

## Special Section: Analysis

### NATO navies face new threats

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**Defense, including naval, budgets are rising across the Alliance. It seems Washington is leading by example: the \$716-billion defense bill for 2019 now making its way through Congress provides for an even faster arms build-up, of ships and submarines in particular, than the Trump administration had proposed.<sup>1</sup> Nevertheless, most NATO navies are still reeling from the deep cuts they have suffered over the past decades, at a time when they are increasingly called upon to respond to real-world contingencies, as well as to what is described as a mounting threat from “the East.”**

Belgium and the Netherlands formally launched the joint procurement of four frigates and 12 mine countermeasure (MCM) vessels on June 8, 2018.<sup>2</sup> The ships are to enter service in the mid-2020s and are to be split evenly between the two, neighboring and operationally integrated, navies.

The four new frigates, for which a unique binational Key Users Requirements document was signed in July<sup>3</sup> are to replace four Multi-purpose (“M”) class frigates serving in the Belgian Navy and the Royal Netherlands Navy (two each). The high-tech ships are designed to ensure ship survivability in high-threat surface warfare.

#### **Not a minute too soon**

The plan comes not a minute too soon. The legacy ships that are to be replaced are all nearing the end of their useful operational lives, having been built in the 1990s (M-frigates) and even the 1980s (current MCM vessels). A perhaps even more important factor is that the international security and operational environment in which NATO navies must operate is changing rapidly and significantly. Navies are vital in that they enable the state to use the sea for defense of national territory and national interests, for diplomacy, for development, for asserting its authority and to promote safety.

Unfortunately, even the most esteemed NATO navies have suffered badly from budget reductions over the past 20 years, and particularly during the recent financial crisis of 2008-2013. Having been bled dry by politically and financially inspired cuts, these same navies are now finding themselves in an increasingly unstable world. A wide range of issues, including real-life threats, are keeping them busy. In the mid- to long term, potential game changers such as new sensor, weapons, platform and communications capabilities are expected. These may have an even more profound impact on navies’ roles and missions.

#### **Truisms**

All this was highlighted in different ways by the speakers at two recent international naval conferences, both held in the UK. At the Future Surface Fleet Conference last June in Portsmouth, the conference chairman, a retired Royal Navy (RN) rear admiral, listed a number of truisms that will determine sea power in the coming years. Some of those came across as rather evident, such as that the ocean is a commons that is essential to both

economic and international security interests. Ninety percent of global trade and 95% of all intercontinental communications travel by sea, according to the admiral, who said that the importance of those undersea communications cables is continuing to grow due to our insatiable need for bandwidth.<sup>4</sup>

Another truism: megacities are continuing to grow everywhere. With the exception of a few regions in Asia, the vast majority of them are located in the littorals. This means they are on or close to the coast, where forces operating from the sea may be the only ones that can have access. The conference chairman asked the audience to imagine having to retake such a coastal megacity in the way that Mosul, Iraq, had to be liberated from IS rule in 2017-2018. Another scenario could be having to provide large-scale humanitarian aid and disaster relief in such an area, where millions of people may be at risk. If such a mission became necessary, naval presence offshore can provide the crucially needed access routes, respite and guaranteed supply lines. It may well be the only way to do it at all, the chairman said.

He also presented as a truism the notion that the NATO navies of today need to be transformed. “They need to become much more enabled to embrace the power of networking, to benefit from modularity of design, and to employ unmanned off-board assets (UXVs) in all shapes and roles,” he said.

### **Ever more complex threats**

The need for transformation is primarily because of the ever more complex threats that NATO navies will encounter. A flag officer from a southern European NATO navy at the conference mentioned hypervelocity (Mach 4+) anti-ship missiles, robotic warfare and swarm attacks, electronic warfare (jamming), detection & tracking by space-based sensors, and having to operate in a simultaneously conventional, asymmetric and hybrid threat environment as the most worrying developments expected in the coming years.

At another recent naval conference, “Surface Warships 2018” in London, a senior representative of NATO’s Supreme Allied Commander Transformation (SACT) urged NATO navies to take a careful look at how they design and operate surface warships such as frigates and destroyers, particularly because of the re-emergence of Russia as a potential opponent.

### **Political shock**

NATO is now faced with a peer competitor (i.e. Russia), it was said, that has deployed significant Anti-Access, Area Denial (A2/AD) capabilities in the Baltic Sea, Barents Sea, the Black Sea and Eastern Mediterranean. At the same time, today’s high-tech major surface combatants have become so expensive (in terms of financial and human capital), that the cost of losing one with its crew in battle could trigger a major political shock at home. That is the unintended consequence of building warships, as the US, UK and Australia have been doing lately, that cost around 1.5 billion dollars or pounds and that still require a crew of around 200, despite all efforts at automation. The near future will require innovative solutions to ensure surface warships’ survivability in the front line, according to the representative of SACT, which is NATO’s Warfare Development Command, projecting about 30 years into the future.<sup>5</sup>

“Compared with only ten years ago, NATO navies have to deal with an enduring, far more complex, multidimensional range of challenges, that is complicating analysis and decision-taking. Not the least of those is the resurgence of Russia as a strategic competitor, who is confident to use its full range of military levers and who has developed a hybrid strategy, designed to seize the initiative and disrupt NATO’s cohesion,” the SACT representative said.

In this context, he added, it is a concern that NATO navies have become more and more dependent on ships that are highly capable but limited in numbers. And while NATO has always had the technological edge, that is now closing due to significant capabilities developed by Russia as well as by China, and acquired by other potential adversaries too.

“When I compare currently operational warships with those of the 1980s, there is not really a lot of difference, except that the same concept has evolved, with better radars and missiles,” said the SACT representative. “But at the rate technology is going, there are real game changers out there. To make the difference in any future conflict, navies will need to go forward. That means they must be survivable against an A2/AD threat and able to influence the land battle. Many of today’s ships haven’t got a single effector that can do something about land targets, apart from their guns.”

### **Atlantic Bridge**

Another trend is that NATO has now realized that it has to focus again on keeping open the Atlantic Bridge. That means a need to return to being able to fight in the Open Ocean environment (in addition to Littoral Waters where the focus has been for the past 25 years). NATO used to rely on having prepositioned equipment in Europe, but has moved away from this when nations started cashing in the peace dividend, in the 1990s. This means massive amounts of military hardware will have to be shipped across the Atlantic, in case of a crisis in Europe.

The SACT representative warned that NATO maritime forces (as well as NATO air power in the European theater) may find themselves outgunned and outranged, when having to operate in a contested battlespace against a concentration of hostile A2/AD capability. “We are at risk that the enemy can reach further, reach quicker, and build up their situational awareness more quickly. We are seeing increased use by the enemy of electronic warfare, cyber and space. We need to be able to function in an environment in which our C2 networks don’t work so well as we have become used to.”

### **Key questions**

It emerged from the two conferences that NATO navies must look at a number of key questions that need to be answered. What will be the optimum mix of manned and unmanned? Where in the kill chain should the human be? How can maritime platforms be made more survivable while at the same time reducing the number of humans placed forward? Autonomy, artificial intelligence, big data and cyber are concepts that come to mind. How can navies integrate with 5<sup>th</sup>-generation airpower, with cyber, with space, and other tools, to take out enemy A2/AD systems and move back in? This will require new thinking, not the continuation of traditional thinking, it was suggested. Creating mass, for example, is still going to be essential in any battlespace. Navies won’t be able to afford that

if they keep building ever more capable, but ever fewer, ships. From this, a requirement may emerge for “cheaper” platforms that can be deployed in greater numbers, a requirement that may in part be filled by maritime autonomous systems.

How seriously should NATO navies take the alleged Russian threat? Speaking at the Portsmouth conference, a recently retired RN flag officer who commanded UK naval operations said that he had had to conduct 11 operations “facing East” in 2015, 33 in 2016 and 46 in 2017. Highlighting the intensity and international nature of these operations, in one particular mission, a total of seven submarines, nine maritime patrol aircraft and 14 ships from eight nations were involved.

### **Preparing for war**

“Russia considers itself in conflict with us. It is conducting information operations, it is preparing in the Baltic. Why is it doing that, is it preparing for war? We have to take this seriously,” an RN captain in charge of future concepts development said in Portsmouth.

“The threat is getting back to Cold War levels. The Kursk incident [sinking of an Oscar II class nuclear submarine in 2000 with the loss of all 118 on board] was the nadir of Russian naval capability. They have had a complete rethink for 15 years. That period is now over: they are back in full force. We’re also seeing economic activities. The research vessel Yantar for example is operating in the North Sea off the Netherlands and the UK, rather too often for our interests,” it was said. The Yantar has also been spotted conducting unspecified activities over positions where transatlantic underwater communications cables are lying on the seafloor.<sup>6</sup>

A recent report from the Washington-based Center for Strategic & International Studies (CSIS) spelled out how Russia could use the maritime environment in Northern Europe to destabilize NATO. One way of doing this would be the employment of so-called maritime hybrid warfare. “The inherent uncertainty of the maritime domain lends itself well to the application of hybrid tactics,” the CSIS report warned.<sup>7</sup>

### **Maritime hybrid warfare**

According to CSIS, “given the large number of vessels operating at sea, it can be easy to hide in plain sight. It may be possible to camouflage military capabilities about erstwhile civilian vessels, for example by deploying containerized missile systems that outwardly appear indistinguishable from a standard ISO shipping container. These attempts at obfuscation dramatically curtail the political decision space and may severely challenge crisis response. By seeding a number of these containers throughout port facilities and on board ships in European waters, Russian leadership would be able to mass considerable combat power in the region without raising alarm. Hybrid operational approaches in the maritime domain may include more traditional maritime warfare capabilities such as mine warfare, amphibious SOF, and combat swimmers.”

The CSIS report also warned about how Russia could deploy deception, deniable forces, and seabed warfare. “The primary challenge posed by these maritime hybrid tools is the potential for ambiguity and plausible deniability that surrounds their deployment, which provides Russia with options to confuse, slow, and potentially cripple Western political

decision making. These, too, are aimed at slowing an adversary's decision making by increasing doubt and uncertainty."

Another aspect of the Russian threat is cyber and electronic warfare. During operations in Crimea and eastern Ukraine, as well as exercises in the Baltic, Russia has demonstrated a complex variety of non-kinetic capabilities spanning the information, electromagnetic and cyberspace domains, the CSIS report asserted.

### **Long-range strike**

Finally, the report also highlighted the potential threat posed by Russia's long-range strike capabilities from the maritime domain. Particularly Russia's 3M14 Kalibr naval-land-attack cruise missile (NATO designation SS-N-30) was mentioned. Comparable to the US Tomahawk, this weapon has been launched repeatedly since 2015 by surface ships and submarines operating in the Mediterranean and Caspian Seas against targets in Syria, the report said. Similarly, air-launched variants have been fired by long-range strike aircraft such as the Tu-160 Blackjack — two of which had to be intercepted by Belgian F-16s over the North Sea just north of the Netherlands as recently as January 2018.

Stocks of these weapons are being replenished, if not expanded: 49 new Kalibr cruise missiles were accepted for service in the Russian Navy in the first half of this year, Deputy Defense Minister Alexei Krivoruchko was reported as saying on July 20, 2018.<sup>8</sup>

According to CSIS, Russian sources have written about using non-nuclear strike capabilities to achieve strategic effects by targeting key adversary nodes that were previously believed to be safe in rear areas. "From a European context, this means that Russian strike capabilities are likely to target ports of disembarkation along the North Sea such as Bremerhaven, Rotterdam, Antwerp, key radar installations, air bases, command installations, and potentially vital civilian infrastructure such as power plants. The range of these cruise missiles (1,500-2,000 km) means that they can be launched from vessels in the Norwegian Sea or to the West of the British Isles, and still be in striking range of North Sea ports in the Benelux. These new capabilities mean that the Baltic Sea, Norwegian Sea and North Sea could see considerable cruise missile traffic in a contingency scenario, requiring a dramatic upgrade to air surveillance and air defense capabilities in countries such as Germany, the Netherlands and the UK. This threat is totally unlike any that NATO faced during the Cold War (...) a threat that is relatively new and underappreciated by leaders throughout the region."

### **Chewy dish**

A retired RN flag officer speaking in Portsmouth agreed. "In the Baltics we see Iskander ballistic missiles, Bastion anti-ship missiles, S-400 surface-to-air missile systems deployed in Kaliningrad. In the Eastern Mediterranean and Black Sea we see six Kilo-class submarines armed with Kalibr cruise missiles, we see new missile corvettes armed with SS-N-30s. So in the dynamics that is threat related, those weapon systems are deployed, and tested in the Syria theater, so the threat is there. We have no option but to deal with it, including sea-based missile defence. We're knife-and-forking our way through this dilemma, eating a very

chewy dish to work towards what are the right priorities. We cannot do this alone, we have to tackle this as an Alliance,” the retired RN flag officer said.

But according to the former operations commander, this is “not like the Cold War. It is now much more unpredictable. You don’t quite know when you want your forces, and where, and you’ll probably need more than you can muster.”

A British counterpart at the Portsmouth conference added that a real issue is “not having to deal just with Russia, but also with China.” He continued, “In today’s volatile multipolar world, China is a real world power and the US has had a need to pivot to Asia. That means they have less naval ships in Europe. In August 2017, no fewer than five Chinese naval task groups were deployed around the world, of which two were in European waters.”

### **High state of readiness**

“And many other concerns are happening at the same time (...) Our units passing through the Red Sea have to be at a very high state of readiness these days.”

One of the most recent examples of this threat to shipping involved two VLCC (very large crude carrier) oil tankers operated by Saudi Aramco that were attacked by Yemeni rebels in the Red Sea on July 25, 2018.

“Proliferation raises the level of sophistication among regional actors and non state actors, particularly in the Middle East and Gulf region,” says a senior RN officer. “High tech, that we used to rely on to achieve superiority, is becoming more easy to access even by insurgents or terrorists. With that kind of technology around, for example in the form of underwater systems, the freedom and flexibility we have to operate with a naval task force is impeded. Especially in manoeuvre operations, when we’re moving hundreds of miles per day and have no opportunity to conduct precursor or hygiene operations to sanitize an area beforehand and remove any such threats.”

### **Doubts and dilemmas**

The so-called democratization of warfare, which also includes cyberattacks mounted by non-state actors, can potentially have a major impact, the future-concepts-developments captain said. “What’s the point of having frigates if somebody can bring your country to its knees from his laptop? If another nation or non-state actor is interfering with your electoral process, you have a right to counter that. Problem is: when is that line actually crossed? If they target your national health service? If they target your banking system? We need to create doubts and dilemmas in the minds of those who would be perpetrators of this. One of those should be: I’m doing this to them from my laptop, but the response may well be a cruise missile.”

This RN captain mentioned the UK TSB Bank as an example of what can happen. Earlier this year, almost two million customers of that bank could not access their accounts for many weeks as a result of a botched IT upgrade. “Imagine if an adversary would use the cyber domain to target all our banks and make everybody’s accounts inaccessible. The panic that that would create. Immediately that adversary would have shifted the attention of our government away from traditional military defence. So yes, we do have deterrence, but

what if an adversary would deliberately use tactics, including plausible denial, that would enable him to avoid our deterrence tripwires?"

### **Stronger naval presence**

In both the London and the Portsmouth conferences, it was concluded that NATO nations need to generate a stronger naval presence, which was translated into a need for more ships. One way of achieving this could be to move toward new generations of ships that are multi-role and highly flexible, featuring exchangeable mission modules but always having a robust core capability to be survivable. In many ways, the planned M-frigate replacement ships for Belgium and the Netherlands fit the bill.

Another way could be to improve the availability percentages of those ships, so that the same number of ships can produce more days at sea than is possible today. For example, new ships need to be highly adaptable, so that new capabilities and functionalities can be added during the life of the ship with little impact on availability (i.e. ships shouldn't have to spend months in refit to be upgraded).

A third avenue would be to systematically enhance the integration of NATO navies with other allied services, particularly so-called 5<sup>th</sup>-generation air forces with their superior intelligence, surveillance and reconnaissance potential linked to highly capable platforms such as the F-35. More emphasis on precision land attack from the sea, employing stand-off cruise missiles such as the Norwegian-built Naval Strike Missile (NSM), as well as integrating with offensive cyber operations should also be elements of this joint approach.

### **Fewer ship types per navy**

A paramount objective should be reducing operating costs. For example, by standardizing on fewer ship types per navy; by accelerating automation so that crew sizes can be further reduced; and by reducing power consumption (certainly no more gas turbines but fuel-efficient propulsion). Perhaps one of the biggest changes: navies need to find new ways to accommodate the needs of young people ("millennials") in order to meet recruitment and retention objectives. This means finding ways to give crew members more privacy, better access to social media networks, and more attractive accommodations on board the warships of the future.

In any case, NATO navies need to up their ante, by rethinking concepts of operations, ship designs and combat, command & control and communications capabilities. Budgets are rising, plans are afoot, but the required innovation will likely not be delivered until well into the next decade. In the meantime, it's all hands on deck.

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<sup>1</sup> "Pushing the boat out," *The Economist*, August 4, 2018.

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<sup>2</sup> M. Lutje Schipholt, *NIDV Newsletter*, July 2018.

<sup>3</sup> *Ibidem*.

<sup>4</sup> Author's notes from Future Surface Fleet Conference, Portsmouth, June 6-8, 2018.

<sup>5</sup> Author's notes from Surface Warships Conference, London, January 29-31, 2018.

<sup>6</sup> S. Johnson, "Russian submarines are lurking near the underwater cables that power the internet", <https://bigthink.com>, April 2, 2018.

<sup>7</sup> K. Hicks and A. Metrick, "Contested Seas – Maritime Domain Awareness in Northern Europe," Center for Strategic & International Studies (CSIS); March 2018.

<sup>8</sup> "Russian Navy takes delivery of 49 cruise missiles," TASS, July 20, 2018.