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Spain looks North: The Arctic, Naval Operations and Climate Change

Abstract

The Arctic is increasingly seen as an arena to project power. Over the past decades, climate change and its effects have been a major driver of change for a region of the globe once isolated from international tensions between great powers. With the progressive melting of ice in the area, the "exceptionalism" characteristic of the region has almost completely disappeared. Aware that its northern flank becomes vulnerable with a navigable Arctic, Russia has re-militarised its Soviet-era bases, and has a fleet of icebreakers that overshadows those of all its neighbours. A navigable Arctic will bring with it the possibility of establishing a shorter and cheaper trade route than the current route through Suez. This possibility, which is bound to become a reality sooner or later, means that Arctic states and others further afield are investing in their capabilities in order to be part of the region's promising future. Also aware of this, Spain must consider its maritime predisposition and position itself appropriately to be able to benefit from the advantages that a navigable Arctic will bring.

Keywords

Arctic, Spain, Climate Change, Naval Operations, Undersea Warfare.

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1. Introduction

The effects of climate change are becoming increasingly visible in a region that is eminently white for most of the year, or was. For several years now, the accelerating rate at which polar ice disappears has brought us closer to a world where the "frozen sea" will be free of ice for long periods of the year. This is an opportunity for all the states with coasts on it (Canada Denmark, the United States, Norway and Russia), but also for those who do not. For the former, it opens up the once inconceivable possibility of exploiting the mineral and energy resources that lie beneath the seabed in this region. For all those outside the region, it means the chance to open up new trade routes that would drastically reduce logistical costs and time on existing routes.

Russia's Arctic strategy aims to take advantage of rich natural resources such as oil, gas and minerals and to assert its dominance in the region, both as a global power and as a leading Arctic nation; these goals are also stated in its latest Maritime Doctrine published in July 2022 (Conte de los Ríos, 2022; Vázquez, 2022). This strategy involves multiple dimensions, including economic development, military presence, scientific research and environmental protection. It also seeks to develop its northern sea routes and modernise its Arctic military infrastructure, as well as participate in international Arctic-related discussions and negotiations.

Canada and the United States took steps to deepen their cooperation on Arctic defence in 2022, and they increasingly agree and share common interests. Last year saw the release of important strategic documents by the United States. On 7 October 2022, Washington published its latest National Strategy for the Arctic Region, bringing new or at least renewed impetus to US presence in the Arctic.[1] This new Arctic strategy is based on four mutually reinforcing pillars: security, climate change and environmental protection, sustainable economic development, and international cooperation and governance. White papers and unclassified versions of strategic documents from both nations delve into the strategic importance of the Arctic. The two governments have strengthened their cooperation and increased their presence with annual exercises and manoeuvres. For example, the new US 11th Airborne Division, created from units in Alaska, maintains a permanent structure adapted to operations in extreme cold climates. Finally, Moscow's assertiveness in the Arctic has also increased security concerns in the area and may help stimulate a renewed focus on the defence and security aspects of both nations' interests in the Arctic (The Military Balance, 2023a: 18-22, 28).

In addition to this phenomenon, the war in Ukraine seems to have accelerated the geopolitical processes that have been brewing in the region for several years, so that all the uncertainties surrounding the dynamics between the different actors (Russia, China and the West) have only become more vivid since then. Furthermore, the Arctic

1 See THE WHITE HOUSE (2022) "National Strategy for the Arctic Region", October 2022. Available at: https://www.whitehouse.gov/wp-content/uploads/2022/10/National-Strategy-for-the-Arctic-Region.pdf

Council,[2] the traditional forum for discussing Arctic issues since it was founded in 1996, has seen its activity completely disrupted and attempts to temporarily expel Russia. Any cooperation that was previously ongoing between all these countries, which also served as a buffer to geopolitical differences between them, has therefore been suspended indefinitely. Spain has participated as an observer in the Council since 2006 and can thus contribute through its presence at meetings, by providing scientific knowledge in the different working groups, or by submitting proposals for projects (Arctic Council, 2020).

Thus, the juxtaposition of the two factors opens the door to increasingly serious consideration of the possibility of a naval conflict, to a greater or lesser extent, in the Arctic. The possibility of exploiting its seabed resources has been known for more than two decades. Despite the fact that the equipment and instruments needed to extract them are not yet in place, during this time there has been much debate about the sharing of its surface. In response, Russia has developed an increasingly hostile attitude towards its Western neighbours, re-extending the military presence that the Soviet Union maintained in the region during the Cold War and re-equipping its coasts and important enclaves with modern defence systems.

This article first reviews the effects of climate change on the geopolitics of the region, as well as the struggle for energy resources and new trade routes. Secondly, it analyses the possibility of naval conflict in the Arctic as a result of current tensions, with the different positions and capabilities of states in the region, and the characteristics of undersea warfare in the High North. And, lastly, Spain's current role in the region as a maritime-minded nation and Arctic Council observer member; as well as the need to renew its assets to deploy in the region so as to be able to participate more actively and also strengthen its naval capabilities for the times to come.

2. Climate Change and the Implications of a Changing Arctic

Three phenomena in particular are currently responsible for the changes the Arctic is witnessing in the international sphere: climate change, globalisation and power transition (Kauppila & Kopra, 2022; 150). The first of these, which is the main focus of this article, has been apparent for years, but only in the last 15 years has it begun to receive increasing attention from the international community. According to predictions by the Intergovernmental Panel on Climate Change (IPCC), by the year 2100, surface temperatures will increase by 3.7º to 4.8º Celsius, which is the same as an increase of 2.5º to 7.8º Celsius over the average recorded during the period 1850-1900 (IPCC, 2014; 20).

2 The Arctic Council is composed of eight permanent members: Canada, Denmark (with Greenland), Finland, Iceland, Norway, Russia, Sweden and the United States. Six organisations on behalf of indigenous communities also have participant status; and 13 other external states, 13 intergovernmental organisations and 12 NGOs participate as observers (CRS, 2022; 11).

This rapid rise in temperatures that the Arctic is experiencing not only has devastating effects on its ecosystems and the populations living around the region, but also on the rest of the world's regions. The Arctic Institute published an article in 2022 pointing out how, despite the ignorance of many, countries such as Greece will suffer seriously from the consequences of Arctic melting and would therefore do well to adopt a relevant Arctic strategy (Tsiouvalas, 2022). Accordingly, Greece, an eminently coastal nation, will see its coastal infrastructure seriously affected by marine erosion with particularly visible environmental, economic and social effects (Tsiouvalas, 2022).

Figure 1: Map of the Arctic region (Source: Geographic Guide, Retrieved from https://www.geographicguide.com/arctic-map.htm#google_vignette)

Moreover, as Gómez de Ágreda points out, "the opening up of northern ocean shipping routes forces a redrawing of world maps. Not only in navigational charts, but in our own perception of the earth's sphericity." (Gómez de Ágreda, 2014; 16). Spain therefore faces the same challenge as its neighbours on the Mediterranean and Atlantic coasts. The same is true for many other nations, which, while they will enjoy significant economic benefits from the Arctic meltdown, are also exposed to similar risks as Greece and other Mediterranean nations.

Arctic shipping has increased by 25% between 2013 and 2019, but it is shipping to and from the Arctic. Arctic routes are very marginal transit routes: in 2018, five transits through the Northwest Passage via Canada and 27 through the Northeast Passage via Russia compared to 84,456 through the Strait of Malacca, 17,550 through Suez and 13,795 through Panama. Resource exploitation is the main reason for shipping in the Arctic, not transit (Bertolino *et al.*, 2022: 283-289).

2.1. Strategic Value of the Arctic: Climate Change and Natural Resources

The energy reserves that lie beneath the seabed and around this region are large in size and therefore of great value. Russia is undoubtedly the country that is most interested in the developments in the region, and is well aware that its position gives it an advantage over the rest in the race for its resources. Evidence of this can be found in the Russian Government's Strategy to 2030, published in 2009, which details how "the objective of Russia's policy is to maximise the effective use of natural energy resources and the potential of the energy sector to maintain stable economic growth, improve the quality of life of the population, and promote the strengthening of the country's economic position globally" (Government of the Russian Federation, 2009; 10). And precisely, as Conley and Rohloff point out, Russia is an Arctic superpower that perceives the region as a key development vehicle for the country. Its interests in the Arctic have thus been largely driven by the promise of lucrative quantities of hydrocarbons under the ocean, a perception promoted by Russian state-owned energy giants, as well as the development of a new Arctic trade route. (Conley & Rohloff, 2015; VIII)

Unlike Antarctica and its single treaty regime, the Arctic's constitutive process comprises multiple legal instruments and transnational institutions. However, prospecting under Arctic climatic conditions requires the latest technology, but also ice-ready platforms, an adequate safety system with rapid response equipment in case of leaks and, above all, long-term financing, which Russian companies are forced to seek from foreign partners (Conley & Rohloff, 2015; 2). At least this was feasible before the war in Ukraine completely paralysed cooperation between Moscow and other countries on these issues.

Moreover, both hydrocarbon production and demand for hydrocarbons are currently surrounded by uncertainty (Solski, 2022; 2). Despite having such extensive oil and gas reserves on and near its coasts, Moscow is unable to exploit them due to sanctions imposed for the war in Ukraine, as well as technological and equipment

shortcomings blamed on the public companies involved –Rosneft and Gazprom– and the refusal at the highest levels to turn to more experienced private companies –such as Russneft or Lukoil– (Pritchin, 2018).

2.2. Effects of Climate Change

The effects of climate change are impacting the region's accessibility in contradictory ways. Thawing permafrost makes the ground impassable so infrastructure construction is more difficult, complex and costly. On the other hand, access by sea is less difficult, allowing for the possible opening of maritime routes. Less difficult does not mean easy: Arctic shipping remains risky and often requires vessels with reinforced hulls and experienced crews, as required by the Polar Code, in force since 2017 (IMO, 2017). This shipping remains seasonal: 65% of voyages using the Northern Sea Route (Russia) and 85% in the Arctic waters of Canada and Greenland take place between June and October. Year-round sailing is only possible for powerful boats with a heavily reinforced hull, which are therefore much more expensive.

The main objective of Russia's foreign policy under Vladimir Putin's leadership is to gain international recognition as a major influential power. In its desire to become a great power, Russia has looked to the Arctic for resources. The Arctic is rich in natural resources, including natural gas and oil, and Russia has a strong interest in exploiting these resources to maintain its ability to fund public expenditures, including defence. Russia also has an interest in having the Northern Route recognised as internal waters in order to exert greater control over the region. This aspiration is not only limited to rhetoric, but is also reflected in numerous foreign and security policy documents published in recent decades (Staun, 2020).

According to some experts, recent trends in the regulation of the Northern Route by the Russian authorities have undergone a remarkable evolution over the last decade. According to Jan Solski, researcher at the Norwegian Centre for the Law of the Sea, in the period between 2012 and 2018, efforts to "liberalise access" and "maximise transparency of the legal regime of navigation on the NSR" stand out; but recent years have experienced an opposite effect (Solski, 2022; 2). With this, there is concern that this trend, coupled with the apparent strengthening of cooperation between Moscow and Beijing, will increase violations and ambiguous attitudes by both states towards the United Nations Convention on the Law of the Sea (UNCLOS), as it would add to tensions between the two blocs and increase the prospects of military confrontation in the region.

China has become a visible player in the affairs of this region over the last decade as a result of its new-found status as a world power, especially with regard to its clear ambitions to develop a Polar Silk Road across the High North from the Pacific to the Atlantic. As if on a double-sided coin, Beijing, which is in the habit of actively ignoring the dictates of UNCLOS in its activities along the South China Sea (systematically

harassing navies such as the Philippines), uses the same legal regime to ensure that no regional actor prevents it from enjoying its freedom of navigation in the High North.

Thus, with the diverse interests of all states focused on the same region, as we wait to see how it evolves with the ice melting, climate change will not only affect the region's geopolitics in geographic and energy terms. The possibility of armed conflict will also depend on the struggle over these resources, as well as disagreements over whether or not to establish a free navigation regime. For this reason, and with the addition that the war in Ukraine has brought, highlighting the real possibility that a conflict on the periphery of the region could eventually involve it as well, it is worth considering the Arctic as a theatre of operations. A different theatre of operations from what most militaries are used to, and one that would require additional preparedness efforts vis-à-vis actors that already have military assets there (such as Russia).

3. The Arctic as a Theatre of Operations: Naval Perspectives and Capabilities

As mentioned, like with trade routes, the Arctic is also undergoing significant change in terms of military and naval operations. The three most powerful states in the region (Russia, the United States and Canada) are already fully aware that the possibility of military conflict –on a larger or smaller scale– is becoming increasingly serious. Russia has militarised its Arctic coasts by taking advantage of enclaves once occupied by Soviet troops, modernising many and bringing them back into operation more than two decades later. Although it is nothing new –this process has been going on for more than a decade– the war in Ukraine has accelerated the dynamics prevailing until now in the region.

Increased tensions, coupled with the prospects of climate change previously reviewed, opens up the real possibility of armed conflict in the High North. But these prospects, which already seem imminent to some, still face the stark and inhospitable reality: the Arctic is still a very hostile region, with a long list of operational challenges for anyone wishing to launch a military operation there. Challenges range from inhuman temperatures to long months of total darkness. But most importantly, it "precludes most of the usual support militaries take for granted in more moderate or overland climes, such as navigation aids, communications, logistics and maintenance infrastructure" (Patch, 2009).

The centre of the Arctic is occupied by the deep North Polar Basin, more than 7 million square kilometres, a gigantic oval with depths typically greater than 3,000 metres that stretches between the GIUK Gap between Greenland, Iceland and Great Britain[3] and the Bering Strait, an abysmal, rhomboid-shaped domain composed of

3 The term GIUK, also known as GIUK gap, is a military acronym for Greenland, Iceland and United Kingdom. This region has been of significant importance over the past century, as it forms the line between the Atlantic and the Arctic, and

two main trenches of 3,630 and 3,667 metres crossed by the Lomonosov Ridge. It is worth noting that the Bering Strait is very shallow with depths ranging from 15 to 50 metres, and a width of between 64 and 84 kilometres. It is therefore very risky for submarines to dive in this area.

The US, Norwegian and British navies have P-8 Poseidon maritime patrol aircraft at bases in their territory, Greenland and Iceland, which provide the Atlantic Alliance with enhanced surveillance capabilities and strategic awareness throughout the region. Among the most important today, the base at Keflavik (Iceland) is strategically very valuable. Located in the centre of the GIUK Gap, it allows patrols to be deployed on both sides, favouring command over the region for those who control it (the United States). Abandoned in 2007 due to the low level of activity and the government's lack of interest in the region, the resurgence of Russian military activity and hostilities a few years later prompted the re-establishment of this permanent presence in 2017. Likewise, the British also have a number of new units based at Lossiemouth in Scotland. From there, the RAF is also an important element of the Atlantic Alliance's maritime surveillance, with the base's vantage point overlooking the North Atlantic and the Barents and Norwegian Seas. From them, these aircraft provide both surface and anti-submarine surveillance along the strategic sea passages to the North Atlantic, closing the passage of the GIUK Gap. This anti-submarine surveillance by maritime patrol aircraft is extended in coordination with the Sonar Surveillance System(SOSUS) acoustic detection systems installed in the area. Norway also has its own acoustic detection network Lofoten-Vesterolen (LoVe).[4]

If a submarine were to be located, the search would begin as close as possible to its bases on the Kola Peninsula in the Norwegian Sea, using bases in Norway, Scotland, Iceland, Greenland or any of the four or five aircraft carrier groups assigned by NATO to defend the North Atlantic. Spitsbergen would certainly be another interesting spot for a base, but the Svalbard Treaty signed in 1920 also obliges the demilitarisation of the territory and prohibits the construction of any fortifications.

Thus, in the context of a high-intensity conflict between Russia and NATO in this region, some have pointed out how "a combination of offensive and defensive considerations, including Russia's and NATO's mutual weakness in antisubmarine warfare capabilities, incentivise –but not necessarily determine– a competitive security dilemma in a hitherto tension-free region" (Whitehall Papers, 2022a: 6). In such a case, it is suggested that Russia "would try to send some of its submarines in the region to threaten the Alliance's maritime trade in the Atlantic, and perhaps other critical infrastructure" (Whitehall Papers, 2022a; 7).

is also the gateway for the Russian Northern Fleet to the Atlantic. This situation has prompted NATO to devote significant resources to keeping the region guarded against Russian incursions.

4 Norway also has its own SOSUS network called LoeVe. (Comte de los Ríos, 2022)

4. Russia in the Arctic

In recent years, the Russian Federation has invested substantially in military infrastructure within the Arctic. Russia has reactivated or built 13 air bases within the region. Moscow has fielded anti-aircraft capabilities such as the S-400 SAM and Bastion-P anti-ship missile systems (Paul & Swistek, 2022). Additionally, the Northern Fleet based in Murmansk has been elevated to a Military District, on a par with the other four military districts spread across Russia, with control over a variety of land, air and sea assets, as well as responsibility for Russia's Arctic islands, such as Alexandra Land, part of the Franz Josef Land archipelago at a latitude of 80º north.

The new Russian Maritime Doctrine, published in July 2022, describes the priorities for the development of maritime activities. The document distinguishes between vital and relevant areas, with vital areas being inland waters, all exclusive economic zones, the Arctic, the Sea of Okhotsk (in Russian, Охотское море) and the Caspian Sea. This distinction leads us to think of two fundamental points for the Northeast Passage Route, the Bering Strait and the GIUK gap bottleneck, the only passage to reach the Atlantic. Moscow must maintain control of one of its main strategic strongholds, covering the Russian Arctic region from the Kola Peninsula to Kaliningrad, across the eight Arctic Support Zones where funds and projects are concentrated, in order to promote the economic potential of the North-East Route (Kola, Archangel, Nenets, Vorkuta, Yamalo-Nenets, Taimyr-Turukhan, Yakutia and Chukotka). In fact, this region is home to two-thirds of all Russia's nuclear weapons, which is why the Northern Fleet has become an exclusive Military District (*Sputnik International*, 2017).

In a specific mention of priorities in the Arctic region, the Doctrine calls for controlling the naval activities of foreign states along the Northern Sea Route and increasing the combat potential and facilities of the Northern Fleet. The document:

> "Reiterates Russia's position on the advancement of NATO's military infrastructure near its borders, not just Ukraine, especially in the Baltic states and as it affects what is known as the Northern Sea Route [or North-West Route] with an ever-increasing build-up of foreign naval forces." (Conte de los Ríos, 2022).

It is therefore important to consider the potential of its submarine weapon with more than fifty conventional, nuclear and ballistic submarines (Whitehall Papers, 2022). Few countries have the ability to navigate safely in the Arctic, which requires adequate icebreaking vessel capacity. Russia dominates in this respect as well. Its icebreaker fleet –the only one that also has nuclear-powered icebreakers– totals nearly 50 units, which are also larger and more sea worthy than the (limited) assets of the United States (with only three) or Canada. Although the melting continues, large regions are still covered by ice for most of the year. An adequate fleet of such vessels is therefore a prerequisite for securing access to the vast energy, mineral, fisheries and other commercial resources of the Arctic, which is growing at precisely the same time as global interests in these assets are intensifying.

The Northern Fleet has five headquarters, each with several units under its command. Most are located on the Kola Peninsula, which includes three naval commands, the 45th Air and Air-Defense Forces Army (AADA) and the 14th Corps. Naval commands include the Northern Fleet Submarine Command and fleet, as well as the Kola Flotilla, where most of the Arctic-bound units are located. They also have the 61st Marine Corps Brigade, which includes reconnaissance forces, as well as special naval warfare units at Polyarny. The 45th ADAA was formed in December 2015, its tactical composition is not publicly known, although from reports it is known to be in charge of major anti-missile systems units and in the central Russian Arctic. The two main units of the 14th Corps are the 200th and 80th Arctic Motorised Rifle Brigades, in addition to smaller subordinate units that work in command and control, among other functions. Many Soviet-era infrastructures have also been recovered; east of the Kola Peninsula, 3 main bases, 13 airfields, 10 radar stations, 20 border posts and 10 emergency rescue stations (Wall & Wegge, 2023).

In territorial terms, Russia is the largest Arctic state and is one of the founding members of the Arctic Council, which it currently chairs until 2024 (Arctic Council, 2021). In June all but one Arctic Council member announced that it would resume meetings without the eighth, Russia. The accession of Sweden and Finland to NATO, a direct consequence of the military aggression in Ukraine, will mean that seven of the eight Arctic Council members will be in the Alliance. Russia will have to live with this if the Council is to continue in its current form. In this way, the Alliance gains more weight in the region, but Russia still has the largest share of the coastline.

Specifically, Russia has some 24,000 km of Arctic coastline, more than 53%, and most of the North-East Route. This makes Moscow favourably disposed to control the region more effectively than the rest of its neighbours. While the ice and harsh Arctic climate used to act as a defence, the melting ice makes it more vulnerable, but also offers a number of economic and strategic opportunities. Under normal circumstances, Russia enjoys a number of advantages due to its civilian assets in the Arctic. The combination of civilian capabilities needed to support shipping along the North-East Route and the military capacity to hinder it gives Moscow control over the Arctic. This would allow it to exert a level of peacetime control over what could become an important maritime artery and reinforce its strategic position over a rich region in competition with NATO (Whitehall Papers, 2022a).

The current meltdown in the Arctic is giving way to greater maritime openness, especially on the Russian Northeast Route, which is less intricate than the Canadian Northwest Route and more accessible than the impossible Transpolar Route. In this respect, the theory of authors such as Alfred T. Mahan gains prominence; the nation that manages to dominate the Arctic, in peace and in war, will control shipping, dominate trade and achieve Arctic hegemony. Projections show that plausible open water routes through international waters may become accessible by mid-century, although the route along the Russian coast remains the most favourable despite its lack of infrastructure to support maritime trade. (Lynch et al., 2022). This, however, is beginning to provoke discussions as to the legal regime to which these trade routes

should be subject, with Russia claiming sovereignty over much of these waters in order to maximise future economic benefits.

5. Submarine Operations in the Arctic

Limited submarine access to the Arctic from the Pacific, due to its shallow depth, and the close surveillance of the GIUK Gap make it very difficult for the Russians to leave this sanctuary. Strategic interest in the Arctic came from the US side, when the Pentagon ordered a study of polar operations by US submarines seeking the likelihood of finding temporarily ice-free or thin water spaces due to the formation of lanes or polynies of unfrozen seawater, the size and duration of which vary with weather conditions and the capricious movements of the ice.

The reports of Norwegian scientist Nansen, who voluntarily spent three years studying the ice between 1893 and 1896, served as a fundamental basis to prepare the historic subglacial expeditions carried out by the nuclear submarines *Nautilus* and *Skate* between 1957 and 1959 (Lyon, 2009). The first real attempt was made by British Sir Hubert Wilkins in 1931, aboard former US Navy submarine O-12, renamed *Nautilus*, a World War I submarine with which he tried to sail under the Pole. This attempt failed because of the poor condition of the submarine, which had cost one dollar and was repaired through public subscription (Walsh, 2005). Later, in World War II, German U-boats lay in wait to escape detection and counter-attacks by Allied escorts protecting Murmansk-bound convoys, which *tangoed* the ice field in order to get as far away as possible from German bases in Norway.

Worldwide publicity surrounding the successful subglacial navigation of the Pole by the *Nautilus* in August 1958 made people forget that this feat had been preceded by technical trials carried out secretly by the same submarine the previous year as well as the failure, also secretly concealed, of its first attempt to pass under the Pole by accessing the Arctic through the Bering Strait in June 1958. In 1957, the *Nautilus* had proceeded, in the utmost secrecy, to carry out a series of methodical penetration tests under the glacier in the Greenland Sea, precisely in the same place where Wilkins' submarine had preceded it 26 years earlier.

Date	*Submarine/s*	*Reached the Pole*	*Comments*
August 1958	*Nautilus* (SSN-571)	Yes	First to reach the Pole
August 1958	*Skate* (SSN-578)	Yes	
March 1959	*Skate*	Yes	First to surface, a total of nine times
February 1960	*Sargo* (SSN-583)	Yes	
August 1960	*Seadragon* (SSN-584)	Yes	Across the Northwest Passage from the Atlantic to the Pacific
June 1962	*Leninskiy Komsomolets* (Soviet)	Yes	First Soviet submarine to reach the Pole
July-August 1962	*Skate* and *Seadragon*	Yes	First multi-submarine operation

February 1967	*Queenfish* (SSN-651)	No	First single propeller submarine to operate under ice in Baffin Bay
March-April 1969	*Skate*	No	
April 1969	*Whale* (SSN-638) and *Pargo* (SSN-650)	Yes	First SSN-637 class submarine to reach the Pole, surfacing 20 times
July-August 1970	*Queenfish*	Yes	Operations on the Siberian shelf
November-December 1970	*Skate* & *Hammershead* (SSN-663)	Yes	
February 1971	*Skate*	No	
February-March 1971	*Trepang* (SSN-674)	No	Operations in the Denmark Strait and the Greenland Sea
March 1971	*Dreadnought* (British)	Yes	First British submarine to reach the Pole
March-April 1973	*Seadragon* & *Hawkbill* (SSN-666)	No	Bering Sea operations
March-May 1975	*Bluefish (SSN-675)*	Yes	Operations in the Greenland Sea
April-May 1976	*Gurnard* (SSN-662)	Yes	Shallow water operations in the Beaufort Sea
September-October 1976	*Sovereign* (British)	Yes	
March-April 1977	*Flying Fish* (SSN-673)	Yes	
October 1978	*Pintado* (SSN-672)	Yes	
April-May 1979	*Archerfish* (SSN-678)	Yes	Operations in the Nares Strait and Baffin Bay
October 1981	*Silversides* (SSN-679)	Yes	
December-January 1983	*Tautog* (SSN-639) and *Aspro* (SSN-648)	Yes	
August 1983	*L. Mendell Rivers* (SSN-686)	No	

Figure 1: Table with the first submarine incursions into the Arctic (1958-1984). Source: Prepared by the authors with information from POLMAR, 1984.

Descending to about a hundred metres below sea level, the *Nautilus* was bearing north at 15 knots, slipping under the polar ice for the first time. It was 20:00 on 19 September 1957. They were soon able to get an idea of the lower configuration of the ice, thanks to special equipment from the US Navy's Undersea and Polar Studies Laboratory in San Diego. It was an upward-facing sonar capable of directly detecting the lower part of the glacier. One pen, receiving a signal from a sounder, drew a continuous line on a recorder, and indicated the sea surface level; while a second pen, connected directly to the inverted sounder, drew the lower profile of the ice sheet (Anderson, 1959: 61-71).

The combination of the two readings indicated the exact profile and thickness of the ice. These first attempts suffered from detector interpretation errors due to the fact that the reading was slower than the speed of the submarine. Thus, when attempting to "puncture" a "polynie" and surface, the periscope hit the undetected ice, suffering serious damage that forced Commander Anderson to retire after having sailed 150 miles on his first dive under the glaciers. In a second attempt, once the periscope had been repaired, the *Nautilus* dove again with the intention of reaching the Pole, but at the "87º N parallel, due to a small fault affecting the gyroscope, it had to abandon

its intentions and withdrew under the glaciers. On this occasion he had sailed 1,000 miles at 20 knots under the ice, having been only 180 miles from the North Pole. The *Nautilus* had just opened a new chapter in the history of naval warfare. From a military point of view, it was clear that nuclear submarines could operate in these locations with relative ease and safety (Anderson, 1959: 91-101).

It was in the summer of 1958 that the *Nautilus* achieved its true success, its first subglacial crossing exactly under the North Pole, sailing for five and a half days in the black depths beneath the Arctic ice cap. Months earlier, the Americans had been surprised by the launch of the first Soviet artificial satellite; in response, they tried to save the prestige of the United States and undertook this risky and extraordinary attempt at submarine navigation under the Pole, this time from the Pacific Ocean. After a first unsuccessful attempt, the *Nautilus* entered the Bering Strait on 29 July 1958 and sailed eastwards to clear the shallow water. On 1 August, it reached the valley of the Barrow Sea, the threshold of the great Arctic depression, and set off north in search of the top of the world, only a thousand miles away. At 23:15 hours on 3 August, the *Nautilus* reached a latitude of 90º north, continuing its route towards the Atlantic in absolute safety (McWethy, 1958).

After the feat of the *Nautilus*, which went on to demonstrate that the nuclear submarine would undoubtedly be a deterrent weapon platform, the Americans needed to ensure that a submarine could launch its missiles from these ice-covered waters. Not satisfied with having ensured that nuclear submarines could safely navigate under the Arctic's vast ice fields, the US Navy also needed to know whether these vessels could safely penetrate the ice sheet and surface. The Arctic would then undoubtedly be of great strategic importance.

This eminently strategic mission consisting of studying the possibilities of surfacing in the "pack" was entrusted to the submarine *Skate* a month after the *Nautilus* had completed its subpolar feat. The *Skate* entered through the "big gate", i.e. between Spitsbergen and Greenland, making up to nine surface sorties at various points in the Arctic, thus proving definitively that normal submarine operations in this "Mediterranean Sea" were feasible. It was the world's first ship to emerge from the imposing and silent vastness of the North Pole.

However, all these experiments were carried out during the hottest period of the year, which did not ensure a real deterrence strategy. That these submarine operations could be conducted year-round had to be proven to the world. Once again *Skate* travelled to the Arctic to attempt its second momentous adventure, in March 1959, the coldest month in that region. Once again, the operation achieved the long-awaited and desired success, confirming the possibility of conducting nuclear submarine missile-launching operations at any time of the year.

It was later confirmed again by the cruise carried out by the submarine *Sargo* in January 1960. The important activities of the American submarines had significantly wounded Soviet pride. Its press went so far as to deny that American nuclear submarines had been the first to sail under the bleak ice of the Arctic basin, stating flatly that the

honour of opening such routes belonged to Soviet sailors, claiming that Northern Fleet submarines had already acted bravely and confidently under the ice in the early 1930s, not shying away from saying that their nuclear submarines had remained at the high latitudes much earlier than the Americans had.

In contrast to these sensationalist press reports, what seems to be more certain is that the construction of the first Soviet nuclear-powered submarine began in 1957; these were the November class submarines, which initially encountered serious difficulties. It was not until 1962, four years after the *Nautilus* had made its historic polar crossing, that the Soviets carried out their first penetration under the ice with the November class submarine *Leninsky Komsomol*. This event was of great significance for the USSR, as evidenced by the fact that three of the embarked officers were subsequently designated as "Heroes of the Soviet Union".

It was during the next decade that the real Soviet naval potential took off with a remarkable increase. From then on, greater importance was attached to transforming the Kola Peninsula into the great naval and submarine facility complex that it is today. Today, the Northern Fleet is the largest of all the Russian navies, accounting for 40% of the major surface units, more than 50% of the tactical submarines and 60% of the strategic submarines (The Military Balance, 2023b: 150-207, 159 and 193). The main area of operation for Russia's modern strategic missile submarines is around the Svalbard archipelago, although in the last exercise –involving three submarines and which took place in the Franz Josef Land archipelago– they surfaced within a circle of 300 metres radius and a metre and a half thick ice. In Putin's words, referring to the Umka-2021 exercise: "The Arctic expedition [...] has no analogues in the Soviet and the modern history of Russia" (Reuters, 2021). The same exercise was repeated the following year in the Chukchi Sea (far eastern Arctic), with two submarines launching several exercise missiles.

The Russian Federation currently has eight SSBN (Submarine Ship Ballistic Nuclear) Delta IV and Borei class ballistic missile submarines in its Northern Fleet. Their mission is to maintain Russia's retaliatory nuclear strike or deterrence capability. Each Delta IV is capable of carrying 16 Sineva missiles (SS-N-23) and the Borei can carry up to a maximum of 16 Bulava missiles (SS-N-32).

In addition, the Northern Fleet is believed to have 16 other combat submarines, including six Akula, Victor III and Sierra II class nuclear-powered SSNs (Submarine Ship Nuclear); five Severodvinsk and Oscar I/II class SSGN (Submarine Ship Guided Nuclear) nuclear missile submarines; and five Kilo (Submarine Ship Conventional) class diesel submarines. All are capable of carrying some variant of the Kalibr ground-attack missile (SS-N-30) or the anti-ship missile (SS-N-27), among others. Some are in disuse while others are relatively new, such as the Zirkon hypersonic missile (SS-N-33).[5]

5 The Kalibr 3M-14 (SS-N-30) is a subsonic precision-guided ground-attack missile capable of striking targets at between 1500 and 2500 kilometres. The Kalibr 3M-54 (SS-N-27 "Sizzler") is a short-range anti-ship variant capable of being

The Northern Fleet also has a number of other submarines for special functions that are ostensibly non-combat, but which may be used for combat purposes, such as manipulating submarine cables, officially under the Soviet Ministry of Defence's Main Directorate for Deep Sea Research (GUGI). Not all submarines are operational today, but in general, anti-undersea warfare experts consider Russia's Northern Fleet to be of paramount importance and require particular vigilance.

6. Spain and the Arctic.

Despite being many miles away, Spain, an eminently naval nation, also has interests in the High North. As Real Instituto Elcano researcher Luís Simón pointed out back in 2014, "in a dynamic and changing context, Spain must rethink its defence policy, giving greater relevance to maritime and global issues, rediscovering its historical legacy and its own strategic culture". (Simon, 2014). Published almost 10 years ago, the National Maritime Security Strategy places special emphasis on this maritime predisposition that characterises our country as follows:

> "Spain, as a maritime nation, is well aware of the implications that the security of the sea has for the normal development of national social and economic life, hence the need to have its own vision of maritime space security [...] The above considerations relating to the global sphere apply entirely to a maritime nation such as Spain, a character determined by its geographical situation, its dependence on maritime communications and the importance of the maritime sector in the national economy. All of this without forgetting that maritime connectivity between the peninsula and the archipelagos, and the Autonomous Cities of Ceuta and Melilla, is one of the axes of Spanish geopolitical vertebration (Ministry of Defence, 2013; 12-13)".

Despite this recognition, however, the last decade has shown that our country seems to have forgotten to some extent about this nature and the opportunities it provides. With the changing environment in which we live and the profound evolution of the international system, the importance of maritime security and the ability to have the right assets in place for protection and to have an accurate awareness of our maritime environment is again paramount. Therefore, and considering that in 2023 the document in question marks a decade since its initial publication, and that its update is scheduled to be published in 2024, it remains to be seen whether it will contain references to the Arctic and its importance for our country.

With this in mind, Spain's main interest in the Arctic region is to exploit fishing resources. However, access to its energy resources and the exploitation of the Arctic

launched from ships and submarines. The Zirkon 3M-22 (SS-N-33) is a vertical-launched hypersonic anti-ship missile. The Severodvinsk or Yasen class submarine (Project 885M) is planned to be able to launch either of them, although no Zirkon missile launches from submarines have been reported so far.

route should not be underestimated in the future. The 1920 Svalbard Treaty, to which Spain is a party along with 20 other European Union (EU) states, recognises Norwegian sovereignty over the archipelago, and grants all parties equal and non-discriminatory access to the resources of the waters surrounding Svalbard with regard to fishing for all commercially exploited species.

With no Arctic strategy either, Spain has remained passive. The reason for this is the lack of immediate prospects for exploitation and the idea that Spain is expected to follow the path set by the EU. This despite the fact that the Arctic is a region of global importance. As a permanent observer member of the Arctic Council, Spain must also be vigilant and present in order to act in line with changes in the area. Therefore, when creating a strategy, the first thing to establish is the aims or objectives sought.

In this context, processes of defining maritime spaces by coastal countries have given the impression of a race towards appropriate maritime spaces, exclusive economic zone in the first 200 nautical miles, and an extended continental shelf, if the physical continental shelf extends beyond this limit. Arctic states enacted their EEZs with few unresolved disputes and if there is a race on continental shelf claims, it is against time, because states have ten years after their ratification of the Convention of the Law of the Sea to submit an application to the UN Commission on the Limits of the Continental Shelf.

Several disputes have been resolved, including between Russia and Norway in the Barents Sea in 2010 and between Norway, Iceland and Denmark in the Norwegian Sea in 2018. The driving force behind these disputes was hardly resources, as 95% of overseas deposits are likely to be in EEZs, which have already been allocated. The processes of defining maritime space are orderly, sometimes with disputes, but not with high tensions, and many disputes are resolved.

Considering that Spain has no sovereignty to claim, a legal regime that translates into internationalisation and free, albeit controlled, access to its resources would be in the best interest of its waters. With this manoeuvre, national flag vessels would be able to fish and use the routes with freedom of navigation. This option is the one that Spain should undoubtedly support on the international stage, since without this option, access to the High North will become even more complicated. On the other hand, in the current scenario of disputes over control of the Arctic, Spain's naval presence is necessary. However, the navy's ships are not built to navigate in these waters and therefore there is no national capability to conduct naval operations in the Arctic. All this added to the lack of any reference to the Arctic or Spain's interests in it in the national Maritime Security Strategy is reason enough to understand why there is a need for updating and a Spanish presence in the frozen waters.

This absence, however, is understandable given the age of the document and the profound changes undergone by the international landscape and the Arctic region since then. However, awareness also serves as an incentive to motivate a strategy renewal to reflect the changes our national strategic landscape has undergone over the years, as well as the interests our nation may have in the Arctic and other regions

of importance to our allies. There is currently only one Navy unit, the *Hespérides*, dedicated to oceanographic research and it needs to be replaced, its design only allows it to sail in waters with shallow ice.

On the other hand, the Spanish National Research Council (CSIC) has a vessel, the *Sarmiento de Gamboa*, which is also unsuitable for sailing in the presence of ice of a certain thickness, as found in the Arctic. Despite Spain's capacity to do the job properly, one unit alone is not enough. It is estimated that if the demand for scientific research in the northern region is to be met, an additional unit would be desirable. This would also make a progressive replacement of the current *Hespérides* possible in the short to medium term. Another, initially cheaper, option would be to share a platform with another country and form joint research teams. Although probably enriching for scientific groups, this solution presents clear limitations when deciding on research efforts and closes, to a certain extent, the possibility of dedicating the ship to other activities.

Therefore, in the short and medium term, Spain should look for a new oceanographic research vessel to begin efforts in the North and to take over from the *Hespérides*. The predicted changes will shape a new geopolitical scenario in the Arctic region, bringing with it great opportunities and, associated with this increased activity, more risks of an unprecedented nature. Spain must be a player in these dynamics if it is to maintain its international position and reap the benefits that will secure its economy and welfare. Yet, how the political situation evolves following the conflict in Ukraine in the Arctic Council, to which Spain is an observer as already mentioned, remains to be seen. The conflict has significantly altered relations between its members in terms of cooperation in the region, which, according to López Morales, was due to a combination of four factors:

1. Interests shared by all Arctic states;
2. The need to elucidate scientific uncertainty and the creation of public assets;
3. A flexible institutional body capable of adapting to the needs of the actors;
4. And finally, an international legal framework favourable to all states that guarantees the peaceful resolution of possible disputes (López Morales, 2018; 85).

The degradation of this system of cooperation has reached the point where seven of the eight permanent members have decided to turn their backs on Russia. This dynamic will have profound political implications for a region that until recently was marked by a distinctive and unique exceptionalism; an exceptionalism that seems to be coming to an end.

7. Conclusions

Spain must look to and leverage this new space to occupy an advantageous position that will allow it to share in the energy and fishing resources offered by the Arctic

region, as well as orienting its shipbuilding to benefit from the boost that development and the need for infrastructures and ships to exploit these resources may bring.

It is clear that climate change is shaping a new reality in this vital region of the planet. Despite the remaining uncertainties –mainly in terms of magnitude and timing– various prediction models confirm the trend towards melting, although the process will be more gentle than initially predicted. The major opportunities offered by this new scenario can be grouped along two lines: Access to energy, mining or fishing resource exploitation and opening new shipping routes.

The Arctic is still an area of relatively low political tension, where actors cooperate on global issues without media excesses and in a climate with a high degree of accountability and balance in decision-making. The Arctic Council and all the dimensions of regional collaboration, based on scientific cooperation, represent a model of governance that deserves to be studied in depth. If melting were to continue at the rate of recent years, which currently seems unlikely, the Arctic would become a major trade route and would have major geostrategic implications, posing serious new problems for Moscow. It would ultimately cease to be a natural defence for them, leaving it exposed to Mackinder's Heartland, thus rendering it inaccessible and exposing it to the possible influence of Western naval power.

For the future of the Arctic, it is highly unlikely that a demilitarised and denuclearised zone will be established on the model of what was occurred in Antarctica. In the coming years, the United States and Alliance countries will strengthen their military presence along their northern shores and increase joint exercises in order to balance Russian presence and growing Chinese influence. However, this is not a Cold War-style arms race as the objectives are different; there is, however, a greater increase in anti-submarine assets.

While Alaska and Canada form the protective shield or first line of defence for the American continent, the islands of Greenland, Iceland and Svalbard, due to their undeniable strategic position, are the advanced links of protection against the new Russian bases in the Arctic. The demilitarised island of Spitsbergen –the largest of the islands in the Svalbard archipelago– represents a target for Russia, a favourable position suitable for controlling the North Atlantic and defending the Arctic, as well as the Kola Peninsula. This archipelago is an exceptional strategic location for anti-undersea warfare in the Arctic, in itself reason enough for the Russians to be inclined to use these islands in the event of a conflict. This strategic importance may be diminished in the longer term by integrating new aircraft carriers into the Northern Fleet,[6] while reducing the Fleet's dependence on land-based naval air forces.

6 Russia currently has only one aircraft carrier, which has been in dry dock for almost six years and is in very poor condition. It has had numerous incidents since it was decommissioned, the latest being a fire in late 2022. Given its poor state, there are plans to build more.

US and Russian strategic interest in the Arctic appear to be oriented in different directions. While the former give it a defensive character, trying to stop attacks by bombers and strategic missiles in and on this sea, the Russians have to look to the Arctic as the only avenue open for an eminently offensive strategy directed towards the United States. The Bering Strait, the only access to the Arctic via the Pacific, is not only a narrow passage, but also shallow. It is therefore very risky for submarines to sail in this area. The ice may extend considerably below the surface, and water depth may not be sufficient to allow safe navigation for long periods throughout the year.

Within this vast and complex theatre that is the new Arctic, following the guidelines set out in other strategies, we must act in partnership and if possible in cooperation with other nations or within organisations. Having identified the goal, we must resolve the question of the means to support Spain's participation in polar organisations and ensure our presence in the fields of interest. When speaking of means, the first thing a naval officer thinks of is the necessary platforms, the ships.

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