2022, <https://www.royalnavy.mod.uk/the-equipment/submarines/ballistic-submarines/vanguard-class>.

The largest of them, BAE Systems Maritime – Naval Ships, specialises in the construction of surface ships as well as the development and integration of combat systems. The company manages the shipyards in Scotstoun and Govan in Scotland (both were originally established in the 19th century as private shipyards, nationalised in 1977 and then privatised by the British government) and – through a subsidiary – shipbuilding infrastructure at the Portsmouth naval port. It was established in 2008 as a joint venture – combining the resources of BAE Systems Surface Fleet Solutions and VT Shipbuilding into a new company, BVT Surface Fleet – employing approx. 7,000 people. As part of the merger incentive, the company was promised £7bn in government contracts over 15 years³⁸. A year later, BAE bought VT Group’s shares in the company and consequently changed its name to BAE Systems Surface Ships Ltd. As part of the Terms of Business Agreement signed in July 2009, BAE Systems Surface Ships was to receive contracts for at least £230 million annually for shipbuilding and ship repair, which was assessed as the minimum amount needed to maintain its naval industrial base³⁹.

In 2012, the company was restructured and BAE Systems Maritime – Naval Ships and BAE Systems Maritime – Maritime Services were separated from it. The company’s portfolio includes, in principle, all the current classes of ships: aircraft carriers, destroyers, amphibious ships, fast combat ships, etc. The company was one of the main contractors of the Queen Elizabeth class aircraft carriers and Type 45 destroyers. The company also provides ships for the needs of foreign customers – incl. corvettes for Oman (Khareef class) and Brunei (Bung Tomo-class) and frigates for Malaysia (Lekiu class). Currently, the priority of BAE Systems Maritime – Naval Ships is the construction of Type 26 frigates, which it will be implementing at least until the middle of the next decade of this century.



HMS Audacious, the Astute-class nuclear-powered submarine.
Author: BAE Systems

The second BAE-owned company in the maritime domain is the BAE Systems Submarine Solutions, which manages the shipyard in Barrow-in-Furness (originally also established in the 19th century as a private shipyard, nationalised in 1977 and incorporated into British Shipbuilders), specialised in the construction of submarines and which has been supplying this class of ships to the British fleet since 1901. Importantly, it is one of only a handful of shipyards in the world capable of building nuclear-powered submarines and thus has supplied all such submarines to Great Britain since HMS Dreadnought in 1960. The more recent history of the shipyard involves the formation of BAE Systems, which took over Marconi Marine (the naval division of BAE-acquired GEC-Marconi – the armaments part of General Electric Company – which previously acquired Vickers Shipbuilding and Engineering, Ltd with its shipyard in Barrow-in-Furness). The plant then became a part of BAE Systems Marine, which in 2003 was divided into BAE Systems Submarines and BAE Systems Naval Ships (in 2006 renamed BAE Systems Surface Fleet Solutions, now – after the above-mentioned merger with VT Shipbuilding – under the name BAE Systems Maritime – Naval Ships).

³⁸ Tim Webb, “Abandon ships and sail on”, *The Guardian*, December 16, 2007, accessed April 9, 2022, <https://www.theguardian.com/business/2007/dec/16/vtgroup.armstrade>.

³⁹ “Supplementary written evidence from the Ministry of Defence - Question 136—Note on the carrier procurement”, *UK Parliament*, January 7, 2011, accessed February 13, 2022, <https://publications.parliament.uk/pa/cm201011/cmselect/cmpubacc/687/687we05.htm>.

Currently, the company's main project is the construction of Astute submarines (currently 2 under construction) and Dreadnought ballistic missile carriers, and so the company has secured government orders until the end of the 2030s.

The third of the large maritime companies controlled by BAE is BAE Systems Maritime – Maritime Services. The company, as mentioned, was separated from BAE Systems Surface Ships Ltd. (before the acquisition by BAE, the company operated as Fleet Support Limited and was established as a joint venture of GEC-Marconi and VT Group) and its portfolio includes “ensuring the availability” of warships, production of marine equipment and development of shipborne systems, facilities management and training. The company is supporting all major surface and submarine combat systems, as well as torpedoes and radars in the British Navy.

The second British concern offering maritime systems and shipbuilding facilities is Babcock International (in addition to the maritime and shipbuilding industry, the company also operates in the areas of nuclear, aviation and land industries, both in the military and civilian dimensions). In the maritime domain, the company's portfolio includes resource management, training, information and intelligence, marine equipment and systems, shipbuilding infrastructure and offshore platforms. Babcock, through its subsidiaries Devonport Royal Dockyard Limited and Babcock Marine Limited, owns and manages the shipbuilding infrastructure in Devonport and Rosyth (Scotland), since the privatisation of Rosyth Dockyard in 1997 and the acquisition in 2007 of Devonport Management Limited, which owned the ship maintenance infrastructure in Devonport (also privatised in 1997). As the company points out, its resources include large docks, capable of accommodating Queen Elizabeth-class aircraft carriers (they were integrated with the Rosyth shipyard), slipways for surface vessels and submarines, and a frigate service centre. This infrastructure allows for about 75% of all overhauls and modernisations required by the surface fleet in Great

Britain and 50% of works related to the maintenance of the fleet, as well as 100% of maintenance, operational support and lifetime management work for the UK's nuclear-powered submarine fleet. Works related to the dismantling of decommissioned British submarines, as part of the Submarine Dismantling Project, are also to be carried out at the Babcock shipyard. The company also manages the Royal Navy Clyde, Devonport and New Zealand bases. As mentioned, Babcock, in addition to designing, manufacturing and supporting the entire life cycle of complex mechanical and electronic ship systems (external launchers, communication systems, pumps, integrated waste management systems, etc.) can also comprehensively build ships and integrate individual systems on them. An expression of this is the fact that the company was awarded a contract in November 2019 by the British Ministry of Defence, for the construction of 5 Type 31 frigates (Arrowhead 140) envisaged by the National Shipbuilding Strategy to be built at the Rosyth shipyard, continuing its long tradition in shipbuilding. The shipyard itself, in connection with the works for the Royal Navy over the last decade, made infrastructure investments of over 150 billion GBP, and 1,250 people are expected to work on the Type 31 frigates project alone.



Visualization of Type 31 frigates in the service of the Royal Navy.
Author: Babcock

2.3. Long-term development planning

Keeping the Royal Navy in the eyes of the British people is not only a tool to ensure the security of the state and the realisation of its global interests. Brits view the armed forces more broadly, including through the prism of economic development, jobs and technological progress of the entire country. In the British approach to the Navy, one can also see thinking about combat capabilities in close connection with the potential of the shipbuilding industry, with great care for its efficiency and financial rationality and – as far as possible – independence from government orders.

As already mentioned, the end of the Cold War marked a change in the role and tasks of the Royal Navy. It was also associated with budget cuts in the field of defence and the resulting reduction in the size of the armed forces, including the Navy. This, in turn, would inevitably translate into a reduction in the number of government orders for the British shipyards. While in the 1970s the shipyards in the United Kingdom provided the Navy with an average of more than 6 ships per year, in the 1990s it was statistically less than 3 ships per year⁴⁰. This led to a series of closures and consolidations within the British shipbuilding companies following their privatisation in the second half of the 1980s (as mentioned, the entire British shipbuilding industry was nationalised in 1977) that had to compete hard for a limited pool of government contracts, often deciding to submit bids with a value lower than the cost of completing the contract⁴¹. Nowadays, the UK military shipbuilding industry has essentially consolidated into two consortia, working together with the government on commercial basis. The British government being aware of the specific conditions required to maintain the shipbuilding industry, including

the dependency on military orders and the requirement of predictability (the need to maintain expensive infrastructure and qualified personnel, and thus ensure the continuity of work), committed to a certain minimum amount of orders that will be given to British shipyards, which was later confirmed in the 15-year contracts – Terms of Business Agreement concluded with BAE in 2009 and Babcock in 2010 (and their subsidiaries), which were to enable rationalisation of employment and reduction in the size of the industrial base, in a gradual and controlled manner. As part of another 2013 agreement between Her Majesty's Government and BAE Systems, the company undertook a restructuration of its shipbuilding division, as with the completion of works on Queen Elizabeth and Type 45 destroyers, a significant drop in the scale of orders was expected, which was to partially mitigate a future program for the construction of Type 26 frigates and the construction of 3 patrol ships. As part of the arrangements with the government, it was agreed that the optimal site for the construction of Type 26 frigates would be Glasgow, where appropriate investments were to be made, but with a reduction in employment. It was also agreed that the shipbuilding activity in Portsmouth was to be terminated, with only renovation works to be continued there⁴². Overall, BAE has committed to lay off 1,775 of some 4,400 employees from the company's shipyard⁴³.



An aerial photograph of Plymouth Naval base. Author: UK Government

⁴⁰ Mark V. Arena, Hans Pung, Cynthia R. Cook, Jefferson P. Marquis, Jessie Riposo, Gordon T. Lee, *The United Kingdom's Naval Shipbuilding Industrial Base - The Next Fifteen Years* (Santa Monica: RAND, 2005), 13.

⁴¹ Ibid. p. 14-15.

⁴² "UK Naval sector restructuring", *BAE Systems*, October 7, 2013, accessed March 20, 2022, <https://www.baesystems.com/en/article/uk-naval-sector-restructuring>.

⁴³ "BAE Systems cuts 1,775 jobs at English and Scottish shipyards", *BBC*, November 6, 2013, accessed March 20, 2022, <https://www.bbc.com/news/uk-scotland-glasgow-west-24831779>.

After Theresa May's cabinet took over, in 2017, the first comprehensive document was published indicating long-term plans for the development of the fleet and the military part of the shipbuilding industry called the *National Shipbuilding Strategy: The Future of Naval Shipbuilding in the UK* (NSS 2017). In a foreword to the document, the then UK Defence Minister Michael Fallon indicated that "our new framework will ensure the impact on UK prosperity will be considered as part of our procurement decisions. This *National Shipbuilding Strategy* gives UK Industry and UK shipyards certainty on the warships which will be built in the United Kingdom, and clarity on the plans for support shipping, where we expect them to make compelling bids in an international competition [for the acquisition of warships]⁴⁴. This approximately 50-page long document has been divided into 7 parts. The first of them, 'The strategic context' describes the importance of the Royal Navy, describing its tasks as "fundamental" to national security. In this context, however, the document indicates that the navy needs specific capabilities to perform these tasks, so an increase in its size is needed – in particular in terms of the number of destroyers and frigates – which is to be possible thanks to the GBP 63 billion allocated to the new surface ships and submarines acquisitions in the next 10 years. The new strategy also announced that – in addition to the already ordered 8 Type 26 frigates – lighter and easier to export universal Type 31e frigates will also be procured, and the first is to enter service in 2023. Their commissioning, according to the strategy, is on the one hand to increase the naval presence of the Royal Navy at seas, and on the other to relieve patrol units so that they can carry out the task for which they were intended, as well as to relieve the more advanced Type 26 frigates and Type 45 destroyers, to enable them to carry out missions within maritime task forces⁴⁵. As the document indicates, "our vision is that the Royal Navy has more ships, which are modern and capable of being incrementally modernised and improved,

are exportable and can work with allies.⁴⁶" This vision was to be implemented in three concepts: modularity (i.e. the flexibility of individual platforms in terms of capabilities), interoperability (i.e. the ability to cooperate with both vessels of their own fleet and with allied warships) and innovation (i.e. the ability to adapt to challenges and technological progress). The emphasis was also to be put on automation and unmanned technologies⁴⁷. On the other hand, in economic terms, the strategy shows that the entire UK maritime sector employs around 111,000 people in 6,800 companies, contributing around GBP 13 billion to the economy (GBP 2 billion of which comes from the shipbuilding industry alone). Concerning shipbuilding, "our vision is of a shipbuilding enterprise that, encouraged by a clearer focus on defence, and with greater certainty about the Royal Navy's procurement plans, has the confidence to invest for the long term in its people and its assets to raise productivity and innovation and improve its competitiveness in the domestic and overseas markets."⁴⁸ The British approach to the military shipbuilding industry is therefore boiling down to the government sharing long-term development plans, but also ensuring it has a broad portfolio of products and services that can compete in global markets, reducing the industry's dependence on government contracts.



Rosyth shipyard, owned by the Babcock. Author: Babcock

⁴⁴ "National Shipbuilding Strategy: The Future of Naval Shipbuilding in the UK", p. 5, *Ministry of Defence of the United Kingdom of Great Britain and the Commonwealth of Nations*, March 16, 2017, accessed March 20, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/643873/NationalShipbuildingStrategy_lowres.pdf.

⁴⁵ *Ibid.* p. 10.

⁴⁶ *Ibid.* p. 11.

⁴⁷ *Ibid.* p. 12.

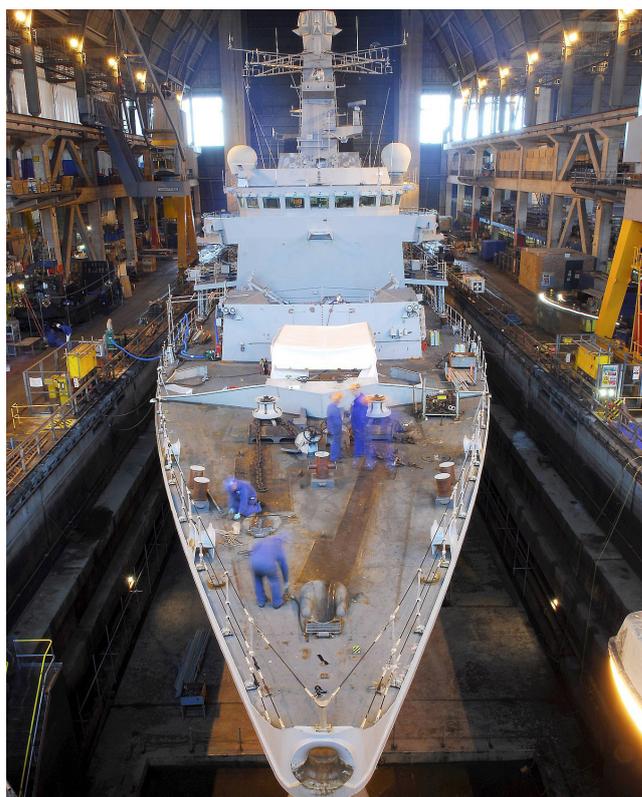
⁴⁸ *Ibid.*

Chapter II of the document describes the new governance system in the field of ship acquisition. It is headed by an inter-ministerial group responsible for the *National Shipbuilding Strategy* and approving the *Naval Ship Acquisition Master Plan* for 30 years. *The Master Plan* is to be created and implemented by the so-called Client Board, chaired by the 1st Admiralty Lord (and its assumptions are implemented by project teams) and is to be reviewed against the background of each *Strategic Defence and Security Review*.

Chapter III of the British strategy is devoted to the development of the Master Plan concept for 30 years, which is to include the schedule and capabilities of ships built for the needs of the Royal Navy in a specified period, to allow control of the time and cost of their construction and the implementation of assumptions as to their capabilities. The strategy also indicated the priorities of the British Navy for the next 5 years, which boil down to the implementation of 3 types of units, i.e. Type 26 (8 ships supplied by BAE), Type 31e (at least 5 ships with a contractor selected in a competitive procedure that will be able to deliver the first unit in 2023 at a price not exceeding GBP 250 million per ship) and fleet support ships (the first unit around 2025 with the contractor selected in an open tender)⁴⁹.

Chapter IV of the 2017 NSS focuses on exports. The document emphasizes that since prosperity was first defined as a national security goal in 2015, the Ministry of Defence has to support the growth of the British defence and security industry, including by fostering the development of exports. The foreign sale of British ships is to be a national enterprise, requiring joint work of the government and the arms industry. It is also beneficial for the Ministry itself, as it helps to reduce the unit costs of acquiring new ships (economies of scale) and their maintenance. Hence, the issues related to the potential exports of British ships (Type 26 and 31e) were to be dealt with by a special inter-ministerial group supporting the teams organising the campaign on the industrial side. The assumption of the British strategy in terms of foreign

trade is to produce exportable ships, i.e. those that meet the needs of potential customers and can be adapted to their requirements. Hence, the British authorities are to monitor the international market and eliminate unnecessary requirements so that the industry can design “simple and adaptable” ships. Type 31e frigates are to express this approach. The creators of NSS 2017 estimated the global need for light frigates at around 40 over the next 10 years. Most of these procedures will concern projects of this class of ships with the possibility of on-site construction with the support of British companies and supply chains. However, competition in this area is significant and covers 14 manufacturers of frigates in the 2,000 - 4,000 tons displacement range. The advantage of Type 31e is, however, the maximum adaptability – it is to enable the installation of various types of weapons and sensors without the need to implement costly changes in the structure of the ship⁵⁰.



Royal Navy Type 23 frigate HMS Westminster in dry dock at HMNB Devonport. Author: David Hillhouse

⁴⁹ Ibid. p. 21-25.

⁵⁰ Ibid. p. 27-31.



British Carrier Strike Group in 2019. Author: UK MOD

Chapter V of the UK strategy deals with industrial policy and the issue of “prosperity”. It states that, for reasons of national security, future procurement procedures for combat units (frigates, destroyers, aircraft carriers) will be limited to British companies – i.e. these units are to be designed, built and integrated in the United Kingdom. British shipyards are to compete for contracts in this area, but international entities are also encouraged to cooperate with local companies to provide the best solutions. All other ships are to be acquired in open procedures in which both the UK and foreign companies will be able to participate. At the same time, the British authorities are to create conditions that – where possible and economically viable – for the construction of ships, steel from producers from the United Kingdom is to be used. In general, as emphasised, the British strategy, out of respect for taxpayers’ money, is not to be based on the assumption that you should “buy British [products] at any price”, but when comparing British and international offers in the purchasing process, it is the wider economic and social context which should also be taken into account. Overall, according to the estimates of the creators of NSS 2017, the expansion of the Royal Navy is expected to bring GBP 1.5 billion to the British economy and approx. 25,000 jobs⁵¹.

Chapter VI of the strategy focuses on government-industry cooperation. To improve the relationship, it was decided to establish the Maritime Enterprise Working Group. The British Ministry of Defence also declared that in order to build better cooperation and trust with the

industry, it intends to be a more stable and predictable client, and to stick to the plans and assumptions once adopted. Concerning the designed ships, military-technical standards that are higher than civilian ones and increase the cost of the vessel are to be used exceptionally and when it is properly justified. The industry is also to benefit from government support in implementing innovation through several instruments (High-Value Manufacturing Catapults, Productivity Council Funding, and Industrial Strategy Challenge Fund). Finally, chapter VII is devoted to the implementation of the strategy and the associated documents.

The presentation by the British government, of the results of the review of foreign and security policy launched in early 2020, entitled *Global Britain in a competitive age. The Integrated Review of Security, Defence, Development and Foreign Policy* in March 2021, was a particular turning point in the British strategic planning. It was the first such review since a similar process in 2015, which was conducted in a decidedly different reality. Its ambition was to try to assess the main trends that will determine the security environment of Great Britain in the perspective of 2030 and to present the vision of the country after its withdrawal from the European Union. The review also includes foreign and security policy goals for 2025. Among its assumptions, there is a vision of a “Global Britain” – more active participation of the United Kingdom in shaping an open international order of the future and greater presence of British armed forces and institutions in the world, as well as maintaining a strategic advantage through science and technology⁵².

⁵¹ Ibid. p. 33-34.

⁵² Tomasz Smura, Bartłomiej Kot, “Great Britain in the world of rivalry between great powers - an integrated review of security and its significance for Poland and Central and Eastern Europe”, p. 7, *Casimir Pulaski Foundation*, July 12, 2021, accessed April 9, 2022, <https://pulaski.pl/wp-content/uploads/2021/07/Raport_2021_czerwiec_wielka_brytania_online.pdf>.

These assumptions, of course, translate into plans for the Navy and shipbuilding industry. The implementation of plans for an increased British presence in the world – including a greater concentration (tilt) of forces in the Indo-Pacific region while maintaining commitments and presence in other areas – requires, inter alia, a stronger and more numerous fleets. In turn, in the area of science and technology, it is indicated that the government will develop a partnership with academia and industry for the national security of Great Britain, which will signify, among others, additional funds for research and development (including GBP 6.6 billion in the perspective of four years for research in the field of defence). Such a comprehensive strategy had to also translate into other, narrower and more specific, British sub-strategies.

Thus, almost simultaneously with the results of the integrated review, two strategies relating to the defence dimension were issued. The first one, *Defence in a competitive age*⁵³, defines the way the defence sector contributes to the aims of the Integrated Review. In this context, we are especially talking about investments in research and development, which are to provide Great Britain with a strategic advantage over its opponents. Concerning the Navy, the special role of the new British aircraft carrier groups was emphasised, which – due to the possibility of their worldwide deployment and assignment to a wide range of missions (from power projection to humanitarian ops) – are intended to reflect the idea of the “global Britain” in practice. Mentioned are also patrol ships and Type 31e frigates, which are expected to be crucial in maintaining a forward presence in the South Atlantic, Caribbean and Mediterranean areas, Gulf of Guinea and the Indian and Pacific Oceans. The document also mentions completely new units in the British fleet of the future, i.e. the Type 32 frigates, as well as the strengthening of anti-aircraft capabilities and the replacement of the Harpoon anti-ship missiles on the Type 45 destroyers. *Defence in a competitive age* also outlines the general vision of the military shipbuilding

industry, which is to be driven by innovations – ensuring its competitiveness on the global market – and points to the need for closer cooperation between the government and the defence industry.

The second of the above-mentioned Documents derived from the *Defence and Security Industrial Strategy (DSIS)*⁵⁴, indicates that the global tasks set for the British armed forces by new strategies require their appropriate armament and equipment. This in turn requires the defence industry to provide the UK with access to the most sensitive and critical technologies. DSIS, therefore, announces that it will establish a more productive and strategic relationship between the government and the defence industry, and devote a total of GBP 85 billion to armaments and support over the next 4 years. Concerning purchasing strategies, a departure was announced from “by definition a globally open procedure” to a more nuanced and flexible approach involving continuous analysis of, inter alia, security needs and technologies sought, or opportunities to contribute to the increase in welfare.



HMS Dragon (type 45) destroyer during exercises on the La Manche channel. Author: Nicky Wilson (OGL v1.0)

⁵³ “Defence in a competitive age”, *HM Government*, March 22, 2021, accessed April 10, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/974661/CP411_-_Defence_Command_Plan.pdf.

⁵⁴ “Defence and Security Industrial Strategy: A strategic approach to the UK’s defence and security industrial sectors”, *HM Government*, March 23, 2021, accessed April 11, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/971983/Defence_and_Security_Industrial_Strategy_-_FINAL.pdf.

The above-mentioned strategies also translated into the British approach to the shipbuilding industry. In March 2022, a new version of the British strategy for the construction of warships and the development of the military shipbuilding industry was announced under the title of *National Shipbuilding Strategy. A refreshed strategy for a globally successful, innovative and sustainable shipbuilding enterprise* (NSS 2022)⁵⁵. In the foreword to the document, the Prime Minister of the United Kingdom, Boris Johnson, outlined a vision of the reconstruction of the shipbuilding industry in Great Britain, which, however, is to result not so much from sentiments as from opportunities and possibilities. The strategy is to fit closely with the above-mentioned Integrated Review and its vision of a stronger, more united and prosperous and resilient Union. The British Prime Minister also stresses the role of industry in providing innovative “green technologies” to the Navy to serve the wider goal of climate neutrality. Importantly, Boris Johnson points out that it is the role of the industry to live up to such a vision, in which the government can only provide support. “It is up to you to steer your sector to success,”⁵⁶ stressed the British Prime Minister. In turn, the Secretary of State for Defence, Ben Wallace, indicated that for the first time, a 30-year plan for the acquisition of ships will be presented, which will include not only the Navy vessels, but also offshore platforms under the responsibility of other ministries and agencies, and emphasised the need to ensure closer cooperation between the industry and science⁵⁷.

NSS 2022 is based on the vision of a globally successful, innovative and sustainable shipbuilding industry. By 2030, it is to be at the forefront of technological and environmental innovation and should be competitive in the design, construction, integration, repair, etc. of warships and commercial vessels. The document also sets specific and measurable goals (e.g. achieving climate neutrality in maritime transport by 2050, increasing exports of ships and ship systems by 45% by 2030, etc.)⁵⁸. The new version of NSS, similar in volume to the previous

one, has been divided into six chapters. Chapter I, as in the previous version of the document, indicates the general context. It was mentioned that concerning the 2017 NSS assumptions, 5 Type 31e warships were successfully contracted based on a new competitive purchasing approach, and Type 26 units were exported to Australia and Canada. Overall, these contracts (32 ships in total) will provide 5,000 export-driven jobs in the UK economy and GBP 6 billion in export contracts. The strategy points to the great experience and traditions of the British shipbuilding industry, and on the other hand, to the emerging opportunities related to, inter alia, climate issues and “green technologies” as well as to autonomy and digital manufacturing, which may become a competitive advantage of the British economy. However, this applies not only to strictly military platforms, hence the British strategy is to cover the entire shipbuilding industry, including the civilian one. The policymakers also stressed that the shipbuilding market is highly competitive and that many of the manufacturers benefit from considerable support from their governments. Hence, the British government also needs to increase its aid to industry.

Chapter II is devoted to the organisation and governance of the NSS 2022 implementation process. A new entity was added to the bodies created based on the previous strategy (Sponsor Group, Client Board), i.e. the National Shipbuilding Office (NSO), which is to lead the strategic oversight of all activities of the entire government concerning the shipbuilding industry. NSO is to oversee, inter alia, the coordination of government procurements and their benefits, and take over the oversight of the *National Shipbuilding Strategy*.

⁵⁵ “National Shipbuilding Strategy. A refreshed strategy for a globally successful, innovative and sustainable shipbuilding enterprise”, *Ministry of Defence of the United Kingdom of Great Britain and the Commonwealth of Nations*, March 22, 2022, accessed March 31, 2022, https://assets.publishing.service.gov.uk/government/uploads/system/uploads/attachment_data/file/1061201/_CP_605___National_Shipbuilding_Strategy_Refresh.pdf.

⁵⁶ *Ibid.* p. 7.

⁵⁷ *Ibid.* p. 8.

⁵⁸ *Ibid.* p. 10.

The institution is to be integrated into the Ministry of Defence and report directly to the Secretary of State for Defence (who is the so-called Shipbuilding Tsar). Another body created based on the strategy will be the Shipbuilding Enterprise for Growth. The institution will be led by the head of the NSO and a representative of industry, and will coordinate the cooperation of the shipbuilding industry with the government as well as support it in the implementation of the NSS by identifying and pointing out problems and further necessary actions to support given enterprises.

Chapter III is devoted to government communication on long-term plans and policies. In this dimension, the 30-year Master Plan for the acquisition of ships is to be updated and the interdepartmental Shipbuilding Pipeline is presented for the same period, covering both orders for the Navy and other government bodies and agencies.

Another new element of the strategy is the so-called National Flagship – an initiative to promote British capabilities in the field of shipbuilding and engineering, as well as technologies, especially the green ones. In the section devoted to the planned needs, several patrol, research and passenger ferries are listed, the acquisition of which is planned by various British government agencies. The most important projects, of course, still concern the Royal Navy. The assumptions for the implementation of Type 26 and Type 31e vessels, as well as three support ships were confirmed, and the construction of five new Type 32 frigates, a new series of mine countermeasures vessels, a Multi-Role Ocean Surveillance and a multi-role support ship were announced. In terms of further plans, the construction of Type 83 anti-aircraft ships to replace the Type 45 destroyers at the end of the third decade of the 21st century was also announced.

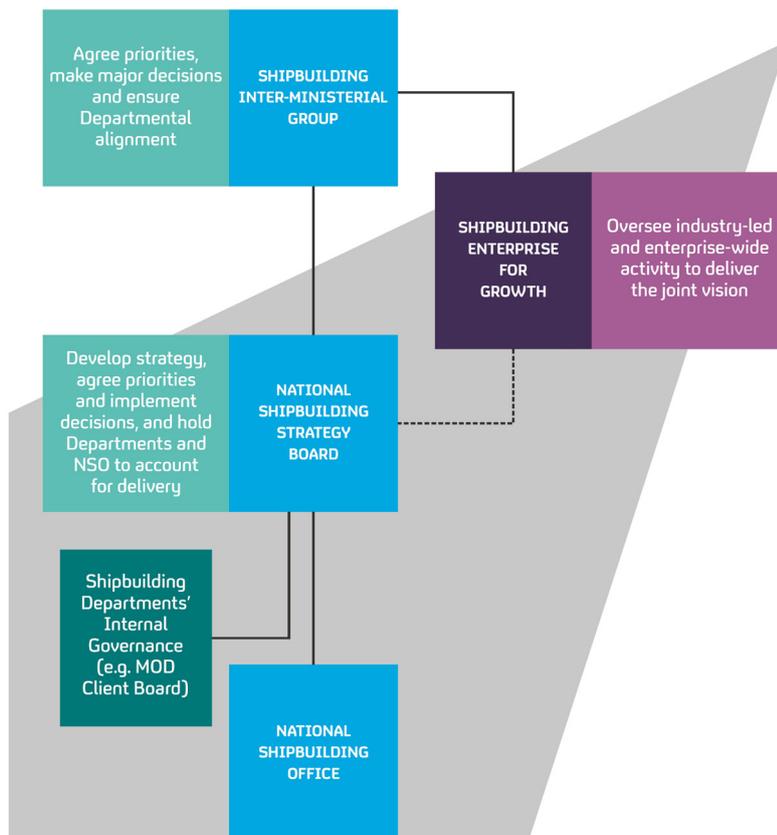


Fig. 2. Management structure of the shipbuilding system in Great Britain.

Source: Refresh to the National Shipbuilding Strategy, Ministry of Defense of the UK, London 2022, p. 20.

In Chapter IV of NSS 2022, the authors of the document discussed the issues of technology and innovation. They emphasise that the UK's strategy to rebuild and strengthen the shipping industry is not about increasing government procurement and restricting market access for competition, but about making the industry able to operate effectively in the global markets. This goal is to be served by technologies and innovations used both in the production process, increasing productivity, and concerning products as such. Particular emphasis is to be placed on intelligent technologies and those related to the zero-emission target. This is connected with the broader UK Research and Innovation vision of strengthening the research and development sector in Great Britain through several programs (for example High-Value Manufacturing Catapult). Centres of excellence are also to be created and a clear vision of the "shipyards of the future" will show the industry in what direction it should invest in the long term. The British strategy to achieve climate neutrality in maritime transport by 2050 is also described in detail. To support activities in this area, a new unit, UK Shipping Office for Reducing Emissions, was established, which is to operate within the Department of Transport. Scientific and industrial clusters are also to be created, and the industry is to be informed about the technologies in which it should invest its research and development efforts.

Chapter V of the new version of the British shipbuilding strategy is devoted to the issue of exports. In this field, the government declares its full support for British industry, which is to be in line with the strategy of "Global Great Britain" and be implemented through, inter alia, Free Trade Agreements, Trade Offices, and Military Attachés around the world. The will to increase exports within the shipbuilding industry is supposed to be based on two reasons. First, the increased revenues will flow directly to British shipbuilding and repair companies and will also encourage foreign investors to invest in the economy, further fuelling it. Secondly, increased awareness of international expectations will contribute to better requirements by the government, contributing to the creation of units that are easily exportable and, thanks

to the effect of scale, also cheaper for the government. To support the above-mentioned, a new body was established – the Maritime Capability Campaign Office – which is to deal with strategic planning and that will ensure a maximum consistency and effectiveness of actions taken to support exports of the shipbuilding industry. The strategy also mentions another institution – UK Export Finance, which deals with the provision of funds for favourable loans and guarantees for partners who want to finance purchases in the British industry in this way.

Finally, the last part is devoted to human resources in the shipbuilding industry. In this context, the strategy emphasises the need to educate more engineers and science students in general. To this end, the UK Shipbuilding Skills Taskforce group is to be established in cooperation with the NSO in the Ministry of Education, which is to create an appropriate strategy, analysing the needs of the industry and the possible solutions to meet them. The Maritime Skills Commission, reporting to the minister for maritime affairs, is also working on ensuring adequate human resources in the industry.



HMS Queen Elizabeth during the cruise in the Gibraltar area. Author: Dave Jenkins (CC BY 2.0)

On the general level, there is a lot of consistency in the British strategic documents. The assumptions of the Integrated Review have been implemented in lower-level documents, including even fragmentary documents such as the *National Shipbuilding Strategy*. The vision of a more “Global Britain” contained in the Integrated Review translates into the need for more ships and a more active export of proprietary solutions, as well as the vision of innovation-driven development into plans for the reconstruction of the shipbuilding industry based on modern technologies and investments in research and development. Similarly, the ambitious goal of a climate-neutral economy requires shipbuilding to invest in zero-carbon technologies that will in turn give Britain a competitive advantage in the marketplace. At the same time, the British state declares its support for the industry both in terms of creating a predictable and friendly operating environment for it, through clear and stable plans concerning the development of the Royal Navy’s capabilities and the acquisition of vessels for state institutions, as well as favouring its activity on international markets. The British government, however, is far from a protectionist policy towards its enterprises. “Remember that strategy is one thing and life is another.

We should not treat its entries literally”, said a high-level manager in the British shipbuilding industry in an interview with the Pulaski Foundation. “We don’t get anything for free. The government invites Spaniards, French, etc. to proceedings in Great Britain, with whom we have to compete on offer, as in with any other country”, he added.



F-35B aircraft belonging to the Royal Air Force and the US Marine Corps on board HMS Queen Elizabeth. RFA Tidespring in the background.

Conclusions

The United Kingdom is a traditional maritime and shipbuilding power. The Royal Navy and the shipping industry are an important part of Britain's national identity. Poland, on the other hand, historically – although maritime trade in its heyday was the source of its prosperity and development – focused less on the maritime dimension, and looked for threats to security and existence primarily from the land, which is reflected in thinking about the Navy and the wider maritime sector also today. Nevertheless, both countries have some common experiences in this domain. Great Britain, like Poland, had to restructure its shipbuilding industry, which was associated with its nationalisation – and then privatisation – processes of closures, consolidations, etc.

Also, the British military shipbuilding industry turned out to be too large for the post-Cold War needs of the Navy and had to be reduced. The UK maritime sector, however, seems to be recovering from a period of adaptation to the new reality. Her Majesty's Government, based on conclusions from wider state strategies, decided to strategically strengthen the shipbuilding industry and put it on a new track. In this regard, several consistent documents were adopted, accompanied by specific actions and measurable goals. Poland, which lacks a coherent vision of the Navy and a wider maritime policy, should therefore carefully analyse, and in some respects borrow, British solutions in this area, which may be favoured by intergovernmental cooperation in the context of the Swordfish program, in which a British company is an industrial partner.

About the Foundation

The Casimir Pulaski Foundation is an independent Polish-think tank specializing in foreign policy and international security in the Transatlantic space.

The Foundation publishes analysis describing and explaining international events, identifying trends in the international environment and recommending solutions for government decision-makers and the private sector.

The Casimir Pulaski Foundation brings together dozens of experts in various fields (<https://pulaski.pl/en/experts/>) and publishes reports and commentaries on current events recommending implementable solutions for the future (<https://pulaski.pl/en/publications/>).

The Casimir Pulaski Foundation is the initiator and main organizer of the annual Warsaw Security Forum conference (<https://warsawsecurityforum.org/>), which has become a permanent feature of the European landscape of conferences devoted to transatlantic cooperation and focusing on elaborating shared responses to common transatlantic security challenges. Organized since 2014, the Warsaw Security Forum is a platform for the exchange of views between the highest representatives of governments, international institutions, industry, think tanks and experts in the field of politics and defence.

Each year the Foundation presents the “Knight of Freedom” award to outstanding figures who contribute to the promotion of the values of General Kazimierz Pulaski, i.e. freedom, justice and democracy. It is also the home to the Women in International Security Poland network.

The Casimir Pulaski Foundation ranks first among Polish Think Tanks dealing with defence and national security according to the ‘Global Go To Think Tank Index’ report in 2018, 2019 and 2020.

The Foundation also has the status of a partner organization of the Council of Europe.

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