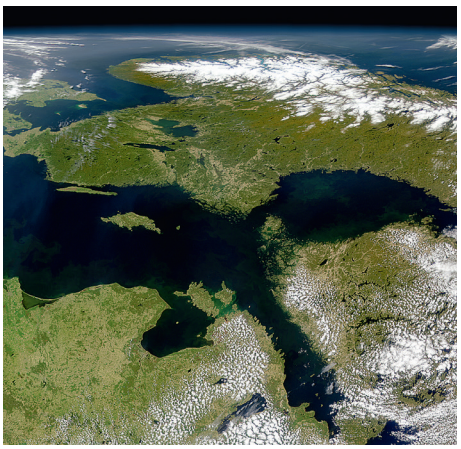
Adrian J. Neumann/Sebastian Bruns (eds.)

Focus on the Baltic Sea

Proceedings from the Kiel Conference 2015



With contributions from

Sebastian Bruns
Nick Childs
Julian Lindley-French
Stefan Lundqvist
Peter Roberts

ISPK Institute for Security Policy Kiel University

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Editors: Sebastian Bruns & Adrian J. Neumann
Cover design & layout: Lena Voß
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Preface

Today's maritime security challenges are manifold. The lines of communication and free-flow of goods are fundamentally challenged on multiple levels and by multiple players. These challenges include non-state actors and encompass piracy, theft, kidnapping, terrorism as well as the trafficking of narcotics, weapons and people.

At the state actor or proxy level, we can identify state sanctioned illegal fishing, interference with private sector activities such as the exploration and exploitation of natural resources on the seabed, violations of sovereignty through incursions into air space, into territorial water with vessels or submarines, increasing numbers of risky maneuvers and the proliferation of potentially disruptive technologies that create new A2AD challenges.

At state to state and supra state levels, we encounter an increasing regional imbalance in capability due to unequal reinvigoration of naval forces, we witness increased submarine proliferation, unlegislated use of unmanned over- and underwater systems, contempt for international arbitration in conflicting territorial claims, we notice lawfare and a politically charged conflict on sea-based missile defence systems.

Despite the gravity and interconnectedness of the challenges, the respective epistemic expert discourse more often than not appears to be isolated from one another, separated by region, organization or sector. These discourses may cover academic, strategic, political, economic ecological and humanitarian aspects, but do not necessarily fall together. Moreover, there is the public debate /opinion in continental Europe which appears to be more heartland theory-heavy in which the organised publicized political will has degraded navies to neighbourhood watch functions in the Gulf of Aden and life-guard duties in the Mediterranean. Meanwhile, other countries are forcefully pushing forward their navel rearmament programs while most NATO members pay lip service to the 2% GDP-commitment for their defence budgets.

Since ships cannot seize and hold territory like tanks and troops, the persisting sea blindness may be understandable but scholars such as Mahan and two world wars' history have shown that command of the sea is decisive to prevail in conflict.

This variety of serious maritime security challenges needs to be addressed not only through a comprehensive but also through a holistic approach. It requires a cross-sectoral forum that will address the pressing maritime security challenges and help foster a shared understanding as the pivotal enabler to coherent strategy development.

To receive a complete picture reflecting the complexity of the challenges we are facing, we opted for a cross-sectoral, multi-stakeholders approach involving representatives from the military & academia for hands-on experience and research rigor, government officials for ensuring effective dissemination/application and the private sector as technology enabler for our conference.

In order to ensure that the Kiel Conference does not remain an academic exercise but is able to provide tangible results and a controversial debate, the maritime security challenges are debated with a clear reference to a concrete theatre.

In 2015, we took a close look at the maritime security challenges in the Baltic Sea.

Since 2013, the Baltic Sea regions has turned from a sea of peace into troubled waters: con-

tinuous incursions in the airspace of littoral states, unannounced offensive snap exercises, massively increased submarine activities, harassment of cable laying vessels in their national EEZ, new energy security issues about the final routing of Nord-Stream, as well as verbal threats – with a potential to disrupt economic prosperity and to threaten security.

Taken altogether, this has been a strategic challenge for NATO which has brought the US Navy back to the Baltic Sea since the common defence of the Baltic States has become increasingly dependent on reserve and reinforcement forces as well as on NATO's ability to transport its heavy equipment and supplies rapidly and safely by sea to the forward lines in a crisis.

Being the projection space for great power politics, challenging operational environments of confined and shallow waters, a complex mix of political, economic, ecological and security interests, and constituting a strategic chokepoint, the Baltic Sea is a region with many parallels to similarly challenging maritime environments in other parts of the world.

We are very grateful for the scholars and practitioners, each an expert on a specific aspect of maritime security, who have joined the conference as speakers and discussants. While the conference was held under Chatman House rules to allow for an open exchange, we are very pleased to offer you a selection of academic contributions by our speakers that reflect to a large extend the depth and width of the debate at the conference.

The authors as well as the editors welcome any feedback and encourage you to get in touch with us if you would like to contribute to the debate on maritime security challenges at the Kiel Conference in the future.

Adrian J. Neumann

Seapower in the Baltic Sea

Julian Lindley-French

"This much is certain, he that commands the sea is at great liberty and may take as much or as little of the war as he will, whereas those that the strongest by the land are many times nevertheless in great straits"(Till 2013: 61).
Essays 1625
Sir Francis Bacon 1561-1626

Der Tag

Der Tag. At 1815 hours on 31 May, 1916 peering through the North Sea mist, Admiral Sir John Jellicoe, Commander-in-Chief, Grand Fleet, on board the battleship *HMS Iron Duke* raised the signal, "hoist equal speed pendant south-east by east"(Steel/Hart 2003: 197). With the execution of the signal from the flagship the Royal Navy's mighty battleships and battlecruisers began to swing into battle line astern. South south-east of Jellicoe Admiral Reinhard Scheer's powerful battleships of the German High Seas Fleet were forging northward in pursuit of Vice-Admiral Sir David Beatty's battered British Battlecruiser Fleet and the five enormous Queen Elizabeth class battleships of the 5th Battle Squadron.

Since 1428 hours when fire had been commenced Vice-Admiral Franz von Hipper's superbly-handled German battlecruisers had the better of their British counterparts. In short order *HMS Indefatigable* and *HMS Queen Mary* had blown up under accurate German gunfire with the loss of almost three thousand officers and men. Worse, the British were shortly to lose another battlecruiser, Rear-Admiral Horace Hood's *HMS Invincible,* to the guns of *SMS Derfflinger.*

However, the reckoning was at hand and two men could see what was about to happen. First, Commodore Reginald Goodenough, of the Second Light Cruiser Squadron exclaimed, "Now we have them". Between the Grand Fleet and the High Seas Fleet Goodenough watched the Grand Fleet deploy as it 'crossed the T' of an as yet oblivious Scheer. Second, having chased Beatty's force northwards for over two hours Rear-Admiral Paul Behncke on the bridge of the German battleship *SMS König* became bemused why Beatty began to turn to starboard across the path of the High Seas Fleet bent on his destruction. To Behncke it seemed like tactical suicide and for a moment he must have thought victory was at hand. It was not.

As Behncke emerged from a bank of mist he was met with a terrifying sight. Stretched out before him, huge white battle ensigns flying, 12.5 inch, 13.5 inch, 14 inch and 15 inch guns training round towards him Behncke watched as the entire Grand Fleet turned and began to commence fire (Massie 2007: 621). The High Seas Fleet had sailed into a trap. Heavy gunfire spread rapidly across the horizon to Scheer's north and east. Not only had Admiral Jellicoe succeeded in gaining a critical tactical advantage, he had also surprised Scheer, had the advantage of admittedly fading light and thus could see Scheer but Scheer not him. And, Jellicoe also threatened to cut off the retreat of the High Seas Fleet back to its fleet anchorage at Wilhelmshaven. This was the schwerpunkt of Der Tag.

Had it not been for a superbly-executed and well-exercised about-turn under fire, the build quality of the German ships, the questionable quality of British shells, and an inability of British gunnery officers to identify fall of shot given that so many were raining down on the High Seas Fleet a second Trafalgar seemed in the offing. The battle was not over. Probably believing he would pass astern of the Grand

Fleet at 1855 hours he turned about again and sailed straight back into the waiting British guns which re-opened a ferocious fire on their German counterparts.

In what was seen by Scheer himself as miraculous his battered force eventually escaped with the loss of 'only' two capital ships; the battlecruiser *SMS Lützow* and the ageing pre-dreadnought battleship *SMS Pommern*. The German press of the day in a fit of propaganda claimed 'Skaggerak' as a victory. However, Scheer knew otherwise for in his after-action report to Kaiser Wilhelm II he acknowledged that the British had superior intelligence and firepower and that Germany must never do this again. As an example of British sea power Jutland was probably as important as Trafalgar for it preserved the blockade which was so crippling Germany and effectively knocked the High Seas Fleet out of the war.

The Principles of Sea Power

A century on and the principles of sea power remain essentially the same, be they in the Baltic Sea or elsewhere. Indeed, a century ago in the North Sea, another shallow and enclosed, contested maritime space, Admiral Jellicoe understood all too well the sea power available to him and more importantly its place in Britain's wider grand strategy and war aims. Critically, whilst the Royal Navy lost more capital ships than the High Seas Fleet at Jutland, the next morning on 1 June, 1916, Jellicoe was ready for renewed action, whilst Scheer took months to recover the fighting power of his fleet and when he did he was even less able to challenge Jellicoe's control of 'the field'.

Jellicoe understood the vital importance to Britain of maintaining the Grand Fleet as the ultimate fleet-in-being. Not only did this divert precious German resources away from the front-lines on land both to its east, and more critically western fronts, Britain's continued control limited Germany's room for strategic manoeuvre in a vital contested space, preserved the blockade on Germany, maintained physical and indeed in the minds of the German naval command moral superiority. Moreover, by gaining what quickly became clear was a strategic victory Jutland effectively settled the outcome of the naval war which would in time have profound consequences for the conduct of the First World War in general.

Even today the North Sea a century ago shares some similarities with the Baltic Sea today in that both seas are landlocked and whilst the North Sea is today surrounded by Britain's friends, allies and partners, the Baltic Sea is most decidedly not. Moreover, whilst air power and anti-ship technology were in their infancy back in 1916 both navies shared concerns about sending vulnerable and highly-expensive capital ships into harm's way in relatively small contested seas. With Russia improving its anti-ship technology the presence of large NATO naval surface units in the Baltic Sea during a major exercise entitled BALTOPS 2015 seemed a little unrealistic in the face of both Russian air and sea power.

Therefore, command of the Baltic Sea must in turn seen as part of a wider grand strategy the defence of which will only be secured by a return to the principles of the worst-case planning which underpinned Britain's naval strategy a century ago. Indeed, as that great naval thinker Julian Corbett once put it sea power must be designed either to secure the command of the sea or to prevent the enemy from securing command of the sea. For Corbett whilst the sea was primarily a means of communication for trade and also acted as barrier that prevented an enemy exerting military pressure on the home base. In other words, sea power to Corbett was a deterrent. Naval power in the Baltic Sea today must also have such a deterrent role for to fight a war therein would be hazardous in the extreme. However, the paradox of deterring a major

adversary in a confined strategic space is that if such deterrence is to be successfully achieved the 'space' must be seen in a much wider strategic context, and precisely because warfighting would be so hazardous it must be planned and prepared for.

Corbett's view of sea power was somewhat Clausewitzian in that he believed more in fleets-in-being than fleet action with the importance of sea control being that it limited the ability of enemies to project power. Given the threat Russia poses today in both the Baltic and, indeed, the Mediterranean and Northern Atlantic and Arctic Sea, whilst unlikely to prove the decisive theatre effective sea power clearly matters as much today as it did in the nineteenth and early twentieth centuries.

Corbett also laid the foundation not just for modern naval manoeuvre warfare, but blockade as well. Indeed, he believed the sea to be critical to the control of lines of communication and by so doing enabled power to be focussed on an enemy. Indeed, effective sea control not only helped to exert political, economic and financial pressure, but also afforded political leaders far more discretion and flexibility over its use than land power. This is something the Kremlin also seems to have grasped of late.

It is interesting to contrast Corbett's thinking with that of his American contemporary Alfred Thayer Mahan. Mahan was a great fan of Admiral Lord Nelson and believed in decisive engagement and moral superiority. For Mahan the task of navies was to weaken an opponent before seeking decisive action. In effect, this was something Scheer was trying to achieve at Jutland before his 12 dreadnoughts clashed with Jellicoe's 28. For Mahan the object of attack was the application of organised military force to disarm an enemy. Again, recent Russian snap exercises in and around the Baltic Sea would suggest a similar line if thinking in Moscow's high command if, heaven forbid, the worst should come to the worst.

In some ways Mahan can be seen more than Corbett the father of Jutland and indeed contemporary ideas of sea power. Indeed, Mahan was firm in his belief that forces would always eventually find each other. And, like contemporary Russian strategy towards the Baltic Sea Mahan saw the sea as being much like a national land frontier; a line to be crossed and exploited. Moreover, for Mahan sea power gave a state the choice as to when and where to seek decisive engagement. And, whilst the decisive engagement would inevitably take place on land sea power for Mahan was critical to creating conditions for victory. Mahan was also a supporter of Admiral Lord Torrington who in 1690 created the very concept of the fleet-in-being as a means to a strategic end to exert sea denial and not merely sea control. Indeed, for Mahan a strong naval force simply by its existence helped shape and mis-shape the strategy of a stronger power. All of the above elements would appear to be observable in contemporary Russian naval strategy and yet all have evolved greatly since that terrible day in May 1916.

From the North Sea 1916 to the Baltic Sea 2016

"US and coalition maritime forces provide national leadership and the joint force commander the flexibility to conduct deter, defeat, and influence operations with flexibility and at all levels of the use of force. At one end of the escalation ladder, naval forces both reassure allies and partners and deter coercion and aggression with shows of presence and shows of force (BALTOPS 2015). At the other end…maritime power provides warfighting readiness. It is the only sustainable strike power with assured access to the battlespace."(US Navy Senior Commander 2015)

The same issues Jellicoe and Scheer grappled with in 1916 in the North Sea are also perti-

nent in the Baltic Sea in 2016, the differences being primarily technological and unity of command issues which are most notable in the speed and quality of actionable intelligence, situational awareness, strike range, complex communications, scope of operations, distance between engaged forces, and firepower.

At Jutland the Royal Navy found signalling between major units hard to execute in the mist and smoke of battle. For the British the fog of war was undoubtedly further complicated by the sheer incompetence of a hidebound command and control system of which Captain Ewan Chatfield, Beatty's chief signaller, was the most notable culprit.[1] Chatfield repeatedly hoisted confusing signals which almost led to disaster for Read-Admiral Evan Thomas leading the Fifth Battle Squadron. '5BS' contained the four mighty new Queen Elizabeth-class 15 inch gunned, fast super-Dreadnoughts which unbeknownst to either Scheer or Hipper had been attached to the Battlecruiser Force. Indeed, because of a failure to understand command signals Evan-Thomas not only lost contact with Beatty at one point, but almost sailed blindly into the guns of the High Seas Fleet. Certainly, any conflict in the twenty-first century Baltic Sea would also demand complex communications, not least because so many Allied forces would be in such a small space with some NATO members, whilst Sweden and Finland are not. It is a recipe for a similar fog of war to descend.

Interestingly, the issue of intelligence had been cracked by the British at Jutland as the highly-secretive and effective *Room 40* in the Admiralty was able to correctly warn Jellicoe that the High Seas Fleet 'was out'. Indeed, it was the work of *Room 40* that enabled Jellicoe to surprise Scheer in force at Jutland. Given the Russian use of *Strategic Maskirovka* it will be vital for the Allies to be similarly able to peer through the deception the Russians would inevitably deploy, not least through the use of no-notice, snap exercises, to properly understand when an operation is underway, its aims and the centre of gravity of the Russian force (Lindley-French 2015). Worryingly a new RAND report suggests the Baltic States could be overrun by Russian forces within three months given the present correlation of forces (Luce 2016).

The reliance of effective sea power on an ability to crack an enemy's cypher and deploy force to the schwerpunkt over time and distance has not only increased but moved on markedly between 1916 and 1942 when the Americans pioneered carrier-strike at Midway in 1942. Indeed, an ability to surprise an adversary with a decisive counter-attack would also be crucial in the Baltic Sea. In 2016 that would require superior 'eyes and ears', allied to superior firepower and an ability to disrupt an adversary's chain of command. Towards that end, Admiral Sir Bruce Fraser was in many ways the dawn of the radar, computer and missile age at the Battle of North Cape in 1943. At North Cape the 14 inch gunned battleship *HMS Duke of York* surprised the German battlecruiser *KM Scharnhorst* in the Arctic twilight and went on to sink her after a gun chase. Fraser prevailed not only because of the superior firepower of the *Duke of York*, but also because his main armament was linked to then new and powerful Type 284 radar by a rudimentary computer far superior to the old 'gun clock' used by Jellicoe's gunnery officers at Jutland (Konstam 2009).

In recent years as ranges and distances between engaged units have grown so have concepts of distance in sea power, enabling ever fewer and ever more sophisticated units to influence ever greater sea space and well beyond the littoral. Concepts such as strategic sea-based deterrence and extended maritime-amphibious operations. In 1982 Rear-

[1] For a powerful expose of the Royal Navy's signalling failures see Gordon (1996).

Admiral Sandy Woodward led the longest maritime-amphibious operation in history to enable the British to successfully seize back the Falkland Islands from the Argentinian military junta, which had seized the islands in April of that year. Equally, both sea-based deterrence and maritime-amphibious force projection would doubtless play a role in operations in the Baltic Sea, although for obvious reasons over far shorter distances, and given the Russian order of battle, would most likely involve an attempt to rapidly exclude Allied units from the AOO, no doubt reinforced by major spoiler operations by naval infantry and Spetsnaz sub-units along both the northern and southern flanks of the Baltic coast to keep the Allied response off-balance.

Operations in the Gulf in the 1990s and 2000s and the use of naval air and firepower against targets in Afghanistan have also demonstrated the growing importance of remote carrier-strike against a target or AOO. As recently as December 2015 the Russian Navy fired long-range cruise missiles against targets in Syria from missile ships sailing in the Caspian Sea. The role of navies in the global commons will likely see a merging of more traditional ideas of sea-lines of control with extended range sea presence and sea control.

Where the Baltic Sea could well prove to be the crucible for a revolutionary concept of sea power is through emerging ideas of deep jointness. In the twenty-first century the prevailing force will be one that operates to effect across seven domains; air, sea, land, cyber, space, actionable intelligence, and information warfare, and thereafter successfully combines all domains into a single operating concept. In such a concept no single service will own any single domain but all will need to own at some level all seven domains.

If deterrence fails the Baltic Sea the focus for an all-force battle, including a nuclear dimension, as new forms of blue water naval power, combine with Airsea battle, anti-access/area denial (A2/AD) over distance and yet are applied specifically to generate influence and effect in the Baltic Sea region. If that should ever happen given the range and array of forces that would be engaged it is hard to imagine the limited war aims the Russians are clearly testing in the Baltic could be achieved without major escalation taking place, possibly leading to all-out war.

Indeed, if it is impossible to look at Jutland without considering the strategic situation in the wider war, most notably on the Western Front, it would be impossible to consider sea power in the Baltic Sea without placing it in the context of both NATO's, and indeed Russia's, wider strategic commitments.

For all the high-tech over-the-horizon capability both sides would bring to a conflict, in the event of hostilities sea power in the Baltic Sea would also probably take on some of the character of World War Two operations therein with more *Louhi*-type mining[2] and disruption operations than either a Nelsonian-style 'Copenhagening' of the Russian fleet,[3] let alone a major fleet action. The Baltic is too small, too easily closed, too subject to land-based air power for classical sea control and major sea presence DURING such a conflict. It is more likely operations in the Baltic theatre would instead be limited role to some aspects of sea denial and some strategic amphibious operations, albeit as part of a much wider AOO.

Equally, deterrence in the Baltic Sea would remain vital precisely to prevent a conflict that could likely quickly escalate. The need to

[2] The *Louhi* was an ageing Finnish cruiser that mined the Eastern Baltic between 1938 and 1945. She accounted for the loss of several Russian ships and submarines and at least two German U-boats in 1945 before her own sinking in February 1945 probably by German torpedo.

[3] In 1807 the Royal Navy sank the Royal Danish Navy at anchor in Copenhagen to prevent any chance that should the Danes come under Napoleon's influence the British blockade might be threatened.

both deter and avoid risk to major naval assets creates somewhat of a dilemma for Western planners in particular. Clearly, the role of forward deterrence has to raise the potential cost of any sudden Russian action given the growing ability of Russia to project power from the sea onto land across a wide arc supported by air. Thus sea power in the Baltic Sea can act as a core component of influence, deterrence and effect but only if the strategic judgment in NATO's major capitals is prepared to put at risk significant naval assets. In many ways this was precisely the dilemma NATO's BALTOPS 2015 exercised out.

The Challenge

So, how likely is Russian aggression in the Baltic Sea today? During a June 2012 visit to Helsinki Russia's Chief of the Army General Staff General Nikolay Makarov caused some concern when he produced a map showing a line that he claimed would establish clear spheres of influence between the Russian Federation and NATO and thus enhance security. The line went directly through the middle of the Baltic Sea, and by so doing placed EU member Finland and EU and NATO member-states Estonia, Latvia and Lithuania firmly within the Russian sphere of influence. General Makarov also suggested that the expansionist world-view of the Putin regime is not necessarily limited to the borders of the former Soviet Union.

In 2015 the Russian Federation carried out a series of no-notice, snap exercises involving the Southern Military District, the Eastern Military District and the Russian Baltic Fleet. The aim was to test the Northern Fleet's new Joint Strategic Command. Whilst primarily focused on the Arctic region the Baltic Sea was clearly critical to the success of the exercises. Indeed, the order of battle of Russian formations said a lot about how Moscow would conduct future operations in the Baltic Sea region. Most impressive was the degree of jointness between different air, sea and land elements of the Russian force. Air assault troops were rapidly brought to a state of readiness together with units of the Northern Fleet, and elements of the long-range and military transport aviation commands. Critically, nuclear forces were also placed on alert.

As part of the exercises both the Baltic and Black Seas Fleets were activated on what the Russians called 'strategic axes'. At their peak the exercises involved some 80,000 personnel, 12,000 major 'units', 65 ships, 15 submarines, some 220 combat aircraft and helicopters. Critically, the Russian forces whilst isolated from each other for the first time operated under a single strategic plan with overarching command and control being exercised by the Russian Federation's National Centre for Defence Command and Control.

The aim was for President Putin to be able to control a twenty-first century Russian all-arms force by "a single button". With the activation of the button Northern Fleet ships at a state of permanent readiness were deployed into the Barents Sea, strategic missile submarines were deployed, Spetsnaz Special Forces were dropped onto the Kola Peninsula, and other key strategic points and very quickly the Northern Fleet forces were able to secure 'enemy' critical infrastructures.

These movements were further reinforced by battalions of motor-rifle brigades on land surrounding the contested sea basin, together with supporting units of naval infantry (marines) that had been landed on undefended coasts. Throughout the exercises the Northern Fleet's aviation arm was used to effect to cover the transport of marines and support the landings over significant distances.

At the same time Russian forces moved quickly to cover Russian borders in the Baltic with much of the firepower being operated out of the Kaliningrad Oblast. Critically, the Baltic Fleet used the exercises to improve its com-

bat readiness, hunt Allied submarines, and destroying Allied mine and counter-mine ships. At the same time aircraft from the Black Seas Fleet attacked targets in the south-west of the AOO.

Assessment

Russia's 2015 no-notice, snap exercises suggest a range of implications for Allied sea power in the Baltic that ironically echo some of the dilemmas Jellicoe faced when deploying the Grand Fleet against the High Seas Fleet in the North Sea a century ago. It was vital for Jellicoe to maintain the Grand Fleet in being. Winston Churchill said after the Battle of Jutland that Jellicoe was the only man who could have lost the First World War for Britain "in an afternoon". In the event of Russian aggression in the Baltic to what extent would the Alliance and its member nations risk any principal surface craft in such a small sea space?

Therefore, Allied sea power in the Baltic Sea during an engagement would primarily be limited to chasing down Russian submarines and again act much like the Finnish cruiser *Louhi* during World War Two by mining key approaches to Russian bases and constricting Russian naval sea-lines of communication, most notably to Kaliningrad.

Any major naval engagements would take place on the strategic 'flanks' of the Baltic in the Atlantic, the Mediterranean, and indeed the Pacific, as Russian exercises also involved forces acting simultaneously in Russia's far-east. Russia's aim would be clearly to 'break out' of self-perceived strategic encirclement by attempting to over-commit US forces, and by keeping forces in NATO Europe off-balance by forcing them to look in several directions at once.

Could Western sea power in the Baltic deter aggressive Russian action in the Baltic or defend against it? Given that the Baltic Sea is unlikely to be the arena for a decisive naval engagement such as Jutland sea power alone is unlikely to deter Russia. However, by making the Baltic Sea as contested a strategic space as possible and by forcing Russian maritime and amphibious forces into narrow lines of action and communications NATO and other Allied forces could increase the likely costs of such actions by attacking them from air, sea and land. One option would be for NATO to simply take Kaliningrad.

However, would Alliance leaders be willing to take such a decisive step? In a sense this is a similar dilemma to that which Jellicoe faced at Jutland when the High Seas Fleet turned away during the first major cannonade and Admiral Scheer sent his battered battlecruisers on the famous 'death ride' supported by destroyers in an effort to block the Grand Fleet. Jellicoe could have turned towards his weaker adversary to finish him off, but instead his wider strategic situational awareness, allied to his rational fear of a massed torpedo attack led him to decide to turn away, especially after the battleship *HMS Marlborough* was hit and severely damaged by a torpedo

In the twenty-first century Baltic Sea the ability of NATO forces to do damage to Russia forces therein, in which sea power would play an important but not decisive part, would be critical to deterring Moscow from contemplating any aggressive action in the region. However, such a spoiler strategy would only be credible if NATO and other allies also re-established an all-arms force concept that clearly had the ability to disrupt all elements of the Russian all arms force currently under development by Moscow.

Such a posture would at the very least need to include an Allied ability to disrupt and continue to disrupt Russia's use of hybrid warfare in the run up to any conflict, by countering cyber-disruption, disinformation and destabilisation. Thereafter, NATO forces would need to be able to reinforce forward deterrence via forward presence in the air and on sea and

land close to Russia's borders, prevent Kaliningrad being used as a base for offensive operations by cutting off supply and re-supply of both personnel and equipment, act as effective first responders, and if needs be prepare for a longer war of attrition in which any space lost could be regained over time and distance.

The Future of European Sea Power

Sea power in the Baltic Sea also raises a wider question about the future of European sea power more generally. In July 2014 Her Majesty Queen Elizabeth II launched the first of two 72,500 ton aircraft carriers, *HMS Queen Elizabeth*. The direct descendant of the 15 inch gunned fast battleship new at the Battle of Jutland, the 'QE' only makes sense as the core of a NATO, EU, and/or coalition task group. Under the concept of carrier-enabled power projection (CEPP) by 2023 the Royal Navy would be able to put to sea a powerful British task group capable of both projected strike and strategic amphibiosity. However, given the future Royal Navy will only possess (at best) 19 principal surface craft, supported by six Astute-class nuclear attack submarines, the operation would be limited in scope and would necessarily sacrifice sea control and sea presence in favour of some form of littoral-plus operation.

However, the 'QE's do fit into a bigger strategic picture if seen in the context of emerging European naval power, with a particular focus on NATO's northern flank in an emergency (in which case the second carrier *HMS Prince of Wales* would also be deployed). No British government would ever risk the two carriers in the Baltic Sea, nor would the French, Italian or Spanish governments risk their smaller carriers either, although how and for how long they would operate to effect in the Mediterranean in the event of hostilities with Russia is a moot point.

However, in an emergency British sea power would undoubtedly be operated in concert with the French, Dutch, German, Norwegian, Belgian and other navies acting as part of a big European operating picture and in conjunction with the United States Navy. The aim would be to disrupt Russian operations across a strategic theatre that given Russian planning would stretch from the High North to the Mediterranean via the Baltic Sea. It is therefore in that strategic picture that sea power in the Baltic Sea must ultimately be seen.

However, to render such power credible there would need to be a European sea power concept of which the Baltic Sea is a part. Such a concept would also need to go far beyond such initiatives as the EU's European Maritime Strategy, as it would require a warfighting component that was both NATO and EU actionable. It is for that reason that European sea power is rendered 'organically joint' as soon as possible, and that such initiatives as the Combined Joint Expeditionary Force, Joint Expeditionary Force and framework nation initiatives are navalised and rendered more credible both as a deterrent and defence force, perhaps through the creation of a European Combined Joint Warfighting Force.

Critically, stand-off carrier-enabled power projection will be vital to deterrence, influence and effect, and not just in the Baltic Sea. Again, in the twenty-first century technology, capability and capacity will mean that no force will exclusively own any domain and yet all forces will need to be credibly effective across all seven domains – air, sea, land, cyber, space, information and knowledge. In such an operating environment navies will be 'a' if not 'the' essential platform for the projection of power and influence into those domains – both as generator, command hub and/or intelligent client.

The Baltic Scenario

It is 2020. The Russian economy has suffered repeated energy shocks and the domestic position of President Putin has become vulnerable. Suddenly a crisis erupts in East China Sea involving key American allies and the US is forced to respond in force. After weeks of de-stabilisation, disinformation and deception power and information networks suddenly crash in the Baltic States and much of Eastern Europe. Alarming reports begin to appear of 'Little Green Men' at Riga, Tallinn and Vilnius airports. Military exercises underway in Kaliningrad and Belarus intensify and expand and the Kremlin begins to talk of NATO aggression and cites violations of Russian air, sea and land space, as well as cyber-attacks.

Russian air and sea forces seal off the eastern Baltic, whilst the Northern Fleet moves to threaten northern Norway, as well as Finland and Sweden. Russian land forces close the corridor between Kaliningrad and Belarus and begin to cross into the Baltic States to "restore peace and stability" and to establish a "peace buffer" between Russia and an "aggressive NATO". In the Black Sea and the Mediterranean Russian air and sea forces begin "aggressive patrolling" to "deter aggression" and Russian nuclear forces – both strategic and tactical – are placed on full alert.

In a national TV address President Putin tells the Russian people he is simply straightening Russia's "strategic defensive line", acting to prevent the "oppression" of Russian minorities, and removing a final "anomaly" that has threatened Russia ever since the end of the Cold War. Shortly thereafter Putin rings German Chancellor Merkel (surprisingly still in power) and tells her he had no alternative and does not seek a wider war with the West. He apologises for the ten American, five British, five French and five German servicemen and women killed during Russia's lightning advance. He also offers compensation to their families and his "sincere condolences", the immediate return of all those captured in what is now the Occupation Zone, and free gas supplies to several EU member-states as a mark of his *bona fides*. Putin also calls on remaining NATO forces in what is rapidly dubbed the "Baltic Pocket" to surrender with the promise that they will be given safe escort back into "NATO territory". At home President Putin nationalist credentials are now on a par with Alexander Nevsky and Peter the Great.

In effect, Putin's fait accompli confronts President Hillary Clinton and Chancellor Angela Merkel the same choice Britain and France faced in 1939 over Poland – space for time. Having been unable to defend the Eastern Baltic and the Baltic States does NATO really want to go to war with nuclear Russia to free them? After all, in spite of recent reinforcements in Europe US forces are too overstretched to respond in force in both Asia-Pacific and Europe at the same time, and emaciated by years of cuts NATO Europeans are militarily too weak and politically too divided to act as effective first responders. Would it not be best for all concerned to impose more sanctions on an already economically-instable Russia and negotiate the best terms possible for the people of the Baltic States now again under Russian rule?

Your call!

Sea Power in the Baltic Sea

There was a supreme irony about Jutland in that neither commander really wanted to fight the battle. Admiral Scheer only set out from Wilhemshaven because he was firm in his belief that he would only encounter and with luck destroy Beatty's battlecruisers. He had absolutely no intention of encountering let alone fighting the massed dreadnoughts and super-dreadnoughts of the Grand Fleet. His first task was to ensure the preservation of the High Seas Fleet as a fleet-in-being in order to tie down the huge resources the British

Empire was pouring into keeping the Grand Fleet at Scapa Flow in the Orkney Islands. Had Scheer been annihilated on that cold, grey May day a century ago Britain would have been free to bring more pressure to bear on Turkey, and to transfer resources from the Royal Navy to the Royal Flying Corps and the British Army on the Western Front. After all, the enormous, and from both a British and German viewpoint, catastrophic Somme offensive began just over a month later on 1 July, 1916. Moreover, it would have freed the British to again try a major amphibious operation of the sort they had embarked upon at Gallipoli in 1915, although hopefully with more success. The British were known to be thinking about a possible landing in the Netherlands at one point during war. Admiral Jellicoe understood that his first duty was to preserve the blockade of Germany and ensure enough resources were in place to keep Britain's sea lines of communication open, particularly given the threat posed to Britain by German U-boats.

It is the need to see sea power in the broadest political sense where sea power at Jutland and in the Baltic Sea align. Sea power in the Baltic Sea, be it from a Russian or an Allied viewpoint, must be seen from a much wider strategic perspective than merely the Baltic Sea. Even if, that is, Russia's limited war strategy could well be focused in and around the Eastern Baltic. Preventing Russia establishing both sea control and sea presence must thus be the primary mission of Allied sea power in the Baltic as it is very unlikely there would be another Der Tag!

And yet a planner can never be quite sure. For as Machiavelli once wrote; "All courses of action are risky. So prudence is not in avoiding danger (it is impossible) but calculating risk and acting decisively. Make mistakes of ambition, not mistakes of sloth. Develop the strength to do things, not the strength to suffer".

In memory of the officers and men of both the Royal Navy and the Imperial German Navy who lost their lives at the Battle of Jutland, 31 May-1 June, 1916. Once enemies now firm friends and allies.

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Maritime Security and Sea Power: A Finnish-Swedish Perspective on the Baltic Sea Region

Stefan Lundqvist

Abstract

Recent European and U.S. maritime security strategies are characterised by addressing the multidimensional threats to the maritime domain that result from states' increased dependency on seaborne trade and maritime resource exploitation. Stefan Lundqvist notes, however, that in the Baltic Sea – as in the Asia-Pacific region – there is a continuing need for navies. This is due to certain regional powers pursuing strategies that include the wielding of sea power in ways that violate international law, heightens the risk of accidents and threatens international security. Given the hybrid character of the threats, he recommends that states in the region opt for a co-operative and comprehensive regional approach to maritime security – like that of the U.S. in the Asia-Pacific region.

Introduction: The Dual Character of Recent Maritime Security Strategies

The increasing importance of maritime security is highlighted by recent releases of maritime security strategies: *the UK National Strategy for Maritime Security in* May 2014 (UK Gov 2014); the *EU Maritime Strategy* in June 2014 (EU Council 2014); and *The Asia-Pacific Maritime Security Strategy: Achieving U.S. National Security Objectives in a Changing Environment* in August 2015 (U.S. DoD 2015). These strategies focus on protecting national interests, maritime trade flows and maritime resource extraction, while securing blue growth opportunities. They all apply a wide conceptual framework for maritime security, resulting in calls for regional and global maritime governance. This concern for maritime management is closely linked to the economic dimension of security. Environmental security is also addressed, bringing into focus the need for clarification of the environmental impact of some activities associated with 'blue growth'.

Traditional sea power considerations, however, are also at the heart of some of these strategies. Evidently, conflicting geopolitical interests now tend to superimpose low level threats such as Human Smuggling, Drug Smuggling, Piracy and Illegal, Unreported and Unregulated Fishing (IUU). With regards to the U.S. rebalance to the Asia-Pacific region[4], it is worth noting that the U.S. Coast Guard operates independently to foster maritime security in island states such as Micronesia and Melanesia, while conducting integrated operations with the other Sea Services in bi- and multilateral co-operation in the South China Sea (Lundqvist 2015a: 23; U.S. Navy, U.S. Marine Corps and U.S. Coast Guard 2015: 13).

Some key aspects of the U.S. *Asia-Pacific Maritime Security Strategy* deserve to be highlighted. Firstly, promoting maritime governance is closely linked to the U.S. effort to further liberal norms and free trade. In this endeavour, the U.S. Coast Guard has taken on a leading role in the Caribbean, Africa and Southeast Asia, supported by the U.S. Navy and the U.S. Marine Corps (Lundqvist 2015A: 18-25; U.S. DoD 2015: 25-29; U.S. DoD 2014: 17). Addressing local maritime security challenges, rather than global ones, have contrib-

[4] The U.S. rebalance – launched in 2011 as a 'pivot' – to Asia initially focused on military strategic initiatives but broadened in late 2012 to also include the economic and diplomatic dimensions subsequently emphasised by the Obama administration. For the launch of the initiative, see Clinton (2011). For a thorough account on its development, see Sutter (2015: 69-107).

uted to making states such as Indonesia and Malaysia more willing to co-operate politically, economically and militarily with the U.S., but also to making Vietnam a U.S. strategic partner.

Secondly, as widely recognised, China has gradually been assigned the role of a U.S. rival, influencing the direction of U.S. strategy and capability developments (Lundqvist 2015a: 17-25). China uses the assets of its five maritime law enforcement agencies to protect its national interests, such as fishing and maritime oil exploitation. Around disputed artificial islands, to which it claims indisputable sovereignty, China claims territorial waters and an Exclusive Economic Zone (EEZ). In some cases, Air Defence Identification Zones (ADIZs) have been declared. Notably, China considers its national jurisdiction applicable in its EEZ. The U.S., for its part, has been enforcing its right to conduct military activities on and above the high seas through its Freedom of Navigation (FON) programme. The sailing of *USS Lassen* within 12 nautical miles of five disputed islands of the Spratly group on 27 October 2015 resulted in fierce Chinese protests (Lundqvist & Widen 2015B: 42).

Although a U.S.-China military confrontation over U.S. FON operations is unlikely, there is a risk that minor incidents could result in military escalation. The worst case scenario could involve Chinese Anti-Access/Area Denial (A2/AD) capabilities being put to the test against U.S. All Domain Access capabilities and its *Joint Concept for Access and Maneuver in the Global Commons*. So far, both protagonists trust their own capabilities. Notably, China's intensified construction activities on disputed reefs and islands, and growing anti-access capabilities – combined with the effects of fiscal restraints on U.S. naval capabilities – make U.S. naval operations in the South China Sea increasingly risky (Denyer 2016; Tiezzi 2015).

The Maritime Security Environment in the Baltic Sea

Let us apply these insights from the Asia-Pacific region to the Baltic Sea region, where one of the coastal states exhibits striking similarities with China. The Baltic Sea, widely agreed by geographers to be delimited in the west by a line between Drodgen and Langeland, is one of the world's largest inland seas with brackish water by surface area (Nationalencyklopedin 2016). Its shallow and narrow connection to the North Sea is particularly sensitive to disturbances. The Drodgen Sill is only 7 metres deep, which limits access to the narrow Øresund strait, while the depth of the Darss Sill in the Belt Sea area amounts to 18 metres. A disruption of shipping here would have far-reaching consequences for the seaborne trade of the region's coastal states.

We must also consider some key geostrategic areas in the Baltic Sea. The usefulness of the Island of Gotland – located in the centre of the Baltic Sea – is apparent if we consider an intervention in support of the Baltic States (Aronsson 2015). The demilitarised Åland archipelago is of particular legal concern with regards to the ever closer naval co-operation between Sweden and Finland (Lundqvist and Widen forthcoming). For Finland and Russia, the Gulf of Finland is of critical strategic importance. The widely varying topography of the Baltic Sea bed influences some of the current maritime security challenges. Its maximum depth of 459 metres is found in Landsortsdjupet, while Gotlandsdjupet, with a depth of 239 metres (Nationalencyklopedin 2016), has been the scene of conflicting interests in the last two years. The Baltic Sea is an important area for Russian submarine trials (c.f. TASS 2015) and Gotlandsdjupet, situated on the high seas, is often used for deep water tests.

A range of factors need to be taken into account when assessing the region's security policy environment (Lundqvist/Widen 2015A:

64, 65). Finland, Estonia, Latvia, Lithuania and Poland represent the coastal states separating the Schengen Area from Russia. Furthermore, Russia's ongoing remilitarisation of the Kaliningrad oblast, sandwiched between Poland and Lithuania, raises particular security policy concerns. This development contrasts sharply with the special economic status which Russia assigned Kaliningrad in 1996. Notably, this resulted in increased trade with the EU and improved economic growth, which peaked in 2007 (BBC News 2015). Apparently, the hopes for a Russia that would move closer to Europe, at least in terms of tourism and trade, were well justified at this time.

Although Russia's Northern and Pacific Fleets have priority over its Baltic Fleet, which is based in Russia's only ice-free European port (Baltiysk) and in Kronstadt, it will be reinforced with new vessels and weapon upgrades through the ongoing 2011-2020 State Armament Programme (Carlsson 2012: 7, 8). Although Russian naval shipbuilding plans have been plagued by delays and cost over-runs, partly as a result of EU sanctions, three additional Steregushchy-class multipurpose stealth corvettes have been commissioned into the Baltic Fleet since 2011 (ONI 2015; Gorenburg 2015).

Uninterrupted commercial sea transport is vital to the coastal states of the region. The sea lanes of the Baltic Sea are trafficked daily by 2000 large vessels[5] carrying some 40 per cent of Swedish goods (Havsmiljöinstitutet 2016) and some 15 per cent of the world's container traffic. Notably, this shipping also carries almost 70 per cent of Russia's container throughput, including that transiting via Finland and the Baltic states, giving the Baltic Sea basin a dominant role in Russian container traffic[6] (Lorentzon 2014: 14).

The shallow Baltic Sea – one of the largest bodies of brackish water on earth – is overstretched. Its marine ecosystem consists of unique flora and fauna which are vulnerable to overuse and pollution (EEA 2015). Shipping, fishing, energy cables and pipelines, tourism and recreation; the Baltic Sea has many uses today and the competition for marine areas continues to become more intense (WWF 2010). Offshore wind farms and oil rigs, gas pipelines, power and communication cables are being laid at many places on the sea floor, while shipping routes, boat traffic, fishing and other human activities already affect the same areas.

This phenomenon is well illustrated by the 48 turbines of the densely configured Lillgrund offshore wind farm opened in 2008, which produces some 330 Gigawatt Hours of electricity per year resulting from the strong, constant winds in the area (Vattenfall 2015). Notably, the *Drogden* and *Flintrännan* navigational fairways border the wind farm to the West and Northwest, while the navigational fairway *Lillgrundsrännan* borders it to the East. To complicate the picture, one of the Baltic Sea's 174 Marine Protected Areas (MPAs), under the Helsinki Convention (HELCOM), borders the area to the south (HELCOM 2013). This area – the *Bredgrund* – also constitutes a so-called Natura 2000 area, sensitive to pollution resulting from accidents at sea. In addition, the area is considered to be of marine archaeological importance (Carneiro and Nilsson: 72, 73).

Interest in offshore oil exploration is growing in the Baltic Sea region, and exploratory drilling has shown there is more oil to extract.

[5] i.e. vessels equipped with Automatic Identification System (AIS).

[6] In comparison, the share of the Far Eastern Basin was approximately 20 per cent in 2013, while the Black Sea Basin accounted for 10. The twin terminal container port in St Petersburg is the largest in the Baltic Sea Basin.

Currently, there are four oil platforms in the Baltic Sea, all of them located in the south-eastern part of the region in the oilfields of *Kravtsovskoye* and *B-3* (WWF 2010). Three of the platforms are Polish and one is Russian. The reserves in these fields are estimated to last until 2030 or longer. Here, we must also bear in mind that large sea areas off the coasts of Poland and Lithuania are MPAs and *Natura 2000* areas (HELCOM 2013).

Nord Stream is the world's longest (1,224 kilometres) sub-sea gas pipeline and has been controversial from political, environmental and strategic perspectives since the outset. Inaugurated in 2011, its capacity is equivalent to about ten per cent of the consumption of natural gas in the EU (Reuters 2015). In June 2015, Gazprom, Shell Oil, the German company E.ON and the Austrian company OMV signed a preliminary agreement to build another twin gas pipeline – Nord Stream 2 – in the Baltic Sea, placed parallel to the existing Nord Stream pipeline (Zhdannikov and Pinchuk 2015). Thus, Russia aims to double its gas deliveries through the Baltic Sea, thereby reducing its exports via Ukraine and Poland. This project is significant for European energy security and has security policy implications because it will increase some of its member states dependence on Russian gas. In November 2015, Gazprom sought to mitigate these concerns by announcing that its stake in the new project will be reduced from 51 to 50 per cent, thus equalising EU-Russian ownership (Nord Stream 2 2015).

The seabed of the Baltic Sea is also being increasingly used for placing cables for high-voltage power transmission. On 6 February 2014, EstLink-2 was handed over to its owners and made available for commercial operations, boosting the existing power transmission capacity between Finland and Estonia (Fingrid 2015). Consequently, a bottleneck in the Baltic region's power connectivity with the rest of the EU was removed.

These kinds of exploration activities also face risks from previous and current military activities. In the Baltic Sea, the remains of an estimated 170,000 mines and unexploded ordnance (UXO), laid since 1855, need to be taken into consideration when planning activities on the seabed. There are also large amounts of chemical warfare munitions dumped in certain areas of the Baltic Sea. Accordingly, the Nord Stream project faced risks posed by the remains of both conventional and chemical munitions in dumpsites east of Bornholm and south-east of Gotland (Nord Stream 2009).

Urgent calls for maritime governance and management in Sweden since the millennium must be seen against this backdrop, a tendency also evident in the U.S. and the EU. As in the U.S. (Lundqvist 2015a: 24), the Swedish demands emerged from the gradual incorporation of broader views in its national security policy, and its increased economic dependence on international sea-borne trade.[7] In this conceptualisation of maritime security, navies only take supporting roles, while law enforcement agencies assume the lead.

The Role of Russia: Inducing Multi-sectoral Maritime Insecurity

The Russian quest for a new security order, announced by Vladimir Putin in his infamous speech at the *43rd Munich Conference on Security Policy* in 2007 (The Washington Post 2007), has a territorial dimension. As increased geopolitical tensions lead to intensified naval exercise activity in the Baltic Sea, we can expect continuing conflicts and frictions between Russia's military interests and neighbouring states civilian interests. If Russia persists in pursuing the hybrid warfare strategy salient in its seizure of Crimea and other

[7] For a summative portrayal of Sweden's development into a competitive export-oriented state in the wake of the recession of the early 1990s, see Sutherland (2015).

parts of Ukraine, states in the Baltic Sea region will be forced to manage coercion or threats of violence – or the exercise of graduated violence – in a context of strategic peace. The perpetrator might be hidden or use proxy elements to influence various security sectors of other states.[8] As a result, Baltic Sea coastal states must prepare for action within a framework of continuous crisis, the character and intensity of which are set by Russia.

In light of Russia's current behaviour, the need for capable navies returns. It does not, however, entail a return to the Cold War concept. To manage a maritime security environment facing a broad spectrum of threats, where the military security sector has primacy but with complex links to other security sectors, consideration must be given to a co-operative and comprehensive approach where the military is allowed to lead. Managing threats to today's intense shipping will be a demanding task.

Finland and Sweden perceive the Russian conduct as 'challenging' and 'aggressive'. In fact, Russia is seen as the main – and highly capable – source of maritime insecurity in the Baltic Sea region because of the way it wields its sea power (Lundqvist and Widen 2015a: 63, 64). Therefore, maritime security is given a more traditional interpretation by the region's coastal states than that presented in the March 2015 U.S. maritime strategy (Lundqvist and Widen 2015b: 44). Here, essential functions such as All Domain Access, Deterrence, Sea Control and Power Projection are interlinked with bilateral efforts to provide maritime security.

Finnish and Swedish media frequently report border infringements and 'harassments'. Finland and Sweden have noted an increase in Russian[9] airspace violations since 2014. The Swedish Supreme Commander has highlighted the risk of collisions with Russian aircraft, following incidents in 2015, when they operated with transponders turned off, and the 2014 incident in which a Russian fighter jet manoeuvred 'provocatively close' to a Swedish signal intelligence plane. (Yle 2015, Holmström 2015). In January 2016, two Swedish fighter jets intervened to break off the hot pursuit of a Swedish Airborne Surveillance Control (ASC-890) aircraft by a Russian SU-27 off Bornholm (Gummesson 2016). In August and September 2014 and April 2015, the scheduled activities of the Finnish research vessel M/V *Aranda* in *Gotlandsdjupet* were prevented by Russian warships and helicopters, because of alleged interference with unannounced Russian submarine activities (Nygårds 2015). The second of these incidents prompted a response by two Swedish fighter jets.

In October 2014 the Swedish Armed Forces launched a week-long search operation for what was widely assumed to be a Russian submarine in the archipelago off Stockholm (Gummesson 2015a). The final analysis concluded that Swedish internal waters were, 'beyond all reasonable doubt', violated by a foreign submarine. This incident drew attention to the apparent lack of anti-submarine warfare (ASW) helicopters in the Swedish Armed Forces. On 27 January 2016 this capability shortcoming was set to be remedied, as the first of nine navy version NH 90 helicopters was delivered to the Swedish Armed Forces (DI 2016).[10]

Energy security is increasingly important in the Baltic Sea region, which is why Sweden assigned high priority to completion of the NordBalt sub-sea connection between Sweden and Lithuania as planned (Swedish Grid 2015: 5). The transmission capacity of this

[8] For a post-structural approach to studying the concept of multi-sectoral security, see Buzan et al. (1998).

[9] N.b. as well as aircraft of other origin.

[10] The Swedish Armed Forces has ordered a total of 18 NH 90 helicopters, which are to be delivered until 2020.

energy link – amounting to 700 Megawatts – enhances the Baltic countries' supply security and contributes to connecting Nordic and European electricity markets. A Swedish Member of the European Parliament (MEP) dared to describe the December 2015 inauguration of two high-voltage power cables and a fibre-optic telecommunications cable as a 'victory' for Swedish security policy, depriving Russia of an instrument of power (Eriksson 2015).

Russian naval vessels interfered with NordBalt cable laying work in spring 2014 and on four occasions in March and April 2015 (Gummesson 2015a). The cable laying vessel *M/V Topaz Installer* and the surveillance ship *M/V Alcedo* were either ordered to alter course, or to leave the area for periods up to 10 hours due to alleged Russian naval exercises in the area. The President of the Swedish National Grid, Mikael Odenberg, pointedly commented on the August 2015 NordBalt incidents in the Lithuanian EEZ, stating that: 'I see this as a demonstration of the Russians behaving in a manner someone might, if they mentally considered it to be their own economic zone, and not Lithuania's. In identical formal written notes to Russia in April 2015, Sweden and Lithuania expressed their 'deep concern' about the repeated interference, disrupting peaceful shipping and economic activity in violation of the United Nations Convention on the Law of the Sea.

The written protests illustrate the harsh diplomatic tone that currently prevails between Sweden and Russia. In August 2015, Russia expelled a Swedish diplomat from Moscow. Swedish defence attachés in Moscow have reportedly had problems performing their duties, being denied opportunities to visit military units and attend normally open briefings by Russian authorities.

The general need to protect submarine communication cables – such as the one laid by the NordBalt project – was highlighted in October 2015. The *New York Times* then reported on American and Norwegian concerns over the ongoing Russian survey of transatlantic communication cables by submarines and the ocean survey vessel *M/V Yantar* (Sanger and Schmitt 2015). Admiral Mark Ferguson, Commander U.S. Naval Forces Europe, reportedly considered these operations as part of Russia's emergent hybrid warfare strategy. Moreover, analysts (c.f. Braw 2015) have highlighted the risk of Russian A2/AD capabilities being imminently established in the Eastern Mediterranean. Such capability development is also discernible in the Baltic Sea Region, through Russia's investment in improved air defence capabilities, and its deployment of *Iskander* missiles to the Kaliningrad exclave since 2013.

Responses by the U.S., NATO, Finland and Sweden

Current maritime security challenges are being addressed through various regional cooperation initiatives (Lundqvist and Widen 2015b: 43-45). To a large extent, they centre on the security of Estonia, Latvia and Lithuania. The U.S. launch of *Operation Atlantic Resolve* in June 2014 –part of its *European Reassurance Initiative*, resulting in a series of rotational deployments – is particularly important, augmented by the co-ordinated initiatives of NATO. The fact that NATO territory is potentially threatened in the Baltics is also taken into careful consideration by Finland and Sweden. The 2015 U.S.-led *BALTOPS* exercise – aimed at demonstrating U.S., NATO's and partners' resolve to defend Poland and the Baltic states through training in amphibious landings, airlifts and assaults in Poland, Sweden and Germany – has reinforced the cooperative dimension. The use of U.S. B-52s has also forged a link between the U.S. Strategic Command and regional exercises with NATO.

However, shared maritime domain awareness (MDA) constitutes the baseline for providing maritime security. Accordingly, Sweden and Finland operate the bilateral Sea Surveillance Co-operation Finland-Sweden (SUCFIS) interface for exchanging target information in the Northern Baltic Sea between their autonomous maritime surveillance systems (Lundqvist and Widen 2015a: 66, 67). SUCFIS, established in 2006, enables exchange of secret target data. They have also taken on lead roles in the wider, unclassified, Sea Surveillance Co-operation Baltic States (SUCBAS)[11] and the EU Maritime Surveillance (MARSUR) co-operation. Quite tellingly, Russia was invited to join the SUCBAS co-operation, but has consistently refused to participate. Nevertheless, the geographical scope of the SUCBAS co-operation has grown to include the Baltic Sea's approaches by the UK becoming a fully-fledged member in March 2015 (SUCBAS 2015).

To cope with the current challenges, Finland and Sweden seek to merge their capabilities to create synergies and to send resolute diplomatic signals. Notably, their navies also strive to ensure interoperability at the higher level of the conflict spectrum by operating in full accordance with NATO standards. The 'flagship project' of their co-operation – established within the Nordic Defence Cooperation (NORDEFCO) framework – is the Swedish-Finnish Naval Task Group (SFNTG), composed of task units for surface warfare, mine countermeasures, amphibious operations and logistics (Lundqvist and Widen 2015b: 44). It will be led by a Task Group Commander supported by a bi-national staff.

Finland and Sweden are currently implementing their vision document for the SFNTG 2023, outlining a two-tiered objective, to: i) reach *Initial Operational Capability* to conduct *Surveillance and Reconnaissance Operations* in 2017; and ii) form a *standing* Task Group with *Full Operational Capability* to conduct operations including *Protection of Shipping Operations* in 2023 (Lundqvist and Widen, 2015a: 70). The higher level of ambition will require a high degree of interoperability in their command and communications systems. Mutual trust and cultural understanding is being built through exchanges of officers and non-commissioned officers at all levels of command. So far, the project has been successful and the 2017 objective is well within reach. The parties, however, face legal challenges in achieving the far more complex 2023 objective, centring on the need to use force in each other's territorial waters under peace conditions to counter the Russian threat.

To achieve these capabilities on time, an ambitious bi- and multilateral exercise programme is scheduled. The multilateral dimension is mainly – although not exclusively – being pursued within a NATO framework (Fin MoD 2015: 58), reflecting the two states' ever closer defence ties with NATO (O'Dwyer 2015a). Sweden has assigned air force and naval units to the NATO Response Forces Pool (RFP) since 2014, while Finland[12] and Sweden jointly assigned their bilateral Amphibious Task Unit in 2015 (Holmström 2013). Of particular interest to the establishment of the SFNTG is Sweden's assignment of two Visby-class multi-purpose corvettes and Finland's assignment of a supply ship to the NATO RFP in 2017 (Larsson and Selling 2015: 147; Fin MoD 2015: 60). The main drivers for the Swedish and Finnish assignments are the opportunity to participate in NATO's exercise programme – in which the *Trident Juncture* exercise series stands out – as well as its systematic evaluation and feedback programme aiming at certification of military units.

[11] Member states co-operate at any of the three levels of ambition offered (see: http://sucbas.org/levels/).

[12] As early as 2013, Finland assigned the *Utti Jaeger Regiment*'s Special Operations Unit to the NATO RFP (MoF to NATO 2013).

Notably, Finland and Sweden will be involved in planning certain NATO Response Force (NRF) Very High Readiness Joint Task Force (VJTF) exercises and will gain access to NATO communication systems during their execution (Larsson and Selling 2015: 147). In essence, participation in the NRF is expected to bolster development of areas of operational effectiveness and interoperability with NATO, which cannot be obtained on a national basis (Fin MoD 2015: 60). The quid pro quo is that the littoral expertise of the Swedish and Finnish navies is envisaged as 'enhancing the capabilities of the [NRF] to respond to [the] emerging security challenges posed by [inter alia] Russia' (Larsson and Selling 2015: 147; SHAPE 2015).

Sweden is seeking bilateral co-operation beyond that with Finland. Accordingly, in October 2015 the Swedish Government mandated its Armed Forces to negotiate bilateral agreements with the relevant authorities in Finland *and* Denmark to allow for the use of each other's ports for alternative basing of naval units in peacetime (Government Offices of Sweden 2015). Notwithstanding the bilateral dimensions in Swedish security policy initiatives, the ability to act with NATO remains a recurring theme. In October 2015, when summoned by the Swedish Parliament's Defence Committee following the disclosure of a classified memorandum, Defence Minister Peter Hultqvist clarified that he did not rule out Swedish participation in the UK-led NATO Joint Expeditionary Force (JEF) (Gummesson 2015b).

Reportedly, talks with 'Northern Group' – i.e. Germany, the Netherlands and the UK – government representatives had taken place, but no formal process was established. In 2017, the JEF will constitute NATO's VJTF, with readiness to intervene in the Baltic States within 48 hours. As highlighted by the BALTOPS 2015 exercise, Sweden's participation in such an enterprise might prove decisive, given its key geostrategic position.

Discussion

Maritime Security is increasingly important to the coastal states in the Baltic Sea region, which is why Sweden and Finland have taken leading roles in multinational co-operation on a range of issues, including sea surveillance. Here, considerations such as navigational safety, marine environmental protection and maritime spatial planning are complicated by Russia's challenging and aggressive military conduct. Notwithstanding the real threat that Russia poses to the three Baltic States – vulnerable to the kind of hybrid warfare that Russia is using in Ukraine – incidents involving Russian air or naval craft could well escalate into military violence. This concern was raised by NATO Secretary General, Jens Stoltenberg, during the *Nordic Defence Ministers' Meeting* in Stockholm 10-11 November 2015 (SvD 2015).

Although they are non-aligned, Finland and Sweden could preferably act in concert with NATO to protect the Baltic States and Poland. Needless to say, this would require their extended involvement in joint capability building, training and exercises. NATO's regional exercise programme, including the *Northern Coast* series, the 2018 *Trident Juncture* High Visibility Exercise hosted by Norway, and the U.S. *BALTOPS* series are already in place.

The Finnish-Swedish defence co-operation – spearheaded by their navies and founded on NATO standards and procedures – should not be seen as a political process isolated from the EU and NATO. Instead, their regionally focussed capability development is being pursued in tandem with those of the EU, NATO. James J. Townsend, U.S Deputy Assistant Secretary of Defense for European and NATO Policy, stressed in February 2016 that the US Department of Defense refers to Sweden as a 'building block in the wall' to deter

Russia (Holmström 2016). Furthermore, Benjamin Hodges, Commander of the U.S. Army in Europe, declared that the U.S. wants to practice the deployment of key military equipment – such as Patriot missiles – from its bases in Europe to Sweden by air and sea (Stenquist 2016).

Conclusion

Fostering maritime security in the Baltic Sea region, with Russia's emerging hybrid warfare strategy, will require co-operative and comprehensive efforts, in which navies are assigned leading roles. Therefore, besides their multinational regional security engagement, Finland and Sweden have launched domestic programmes to improve the co-ordination of civilian and military agencies with responsibilities in the maritime domain. This involves legal challenges and the need for flexibility among their organisations. In order to reach a common and comprehensive end-state for the Baltic Sea region founded on the rule of law, states in the region must deepen their co-operation not only between navies but also between maritime law enforcement agencies. Stimulating challenges in terms of creating a dialogue to align disparate – and occasionally conflicting – civilian and military interests surely await military decision-makers, if policymakers task them with leading a comprehensive planning process aimed at securing the maritime domain.[13]

[13] For an argument on the educational and practical challenges inherent in implementing a truly comprehensive approach, using the NATO *Comprehensive Operations Planning Directive* (COPD), see Lundqvist (2015B).

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The Baltic Sea and Current German Navy Strategy

Sebastian Bruns

With the deteriorating relations between the West and Russia in the wake of Crimea's annexation and the hybrid war in Eastern Ukraine since early 2014, the Baltic Sea is suddenly thrust back into the spotlight of naval planners, policy analysts, and students of strategic geography alike.[1] This article lays out some principles of looking at the Baltic Sea through the lens of the German Navy, which – while busy conducting a host of maritime security operations (MSO) in such far-flung places as the Horn of Africa, the coast of Lebanon, and the Central Mediterranean for more than two decades – finds itself returning conceptually to one of its home waters. It was the Baltic Sea and related military contingencies that dominated Germany's naval DNA during the Cold War. Operating in the Baltic Sea was a fundamental part of the German *Bundesmarine* (Federal German Navy) coming-of-age. In fact, some of the legacy platforms still operated by the German Navy stem from an era that was entirely focused on the shallow and confined waters between Jutland, Bornholm, and farther east.

Since 2014, Germany finds itself in need to return to the Baltic Sea: operationally, conceptually, and strategically. However, with a smaller navy increasingly stretched for resources, manpower and vessels, Germany cannot afford the luxury of ignoring other maritime security focus areas of the world worthy of a more expeditionary navy. This spells hard choices for the German Navy and its political masters who have depleted many maritime resources while simultaneously expanding the naval portfolio. To underline the conceptual reorientation that this strategic challenge demands, this essay first sketches what characterizes this 'third phase' of the German Navy (the first phase being the coastal/escort West-German Navy period from 1956 to about 1990, the second phase the expeditionary period from 1990 to about 2014). Second, the piece will discuss a few of the current political dynamics as they relate to naval and political relationships in the Baltic Sea in particular and the German Navy in general. Third, this chapter addresses some of the fundamental naval-strategic shortcomings that put a coherent and believable strategic approach at risk. Fourth and finally, a handful of policy recommendations are provided.[2]

Three Phases of the Modern German Navy

To put the recent challenges to the German Navy into perspective, just as the service is celebrating its 60th anniversary, it is instructive to briefly touch upon some of the conceptual and intellectual frameworks that govern German maritime, and more focused, naval strategy. Problems with periodization aside, it is helpful to frame the strategic evolution of the German Navy and how it is intellectually

[1] A selection of further reading (of only the very recent analyses) includes Lucas, Edward (2015), "The Coming Storm. Baltic Sea Security Report", Centre for European Policy Analysis (CEPA), Washington, D.C.; Lundqvist, Stefan & Widen, J.J. (2015), "The New US Maritime Strategy. Implications for the Baltic Sea", *The RUSI Journal*, 160:6, pp. 42-48; Kramer, Franklin & Nordenman, Magnus (2016), "A Maritime Framework for the Baltic Sea Region", Atlantic Council Brent Scowcroft Center on International Security, Washington, D.C.

[2] This chapter is based on a presentation given in Arlington (Virginia), United States, on 21 March 2016. The author wishes to acknowledge the Center for Naval Analyses (CNA), sponsor and facilitator of that roundtable discussion, for its support.

and conceptually approaching the return of the Baltic Sea as an area of responsibility.

In very broad terms, the 'first phase' of the modern German Navy – keeping in mind that the navies before 1945 officially hold no traditional value for the post-war service and are consequently not a point of departure[3] – ran from the inception of the *Bundesmarine* in 1956 to German reunification in 1990.[4] After the devastation of World War II and the demise of the Third Reich, only ten years passed until Germany once again fielded a military. Before the German flag was hoisted again on a warship, a handful of predecessor organizations existed for tasks such as mine-clearing, intelligence gathering, and border patrol. When the *Bundesmarine* came into being, it was a product of the emerging Cold War and the bipolar world order. There was considerable Anglo-American support after 1945, both covertly and openly, for a new German maritime defense.[5] In contrast to the grander aspirations of the decades before, the West German navy was limited to coastal defense (including mine warfare, submarine operations, and air defense) in the North Sea and the Baltic Sea realm. From the outset and bound by constitutional and political imperatives, the German navy fashioned itself as a territorial defense and alliance force with strict limitations on where and how to operate. Its geographic restriction was eased in the 1970s when missions such as convoy protection in the North Atlantic emerged and more trust was bestowed by NATO allies on West Germany and the modernized equipment which its navy fielded. From 1980, the Concept of Maritime Operations (CONMAROPS) integrated German posture in the Baltic Sea into the broader NATO-led maritime defense.

> "CONMAROPS highlighted the importance of containing Soviet forces through forward operations, of conducting defense in depth, and of gaining and maintaining the initiative at sea. CONMAROPS was based first on deterrence. Should deterrence fail, the strategy was designed to mount a defense far forward in order to protect the territory of the alliance's European member nations. The concept bracketed NATO's naval operations into five operational areas or campaigns: the Mediterranean lifelines, the eastern Mediterranean, the Atlantic lifelines, the 'shallow seas,' and the Norwegian Sea." (Børresen 2011: 99)

While increasing cooperation and temporary integration into the Standing NATO Maritime Groups (SNMG) became an integral part of the maritime mindset, Baltic contingencies still formed a key pillar of German strategic naval DNA. The fleet of diesel submarines, mine warfare ships, fast-patrol boats, anti-submarine and air warfare destroyers and frigates as well as naval warplanes reflected this.

The 'second phase' of the German Navy began with the transition from the Cold War posture and lasted for more or less a quarter of a century. The 1990-2014 timeframe was initially characterized by the absorption of the East-German Navy and a shrinking set of assets in the wake of a dramatically changing

[3] See Douglas Peifer (2002) for an interpretation which pushes back against the perception that there were little continuities from the *Kriegsmarine* in the post-World War German navies. Quite the contrary was the case.

[4] The East German *Volksmarine* (People's Navy) was disestablished in 1990 with much of its materiel decommissioned/sold; the majority of its officers and enlisted personnel were laid off. The service thus remains but an episode in German naval history without much resonance in its post-1990 DNA and is therefore not subject to deeper consideration for this article. For (German-language) introductions to the *Volksmarine*, see Siegfried Breyer/Peter Joachim Lapp (1985) and Ingo Pfeiffer (2014).

[5] See Bruns (2005) for an annotated bibliography of U.S. Navy influence on the development of the West-German navy for the 1945-1970 timeframe.

strategic environment. Real-world crises from 1990 onwards mandated a transition of the German escort navy on the fly to a more expeditionary force (Chiari 2007: 139). Consequently, the German Navy was no longer confined to waters in its near abroad. Instead, it practiced more diverse, but nonetheless challenging operations in the Mediterranean and the Persian Gulf (Bruns 2016a: 285-287).

Politically, the Baltic Sea, once a contested and disputed area between the East and the West, became a true 'NATO lake' with the accession of former Warsaw Pact member states to the North Atlantic Treaty Organization in 1999 and 2004, respectively. To address maritime security and safety challenges, a set of governance regimes was installed, most notably the Maritime Surveillance network (MARSUR) for maritime situational awareness and Sea Surveillance for the Baltic Sea (SUCBAS). The military integration along the Baltic littoral was complemented politically and economically by the expansion of the European Union into Central and Eastern Europe in the early 2000s.[6] In the absence of the very Cold War scenarios that the German Navy had practiced for until 1990, the Baltic Sea became little more than a 'flooded meadow'[7] – a site for training and testing, or a theatre of Partnership for Peace (PfP) initiatives with non-NATO members. The commercial use of the Baltic Sea rose significantly with an increase in maritime traffic (both cargo and passenger vessels) and a surge in exploitation of the maritime realm for energy purposes (such as offshore wind farms and gas pipelines), but that did not nearly require as much military attention on the part of Germany as it did in the years prior to the fall of the Berlin Wall. Coupled with the broadened mission set and the distance to the German Navy's post-Cold War operating areas, this mindset fundamentally shaped how the institution and its people thought about and practiced maritime strategy as a whole. To them, it was something that was designed to address expeditionary challenges in the Mediterranean, off the coast of Africa, or in the Persian Gulf, and nothing that dealt with the 'Fulda gap' equivalent at sea near Fehmarn. The Cold War generation of naval leaders and a new generation of officers schooled at fighting pirates, upholding embargoes, providing humanitarian assistance, or patrolling the sea lines of communication existed in parallel for a period of time, often utilizing the very same platforms that were originally designed for fleet-on-fleet tasks envisioned for a NATO-Warsaw Pact conflict. Whereas the warships and maritime patrol aircraft hardly changed, the German naval and maritime strategic horizon, and the public and political understanding of the role and value of the German Navy in the 21st century, did.

The 'third phase' began in the wake of Crimea's annexation and the Ukraine quasi-civil war in 2014. Since Russia's return to the world stage as a powerful actor willing to use military force rather indiscriminately for political ends, defying the Western model and conceptions about NATO-Russian partnerships, much has changed in threat perception. Spill-over effects into the Baltic Sea include Russian harassment of the three Baltic countries (Estonia, Latvia, and Lithuania) as well as Scandinavian allies, the reevaluation of all bilateral and multilateral political and economic relations with Russia, and a significant rearmament of the Kaliningrad exclave. Concurrently, the ever-smaller German Navy,

[6] The EU has fielded its own Baltic Sea Strategy which focuses entirely on environment and good governance aspects.

[7] The Baltic Sea is frequently referred to as little more than a flooded swamp, in particular by members of the German naval community. This affectional characterization is based in the shallow and confined hydrography of this particular body of water and the strategic geography it entails, making it a unique area for naval operations and the political use of sea power.

challenged by an unsustainable force structure trajectory, which has hampered modernization, readiness, recruitment, and operations, finds itself under significant strain.

The German Navy is not the only force which needs to refocus on the Baltic Sea, as Denmark and Sweden have also reduced many of their capabilities that they no longer regarded as necessary for their own maritime transitions since 1990. Still, the German Navy finds itself as the largest Western Navy in the Baltic Sea, despite the transfer of the naval bomber arm to the Luftwaffe in 1993 (and the loss of respective capability), the phasing out of the *Bremen*-class frigates since 2012, the scheduled decommissioning of the remaining fast-attack boats of the *Gepard*-class in 2016, and the shrinking of the submarine and mine countermeasures (MCM) force. At the same time, the German Navy is forced to refashion its contribution to German defense and national security. The upcoming White Book on German defense policy (the first since 2006), a new European Union global strategy due out this summer as well, and plans to update NATO's Alliance Maritime Strategy (AMS) of 2011 are the push factors that frame how the Navy must articulate its missions. Keeping in mind that strategic cultural change is very hard, if not impossible, to mandate, there are two capstone documents being planned /written to complement and operationalize the White Book. First, a dedicated top-level service vision dubbed *Dachdokument Marine*,[8] and second, a more focused naval operational strategy dubbed *Militärische Seefahrtstrategie*. The thrust of both documents is that the German Navy is no longer afforded the luxury of choosing their maritime focus areas; it must be both, a homeland and alliance defense force as well as a capable integrated regional power projection navy.

Current Baltic Sea Maritime Challenges

Such a shift of attention and focus is challenging. Until recently, German politics has been very consumed by mass migration from Africa and the Middle East. In fact, not one, but two naval missions (one in the central Mediterranean and one in the Aegean Sea) with significant German Navy participation speak volume to the size of the problem perceived by Berlin – although these missions are hardly what navies are built and maintained for.[9] Meanwhile, there is a larger sense in Berlin that the German Navy is overstretched and underfunded. Given its hollow force structure, the dire human resources situation in the wake of transforming the *Bundeswehr* into an all-volunteer force, and the strain of ever-longer deployments with increasingly overburdened warships, the need for improved strategic guidance and more resources for Berlin's 911-force of choice is evident.

For the time being, such political challenges cloud the deteriorating relationship with Russia over the Baltic Sea. Russia's intimidating actions are widely seen with a grain of salt within the security community, but the wider German public is hardly critical of the shift and fails to comprehend Moscow's motives as well as the complexities of international politics. A case in point was the recent 'buzzing' of the U.S. Navy's Arleigh-Burke-class destroyer *Donald Cook* (DDG-75) in international waters in the Baltic Sea. Susceptive to Russian and anti-American narratives, it was questioned why the U.S. Navy operated in the Baltic Sea in the first place.

German-Russian relations in the Baltic Sea realm are still fundamentally about economic ties, some with considerable personal invest-

[8] Full disclosure: This author has been part of the group that was tasked with conceptualizing and writing the drafts of that document.

[9] For a pledge to consider establishing an auxiliary navy to address low-end maritime missions (a European Coast Guard by another name), see Sebastian Bruns (2016b).

ment of high-ranking policy-makers like former chancellor Gerhard Schröder. The Northstream pipeline, which transfers Russian gas to Germany on the seabed, might offer a point of departure to exert political leverage on Moscow, but it also raises fears of a tainted German-Russian deal over Central European countries' national interests, as has happened in the past. For the German Navy, the Baltic Sea has lost little of its 'flooded meadow' characteristics, at least when it comes to potential naval missions in the area. Four of the five major German Navy installations (Eckernförde [class 212A submarine base], Kiel [home of Flotilla 1 and the Centre of Excellence for Operations in Confined and Shallow Waters], Neustadt/Holstein [damage control training facility], and Rostock [home of the naval command and home port to the largest German Navy surface combatants in the Baltic Sea, the corvettes]) are located here, but conceptual and strategic innovation in terms of smart power beyond good order at sea remain scarce.

German Shortcomings

There are a number of areas where shortcomings are evident, and these need to be addressed now. While it would be easy to simply ask for more money to be poured into the Army- and *Luftwaffe*-centric German defense budget, the more fundamental challenge is that of an intellectual kind. Little has changed from this 2013 assessment:

> "The German Navy's contributions to NATO's maritime roles fall mainly within the lower end of the operational spectrum. Germany's cruising navy provides little in the way of power projection but, for out-of-area operations, the fleet adds to alliance maritime security and cooperative security, and, though the sea-control capabilities resident in these platforms, it can contribute to collective defense." (McGrath 2013: 6)

The question that begs an answer then is just what role sea power plays for the government in Berlin, and just how the German Navy can provide the necessary options to the political decision-makers (including the respective price tags).

While Germany is lacking certain capabilities worthy of a medium-sized navy (such as the vaunted joint support ships capable of launching and supporting, amphibious operations from the sea), it is also lacking vocabulary for a more confrontational stance requiring hard-power capabilities on the one hand, and a clearer understanding of the roles and missions of naval forces on the other hand. One will be hard-pressed to find anyone in Berlin or Rostock who is war-gaming in earnest anti-access/area denial (A2/AD) scenarios in the Baltic Sea, or who is discussing with salience the naval side of deterrence and hybrid scenarios in the *Mare Balticum*. This is all the more discomforting because Germany has signed up to, but obviously not understood, NATO's Alliance Maritime Strategy. This document from 2011 contains language that should inform partner nations' naval outlook. The AMS mentions four areas for alliance naval activity: deterrence and defense, crisis and conflict prevention, partnership and cooperation, and maritime security. If one decides to focus on particular areas over others, such cherry-picking will amount in demonstrating a lack of coherence and conviction, which is both disastrous for the navy as a foreign policy tool, German standing, and for those Baltic Sea neighbors keen for alliance protection.

The challenge for any workable strategy is to prioritize. With finite resources, and certainly for a powerful country such as Germany, the task is to balance the force adequately so that it can do both. It needs to be able to conduct expeditionary operations under an interna-

tional EU, UN, or NATO mandate together with other navies (think: anti-piracy off the coast of Somalia, naval capacity-building such as in Lebanon), and also provide sustained territorial and alliance defense for and from the home waters. A flawed appreciation for strategy or an unwillingness to even think and act strategically is guaranteed to make such endeavors outright impossible. The objective is, to put it in the words of one analyst, "strategic flexibility and ambiguity of response" (Kofman 2016) against a changing strategic landscape in the Baltic Sea. The German government would be well-served to look into the NATO treaty, in particular Article 5, and make all efforts to provide adequate resources for its military to honor previous commitments. It would follow that the German Navy, which has all but lost its ability in many traditional naval mission areas such as anti-air warfare (AAW), antisubmarine warfare (ASW), and anti-surface warfare (ASuW), would require better intellectual and also financial preparation.

Window of Opportunity: A few Policy Recommendations

A popular saying notes that in the long-run, the pessimist may be proven right, but the optimist has the better time on the trip. In that spirit, there is a window of opportunity.

First, now is the time for a (broader) German maritime and a (focused) German Navy strategy. Self-evidently, these documents would need to carry the thrust of the government and in their scope and relevance not be limited to a particular service or department. They would also need to be de-conflicted with the White Book and with relevant emerging EU and NATO strategies, while also honoring commitments from previous national and multinational capstone documents. Such a German Navy strategy can focus on high-end design for its forces, extrapolated from its defined naval missions in support of Germany's security and defense policy.

Second, it would embrace temporary integration with its allies beyond the Standing NATO Maritime Groups (SNMG) to finally provide teeth to the concept of shared and pooled resources.

Third, low-end maritime security operations on the side would still be in the portfolio, but ships and aircraft would do these on the side, so to speak, rather than this being the chief strategic concern.

Fourth, it would address the intellectual gaps that have emerged in Germany on the role of naval forces as a foreign policy tool, speak on contemporary maritime scenarios such as hybrid or asymmetry, and provide a sense of direction for the navy. This would definitely strengthen the European pillar of NATO. A return to the 'bracketing' approach of CONMAROPS could serve to connect areas of alliance maritime interests.

Fifth, it would give the service and its political masters the sense that the maritime challenges of the 21st century are not entirely new. In fact, such a capstone document could address some of the constants of naval issues and initiate a hard look at recent (Cold War) history to address the dynamics of a forward-operating focus, and the role of maritime power for Germany.

Sixth, a capstone document would give allies (and opponents) the opportunity to read about what Germany is up to in the maritime domain. It would sketch avenues to engage with the German Navy. This could mean more exercises, also in the Baltic Sea and beyond such established annual events as US BALTOPS. Eventually, it would also provide a sense of direction for those countries in the Baltic who feel most threatened.

It should not come as a surprise that the Baltics are determined to defend against Russia, but they seek German leadership as a respon-

sible lead nation in the Baltic Sea area. Germany should take this seriously.

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Disruptive technologies and operations in confined water

Peter Roberts

"*I'm telling you right now, ten years from now if the first person through a breach isn't a fricking robot, shame on us. Assisted human operations, wearable electronics, making sure that our war-fighters have combat apps that help them in every single possible contingency. We can do this*." (Work 2015A)

Introduction

Whilst the spheres of science and technology, research and development, industry and military often coincide, few of their most loudly heralded prophecies come of age. It is rare that the greatest changes to fighting and warfare have been accurately forecast or employed correctly from the start. By contrast, ideas in themselves have transformed fighting, relations, states and global order; it could be argued that Reagan's Star Wars initiative was the ultimate example of this where no technology existed yet the concept itself was disruptive enough to fundamentally alter decision-making dynamics and the subsequent global order. Yet despite such facts, there appears to be a continuing obsession with disruption and technology, somehow relating these two themes together into a military-theoretical hypothesis that predicts the future of warfare – that technology can provide a competitive edge to protagonists through disruption(Brimley et al. 2013). There might be some truth to this, but to live up to the rhetoric would be difficult in normal environments:[23] yet for operations in confined waters, the issues are somewhat exacerbated and magnified, both in terms of technology being truly disruptive and – when it is – magnifying the impacts disproportionately.

This chapter will start by defining the terms disruption, technology and confined waters in order to bound the problem. It will then outline historical patterns of change based on recent research in the United States, in order to provide perspective on the hype that surrounds technological advances. A discussion follows on the key technological developments that have the potential to impact on military operations through the prism of compression (Kirsch 1995: 529-555)[24]. Finally, it will discuss what areas are likely to have the greatest impact in confined waters and why.

Bounding the issue

Disruption in terms of this paper relates to a radical alteration of the competitive dynamic between two belligerent forces. One can seek to disrupt an enemy and change his fortunes, or one can be subject to disruption. In western military terms, the subject of disruption in military operations is almost entirely discussed in terms of how – theoretically at least – technology can enable changes to your own fighting power, but tends not to fund projects that provide resilience against an enemy disrupting your own military system. This might in itself be a mistake. Viewing disruption as a one-way prism, and one consistent entirely of technology, is a flaw that will be addressed in the conclusion. Previous examples of disruptive technology in military operations are described by John France (France 2013) in

[23] For a political-military view on technology challenges in defence and security see Work 2015B.

[24] A thorough theoretical treatment of time-space compression that invokes the ideas of David Harvey and Henri Lefebvre to argue that the technologies that produce a "shrinking world" also permeate the contours of everyday life; that is, in Lefebvre's terms, the phenomenon is not confined to social relations but enters into conceived space as well.

Perilous Glory citing innovations from archery to armour as disruptive elements that changed the fortunes of war.

For the purposes of this discussion, the term 'technology' includes the domains of science, research and development. It is also defined as equipment – something that can be touched, used and exploited by fighting forces to gain competitive edge. It is unlikely that technological developments will provide entirely new domains that once delivered a competitive edge to states. Few believe that technology will provide the leaps and uncontested advantage previously provided by, say, submarines, air power, nuclear weapons, stealth, precision munitions or space (and one should note that the disruption provided by these factors was only temporal and rarely changed strategic outcomes of fighting campaigns). However, there is a growing group of influential leaders who think that harnessing computing power, machine-learning and data analytics could deliver similar, radical changes. Such thoughts are strongly espoused by the proponents of the US Third Offset Strategy (Martinage 2014), a concept that aims to deliver a military competitive edge by taking the "initiative so we do not lose the military-technological superiority that we have long taken for granted."(Hagel 2014). The focus of that strategy as originally outlined by Chuck Hagl, as US Secretary of Defense in 2014, originally related to four fields of development: robotics and autonomy, miniaturization, big data and advanced manufacturing (including 3D printing). Later work has focused on any technology enabled by innovative technology, but focusing particularly on human-led autonomy and human-robot teaming. Technology here is therefore considered in its broadest sense.

Military challenges are exaggerated and magnified in confined spaces – whether geographic or thematic. Here the discussion around such spaces focuses on the geographic boundaries. Tension, friction and timeframes are all compressed in a smaller battlespace, particularly when the speed of platforms, information and weapons has increased so markedly. Yet even in confined waters such as the Baltic Sea, there remain hidden spaces – such as the undersea domain near coastline of states – that defy even the most penetrating intelligence and surveillance systems. This opacity hinders situational awareness and understanding – the facets that NATO deems key to providing triggers for reaction, to queue readiness changes and the deployment of forces. This dynamic is further exacerbated because of the use of the same space by commercial actors (transport ships, research vessels, oil rigs and the like) that add complexity to the military picture, but are vital trade and economic enablers for all states. It is in such domains that the potential of new technologies will be seen most clearly, and their use as disruptive tools becomes magnified.

Compression – the shrinking of time and space – is a familiar theme to many readers and the subject of its own research discipline, but underpins the heart of any discussion into disruptive technologies in confined waters. These concepts are based on several preconceptions about the nature of change in the global environment.

Historical perspectives on change

The belief that the world is changing faster than actors can comprehend – and thus heralding disruption – is a theme that commentators regularly espouse, and that this is somehow new (i.e. Marsch 2014 and Guo, Liu 2013). However, Barry Buzan raised similar concerns in 1987 (Buzan 1987: 109). There are some similarities between this and the fashion in final throes of the twentieth century, to seek a military-theoretical hypothesis regarding the future of warfare: it was termed (in those days) the *Revolution in Military Affairs*

(Gongora and von Riekhoff 2000). Today, it appears that many leaders view the most recent set of challenges as new problems that require *transformation* as the only appropriate response. One cannot help be reminded of the vast amount of effort and money that surrounded Network Centric Warfare/Network Enabled Capability in the 1990s, an effort that appeared to fail to deliver the much discussed fundamental alterations to the way militaries fight. Yet, some twenty years on there are few Western martial forces that do not rely on the electronic domain, of shared situational awareness and constant connectivity to function effectively – indeed, few armed forces retain a real ability to operate when disconnected from the military network. This change in the way that militaries have chosen to fight might have had a grand design to start with, but the eventual alteration of capabilities and methodologies of fighting have evolved more slowly than originally envisaged. That is not to say that disruption in warfare cannot happen. As recorded by John France (France 2013), across history nations have found different ways of fighting that have confounded opponents bringing rapid gains and even strategic success. Change is one proven form of disruption. Modern, contemporary authors and strategists seem to believe that such disruption, acting for them, can only be delivered through technology in the future because that domain is changing so fast and so radically.

But such a view is not homogenous. Professor Robert Gordon (Gordon 2016) of NorthWestern University in the United States has published research that unpacks change and development since AD1 in an exciting new study of first-world powers. In brief, Gordon concludes that the annual rate of change since 1770 has been around 1.8%. Prior to that, change occurred at 0.06% per annum or around 6% per century. The annualised figure changed markedly between 1870 and 1970 to around 2.8%, a period that saw the greatest transformation in living and working conditions and productivity. Since 1970, the annual rate of change, according to Gordon's research, has reverted to the historic norm of around 1.7%, with one exception. The area of technology and communication had seen more impressive growth – to around 2%, but only for eight years. Thereafter the 'radical changes' in the sphere of technology have had no impact on overall global growth or change. Indeed, it could be that technology has been detrimental to change, proving a distraction from increasing actual productivity instead of aiding it. This is somewhat counter-intuitive but the research evidence is clear. Nonetheless, whatever the pace of change, the technology landscape is changing.

The changing technology landscape

Recent reports that have drawn together global industrial, commercial and government research and development programmes, alongside an academic assessment of the technology horizon, has noted six areas of greatest promise over the coming twenty years (Roberts and Payne 2016). These are: quantum computing, artificial or augmented intelligence (AI), context aware computing, synthetic biology, photonics and gravity sensing. However, as noted in that report, there remains an unpredictability in terms of forecasting technological maturity, and indeed to making judgements about the *fungibility*[25] of civilian technological developments into military usefulness that can deliver a competitive edge. The report also notes that for such technologies to have the level of expected impact, several assumptions must continue to be valid. The most critical of these is Moore's Law, which states that computer chips would

[25] The adaptability or transferability of one thing into another. For example, money has a high degree of fungibility into other products, fish does not.

double in power and reduce in cost every 18 months. This has been a stable and proven factor in future predictions about technological development since it was written by Gordon Moore (co-founder of the Intel corporation) in 1965. However, since 2013 reports have started to predict an end to Moore's law, and the start of a new era with differing drivers for technological evolution (Bauer et al. 2013). This is clearly important given the dependencies of that conflict and western concepts of martial engagement have on technological progress, computational power and thus technological change.

Computing capability, power and its applications have grown remarkably over past two decades and the current military orthodoxy sees no significant change to this in the future. Indeed a linear future based on such assumptions is laid out in both the British view (DCDC's 'Global Strategic Trends to 2045' (DCDC 2014A), and 'Future Operating Environment' (DCDC 2014B)), and the Pentagon/CNAS publication on future technology (The Defense Science Board report on 'Technology and Innovation Enablers for Superiority in 2030' (DSB 2013). But such orthodoxy is based on hope rather than experience. The first use of a mobile phone in the UK, for example, was on 1 January 1985 and it has taken thirty years for that simple telephony device to become a miniature high powered computer that is also a still and video camera, a multi-media player and a GPS navigation system, as well as being a phone.

Commercial research trends into technology have for some years been focused on biometrics, robotics, artificial or augmented intelligence (AI), nano-technology and energy [re]generation (BRINE) (Echevarria 2009). Many of these technologies are growing fast, presenting challenges and opportunities, but few are capable of delivering a fundamental change to the way in which we can – or would wish to – fight in the future. Only AI has the potential to really do this, and there are near-term opportunities for human-led autonomy to deliver a battle-winning edge over adversaries in the coming decades (Roberts and Payne 2016). There is a dilemma however: the demands for technology by global militaries are self-serving, rather than as a response to a concept of how leaders wish to fight in the future, i.e. that militaries desire new technology without understanding whether it would suit their doctrine of fighting. This is because the militaries primary relationship is no longer with ideas, it is with equipment. A concept that acknowledges that machines and robots are useful but can only be best utilised by exploiting human ingenuity and fighting style remains absent from martial thinking. The indicators are that human led autonomy will become an inherent part of military operations soon, with a single-firepower environment focused on delivering effects (enabled by both military and non-martial means) to achieve a militarily competitive edge without detriment to the post conflict environment (Roberts and Payne 2016). In the United States this idea is known as human machine collaboration and combat teaming: The delivery of real-time, layered, multi source information to the individual combat operator, enabling his decisions and providing a range of options to achieve his intended results and outcomes on missions through both kinetic and non-kinetic tools. Such a vision would see militaries exploiting multiple collection platforms, remote experts and dispersed firepower batteries to reduce risk and increase destructive ratios, whilst minimising electronic signatures in a contested and disputed electro magnetic environment and maximising human capital through augmented sensory perception, endurance and cognitive ability (McMaster 2015).

Research also points to other areas of technological change for militaries that might have the potential for disruption that western mili-

taries see (Roberts and Payne 2016). These include:

- Cyber (quantum tech and the internet) and Electronic warfare (EMP weapons),
- Nano and swarms, micro vehicles and inserts,
- Hypersonics/[sc]ramjets, loitering and globalised on-call strike (prompt global strike),
- Space based weapons,
- Smart/Discriminating bullets – personalised killing (bio/DNA/mapped weapons),
- Rail guns,
- Bio and chemical weapon development,
- Dialable fuse and yields,
- Lasers and non-lethal weapons (ie those effecting sound, light and visual senses),
- Bot platforms,
- Adaptive stealth,
- 4th gen 3D printing (integrating different materials into the printing process),
- Self-creating/self-healing networks, likely to start with communications networks,
- Sentient vehicles,
- Robotics,
- Visualisation and enhancement – fusion and presentation: human-machine interface.

Many of these may never advance to become mature over the coming decades, but some will. Their arrival on the battlefield might indeed be sufficiently disruptive to provide forces with a battle-winning edge, but the impacts of them will certainly be magnified within contested and congested environments.

Magnifying the environment

Western militaries dabbled with the concept of 'compression' in military doctrine between 2009 and 2014, but little came from it in terms of adapted NATO wide tactics, techniques and procedures.[26] Yet the concept of compression – the shrinking of time and space – is vital in understanding how military operations differ in a confined battlespace, and how the implications of technological advances have disproportionate impacts when experienced there. Scholars have already linked compression theory to geography, noting that events and activities in smaller physical spaces reduce the available time and space, and magnify alterations (Dodgshon 1987, 173.193)[27]. Military operations in a confined battlespace have had a tendency to amplify the impact of new technologies, and thus have the ability to expand competitive advantages disproportionately. This is as relevant to intelligence and surveillance technologies as it is to weapon systems, and makes the North Sea, for example, a distinctly different challenge from more open and dispersed battlespace. The proximity of actors and forces in the Baltic, the coverage of sensors and weapon systems enable an ability to influence – physically and cognitively – across state boundaries all enabled by technology. Indeed, these factors have the potential to make *some* technologies disruptive in confined areas, when they have little additional impact in other more open areas. For example, conventional submarines remain a truly disruptive capability in the Baltic when their impact in the North Atlantic has

[26] See for example, UK Joint Defence Doctrine publication 3-40 2009, UK Joint Defence Publication 0-01, UK Defence Doctrine 2014, and US Army Operating Concept 2014.

[27] This essay offers a long-term conceptual overview of the processes that generate spatial change, noting a succession of five different systems that generated time-space compression at ever-larger spatial scales.

markedly less impact. The same will doubtless be true of emerging technologies.

However, the answer to compressed time and space is not necessarily – and certainly not solely – technology. Evidence has shown that a more appropriate response can be derived from expanding the cognitive space in which decision-making is made (Giddens 1984)[28]. Confinement does not make for perfect or rational decision-making, but preparation, war-gaming, readiness levels and preventative action have a good deal more impact than any new technology.

Conclusion

Even in the field of fiction writing, disruption from technology has been a notable and attractive feature – one leaped upon by commentators and military officers alike. Whether Tom Clancy or P W Singer (Hackett 1982, Clancy 1998, Singer 2014)[29] the description of imagined conflict enabled by massively disruptive technology attracts readers and triggers discussion. Perhaps it should not be surprising then when even global leaders grasp at such thin reeds to restore what they perceive to be an imbalance in fighting capabilities. The Third Offset Strategy of the US Department of Defense is a superpower level proclamation that technology will radically alter future warfare, and must be harnessed.

Yet fiction succeeds where strategy fails in an appreciation of the primary role of ideas within the disruptive technology paradox. Without a clear and established set of principles with which to guide technological development, and indeed without a unified military concept in which to use new capabilities, armed forces have little hope of harnessing the research and equipment that they are paying for. John France (France 2013) is instructive in such a dynamic: by recounting the great successes for military powers by the harnessing of novel means of warfare, he notes that victory only comes when new technology is coupled with winning ideas. Unfortunately, there are no signs that the western military powers have such a concept of operation in mind, nor of an appreciation of the requirement for one. It is also rather stark that the previous offset strategies cited by successive US Secretaries of Defense seem to have been overturned by technologically inferior adversaries, and have not provided a legacy of fighting superiority one would hope for from such investment. Indeed, even supreme martial technological advantage has not seen strategic success for the west: today the military initiative remains with potential adversaries, usually because they (Daesh, Russia and China) are using a different fighting style that does not conform to western ethical, legal and moral rules. It is the Frunze Academy in Moscow and Nanjing Military School of the People's Republic of China Army that are providing winning ideas – ideas that appear to negate the western reliance on disruptive technological to provide a competitive edge.

Such truths are unlikely to alter the relentless pursuit of technological advantage by western states, and this is likely to heighten tensions in more constrained geographic areas where military actions can trigger responses that have had less time for consideration and rational discussion. Such actions could be viewed as less meaningful if made on the high

[28] Written by one of the 20th century's most influential sociologists. Giddens's theory of structuration – that people unintentionally reproduce social structures through the rhythms of everyday life – reframes time-space compression as distanciation, the stretching of social relations over the earth's surface via complex webs of power and meaning.

[29] Sir John Hackett and Tom Clancy both provided compelling narratives for potential future war enabled by technological leaps, but more recently it is P W Singer who has captured the imagination of leaders and readers alike in providing a vision of future conflict enabled on smart, disruptive military capabilities fashioned on both innovative and radical technologies.

seas of the North Atlantic, but can be perceived as tipping points for conflict in the South China Seas or the Baltic Sea. Technologies, in such an area, have less contrast for military actions – they become more stark in their magnification, more Manichean. Employing them (and thus disrupting overlapping geographic boundaries) becomes binary, as does their output, and there is little evidence that decision-makers weigh considerations over employment more carefully as a result. The nuance that might be employed in other, more spacious, areas is lacking under confined conditions. Treating technologies – and the desire for disruption – with increased caution is the clear message.

But disruption and compression are extremely important concepts to understand in defence and security, and the enemy also gets a vote. Adversaries dot not interpret such concepts in terms of purely military technology, but they certainly do deliberately design and attack targets to maximise disruption, slowing our own decision-making processes. Adversaries are also able to leap frog technological generations and to gain low tech-high gain advantages through a willingness to press our boundaries and 'red-lines'. The answers to these conundrums do not lie in new, expensive technologies that – even if successful – rarely provide a lasting advantage: technology, even disruptive technology, has temporal limits.

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Naval Mines: Curse or Blessing in Hybrid Warfare?

Nick Childs

There has been a remarkable new focus on "hybrid" or "ambiguous" warfare in the aftermath of Russia's recent actions in Crimea and eastern Ukraine, employing a sophisticated combination of conventional and unconventional tactics and techniques. Equally, in the aftermath of that, the Baltic Sea region has become one of the key points of tensions between Western and particularly NATO nations and a more assertive (or combative) Russia. The maritime dimension of that, in what is a confined and critical sea space, is significant. In this context, the role of the naval mine as the classic asymmetric and potentially hybrid sea denial instrument may turn out to be both a curse and a blessing for potential aggressor and defender alike.

How New is Hybrid?

The discussion, and indeed the phenomenon, of hybrid warfare have been around for quite some time. So it is important to be clear about what is genuinely novel and significant in what Russia has been doing.

The 2015 edition of the IISS Military Balance (IISS 2015: 17-12) included a special essay on hybrid warfare, which described it as "the use of military and non-military tools in an integrated campaign designed to achieve surprise, seize the initiative and gain psychological as well as physical advantages using diplomatic means; sophisticated and rapid information, electronic and cyber operations; covert and occasionally overt military and intelligence action; and economic pressure."

As for the new elements to emerge from Crimea, the Military Balance (IISS 2015) noted that Russian forces demonstrated "integrated use of rapid deployment, electronic warfare, information operations (IO), locally-based naval infantry, airborne assault and special forces capabilities, as well as wider use of cyberspace and strategic communications. The latter was used to shape a multifaceted and overall effective information campaign targeted as much at domestic as foreign audiences; one where continual denials and rebuttals from Moscow, even if increasingly implausible, had the potential to create a sense of cognitive dissonance in foreign decision-making circles".

Some of the fruits of the Russian military reform process that has been under way since 2008 as a result in large of the lessons of the Georgia campaign were on display in this conflict. One needs to be wary of ascribing such reformed and improved capabilities to the whole force, although Russia's subsequent intervention in the Syria conflict has added to the case suggesting significant progress across a range of capabilities. But where do naval mines fit into this against the backdrop of NATO fears of a possible Russian hybrid challenge in the Baltic Sea region and especially to the Baltic states? And, equally, does Russia have anything to worry on this front in return?

Russian Military Reform and Rejuvenation

Russian forces fell a long way after the end of the Cold War, and in some cases have made only fitful recoveries. For example, in 1990-1, it fielded 61 ballistic missile submarines (SSBNs), but in 2014 the figure was twelve. The corresponding figures for destroyers are 55 and 18, and for tactical submarines 242 and 47.

Of course, NATO force levels have also declined dramatically. But that has been against the backdrop at least of more consistent investment in technology developments, and

with the strong underpinning of the United States.

On the other hand, there have been more sustained investments in the last few years, with an emphasis on funding the country's ambitious rearmament programme. Admittedly from a low base, there was a 16-fold nominal increase in Russian defence outlays between 2000 and 2015, equating to a real-terms compound annual growth rate of around seven per cent per annum. In contrast, in the period 2010-14, cumulative European spending was down 7.7 per cent (IISS 2015).

In 2014-15 Russia accounted for nearly 22 per cent of the total global annual increase in defence spending. But in terms of planned global defence spending, the United States accounted for 8.3 per cent, Europe 15.7 per cent, and Russia just 3.3 per cent. The Chinese share stood at 9.3 per cent. In 2015, it is estimated Russia had the fourth largest defence budget at USD 65.6 billion (IISS 2016). And with mounting economic problems due to the energy market, Russian defence spending in the immediate future is expected to remain flat.

Problems with the country's defence industrial base, not least in terms of warship-building, have also meant some stretching out and moderating of rearmament ambitions. Nevertheless, there has been a drumbeat of reporting both of increased Russian naval activity and the progressing of important procurement programmes, not least in the submarine field with work in particular continuing on *Borey*-class SSBNs and *Yasen*-class nuclear attacks submarines (SSNs).

The Baltic, Naval Mines, and Hybrid Warfare

This all means that talk of a resurgent Russian military challenge, rather like discussion of a new hybrid threat, has to be carefully calibrated. It must also be set against Moscow's perceptions of the challenges it faces, and its own perceived weaknesses.

The Russian Baltic Sea Fleet suffered significantly in the aftermath of the end of the Cold War. It remains relatively small, with nearly 60 surface, coastal, and patrol combatants, mine warfare and amphibious shipping. Principal recent investments include the *Steregushchiy*-class frigates. For at least two years, there have been sustained reports of increased Russian naval and air activity, including in the vicinity of undersea electricity cables and energy connectors (Higgins 2015).

As for modern perceptions of the sea mine threat, they have rarely reached the level of intensity that might have been prompted by the fact that, since the Second World War, naval mines have sunk or damaged three times as many US warships as any other weapon or means of attack. Authoritative estimates of Russian naval mine stocks are difficult to find. But it is assumed that they remain the largest in the world. Jane's (Fuller/Ewing 2015) cites a US Department of Defense estimate in 1987 that the former Soviet Union held an inventory of 300,000 naval mines of various types and vintages. Russian surface, submarine, and aviation units have been observed carrying out mine warfare exercises, and new ships like the *Steregushchiy* class have mine capability. And mine warfare remains central to Russian naval doctrine – with all platforms (surface, subsurface, and air) playing a role. Judging by practice in other areas, it is to be assumed that a significant proportion of the former Soviet mine stock will have been retained.

Russian mines have generally been conceived to counter opposition seaborne capabilities and to defend Russian territorial waters. In a broad sense, the Russian naval mine warfare doctrine has been primarily defensive. But how might this be extended in the new strategic environment, in the context of hybrid or ambiguous warfare?

Mines are a "cheap shot", they are small and relatively easily handled, and can be easily concealed. They can be deployed from almost any vessel, including non-military ones, and from aircraft. They can be attributable or non-attributable. To reinforce that latter potential characteristic, Russia has provided mines to other former Warsaw Pact navies.

Other possible exports have been to China, Egypt, Finland, Iran, Iraq, North Korea, Syria, and Libya. Yet other third world navies are likely to possess mines of former Soviet design, and some have created local production of mines based on such designs. Thus the stock of such designs outside the current control of Moscow is considerable. And then, on top of all that in the particular context of the Baltic, there is the legacy of large numbers of mines sown in previous conflicts. This all adds to the "plausible deniability" factor.

The hybrid scenario that has been uppermost in people's minds recently has been the shaping of the battlefield and the shifting of the status quo by methods short of the overt use of force in a context just below the threshold that would provoke actual armed inter-state conflict and that would make coherent crisis management and response challenging. This has included the use of proxies, potentially "nationalist" militias, and even terror groups, as well as covert forces that can be disowned by a national authority at least for a time, until it is too late.

Mines might seem an obvious tool for such action because naval minefields can be very simple to deploy. But laying a complex and reliable minefield is more challenging. Likewise, the platforms available to proxies or non-state actors for deploying mines are relatively few, and that represents a vulnerability in terms of detection. The particular danger with respect to the crowded and confined waters of the Baltic is that mines, particularly if laid by relatively inexperienced and untrained proxies, risk serious damage or destruction of neutral or innocent shipping, perhaps with considerable loss of life, in a situation not dissimilar to the downing of Malaysian Airlines flight MH17 over eastern Ukraine in July 2014.

Blessing or Curse?

So for an aggressor in the Baltic, the mine warfare option represents a potential blessing because it can produce a significant degree of sea control and/or sea denial, and confusion to one's opponents, through implied risks to commercial operators, increased insurance rates, and other disruptions which could be undermining to an opponent. The curse is that the actual loss of a neutral or "innocent" vessel could provoke international outcry and unintended strategic consequences.

The mine is also a potential blessing in the hybrid or ambiguous because it can be covert. But that aspect too is somewhat unpredictable, so it could become a curse. And the case histories on this offer mixed evidence.

For example, in the Red Sea/Gulf of Suez mining episode in 1984, it took a year to establish beyond reasonable doubt that Libya was behind the action. On the other hand, in the hybrid or ambiguous "cat and mouse" between US and Iranian forces in the Persian Gulf in the 1980s, the mining of the frigate USS *Samuel B Roberts* in April 1988 presents a very different case study. US mine countermeasures (MCM) forces quickly identified Iran as the source of problem. Within four days of the mining, US naval and air forces in the Gulf engaged Iranian naval forces in a punitive action, dubbed Operation Praying Mantis, which inflicted significant damage on the Iranians. At the same time, in the early 1990s after Operation Desert Storm against Iraq's invasion of Kuwait, the post-conflict coalition MCM clean-up effort took more than two years, underlining the potential scale of countermeasures requirement in the face of even a relatively unsophisticated if numerous threat,

and the timeframe needed to conduct a successful MCM campaign.

For Russia, a hybrid or ambiguous maritime campaign in the Baltic is unlikely to take place except in the context also of some sort of land campaign. So Russia's mine warfare capabilities and ambitions must be seen in the context of its other capabilities in the region, not least its broader high-intensity anti access/area denial (A2AD) capabilities centred on Kaliningrad – including potentially extended range anti-air and anti-ship missile systems (Frühling/Lasconjarias 2016). So a mine campaign is most likely to form a hybrid element of a broader A2AD challenge to the United States and its NATO allies, raising the cost calculus of a response and therefore the coherence of the Alliance in a time of rising tension. In such a scenario, it is likely to be primarily a defensive mine warfare approach to protect Russian waters, facilities, and bastions. However, there could be an offensive element to sow confusion and impose a destabilising effect on the Alliance and partner nations in the Baltic Sea, albeit with the associated risks already mentioned.

Countering the Threat

NATO's BALTOPS 2015 exercise in the Baltic Sea was the largest of its type in recent times, with nearly 50 warships involved, including two large amphibious ships – the helicopter carrier HMS *Ocean* from the UK Royal Navy and the assault ship USS *San Antonio* from the US Navy. It was a highly visible show of reassurance to NATO's northern flank members at a time of significant tensions, and for that reason attracted considerable attention and probably had the desired effect. But, in the A2AD environment that would be the Baltic at a time of crisis, the deployment of such a formation would hardly represent a credible military option, at least in the early stages of a serious confrontation.

On the other hand, NATO and its partners have some cards of their own to play in a hybrid/mine warfare context. Kaliningrad can be both an asset and a potential liability to Moscow. Likewise Russian requirements of access to the Baltic and its use both for training and as a supplier of capabilities to other parts of the Russian armed forces represent potential vulnerabilities. NATO's assets mean that the confines of the Baltic could represent as much of a no-go challenge to Russian surface units as NATO's. An Alliance defensive mining as an option to raise doubts in Moscow at a time of rising tensions could be an important tool. A scenario in the BALTOPS 2015 exercise included US B52 bombers dropping sea mines of the coast off Sweden to preclude any amphibious assault.

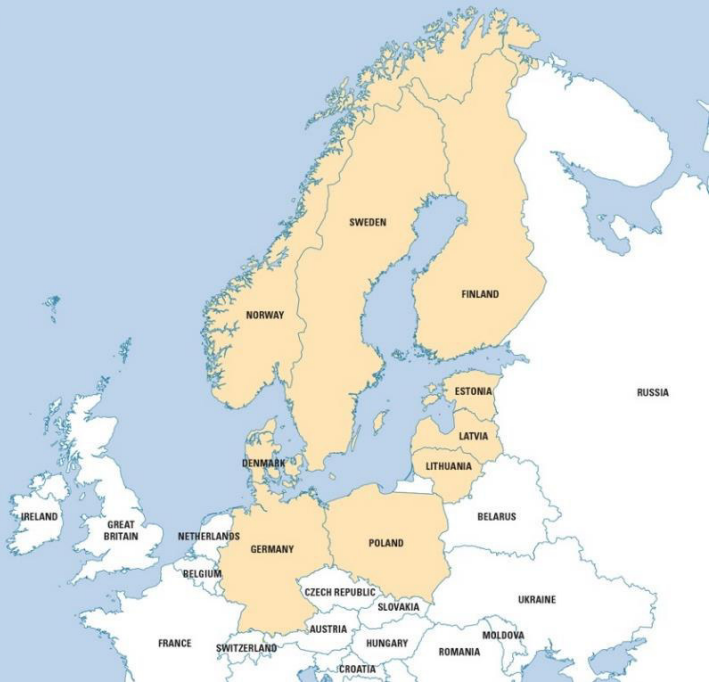
Then there is the question of Alliance and partner MCM capabilities. This has always been something of a "Cinderella" area for NATO naval forces, and indeed for naval forces and naval warfare generally. Nevertheless, IISS data shows an assembly of more than 100 MCM vessels of various descriptions among the states in or adjacent to the Baltic – Norway, Finland, Sweden, Estonia, Latvia, Lithuania, Denmark, Poland, and Germany. And there is, of course, Standing NATO MCM Group One focused on northern waters as one of two such Alliance MCM formations.

Still, such forces risk being overwhelmed by a major mine warfare challenge in the Baltic, particularly in the context of a contested A2AD environment. And MCM still does not receive the attention lavished on, say, cruise and ballistic missile defence in the spectrum of A2AD threats.

BALTIC MINE COUNTERMEASURES VESSELS

Norway	3 MSC *Alta* 3 MHC *Oksoy*
Sweden	5 MCC *Koster* 2 MCD *Sparo* 6 MSD
Finland	3 MHSO *Katanpaa* 7 MSI 5 ML
Estonia	1 MCD *Tasuja* (DNK *Lindormen*) 3 MHC *Admiral Cowan* (UK *Sandown*)
Latvia	5 MHO *Imanta* (ex NLD *Alkmaar*/Tripartite) 1 MCCS *Vidar* (NOR)
Lithuania	3 MHC 1 MCCS *Jotvingis* (ex NOR *Vidar*)
Denmark	4 MCI MSF MK-I 2 MSD *Holm*
Poland	1 MCCS Project 890 4 MHI *Mamry* 3 MHO *Krogulec* 13 MSI *Goplo*
Germany	12 MHO 4 MSO *Ensdorf* 18 MSD *Seehund*

Data from *Military Balance 2015*



However, the role of increased MCM exercises and greater coherence of and investment in MCM capabilities could have a significant deterrent effect. The International MCM Exercise (IMCMEX) of more than 30 nations developed in the Persian Gulf in recent years is a case in point. Still, this could only be truly effective as part of a broader NATO approach to maritime reassurance and deterrence which remains for now a work in progress, and which is likely to require an enhanced commitment of key forces and capabilities, including from major NATO maritime players like the United States and the United Kingdom (for example Kramer/Nordenmann 2016).

But this could also have wider relevance. Concerns about the mine threat as a significant element of a more A2AD challenge are proliferating, as the Persian Gulf/IMCMEX example underscores. It could certainly have a significant impact on future Western and NATO military intervention calculations.

Conclusion

Mines are a tempting "cheap shot". In a hybrid context, mining in the Baltic could be done covertly (more or less) with plausible deniability. But their credibility in a pure hybrid/short-of-war context depends on that deniability. That is uncertain. And, particularly if the new confrontational relationship with Russia persists, the balance will swing towards implausible deniability. On top of that, it is not simple to lay a minefield properly. So there are risks of unintended consequences for both sides. But there is also a growing realisation of the need for the NATO and its partners to refocus on MCM capabilities, and maybe not just MCM but mine warfare in its broader sense, including perhaps offensive mining capabilities.

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Authors

Professor Dr. **Julian Lindley-French** is a leading strategic analyst, author, advisor and commentator who has been appointed to three professorial chairs, has eight books to his name and has written many major articles and reports. Lindley-French is currently Senior Fellow at the Institute of Statecraft in London, Director of Europa Analytica in the Netherlands, Distinguished Visiting Research Fellow at the National Defense University in Washington, as well as a Fellow of the Canadian Defence and Foreign Affairs Institute. He is Visiting Programme Director at Wilton Park and Honorary Fellow of the Strategy and Security Institute at the University of Exeter, as well as a Member of the Strategic Advisory Panel of the UK Chief of Defence Staff. His blog, Lindley-French's Blog Blast (www.lindleyfrench.blogspot.com), has a world-wide readership. In 2008 he published a book entitled A Chronology of European Security and Defence for Oxford University Press. His massive work The Oxford Handbook of War (Oxford University Press) is regarded as a definitive compendium on the subject the paperback version of which was published in March 2014. In 2015 he published "Little Britain? Twenty-First Century Strategic Challenges for a Middling European Power" which considers the strategy and policy options faced by Britain and its armed forces in the early twenty-first century and "NATO: The Enduring Alliance for Routledge".

LtCdr **Stefan Lundqvist** is a PhD Candidate in Political Science at Åbo Akademi University, Finland, studying the post-Cold War Maritime Security changes among Western states. He is a teacher of Joint and Naval Operations at the Swedish Defence University, specialised in Operations Assessment. He joined the Royal Swedish Navy in 1987 and has served in various staff positions since 1998. His latest publications are "Why teaching comprehensive operations planning requires transformational learning"(2015), Defence Studies, 15(2): 175–201; "Cultivating Regional Maritime Security: Swedish-Finnish Naval Cooperation in the Baltic Sea" (IOS-Press, 2015) (co-authored with J. J. Widen), in Chapsos I. and Kitchen C. (eds.) Strengthening Maritime Security Through Cooperation; "From Protection of Shipping to Protection of Citizens and National Economies: Current Changes in Maritime Security" (2013), Journal of Defence Studies, 7(3): 57–80.

Sebastian Bruns directs the Center for Maritime Strategy and Security at the Institute for Security Policy, Kiel University. He holds a PhD in Political Science from the University of Kiel, where he completed his dissertation on U.S. Navy strategy and American national security for the 1981-2011 timeframe in 2014. The dissertation will be published as a book by Routledge in 2017. Sebastian's areas of interest include naval strategy, maritime security, and transatlantic defense and security relations. He frequently delivers briefings and lectures for diverse military, policy-makers, and business audiences, and he has written and edited four books. Most recently, together with Joachim Krause, he edited "The Routledge Handbook of Naval Strategy and Security" (London, 2016). He also publishes in various journals and professional magazines, and is frequently consulted by national and international media on issues of navies. Since December 2014, Dr. Bruns is a member of the German Navy's Chief of Naval Operations'

expert advisory panel on strategy. Further awards include a U.S. Department of Defense research grant (September 2012) to conduct interviews with naval strategy decision-makers and the prestigious German Marshall Fund Congressional Fellowship (2010-11). As part of the GMF Fellowship, he served as a legislative aid for Rep. Todd Young (IN-09), and handled all military, defense, and national security affairs for the Congressman, who held a seat on the House Armed Service in the 112th U.S. Congress. Previous professional experience includes a position at the International Affairs and Protocol Section of the City of Bonn (2008); a "Teaching Fellow in Maritime Security" chair at the Hamburg-based public policy institute HAUS RISSEN (2008-2010); and an analyst and editor job with the Danish maritime security firm Risk Intelligence (since 2010). Sebastian also holds an M.A. in North American Studies (2007) from the University of Bonn, Germany.

Peter Roberts is Senior Research Fellow at the Royal United Services Institute. He runs two research programmes at the Institute, in Sea Power/Maritime studies and in C4ISTAR. Peter researches a range of subjects within these themes from strategy and philosophy, Sea Power, Command and Control, Maritime Studies and Naval Weapons Systems, C4ISR, Military Education and Military use of Cyber Warfare. He also oversees conferences, meetings and lectures globally in these areas. Peter's recent publications include, "The Future of Amphibious Warfare", RUSI Journal (160:2) 2015, The Validity of deterrence in the twenty first century, RUSI Occasional Paper July 2015, Ballistic Missile Defence: Drivers and Options, RUSI Occasional Paper August 2015, "Maritime Security in Asia and Europe" in Partners for Global Security: New direction for the UK-Japan defence and security relationship, (ed. Eyl, Tsuruoka and Schwarck) RUSI-NIDS Whitehall Paper (3–15), as well as numerous OpEds and articles in the professional media. His upcoming publications include, ISR in 2035 and beyond (RUSI, 2015) and Sovereignty: updating the concept for defence and security (Taylor and Francis, 2015). He is a commentator for several international news outlets and has provided evidence for various parliamentary bodies both nationally and across organisations. Peter retired from the Royal Navy in January 2014 after a career as a Warfare Officer, serving as both a Commanding Officer and National Military Representative in a variety of roles with all three branches of the British Armed forces, the US Coast Guard, US Navy, US Marine Corps and intelligence services from a variety of other nations. He has served as chairman for several NATO working groups and 5 Eyes Maritime tactics symposia. Whilst the latter part of his career was spent advising foreign governments on military strategy, his final posting was within UK Joint Forces Command with responsibility for Military Cyber Warfare, Information Operations, Human and Signals Intelligence, and Maritime ISTAR Collection. He has a Masters degree from King's College London in Defence Studies and is a Visiting Lecturer in Strategy at the Portsmouth Business School at the University of Portsmouth, as well as being a Fellow of the Chartered Management Institute.

Nick Childs joined the International Institute for Strategic Studies (IISS) on 1st June 2015 as Senior Fellow for Naval Forces and Maritime Security, responsible for the Institute's analysis in these areas, and for the data on seapower capabilities published in the flagship annual Military Balance. It is also his job to formulate and deliver research projects in these areas, and he contributes in his areas of expertise to other Institute publications and activities, including conferences. It is also his role to strengthen the Institute's engagement with global naval and maritime stakeholders in government, the military, industry, and the academic community. Before joining the In-

stitute, Nick Childs was a BBC journalist for more than 30 years, specialising in covering defence, security and international affairs. His last appointment was as a BBC World Affairs Correspondent. He was also the BBC's first Pentagon Correspondent. Other main assignments included Defence & Security Correspondent and Political Correspondent. He reported on most recent conflicts and crises in the Middle East, as well as those in the Balkans, Sierra Leone, Afghanistan and elsewhere. He has written two recent acclaimed books on the modern Royal Navy, as well as numerous articles for various defence think tanks, journals and magazines, and has presented papers and moderated sessions at various security conferences in the United Kingdom, the rest of Europe and North America. He read Modern History and Economics at St Catherine's College, Oxford.

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