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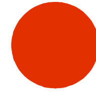

Hybrid Maritime Warfare and the Baltic Sea Region

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Denne rapport er en del af Center for Militære Studiers forskningsbaserede myndighedsbetjening for Forsvarsministeriet. Formålet med rapporten er at analysere, skabe indsigt i og give anbefalinger vedrørende Ruslands potentielle anvendelse af "hybride" krigsførelsestaktikker, -teknikker og -procedurer i Østersøområdet. Med henblik på at identificere udfordringer, som hybrid krigsførelse potentielt kan udgøre i Østersøen definerer rapporten først hybrid krigsførelse og karakteriserer derefter Ruslands brug heraf i forbindelse med Krim. Analysen afsluttes med en række anbefalinger med henblik på at mindske de sårbarheder og løse de udfordringer, som identificeres.

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This report is a part of Centre for Military Studies' policy research services for the Ministry of Defence. The purpose of the report is to provide insights, analysis, and recommendations regarding the potential use of "hybrid" warfare tactics, techniques, and procedures by Russia in the Baltic Sea region. This report defines hybrid warfare and characterize its use by Russia in Crimea to highlight the challenges posed by it in the Baltic Sea. It is concluded with a series of recommendations to mitigate vulnerabilities and address the challenges that are identified.

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English Abstract

Russian use of hybrid warfare techniques to seize the territory of Crimea in 2014 has unsettled the security environment in Europe. Techniques included paralyzing adversary decision-making through deliberate ambiguity and deception, cultivating instability in ethnic Russian communities, covertly utilizing special operations forces, organizing and directing local paramilitary forces, and deterring external intervention by highlighting advanced conventional capabilities in the theatre. NATO leaders have expressed concern and agreed to policies countering the possibility of Russia using such a strategy in the Baltic Sea region. The Alliance and its regional partners face challenges of geography, as well as social, economic, and political vulnerabilities that require unilateral and cooperative approaches to mitigate. We recommend a series of measures to augment NATO's Readiness Action Plan with particular attention to the maritime domain, including increasing the breadth and depth of naval exercises, increasing maritime domain awareness through cooperative programs to collect, analyse, disseminate, and use intelligence with focus on hybrid threats. Furthermore, we recommend that unilateral and cooperative measures be taken to develop and utilize a sound strategic communications strategy to counter Russian information operations, that additional steps be taken to reduce dependence on Russian energy supplies, and that the resilience of critical undersea and maritime infrastructure – as well as the ability to quickly repair and replace it – be enhanced.

Dansk resumé

Sikkerhedssituationen i Europa er grundlæggende forandret, efter Rusland annekterede Krim i 2014. Rusland benyttede i den forbindelse særligt teknikker, der knytter sig til hybrid krigsførelse. De militære teknikker inkluderede at paralysere Ruslands modstanderes beslutningsproces gennem tvetydige signaler og bedrag, at opdyrke utilfredshed og ustabilitet i etniske russiske samfund, skjult brug af specialoperationsstyrker, at støtte og organisere lokale paramilitære enheder og endelig at afskrække ekstern intervention ved at fremhæve egne avancerede militære kapaciteter i området. NATO har udtrykt bekymring for Ruslands hybride krigsførelse og har vedtaget politiske initiativer, der skal hindre Ruslands anvendelse af en hybrid strategi i Østersøregionen. Ikke desto mindre står NATO og alliancens partnere i Østersøregionen over for geografiske såvel som sociale, økonomiske og politiske sårbarheder, som kun kan håndteres gennem en kombination af egne og fælles initiativer. Denne analyse anbefaler en række tiltag, der vil styrke NATO's Readiness Action Plan med specifikt fokus på det maritime domæne – herunder en styrket maritim øvelsesaktivitet såvel i bredden som i dybden – samt udvidet maritim 'domain awareness' igennem fælles initiativer, der kan samle, analysere, fordele og anvende efterretninger med fokus på hybride trusler. Endvidere anbefales det at udvikle en strategisk kommunikationsstrategi, der kan imødegå russiske disinformationskampagner, at der tages yderligere skridt for at reducere afhængigheden af russiske energiforsyninger, og at modstandsdygtigheden af kritisk infrastruktur under havoverfladen styrkes.

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1. Introduction

Overnight on February 26-27, 2014, small groups of armed men appeared across Crimea. While these "little green men" were "polite," their intentions were anything but.[1] They corralled Ukrainian forces in their bases and made it plain that any attempt to leave would be met with violence. They took over communications masts and studios to ensure that the only messages accessible to the Crimean population were their own. They took over government offices to ensure that no decisions could be taken other than those which they approved. Within three weeks they oversaw a plebiscite to unify Crimea with Russia – a vote won with 93 percent – followed by annexation two days later. While President Vladimir Putin initially denied Russian involvement, he later candidly admitted that the entire operation had been planned at the highest levels and conducted by Russia's armed forces.[2] Despite the obfuscations, it was a Russian invasion and occupation, pure and simple.[3]

The annexation of Crimea and destabilization of eastern Ukraine saw the culmination of changes in Russian policy evident since 2008. Russian revanchism has greatly concerned Western leaders. The countries on NATO's eastern flank have long expressed serious concerns about the ability of the Alliance to deter Russian aggression, to defend against it with the forces on hand, and to expeditiously dispatch reinforcements if necessary.[4] The Baltic states of Estonia, Latvia, and Lithuania are particularly vulnerable to land invasion and it has been recently recognized that NATO has "a limited number of options, all bad" available to respond.[5] NATO has increased the resources deployed in the Baltic Sea region – most obviously Baltic air policing – to reassure these allies and deter Russian adventurism.[6]

But land invasion is not the only concern – nor perhaps the most salient. Many other aspects of Russian strategy in Crimea trouble Alliance leaders:[7]

- The paralysis of adversary decision-making through deliberately cultivated ambiguity, misinformation, and deception
- The vulnerability of ethnic Russian minorities to Russian information operations
- Covert use of Russian special operations forces (SOF)
- Russian use of conventional force exercises and references to nuclear weapons intended to intimidate European opinion and deter external military intervention
- The speed with which Russia decided to act, acted, and succeeded.

The Baltic States and their environs are vulnerable to such hybrid techniques. Latvia, Lithuania, and Estonia were previously part of the Soviet Union; their territories border Russia and can easily be cut off from the rest of NATO. Large minorities of Russian speakers among their populations have been unevenly integrated into their social and political life and consume primarily Russian media. All three nations remain reliant upon Russia for their energy needs. Such conditions make them vulnerable to Russian disinformation practices, societal and economic disruption, covert infiltration by Russian SOF, and isolation from their NATO allies and EU partners given the concentration of Russian military power in the Kaliningrad exclave to the south and from bases in Belarus to the east.[8]

The maritime dimension of their vulnerability – and that of the other Baltic Sea littoral states – has received inadequate consideration, particularly in NATO's nascent response to hybrid threats.[9] Are there ports and other coastal areas populated by members of the Russian diaspora that might be a focal point for disruption? How might Russian SOF be used in a maritime context? Are there latent disputes over territorial waters, fishing rights, or other unsettled issues that could be exploited to further Russian objectives? What role would Russian conventional and nuclear forces play in supporting a hybrid maritime campaign? Finally, what could be done to mitigate these vulnerabilities?

These issues were addressed at an experts' seminar held at the Centre for Military Studies on 28 April 2016. The analysis that follows is informed by those discussions and is subject to the quality assurance procedures delineated in the Centre for Military Studies project manual for research-based services, which includes internal and external peer review procedures.

In the first section of this report, we discuss the concept of hybrid warfare in general and explore its maritime dimensions in particular. In the second, we characterize the Baltic Sea as a theatre in which a Russian hybrid warfare campaign could be undertaken. In the third, we consider specific vulnerabilities of the Baltic states and other countries around the Baltic Sea to hybrid maritime threats. In the fourth, we examine potential responses to reduce those vulnerabilities and build resilience amongst and between the Baltic littoral states. The fifth and final section draws together the insights derived from the analysis and summarizes our recommendations.

2. Hybrid Warfare and the Maritime Domain

Organized violence has been used to achieve political objectives throughout history. Yet the security challenges facing the West confound previously understood notions of the actors, modalities, and purposes of warfare. Many Western military leaders recognized that prevalent doctrinal or categories failed to capture contemporary conflict.[10] A suite of competing theories about New Wars, fourth-generation warfare, and hybrid threats emerged.[11] Within the West, the term "hybrid warfare" is most commonly used to denote a complex phenomenon that presented Western political and military leaders with previously unforeseen security challenges.[12]

There are distinctive variations that feed debate about what constitutes a hybrid threat.[13] In his characterization, Frank Hoffman wrote that:

> Hybrid threats incorporate a full range of different modes of warfare including conventional capabilities, irregular tactics and formations, terrorist acts including indiscriminate violence and coercion, and criminal disorder. Hybrid Wars can be conducted by both states and a variety of non-state actors. These multi-modal activities can be conducted by separate units, or even by the same unit, but are generally operationally and tactically directed and coordinated within the main battlespace to achieve synergistic effects in the physical and psychological dimensions of conflict. The effects can be gained at all levels of war.[14]

The key aspect of hybrid threats is the *deliberate* "blurring and blending" of types of adversary organizational forms (regular forces, irregular forces, terrorists, criminals), types of weaponry (from "modern military capabilities" to improvised explosive devices (IEDs)), tactics ("traditional," irregular, terror, and "disruptive social behaviour," including criminal), directed at different targets or foci (adversary military forces, civil governmental institutions, the civilian population, the international community, the international legal order, and domestic audiences of all parties).[15]

This concept is now part of the lexicon used by senior American leaders, in doctrine, and in other statements of policy.[16] Other states have responded similarly. At the 2014 NATO Wales Summit declaration, NATO's heads of state and government defined hybrid warfare as "a wide range of overt and covert military, paramilitary, and civilian measures … employed in a

highly integrated design."[17] This definition is broader and less specific than Hoffman's conception, but captures the breadth of Russian actions in Crimea and elsewhere.

Russia's Crimea campaign took place in a context that facilitated the utility of hybrid tactics. Crimea had been part of Russia until transferred to Ukraine in 1956 and the port of Sevastopol, home of the Soviet Black Sea Fleet, remained under Russian authority until 1978.[18] Russia maintained significant forces and infrastructure in Crimea. After the break-up of the Soviet Union in 1991, it retained control over the Sevastopol naval base by leasing it from Ukraine. This agreement was renewed in 2010, permitting Russian use of the base until 2042 with an option for an additional five years. It also permitted the stationing of 25,000 Russian military personnel.[19] Furthermore, over 60 percent of the Crimean population were Russian speakers and nearly 80 percent had voted for the pro-Russian president Viktor Yanukovych in 2010.[20] Post-annexation data suggests that over 80 percent of the population in Crimea obtained their news and information from Russian television.[21] Thus there was fertile ground for the "intense diplomatic, media and psychological onslaught [that] sought to portray […] Kiev's new leadership as fascists and terrorists" and for Moscow to pledge "to defend Russian citizens and interests in Ukraine, especially in Crimea."[22] Furthermore, this information warfare campaign facilitated the creation of irregular "self-defence" forces that were led and advised by covert special operations forces while utilizing tactics, such as unmarked uniforms, allowing Russia to maintain plausible deniability.[23]

The potentialities of hybrid war in a maritime environment have received less consideration. The Russian campaign in Crimea had many maritime elements. Many of the 15,000 naval personnel that were stationed there, particularly the 2,000 members of the 810th Marines Infantry Brigade, were deployed with their armoured vehicles throughout Crimea to "to ensure the protection of places of deployment of the Black Sea Fleet."[24] They were reinforced by thousands of troops from Russia proper, including a second naval infantry brigade based at Novorossiysk, "two special forces brigades and a designated airborne division."[25] These personnel surrounded Ukrainian military posts and governmental buildings, provided advice and command to irregular forces throughout Crimea, and discriminately projected power to "politely" intimidate Ukrainian forces, officials, and citizens ashore.[26]

Figure 1: Scuttled Russian Cruiser Ochakov at Entrance to Douzlav Bay[27]

Offshore, the Ukrainian Coast Guard managed to evacuate its 23 operational ships and boats from Sevastopol and Kerch when Russian forces approached on 1 March. Russian ships in the harbour approached the fleeing vessels, but "did not seem to expect the Ukrainians to act so quickly and were too late to prevent their escape."[28] The Ukrainian Navy was not as agile. Unable to put to sea quickly, they were trapped on 6 March when the aged Russian Kara-class cruiser was sunk at the entrance of the port of Sevastopol.[29] Ukrainian ships that attempted to escape were chased within the bay, bumped, disabled, and eventually boarded.[30] The capture of Crimea yielded most "of Ukraine's naval power, including nearly all of its blue-water ships, its officer training academy, maintenance facilities, shore side infrastructure and even most of its sailors."[31] At the strategic level, "the presence of Russia's Black Sea Fleet in Crimea raised the symbolic and strategic costs of any attempt by the United States or NATO to intervene directly in the region."[32] The Russian campaign successfully blended its regular naval infantry and special forces with irregular forces to utilize regular small unit tactics, unorthodox naval tactics, as well as disruptive social behaviour to confuse, stymie, and influence a myriad of audiences – in Crimea, in Kiev, throughout Ukraine, and in Western capitals.

Overall, Russia's hybrid campaign in Crimea highlighted four key dimensions:

1. A persistent information warfare campaign directed at audiences in and out of the theatre to sway Russian members of the populace, confuse and divide opponents through disinformation about intentions, and impose revisionist interpretations on established political, legal, and historical narratives
2. Utilization of paramilitary forces – such as regular coast guards, coastal militia, or guerrilla-style units – directed, coordinated with, or reinforced by regular forces to intimidate opponents while remaining below the level that justifies an armed response
3. Deployment of high-end conventional capabilities at the periphery of the theatre to deter external intervention
4. Gaining control over maritime assets, whether port facilities, naval bases, strategic islands, or other key positions that enable control over sea lines of communication.

3. The Baltic Sea

The Baltic Sea region has long been regarded as an area of low geopolitical tension. The comity between the neutral Nordic states of Sweden and Finland to the north, the dominance of Soviet Russia to the south, and the injection of American power to contain Soviet power, through NATO members Germany and Denmark, resulted in a "Nordic balance" in the region.[33] After the Cold War, much of the region moved politically toward the West: Germany was reunified, Denmark's reluctant stance toward NATO became enthusiastic,[34] Poland joined NATO in its first round of expansion, the Baltic states gained their independence from the Soviet Union and were shepherded into NATO and the European Union with the assistance of their Nordic neighbours,[35] and Finland and Sweden have progressively set aside their traditional neutrality to join the European Union and cooperate ever more deeply with NATO through the Partnership for Peace program.[36] With regional integration into various Western institutions and the absence of a threat to the east, "the Baltic region was considered one of the most peaceful spots of the world."[37]

Russian policy has also been predicated on stability in the region. The Soviet Union invested around 50 percent of its shipbuilding capacity in the St. Petersburg area. A second vital facility, the Yantar shipyard, specializing in the construction of large surface ships, is located in the Kaliningrad Oblast. This dependency remains unchanged and Russia is no doubt aware of her vulnerability.[38] Since the dissolution of the Soviet Union, the Baltic Sea has become a vital conduit for Russian trade – one, moreover, that is close to important Western markets

and thus far untroubled by the risk of conflict. In 2015 the two container ports in the Big Port of St. Petersburg handled 52 percent of Russian container traffic. This amounted to 1.9 times the throughput of Russia's Far Eastern ports and more than three times the volume passing through its Black Sea terminals. Further container traffic is trans-shipped via Baltic State ports such as Riga in Latvia and Tallinn in Estonia.[39]

The Baltic Sea is also a major conduit for energy supplies from Russia to Europe, which continues to be a major customer for Russian crude oil. The bulk of this traffic is shipped by tanker from the ports of Primorsk and Ust-Luga near St. Petersburg via the Baltic to north-western Europe. Furthermore, the Nord Stream gas pipeline runs along the seabed. This consists of two parallel pipes that run from Vyborg in Russia to Greifswald in Germany. The first came on-stream in November 2011 and the second almost a year later. It is currently the longest undersea pipeline in the world.[40]

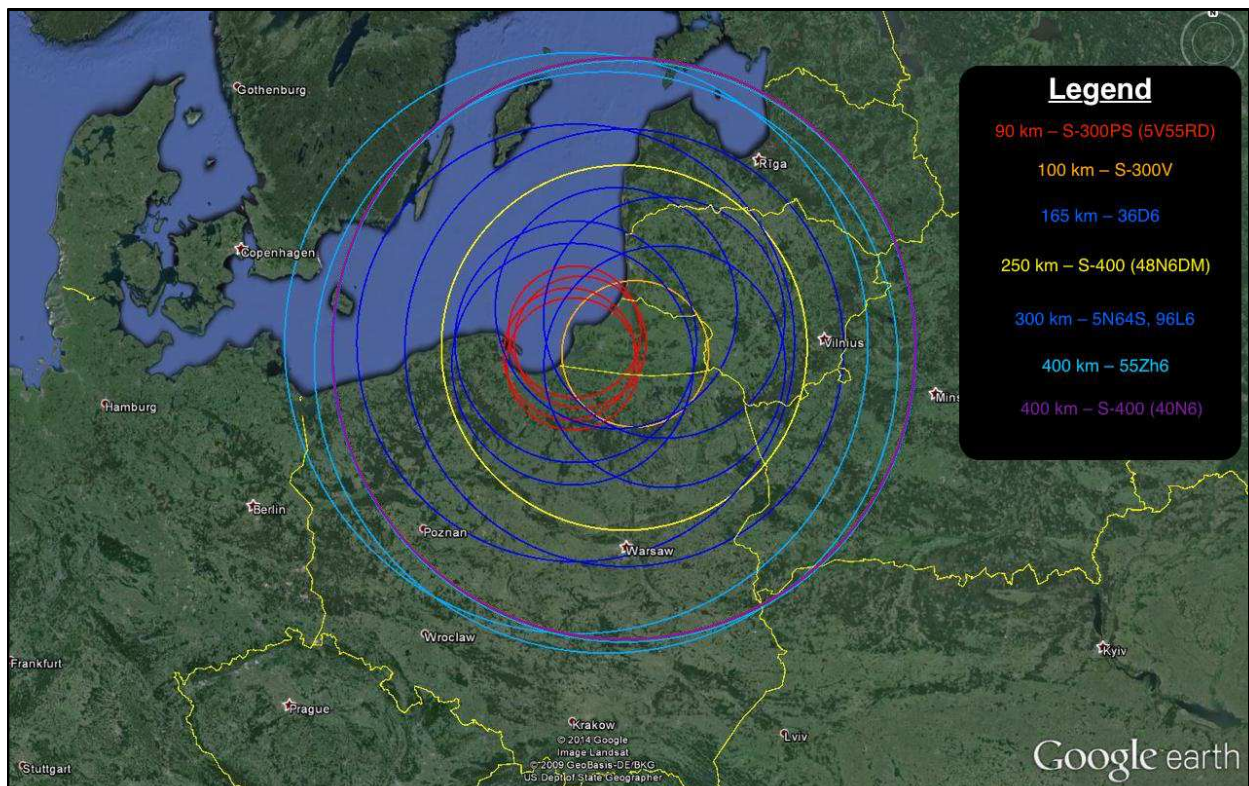
Figure 2: The Baltic Sea Littoral States[41]

The Russian Baltic Sea Fleet also reflects an assumption that the area will not be the epicentre of conflict. It is the weakest of Russia's four fleets (Baltic, Black Sea, Pacific, and Northern) and continues to have the lowest priority for new units. Furthermore, it has been poorly led over the past decade: over 50 officers amongst its leadership were purged for "dereliction of duty" in June 2016.[42] As of 2016, its order of battle consisted of 1 attack submarine and 56 warships made up of 2 destroyers, 6 frigates, 6 corvettes, 4 guided missile corvettes, 7 patrol craft, 6 fast patrol boats, 5 coastal minesweepers, 7 inshore minesweepers, 13 landing ships, 6 utility landing craft, and 2 air cushion landing craft.[43] It is unclear how many of its submarines, ships, and other vessels remain operational. The fleet's submarines have not been modernized and remain inferior to German and Swedish vessels.[44] The fleet's anti-submarine warfare (ASW) and mine countermeasures (MCM) capabilities have also not been upgraded, although the fleet conducted a large and well-advertised ASW exercise in 2015.[45] However, some modernization has taken place. "Since 2007, the fleet's weaponry has been upgraded with four new Steregushchy-class corvettes (Project 20380). These are modern warships, whose missiles are capable of striking even land targets with great precision."[46] This land-attack capability is new to the Baltic Fleet. Furthermore, the naval infantry brigade attached to the fleet and based at Baltiysk has improved its weaponry.

From a strategic standpoint, the Baltic Sea is an isolated theatre. It is relatively small with an average width of only 193 km (120 miles). Mines and submarines – the traditional means of controlling access to the Baltic – would today be complemented by air power and air-deployable ground forces in any high-intensity conflict. Notably, Russia is able to effectively dominate large areas of the Baltic and Baltic airspace using missile forces based in the Leningrad and Kaliningrad Oblasts.[47] The *Iskander-M* mobile ballistic missile (NATO designation SS-26 *Stone*) with a range of 500 km (and possibly up to 2,000 km (1,250 mile) in its *Iskander-K* variant) is capable of hitting fixed or mobile targets in much of Sweden and from southern Poland to central Finland.[48] The *Iskander-M* is nuclear-capable, although fitting a nuclear warhead would contravene the Intermediate Nuclear Forces treaty. NATO air movement, including air transports bringing reinforcements into theatre, would be at risk from a layered, integrated air and missile defensive system equipped with S-300 and the highly-capable S-400 anti-aircraft and anti-ballistic missile (ABM) system (NATO designation SA-21 *Growler*) which, according to the missile selected, is capable of interdicting targets at ranges between 40 and 400 km and heights well in excess of 30 km and possibly as high as 185 km in ABM mode. Russia could also deploy the *Bastion-P* coastal

defence system based on the supersonic 300-km-range P-800 *Yakhont* anti-ship missile to Kaliningrad.[49] Overall, these capabilities have led NATO commanders to express concern that Russia could block NATO access to the Baltic Sea.[50]

Figure 3: Kaliningrad A2/AD Capabilities[51]



In this way, the high-intensity challenge of penetrating a mature anti-access and area denial (A2/AD) bubble merges with building resistance to low-intensity hybrid warfare tactics. As the Danish Defence Intelligence Service argues, “Russia has the capability to launch a credible military intimidation campaign against the Baltic countries within a few days. Such a campaign may include a military build-up and aggressive military activities very close to the countries’ borders and airspace combined with simultaneous attempts at political pressure, destabilization and subversive activities similar to what is often referred to as hybrid warfare.”[52] The combination of threats to the sovereignty of NATO member states that appear ambiguous and the potential costs and losses that would result from penetrating Russian A2/AD capabilities would give pause to risk averse Allies, delaying concerted Alliance action. Together, the combination could permit Russia to rapidly achieve a *fait accompli* before the Alliance could effectively react.[53] This is the context within which specific challenges to security and stability in the Baltic Sea region should be assessed.

4. Hybrid Possibilities in the Baltic Sea

Analysing Russian opportunities to use hybrid warfare techniques requires, firstly, identifying potential social, economic, or political weaknesses; secondly, ways in which these weaknesses could be exploited through an intense information warfare campaign, the covert deployment of Russian SOF, and other means, including, potentially, the use of conventional military forces to resolve the instability that they would have caused. Hybrid techniques, furthermore, require the isolation of the intended victim through deterrent threats intended, at a minimum, to disrupt a concerted response by Western governments within the context of considerable diplomatic and disinformation campaigns aimed at public opinion in all NATO countries.

We open the discussion, therefore, by setting out ways in which Russia could deter NATO, or American, intervention in the Baltic Sea. We will then identify and discuss different categories of social, economic, and political vulnerabilities that could serve as the basis for a Russian hybrid warfare campaign. Finally, we identify and recommend a series of measures that can be undertaken to reduce these potential vulnerabilities.

4.1 Geography

Geography is one of the most salient enablers for Russian hybrid warfare in the Baltic Sea region. Its Kaliningrad A2/AD bubble may deter potential NATO intervention. Furthermore, the Baltic states each border Russia – Estonia and Latvia border Russia proper and Lithuania borders Kaliningrad (as well as Belarus). As RAND's David Shlapak and Michael Johnson have argued, NATO ground forces must cover longer distances than the Russians to reach the capitals of the Baltic states from Poland. Moreover, "to get anywhere from Poland, NATO forces would have to transit the 'Kaliningrad corridor,' a 110- to 150-km-wide stretch of territory between the Russian enclave and Belarus that could be subject to long-range artillery and flank attacks from both sides and would require a commitment of (scarce) NATO forces to secure."[54] This presents Russia with a favourable strategic position from which to deter NATO intervention on land – particularly given the balance of land forces in the region: 22 Russian battalions in Russia's Western Military District would be facing the "rough equivalent of a light infantry brigade" in each of the Baltic states.[55]

These capabilities enable Russia's military to support a wide range of strategic options, including hybrid-style penetration operations in the Baltic region. However, the management of any incursion by Russia into a neighbouring state with the aim of drawing it into its sphere

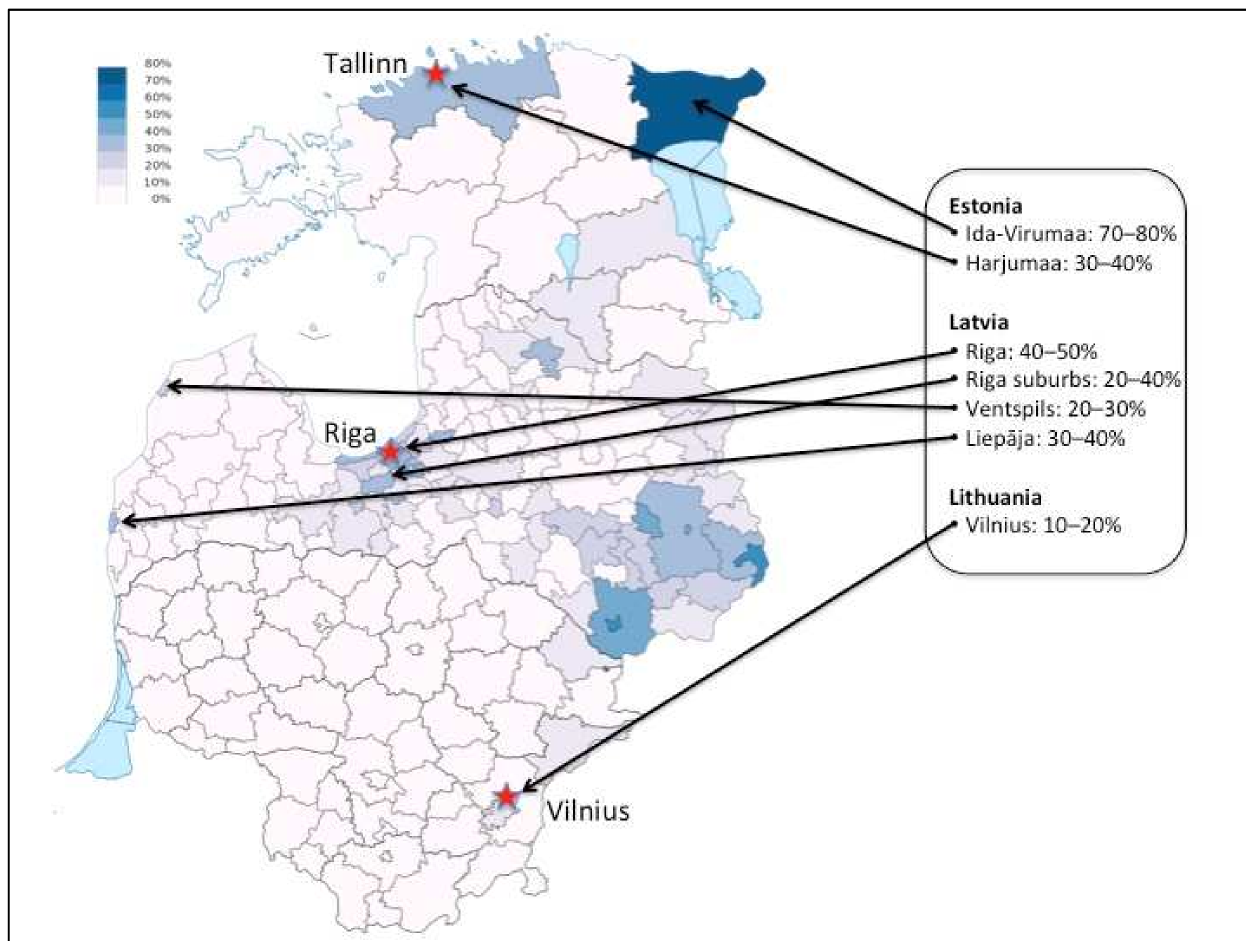
of interest and away from NATO, thereby damaging NATO cohesion, would ultimately depend on Russia's ability to control the escalation risk. It is therefore important to recognize that Russian doctrine and exercises indicate that it is prepared to use nuclear weapons to control the escalation of a crisis, including the use of nuclear weapons to "de-escalate" one.[56] At least this is what the Russians would want Western leaders to believe. Thus, the potential of hybrid warfare requires NATO to consider how to deal comprehensively with the entire spectrum of conflict.[57]

4.2 Social Vulnerabilities

The most obvious category of social vulnerabilities in the region is the presence of Russian minorities, which Russia refers to as "compatriots," in each of the Baltic States. The percentages in the Baltic States are significant in Latvia (25.6 percent)[58] and in Estonia (27.2 percent),[59] although less so, but still substantial, in Lithuania (5.8 percent).[60]

There are concentrations of ethnic Russians in key maritime areas in the Baltic states.[61] In Estonia, ethnic Russians constitute over 70 percent of the population in the county of Ida-Virumaa in the north-easternmost part of the country. It contains most of Estonia's energy resources, primarily oil shale, and is bounded by water to the north and south – and Russia to the east. Russians also make up over 30 percent of the population in the area in and around the capital and port city of Tallinn. In Latvia, ethnic Russians make up over 40 percent of the population in the capital and port city of Riga, 20–30 percent of its suburbs, 30–40 percent of the port city of Liepāja, and 20–30 percent of the population of the port city of Ventspils – with larger concentrations inland on the border with Russia. Finally, there are no significant concentrations of ethnic Russians in port or shore areas in Lithuania, although they constitute 10–20 percent of the populace of the capital Vilnius.

Figure 4: Concentrations of Ethnic Russians in the Baltic States[62]



Russian and domestic media vie for the attention of these populations. Amongst their populations as a whole, 21 percent of Lithuanians, 44 percent of Latvians, and 53 percent of Estonians use Russian-language media for their news.[63] Amongst Russian speakers, 36 percent of Lithuanians, 69 percent of Latvians, and 76 percent of Estonians rely on Russian media news sources.[64] In general, majorities of Russian speakers trust Russian media and distrust local media – i.e., Lithuanian, Latvian, and Estonian – while the inverse is true of ethnic Lithuanians, Latvians, and Estonians.[65] All tend not to trust international media sources.[66] Russian minorities effectively live separately from the majority, taking their information from Russian rather than domestic sources.[67] Russian TV and radio stations, which carry Kremlin propaganda every day, are used to amplify local grievances, undermine trust in local and national authorities, and foment social discord.[68]

There is a real potential for this vulnerability to be exploited. Russian communities in the Baltic States are affected by discrimination.[69] For instance, 55 percent of Latvian Russian speakers, 59 percent of non-citizens, and 49 percent of residents in the capital Riga surveyed

in 2015 agreed with the statement that “Russia claims that restoration of Fascism is taking place in Latvia (for example, remembrance day of the legionnaires, March 16). Do you agree?” [70] It is enough to make what may be termed the “compatriots argument” attractive to meaningful numbers within Russian communities, for at its heart is the promise that Russia will never abandon its own. Indeed, 41 percent of Russian speakers and non-citizens, as well as 36 percent of Riga residents agreed that “the rights and interests of Russian speakers in Latvia [are] violated on such a scale that Russian intervention is necessary and justified.”[71] Within this narrative, Russia asserts that the United States and NATO are reviving the Cold War and using colour revolutions to foment chaos and threaten Russia.[72] This is fertile ground for a powerful nationalist narrative that can be exploited by Russia.

Indeed, Estonia believes that Russia’s aims are to:

> [O]rganise and coordinate the Russian diaspora living in foreign countries to support the objectives and interests of Russian foreign policy under the direction of Russian departments. The compatriot policy aims to influence decisions taken in the host countries, by guiding the Russian-speaking population, and by using influence operations inherited from the KGB.[73]

There is clear evidence that this is the case. Russian Foreign Minister Sergei Lavrov, in an interview directed at Russian compatriot communities, made it plain that they played an active role in Russian foreign policy:

> It is very important that in Russia’s relations with its diasporas, there is movement in both directions. Russia provides the diasporas with support, primarily assisting them in consolidating, and the diasporas strive to act in the interests of Russia …. The diasporas are a powerful resource for us, and they need to be used to their greatest power.[74]

However, it is not clear whether Russian minorities in the Baltic States would be as susceptible to Russian information operations and media as those in the Crimea and Eastern Ukraine.[75] In Estonia at least, 54–55 percent of non-Estonians (Russian speakers and non-citizens) reported that they were prepared to defend Estonia in the event of an attack by another country in 2012, 2013, and 2014.[76] Furthermore, among Russian-speaking citizens of military age, those figures were between 74–81 percent whereas they were 51–57 percent for non-citizens.[77] This is partly due to the fact that these states are members of NATO and the European Union. Given the stability provided by those affiliations, the standard of living is

higher in the Baltic states than in the bordering Russian areas – in contrast to the situation in Ukraine – and their citizens and residents enjoy the right to travel to and work throughout the European Union.[78]

4.3 Economic Vulnerabilities

Social disruption through the use of the Russian diaspora may, in itself, be effective, but it can be further accentuated through economic disruption. There are a number of vulnerabilities in the economies of both the Baltic states and their neighbours that could be exploited to prepare the ground for further political or military action. Dependence upon Russian energy supplies, the vulnerability of undersea energy and communications infrastructure, and the fragility of port facilities provide avenues for economic disruption in the Baltic littoral region.

4.3.1 Energy

There has long been a recognition that dependence upon Russian energy supplies, particularly among former Eastern Bloc countries – in this case Estonia, Latvia, Lithuania, and Poland – could lay these countries open to forms of economic coercion.[79] These states have pursued policies to relieve their dependence on Russian supplies of oil, natural gas, coal, and electricity, but the dominant market position held by Russia, given the infrastructure investments necessary to diversify supplies, has proved difficult to overcome. Their reliance on Russian energy supplies is not uniform, however. Table 1 shows the percentage of Russian supplies of different types of energy and their respective proportional share of each nation's total energy consumption.

Table 1: Energy Dependence on Russia and Share of Energy Source Mix in 2010[80]

	Estonia[81]	Latvia[82]	Lithuania[83]	Poland[84]
Gas	100% of 15%	100% of 32%	100% of 36%	54% of 13%
Oil	0%	100% of 28%	98% of 38%	92% of 26%
Coal/Solid Fuels	0%	97% of 2%	93% of 2%	<10% of 54%
Electricity	0%	100% of 14%	Unspecified	0%

Due to ample supplies of domestic energy sources – shale oil and coal, respectively – Estonia and Poland are among the least dependent on energy imports in the European Union.[85] It is worth noting, however, that Estonian shale oil is concentrated in the county of Ida-Virumaa, whose population is 70–80 percent Russian. Nevertheless, other parts of their respective

energy sectors remain quite dependent on Russia, which in 2010 provided 100 percent of Estonia's gas requirements and 54 percent of Poland's, as well as 92 percent of Poland's oil requirements. Yet these shares of their overall energy mix are 15 percent for Estonia and 39 percent for Poland – a far cry from the total dependence that is often suggested.

Lithuania and Latvia, on the other hand, were almost entirely dependent on Russian gas, oil, coal, and electricity in 2010. As the European Commission put it, "Excessive reliance on one single foreign supplier for oil and gas, the absence of any domestic energy source, and the lack of interconnections with other EU countries has further worsened the exposure of Lithuania to potential security of supply risks and price shocks.... Excessive reliance on Russia is an issue that Lithuania is trying to resolve."[86] Similar passages characterize the section of the report discussing Latvia. Through the Baltic Energy Interconnection Plan,[87] an EU initiative, Lithuania has undertaken to connect its electricity grid overland with Poland and under the sea with Sweden.[88] The LitPol Link became operational in March 2016 and the NordBalt connection became operational in July 2016.[89] These two links to the European power grid can provide up to two-thirds of Lithuania's peak electricity demand, significantly alleviating its dependence on Russia – and reducing prices by a third.[90] In light of its importance, it is not surprising that Russian naval vessels repeatedly harassed the ship and crew laying the NordBalt cable in the spring of 2015.[91]

In the future, the objective of all three Baltic states is to join the European power grid, which "would require expensive investment in new infrastructure that would change the frequency at which electricity flows."[92] Importantly, it would also cut Kaliningrad off from the Russian electricity network and require Russia to build significant infrastructure through Russia and Belarus – at a cost of €2.5 billion – costs that Russia has argued should be borne by the Baltic states.[93] This will clearly be a potential trigger for conflict in the future. Overall, however, the ability of Russia to use the supply of different forms of energy as part of a hybrid warfare campaign varies across the vulnerable areas of the region and is diminished through active policies pursued by the Baltic states, Poland, and the European Union.

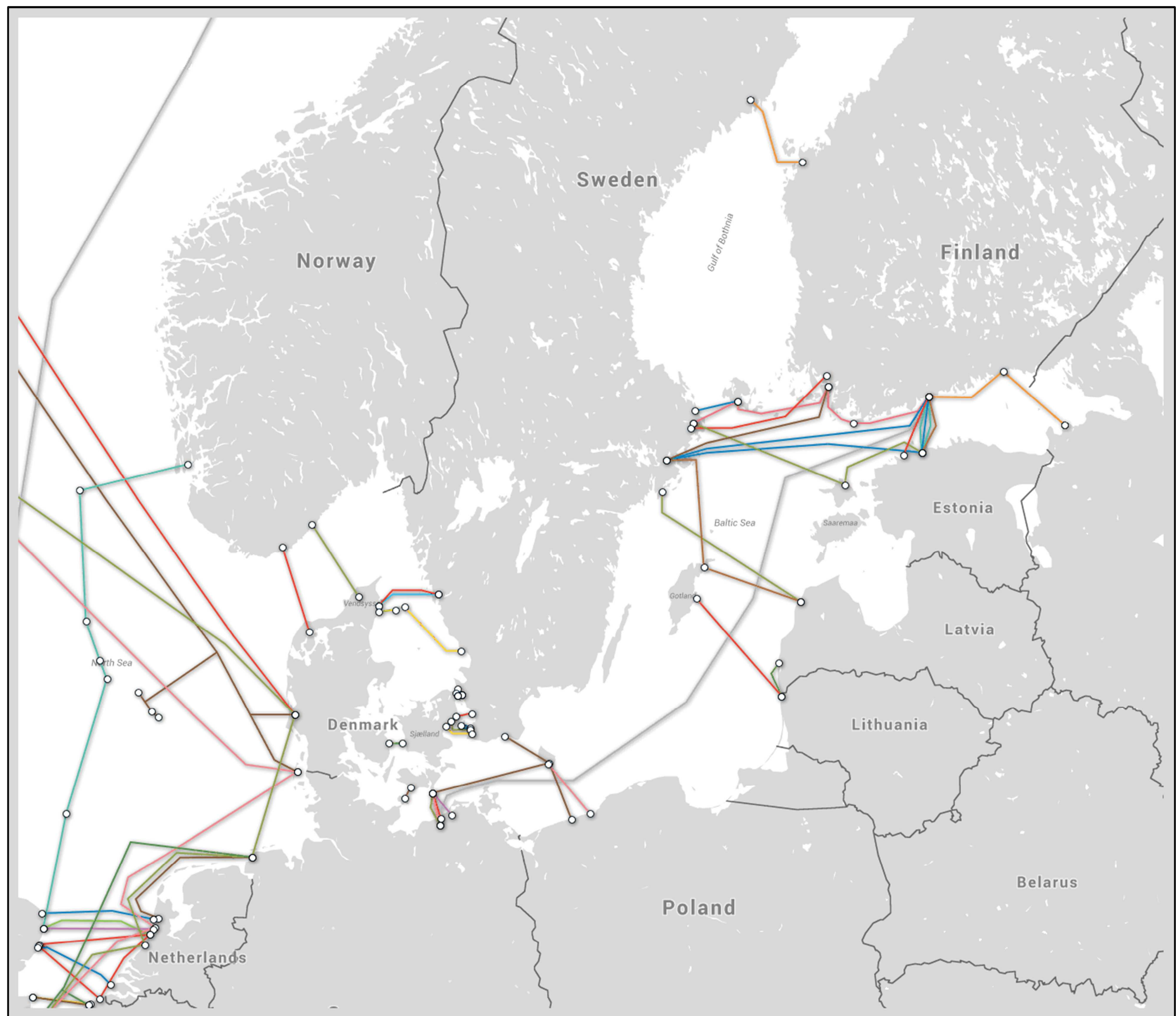
4.3.2 Undersea Cables

Modern economies depend upon a remarkably vulnerable information and communications technology infrastructure. "Today, roughly 95 percent of intercontinental communications traffic – e-mails, phone calls, money transfers, and so on – travels not by air or through space but underwater, as rays of light that traverse nearly 300 fibre-optic cables with a combined

length of over 600,000 miles. For the most part, these critical lines of communication lack even basic defences, both on the seabed and at a small number of poorly guarded landing points."[94] The disruption of the communications conveyed by these cables, most of them no thicker than a garden hose, may have significant consequences for the countries affected. An earthquake in 2006 severed 9 such cables off the coast of Taiwan.[95] Eleven repair ships worked for 49 days to repair the damage.[96] On average, it takes one of these repair vessels 1–2 weeks to repair a single cable.[97] The International Cable Protection Committee (ICPC) estimates the cost to the regional economy of such disruptions to be $1.5 million per hour.[98]

Despite the vulnerability and importance of these cables, they are not owned by states: rather they are privately-held assets and hence private companies are responsible for their protection and repair.[99] Nor is there an internationally agreed regime in place to monitor and direct repairs to this information infrastructure. "The ICPC and other organizations track outages or faults after they occur, but there is no authorized facility in existence to quickly identify an outage and route to a central location that is easily accessed by an authorized government or commercial fusion centre. The time it takes to locate and identify a cable fault amongst all the parties involved is cumbersome, because there is no emergency response procedure available that can quickly identify what happened."[100] Meanwhile, the disruption caused by their absence would continue.

Figure 5: Baltic Underwater Communications Cables[101]



This general discussion of undersea communications infrastructure applies equally to the Baltic Sea, which is home to a web of connections as can be seen in Figure 6. Poland, Lithuania, and Latvia have only a few nodes that could be severed, while Estonia, the Nordic countries, and Germany have much more redundancy available in their connections. Still, the disruption of communications by severing these undersea cables would cause severe economic distress in the region for a considerable period of time and be difficult to mitigate, even for those countries with multiple nodes. They would therefore be a prime target in a hybrid warfare campaign. As the former Supreme Allied Commander Europe (SACEUR), Admiral James Stavridis (ret), has written, "the tactical reasons for doing so are plain: in the case of heightened tensions, access to the underwater cable system represents a rich trove of intelligence, a potential major disruption to an enemy's economy and a symbolic chest thump for the Russian Navy."[102] They would thus contribute significantly to a campaign designed to

create instability in the targeted states and societies and demonstrate the inability of state authorities to restore services.

4.3.3 Port and Supply Chain

Ports and ships could be subject to sabotage and strikes using SOF forces as part of a hybrid offensive. Indeed, it is easy to imagine "little green men" or irregular forces conducting operations against port facilities in order to disrupt operations, trade, and hence the local economy. Yet conceivably the most serious threat could come from cyberattacks, a concern that already animates much of the landward resilience debate. Modern ports could not operate as they do today without sophisticated computer systems and modern ships are increasingly automated to cut crew costs. As the U.S. Department of Homeland Security pointed out in a 2016 report, a cyberattack "on networks at a port or aboard a ship could result in lost cargo, port disruptions, and physical and environmental damage depending on the systems affected. The impact to operations at a port, which could last for days or weeks, depends on the damage done to port networks and facilities."[103] Any prolonged interference with the region's maritime trade could severely impact industrial production flows and economic security.

Port operations present a vulnerable target. Handling large numbers of different cargoes simultaneously would be impossible without sophisticated information management systems.[104] Disrupting their complex and time-sensitive operations would have consequences nationally and regionally. Blunt cyber instruments like Distributed Denial of Service (DDoS) may have their uses. However, more targeted tools such as worms and viruses designed to take down port operations selectively or randomly could result in lost economic activity totalling billions of Euros and generating social unrest as a consequence of lack of food, medicine, and energy. This would effectively serve the Kremlin's aims via hybrid warfare with more deniability.[105]

Individual ships are also potentially at risk. The Baltic Sea is a major waterway with between two and four thousand commercial vessels transiting every day of the year.[106] The Baltic and International Maritime Council (BIMCO), recently issued guidelines on maritime cyber security in partnership with the related maritime trade bodies Cruise Lines International Association (CLIA), the Institute of Chartered Shipbrokers (ICS), the International Association of Independent Tanker Owners (INTERTANKO), and the International Association of Dry Cargo Shipowners (INTERCARGO). It makes the point that as "technology continues to develop, information technology (IT) and operational technology

(OT) on board ships are increasingly being networked together – and more frequently connected to the worldwide web," and that attacks mounted against these systems could undermine the "safety and commercial operability" of ships.[107] The number of on board systems that could be manipulated remotely to place ships at risk is long and growing.[108] Instead of disabling ships with gunfire or mines, anonymous cyber-attacks could leave ships unable to navigate or manoeuvre, putting them at risk of grounding and presenting a hazard to other shipping. Multiple such incidents in the crowded waters of the Baltic Sea could result in ship operators and crews refusing to serve Baltic Sea ports or marine insurers conceivably raising rates to prohibitive levels in the face of an unsustainable aggregated risk.[109]

4.4 Political Vulnerabilities

The final category of vulnerabilities that could facilitate a hybrid warfare campaign in the Baltic Sea region is political in nature. Although the region has been stable, a number of territorial disputes remain unsettled and therefore potentially subject to revisionist interpretations of established political, legal, and historical narratives. At present, Russia and Estonia have reached agreement on the Treaty on the Delimitation of Maritime Areas of Narva Bay and the Gulf of Finland between the Republic of Estonia and the Russian Federation and the State Border Treaty between the Republic of Estonia and the Russian Federation, but Russia has not yet ratified them.[110] Furthermore, the 1998 maritime boundary treaty between Latvia and Lithuania over the Gulf of Riga has not yet been ratified by the Lithuanian parliament due to concerns over oil exploration rights. [111]

Unlike the South China and East China Seas, no effort has been made to exacerbate these territorial claims in the Baltic Sea.[112] Indeed, there are at least 15 significant institutional bodies and other fora to address them peaceably, including the Baltic Sea Council, the European Union, and the United Nations Law of the Sea Convention (UNCLOS).[113] But Russian behaviour – for instance withholding ratification of the Narva Bay and Gulf of Finland Treaty because the Estonians have "created tensions" by protesting against violations of their airspace – demonstrates that they are maintaining the potential for disruption inherent in these unsettled disputes.

5. Mitigation Measures

Overall, there are significant opportunities for the Russians to use hybrid warfare in the Baltic region. Under the cover of A2/AD capabilities located in Kaliningrad, social, economic, and

political issues exist that could provide the basis for a Russian campaign to disrupt the fabric of the Baltic states – and the region as a whole. Each of these dimensions requires attention by the states in the Baltic Sea region, as well as by the various states that are members of the institutions that play a role in providing security and stability in the region – NATO and the European Union in particular. Fortunately, these are known problems and there are efforts underway to address many of them. For instance, NATO and the European Union have begun developing their own strategies to address the hybrid warfare challenge.[114] In this section, we will discuss some of these and suggest ways to better address the challenges presented by hybrid maritime warfare.

5.1 Addressing Geography

Kaliningrad serves as Russia's bastion in the Baltic Sea and, as such, provides a base for capabilities that can deter NATO forces from entering the region through the Baltic Sea or overland through Poland and thus from reaching its most distant members. This dilemma is not necessarily new – NATO faced it with the defence of West Berlin during the Cold War – and the prescription is the same: the possession of military forces capable of performing the tasks required and possessing the collective resolve to use them when necessary. Reluctance on the part of the Alliance to address these issues prior to 2010 caused disquiet among eastern Allies.[115]

The Readiness Action Plan announced in the 2014 NATO Summit declaration includes key measures to address capability and credibility shortfalls in the Alliance. In particular:

- The NATO Response Force was increased from 15,000 to 40,000 earmarked troops.
- A Very High Readiness Joint Task Force (VJTF) of 5,000 men to serve as a quick-reaction spearhead for the NATO Response Force (NRF) was established.
- Equipment has been prepositioned for the VJTF.
- Command-and-control headquarters elements in eastern European member states have been established.
- An agreement has been reached for a continuous air, land, and maritime presence in the eastern part of the Alliance on a rotational basis – mostly manned by Americans.
- The number, size, and frequency of Alliance exercises will be increased.[116]

The maritime component included intensified maritime patrols in the Baltic Sea, the Black Sea, and the Mediterranean with the Standing NATO Maritime Groups and Standing NATO Mine Countermeasures Groups as well as increased maritime aircraft patrols, and an

expansion of the annual BALTOPS naval and amphibious exercise from 13 nations in 2014 to 17 in 2015 and 2016 – including Sweden and Finland.[117]

These initial steps should be augmented. The states of the region should continue to deepen their cooperation with one another, with NATO, and with the United States.[118] The Nordic states are considering cooperating in joint naval tasks, establishing joint air-patrol units to cooperate more equitably in protecting their joint airspace, share intelligence and military infrastructure such as airfields in peacetime, while also forming a modular battalion-level rapid deployment force specialized in extreme climate operations.[119] Such efforts should be extended to other states in the Baltic Sea region.

We offer three suggestions: increasing the breadth and depth of national and multinational maritime exercises, increasing cooperation in anti-submarine and MCM operations, and further extending recent bilateral agreements that NATO members have reached with Sweden and Finland.

First, we suggest modifying the annual BALTOPS maritime exercises that cover air defence, maritime interdiction, ASW, and amphibious operations in a joint environment to increase capability and interoperability between NATO navies and those of their regional partners. Mission sets could be increased to include missile defence, MCM, sea lane protection, and submarine operations – i.e., a full spectrum of high-end naval missions.

Second, exercises amongst Baltic Sea navies such as the annual Northern Coasts (NOCO) could be supplemented with the inclusion of lower-end maritime security, visit-board-search-and-seizure (VBSS) operations, fishery protection, and search and rescue (SAR) missions. Such exercises should include regional coast guards and border forces, port authorities and other maritime agencies, police forces, and intelligence services that would deal with hybrid threats – both at sea and ashore – to build seamless cooperative relations. Furthermore, regional navies, coast guards, and harbour authorities should specifically develop an exercise to practice detecting and quickly removing scuttled vessels that could block a harbour, and plan for the re-routing of cargo vessels to alternative ports to minimize disruptions to trade. Coordinating these exercises would advance the training agenda in the region first enunciated in the 28+2 (NATO + Sweden and Finland) North Atlantic Council meeting of 22 April 2015.[120] Including Sweden and Finland in the early stages of planning these exercises would enhance coordination and interoperability – as well as educate NATO planners of the capabilities, approaches, and constraints that these partner nations face.

Third, cooperation to further increase maritime domain awareness (MDA) should be pursued. The Baltic Sea littoral states can build upon existing frameworks – Sea-surveillance Co-operation: Finland and Sweden (SUCFIS), Sea-surveillance Co-operation: Baltic Sea (SUCBAS), and the European Defence Agency's Maritime Surveillance (MARSUR) – in a number of ways. Bilateral cooperation in maritime domain awareness between Finland and Sweden began in the 1990s and was formalized in SUCFIS in 2006.[121] SUCFIS involves the automated exchange of daily reports and classified information between the military commands of Sweden and Finland.[122] It has provided the basis for deeper military cooperation between the two countries, including the establishment of a joint standing naval task group for surface, amphibious, and mine countermeasure operations that will be fully operational by 2023.[123]

In 2009, Sweden and Finland used SUCFIS as the basis to invite Denmark, Germany, Estonia, and Latvia to join them and form SUCBAS, with Poland and Lithuania joining later that year and the United Kingdom joining in 2015.[124] SUCBAS does not displace SUCFIS, but rather exists in parallel, expanding maritime domain awareness through the automated distribution of open, unclassified information to all participating nations.[125] This includes civil and military intelligence, identifying ships whose records are dubious or suspected of criminal involvement, previous port calls, cargo manifests, seaworthiness, and observed navigational behaviour.[126] Russia was also invited to join but has declined to do so.[127]

Furthermore, each of these countries – except Denmark – participate in the European Defence Agency's Maritime Surveillance (MARSUR) project to facilitate the "exchange of operational maritime information and services such as ship positions, tracks, identification data, chat or images" so as to "improve maritime situational awareness, produce and share a maritime picture, improve interoperability and co-operation between EU military and civilian maritime authorities and other international maritime actors."[128]

The basic trajectory of deepening and widening cooperation in maritime domain awareness should be continued. First, national agencies responsible for maritime domain awareness can increase the degree to which they are attuned to hybrid threats in the maritime domain. For instance, the high level of commercial traffic could afford Russia the opportunity to seed mines from non-traditional delivery platforms. Second, each state could increase their efforts to bridge the civil-maritime divide in their respective countries.[129] Third, these states could

increase the degree to which they routinely share classified information about the maritime domain.

Beyond increasing the integration of their national and international intelligence sharing, the Baltic littoral states should increase their capability to gather maritime intelligence, surveillance, and reconnaissance (ISR). Maritime patrol aircraft fleets have declined markedly since the Cold War and these capabilities should now be rebuilt.[130] Multinational consortia that build upon SUCBAS along the lines that Finland and Sweden have built upon SUCFIS could play a significant role in increasing maritime domain awareness. Magnus Nordenman has suggested a NATO-wide consortium to acquire a family of systems to provide for maritime domain awareness in the littoral regions around the Alliance that could also be divided into regional groupings, although his suggested members – the UK, Norway, Germany, the Netherlands, Italy, Spain, France, Poland, Bulgaria, Romania, Greece, Turkey, and the United States – include only two Baltic littoral states.

A more focused multilateral solution should be pursued. For example, utilizing the lead nation concept within NATO, Poland could enlarge its ambitions to acquire a national medium altitude long endurance (MALE) unmanned aerial vehicle (UAV) fleet to lead a regional effort consisting of Poland, Denmark, and the Baltic states. The Mirosławiec air base that Poland plans to use to monitor regional threats would be perfectly situated for Baltic Sea patrols.[131] Furthermore, Denmark and the Baltic states do not possess or operate theatre-level UAV systems and could benefit from working with a larger partner to gain operational experience and share the risks and burdens of integrating a new capability into their air forces.[132]

Further, more focus could be brought to bear on utilizing the information and intelligence that is shared within these systems. The European Commission's High Representative for Foreign Affairs and Security Policy recommended the establishment of a Hybrid Fusion Cell to offer a single focus for the analysis of hybrid threats within the EU Intelligence and Situation Centre (EU INTCEN) of the European External Action Service (EEAS).[133] Given the position of the Baltic Sea region on the front-line of potential Russian aggression, it would be prudent to set up a Baltic Sea region Hybrid Threats Fusion Cell at a secure location within the region. The Center could liaise with the EU Hybrid Fusion Cell and an appropriate counterpart in NATO, develop a specific understanding of potential threats throughout the region, and coordinate closely with regional states on relevant early warning indicators. The

cell would undoubtedly find it useful to rebuild a regional analytical capability focused on Russian priorities, motivation, capabilities, and planning.

5.2 Addressing Social Vulnerabilities

It is difficult to suggest comprehensive solutions that address the vulnerability of the Baltic states to social disruptions that might be triggered by Russian information warfare campaigns directed at their Russian speaking populations. These vulnerabilities are large and systemic, tied to the social, economic, political, cultural, and linguistic integration of peoples and groups within society and are beyond the ambitions of a report such as this. Still, useful policy prescriptions have been offered and are being pursued by others. The European Commission's High Representative for Foreign Affairs and Security Policy has argued that those seeking social disruption "can systematically spread disinformation, including through targeted social media campaigns, thereby seeking to radicalize individuals, destabilize society, and control the political narrative. The ability to respond to hybrid threats by employing a sound strategic communication strategy is essential. Providing swift factual responses and raising public awareness about hybrid threats are major factors for building societal resilience."[134] Denmark, Estonia, Lithuania, and the United Kingdom signed a so-called EU non-paper in January 2015 to the effect that EU member states should "consider how they might improve co-operating more effectively when following up complaints on reporting where rules on due impartiality have been breached," such as when Russian media outlets air demonstrably false "news" stories in EU media markets.[135] Furthermore, the non-paper called for EU support for independent or alternative Russian-language media in Europe along the lines of US government-funded broadcaster Radio Free Europe/Radio Liberty.[136] Such an initiative could dovetail with American assistance to the Baltic states in support of "independent investigative media" as part of a wider strategy to build NATO's resilience.[137] Finally, although each state will wish to conduct its own strategic communications strategy, a regionally-based centre of excellence could act as a focal point for exchange of best practices, audience research, content production, and messaging.

5.3 Addressing Economic Vulnerabilities

The economies of the Baltic states, as well as of their neighbours, have several vulnerabilities that could be exploited to prepare the ground for further political or military action: energy dependence on Russia, the vulnerability of undersea communications cables and other infrastructure, and port and supply chain security are but three areas that should be addressed.

5.3.1 Addressing Energy

Diversification of energy supply away from exclusively Russian sources is already underway among the Baltic states. A new facility for the import and regasification of liquefied natural gas (LNG) has been built at Klaipeda in Lithuania. Ensuring its security is vital. Further diversification could be achieved if additional terminals were built in Estonia and Latvia with reversible-flow pipelines linking all three terminals. Ideally, a trans-Baltic pipeline should be built to link the Baltic States with the Swedish system (Swedegas), which could transmit gas from its new terminal in Gothenburg on Sweden's west coast in the event that LNG carriers were unable to pass though the Danish straits.[138] These pipelines would supplement the NordBalt power cable laid between Sweden and Lithuania. Notably, this link was interfered with by Russian warships on three occasions during the course of its construction. In each case, Russia claimed the area would be used for military exercises.[139] Further links should be laid between Sweden, Finland, Estonia, and Latvia. All three Baltic states should be tied into the European electrical power grid and steps should be taken to address Russia's potential reactions to the severing of the current links between it and Kaliningrad that pass through the Baltic states.

5.3.2 Addressing Undersea Cables

With regard to undersea communications cables, developing incentive structures for the private companies that own and maintain the infrastructure is necessary if they are to increase redundancy in their systems and make the necessary investments to decrease the time required to track down and repair cable outages. But reliance on the private sector is not the only option. Admiral Stavridis (ret) has argued that "we need to build more resiliency and redundancy into the underwater cable network. It is far too vulnerable to sabotage, especially at the terminals where the cables are in relatively shallow water. We need more 'dark cables' that are not operational but kept in reserve."[140] Just as states have taken to laying their own cable for secure internet communications, they could also build their own undersea cable networks to meet this need. Indeed, this could be an ideal area for cooperation between the Baltic littoral states; one that requires more investment than any one state would desire to make while benefitting those that decide to cooperate.

Furthermore, the Baltic littoral states could form a cooperative consortium to supplement the activities of the International Cable Protection Committee. This private-public consortium should undertake three activities. First, it should monitor the integrity of the undersea cable network. This could be done through a regular inspection scheme, which could include the

use of autonomous underwater vehicles that continuously patrol the length of the cables, exemplified by The Defense Advanced Research Projects Agency's (DARPA's) Anti-Submarine Warfare (ASW) Continuous Trail Unmanned Vessel (ACTUV).[141] Secondly, the consortium should establish contingency contracts with companies capable of repairing outages and of establishing a rapid response force to deal with outages when they occur. Finally, the consortium should develop exercises that incorporate these private entities into operations of navies or coast guards to improve coordination and response times in such contingencies. Developing and demonstrating the ability to detect and repair outages would increase their resilience and perhaps deter attempts to exploit the vulnerability of this critical infrastructure.

5.3.3 Addressing Port and Supply Chain

In line with the steps laid out in the EU Maritime Security Strategy Action Plan, the Baltic Sea littoral states should emphasize port and supply chain security. The maritime industry is taking steps to address port and shipping cyber-security, but the problem requires governmental attention as well. The United States Department of Homeland Security operates the National Cybersecurity and Communications Integration Center (NCCIC) to oversee the protection of federal civilian agencies in cyberspace.

> The NCCIC is the central civilian portal (public-private partnership) for near-real-time cyber threat indicator sharing. It is a 24x7 cyber situational awareness, incident response, and management centre that is a national nexus of cyber and communications integration for the Federal Government, intelligence community, and law enforcement. The NCCIC shares information among the public and private sectors to provide greater understanding of cybersecurity and communications situation awareness of vulnerabilities, intrusions, incidents, mitigation, and recovery actions.[142]

The NCCIC could serve as a model that could be replicated in a multilateral setting amongst the Baltic littoral states, perhaps as an adjunct to SUCBAS or the NATO Shipping Centre.[143] But the maritime industry would also play a crucial role. The Baltic and International Maritime Council (BIMCO), headquartered in Denmark, could serve as the industry's focal point and interface with a Baltic Sea NCCIC-like entity. While the initial focus could be on the Baltic Sea, this could be extended to other maritime areas around Europe in due course.[144] It may also prove productive to engage with the NATO Cooperative Cyber Defence Centre of

Excellence (CCDCOE) in Estonia in an initial study of how Russia might conduct a maritime cyber campaign and examining the measures that states in the region should take to counter it.

5.4 Addressing Political Vulnerabilities

The primary political vulnerabilities in the Baltic Sea region discussed above were the handful of unsettled boundary disputes between the Baltic Sea littoral states. The disputes with Russia are obvious potential issues of contention that cannot be resolved as long as they are kept alive as irritants by Russia. But the unsettled boundaries between Latvia and Lithuania over oil exploration rights in the Gulf of Riga should be attended to before this potential rivalry is exploited. There are multiple fora that could be used to engage with politicians in the two Baltic states, but perhaps a high-level meeting with officials from the United States would highlight the potential seriousness of the vulnerability and be sufficient to encourage an amicable settlement. Finally, Danish and Polish officials should continue managing the issue the maritime border between Denmark and Poland south of the island of Bornholm through the European Union's marine strategy framework directive in a cooperative manner.

Table 2: Summary of Vulnerabilities and Mitigation Measures

Vulnerability	Mitigation
Geography	• Increase NATO capability and credibility - Readiness Action Plan • Enhance regional exercises - BALTOPS • Enhance ASW and mine countermeasures • Enhance maritime domain awareness - SUCFIS, SUCBAS, and MARSUR - Multilateral MALE UAV fleet - Hybrid fusion cell
Social	• Build partner capacity • Regulate Russian propaganda broadcasts • Initiate and promote Russian language independent media • Strategic communications centre of excellence
Economic	• Energy - Additional LNG terminals - Trans-Baltic pipeline • Undersea cables - Increase redundancy and resilience - Lay “dark cables” - Private-public consortium for monitoring and repairs • Port and supply chain security - Private-public maritime cyber security centre
Political	• Maritime boundaries - US Delegation to Latvia and Lithuania - Focus on Denmark and Poland

6. Conclusions

The Baltic Sea region has become a new frontline of friction between the West and a revanchist Russia. In 2014, Russia demonstrated a disquieting ability and willingness to destabilize its Ukrainian neighbour. The measures used included:

- Fostering separatism amongst Russian-speaking minorities
- Covert use of its SOF to focus and advise indigenous “self-defence” forces
- Coercion of Ukrainian military forces and civilian leaders
- Deployment of regular military units to consolidate gains
- Use of “snap exercises” to deter external intervention
- Inducing confusion and paralysis amongst local Ukrainian decision-makers by wrapping its activities in a sophisticated and effective information warfare campaign that also fostered sufficient ambiguity internationally to delay the assessments and decision-making process of Western governments.

Concern has grown that Russia could utilize such hybrid tactics, techniques, and procedures against the Baltic states of Estonia, Latvia, and Lithuania – and perhaps others – to achieve significant political objectives without posing the clear and unambiguous military threat that would virtually guarantee a response by the Alliance.

We argued that there are potential vulnerabilities that Russia could exploit to cause social, economic, or political disruption in the Baltic states – indeed, that it was already testing their responses and those of NATO. An absent or inadequate response at this point in time would leave the way open for Russia, at any time, to exacerbate instability through an intense information warfare campaign, perhaps facilitated through the covert deployment of Russian SOF aiming to achieve substantial political objectives – including those related to the maritime domain. With this in mind, we argue that the geography of the Baltic Sea enables Russian capabilities based in Kaliningrad and in Russia proper near St. Petersburg to challenge NATO access to the region overland through Poland as well as by air or sea. The combination of the low-intensity activities and potentially high-intensity combat could hinder the ability of the Alliance to determine an appropriate and timely course of action.

A reasonable course will be to address the challenges posed by Russian A2/AD capabilities as well as the vulnerabilities that could be exploited by Russia. We therefore made the following proposals:

1. **To address the ability of Russia to challenge NATO access to the Baltic states and the Baltic Sea more generally:**
    a. NATO should continue to implement the Readiness Action Plan agreed at the 2014 Wales summit.
    b. NATO should continue to broaden and deepen the tasks included in the annual BALTOPS exercise to increase the capability of regional navies to engage in missile defence, MCM, sea lane protection, and submarine operations.
    c. Maritime exercises by regional navies should practice lower-end maritime tasks, such as visit-board-search-and-seizure (VBSS) operations, fishery protection, and search and rescue (SAR) missions and should include coast guards and border forces, port authorities and other maritime agencies, police forces, and intelligence services capable of dealing with hybrid threats.
    d. Regional navies, coast guards, and other maritime agencies should develop and execute an exercise to practice detecting and quickly removing scuttled vessels that could block a harbour and plan the re-routing of cargo vessels to alternative ports.
    e. The cooperative institutions of maritime domain awareness for the Baltic Sea – SUCFIS, SUCBAS, and MARSUR – should be enhanced to include hybrid warfare activities, bridging the civil-military divide, and increasing the sharing of classified information and analyses to the greatest extent possible.
    f. Procurement of a multinational MALE UAV capability should be considered and operated by NATO members in the region.
    g. A Baltic Sea region Hybrid Threats Fusion Cell should be established at a secure location in the region.

2. **To address the social vulnerabilities posed by Russian-speaking minorities in the region:**
    a. Each nation should develop a sound strategic communications strategy to counter disruptive Russian propaganda. These strategies could be shared, facilitated, and harmonized through a regional centre of excellence.

b. The EU non-paper’s call for cooperation regulating Russian media should be implemented.
c. The EU non-paper’s call for establishing independent and alternative Russian-language media and investigative journalism should be implemented.

3. **To address the region’s economic vulnerabilities**:
    a. Facilitate the further diversification of suppliers of gas, oil, coal, and electricity available to the states in the region through:
        i. Constructing additional liquefied natural gas terminals in the Baltic states
        ii. Connecting a trans-Baltic pipeline to the Swedish system (Swedegas).
        iii. Further linking the Baltic states and Poland to the European power grid – and preparing for Russian reaction as this would isolate Kaliningrad and require the construction of additional Russian power infrastructure.
    b. Increase the resilience of undersea critical infrastructure, particularly communications cables through:
        i. Investing in redundant capacity by laying “dark cables” that are kept as an operational reserve.
        ii. Establishing a private-public consortium to monitor the integrity of the undersea cable network, perhaps with autonomous underwater vehicles, with contingency contracts to set up a rapid response force to deal with outages when they occur, and developing exercises to integrate the activities of these private entities with operations of navies or coast guards to improve coordination and response times in such contingencies.
    c. Improve the security of port facilities and the maritime supply chain by establishing a multilateral public-private partnership for near-real-time cyber threat indicator sharing with BIMCO as the focal point for the private maritime industry to engage with regional authorities.

4. **To address potential political vulnerabilities in inter-state relations in the region**:
    a. General efforts to continue and deepen political, diplomatic and military-to-military dialogue around the Baltic Sea with NATO and partner countries.
    b. High-level focus, perhaps from the United States, on the boundaries between Latvia and Lithuania in the Gulf of Riga and the ensuing rights to oil exploration.

The Baltic Sea region faces urgent security challenges that require significant levels of cooperation between the Baltic littoral states. These states will be able to build upon their substantial record of cooperation in order to meet those challenges. This cooperation is built on different institutional frameworks developed in parallel between the Baltic states, between the Nordic states, between NATO members and their partners, and between members of the European Union. While this variety of venues for security governance presents some potential organizational challenges, the severity of the hybrid and conventional military challenge posed by a revanchist Russia suggests that the substantial patterns of practical cooperation between governments and militaries of the states surrounding the Baltic Sea will be capable of rising to meet this challenge.

7. Endnotes

[1] Tom Balmforth, "Russia Mulls Special Day to Recognize its 'Polite People'," *Radio Free Europe/Radio Liberty* (4 October 2014); Richard Oliphant, "Ukraine Crisis: 'Polite People' Leading the Silent Invasion of the Crimea," *Daily Telegraph* (2 March 2014).

[2] Simon Shuster, "Putin's Confessions on Crimea Expose Kremlin Media," *Time* (20 March 2015).

[3] Martin N. Murphy, "Understanding Russia's Concept for Total War in Europe," *Heritage Foundation Special Report No. 184 on National Security and Defense* (Washington: Heritage Foundation, 12 September 2016), available at http://www.heritage.org/research/reports/2016/09/understanding-russias-concept-for-total-war-in-europe.

[4] Tracy Wilkinson, "Former Soviet Bloc Gets Jitters: Poland, Ukraine, Moldova and the Czechs Worry They Could be Next after the Invasion of Georgia," *Los Angeles Times* (19 August 2008); Nicholas Kulish, "Georgian Crisis Brings Attitude Change to a Flush Poland," *The New York Times* (20 August 2008); Mark Kramer, "Russia, the Baltic Region, and the Challenge for NATO," *PONARS Eurasia Policy Memo* No. 267 (July 2013); Michael Birnbaum, "In Latvia, Fresh Fears of Aggression as Kremlin Warns about Russian Minorities," *The Washington Post* (27 September 2014); Karl-Heinz Kamp, "The Agenda of the NATO Summit in Warsaw," *Bundesakademie für Sicherheitspolitik Security Policy Working Paper* No. 9 (2015).

[5] David A. Shlapak and Michael W. Johnson, *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica: RAND Corporation, 2016), page 1. Although these wargames have been criticized (Michael Kofman, "Fixing NATO Deterrence in the East or: How I Learned to Stop Worrying and Love NATO's Crushing Defeat by Russia," *War on the Rocks* (16 May 2016); Michael Kofman, "Russian Hybrid Warfare and Other Dark Arts," *War on the Rocks* (11 March 2016); Doug Bandow, "Why on Earth Would Russia Attack the Baltics?" *The National Interest* (7 February 2016); Robert Person, "6 Reasons not to Worry about Russia Invading the Baltics," *Monkey Cage* (12 November 2015), a March 2014 "snap exercise" demonstrated the Russian ability to quickly seize key areas in the Baltic Sea, including the Åland Archipelago (demilitarized Finnish territory with a Swedish-speaking population), the Swedish island of Gotland, and the Danish island of Bornholm (Edward Lucas, *The Coming Storm: Baltic Sea Security Report* (Warsaw: Center for European Policy Analysis, June 2015), page 9).

[6] SHAPE Public Affair Office, "Enhanced NATO Air Policing Patrols Baltic Airspace" (Mons: NATO, 30 January 2015); Mike McCord, *European Reassurance Initiative. Department of Defense Budget Fiscal Year (FY) 2016* (Washington: Office of the Under Secretary of Defense (Comptroller), February 2015); Barack Obama, *Statement by the President on the FY2017 European Reassurance Initiative Budget Request* (Washington: The White House, 2 February 2016); U.S. European Command, *EUCOM Announces European Reassurance Initiative Implementation Plan* (Brussels: U.S. Mission to the North Atlantic Treaty Association, 30 March 2016), available at https://nato.usmission.gov/eucom-announces-european-reassurance-initiative-implementation-plan/, accessed 18 May 2016.

[7] Michelle Martin, Adrian Croft, and Sonya Hepinstall, "NATO Would Respond Militarily to Crimea-style Infiltration: General," *Reuters* (17 August 2014); Andrew Rettman, "NATO Chief Warns Russia against 'Green Men' Tactics," *EUobserver* (18 August 2014); Ambrose Evans-Pritchard, "Putin Could Attack Baltic States Warns Former NATO Chief," *The Telegraph* (5 February 2015); "Russia Targets NATO With Military Exercises," *STRATFOR* (19 March 2015); "US NATO General Fears Rapid Russian Troop Deployments," *BBC News* (20 June 2016); Ashton Carter, "Remarks at EUCOM Change of Command. As Delivered by Secretary of Defense Ash Carter, Stuttgart, Germany, May 3, 2016" (Washington: Department of Defense, 3 May 2016); Tom Batchelor, "Putin Preparing for Next Crimea? Russia Using Exercises to Mass Troops at Europe Border," *Express* (31 May 2016).

[8] Danish Defence Intelligence Service, *Intelligence Risk Assessment 2015: An Assessment of Developments Abroad Impacting on Danish Security* (Copenhagen, Danish Defence Intelligence Service, 27 October 2015), page 20.

[9] Jim Garamone, "NATO Focuses on Combating Hybrid Warfare," *DoD News* (14 May 2015); NATO, "NATO Foreign Ministers Address Challenges to the South, Agree New Hybrid Strategy and Assurance Measures for Turkey" (1 December 2015), available at http://www.nato.int/cps/en/natohq/news_125368.htm, accessed 1 August 2016.

[10] General James T. Conway (USMC), Admiral Gary Roughead (USN), and Admiral Thad W. Allen (USCG), *A Cooperative Strategy For Maritime Security* (Washington: Department of Defense, October 2007); Admiral Gary Roughead (USN), "Remarks at the Current Strategy Forum, Naval War College, Newport, R.I." (16 June 2009); James Conway, *Marine Corps Vision and Strategy 2025* (Washington: Headquarters, U.S. Marine Corps, June 2008); General Martin Dempsey (U.S. Army), "Versatility as an Institutional Imperative," *Small Wars Journal* (10 March 2009); General James Amos (USMC), 35th *Commandant of the Marine Corps Commandant's Planning Guidance* (Washington: Headquarters, US Marine Corps, November 2010); Raymond T. Odierno, "The U.S. Army in a Time of Transition," *Foreign Affairs* 91, 3 (May/June 2012), page 10.

[11] Mary Kaldor, *New and Old Wars: Organized Violence in a Global Era* (Cambridge: Polity, 2001); Mark Duffield, *Global Governance and the New Wars: The Merging of Development and Security* (London: Zed, 2001); Herfried Münkler (Patrick Camiller, translator), *The New Wars* (Cambridge: Polity Press, 2005); Rupert Smith, *The Utility of Force: The Art of War in the Modern World* (New York: Alfred A. Knopf, 2007); William S Lind, Keith Nightingale, John F. Schmitt, Joseph W. Sutton, Gary I. Wilson, "The Changing Face of War: Into the Fourth Generation," *Marine Corps Gazette* (October 1989); William S. Lind, "Understanding Fourth Generation War," *Military Review* (September-October 2004); Thomas X. Hammes, *The Sling and the Stone: On War in the 21st Century* (St. Paul: Zenith Press, 2004); Antulio J. Echevarria II, *Fourth-Generation War and Other Myths* (Carlisle: Strategic Studies Institute, November 2005); Frank G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid War* (Arlington: Potomac Institute for Policy Studies, 2007); Frank G. Hoffman, "Hybrid Warfare and Challenges," *Joint Force Quarterly* 52 (Spring 2009); Douglas A. Ollivant, "The Rise of the Hybrid Warriors: From Ukraine to the Middle East," *War on the Rocks* (9 March 2016).

[12] "Editor's Introduction: Complex Crises Call for Adaptable and Durable Capabilities," *The Military Balance 2015* (London: Routledge, 2015), page 5; Ian Speller, "Introduction to the Second Edition," in David Jordan, James D. Kiras, David J. Lonsdale, Ian Speller, Christopher Tuck, and C. Dale Walton, *Understanding Modern Warfare. Second Edition* (Cambridge: Cambridge University Press, 2016), page 9.

[13] Frank G. Hoffman, "Hybrid vs. Compound War: The Janus Choice of Modern War: Defining Today's Multifaceted Conflict," *Armed Forces Journal* (October 2009); Williamson Murray and Peter R. Mansour, editors, *Hybrid Warfare: Fighting Complex Opponents from the Ancient World to the Present* (Cambridge: Cambridge University Press, 2012); Timothy McCulloh and Richard Johnson, *Hybrid Warfare. Joint Special Operations University Report 13-4* (August 2013) available at http://jsou.socom.mil/JSOU%20Publications/JSOU%2013-4_McCulloh,Johnson_Hybrid%20Warfare_final.pdf, accessed 25 July 2016; Nadia Schadlow, "The Problem with Hybrid Warfare," *War on the Rocks* (2 April 2015); Damien Van Puyvelde, "Hybrid War – Does It Even Exist?" *NATO Review* (May 2015).

[14] Hoffman. *Conflict in the 21st Century*, page 8.

[15] Hoffman, "Hybrid vs. Compound War," pages 1–2; Hoffman, "Hybrid Warfare and Challenges," pages 35–37.

[16] Robert M. Gates, "The National Defense Strategy: Striking the Right Balance," *Joint Force Quarterly* 52 (January 2009), pages 2–7; Leon Panetta, "Lee H. Hamilton Lecture, As Delivered by Secretary of Defense Leon E. Panetta, Woodrow Wilson Center, Washington, DC, Tuesday, October 11, 2011" (Washington: Department of Defense, 11 October 2011); *U.S. Army Doctrine Publication 3–0, Unified Land Operations* (Washington: Headquarters U.S. Army, October 2011); United States National Intelligence Council, *Global Trends 2030: Alternative Worlds* (Washington: Office of the Director of National Intelligence, April 2012), page 65; Her Majesty's Government, *National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom* (London: Her Majesty's Stationary Office, November 2015); *Wales Summit Declaration. Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Wales* (Brussels: North Atlantic Treaty Organization, 5 September 2014); Peter Taksøe-Jensen, et al., *Dansk diplomati og forsvar i en brydningstid: Vejen frem for Danmarks interesser og værdier mod 2030* (Copenhagen: Ministry of Foreign Affairs, May 2016).

[17] *Wales Summit Declaration*, paragraph 13.

[18] Robert Orr, "Why Crimea Matters to Russia," *The Financial Times* (3 March 2014).

[19] Orr, "Why Crimea Matters to Russia."

[20] Orr, "Why Crimea Matters to Russia."

[21] Gallup, *Contemporary Media Use in Ukraine* (Washington: Broadcasting Board of Governors, June 2014), available at https://www.bbg.gov/wp-content/media/2014/06/Ukraine-research-brief.pdf, accessed 27 July 2016. "Asked to name their three most important sources of news and information, Crimeans' five most commonly named media outlets include four TV channels owned by the Russian state: Russia 24, NTV, ORT (Channel One), and RTR (Russia-1). Their fifth most commonly named source is the Russian social media giant VKontakte." This survey was conducted after all Ukrainian news sources were blocked and "represent[ed] an important change since the 2012 survey, when Crimeans' top five news sources were all Ukrainian TV stations."

[22] Orr, "Why Crimea Matters to Russia."

[23] Stephen J. Cimbala, "Sun Tzu and Salami Tactics? Vladimir Putin and Military Persuasion in Ukraine, 21 February–18 March 2014," *The Journal of Slavic Military Studies* 27, 3 (Autumn 2014), page 378.

[24] Ministry of Foreign Affairs of the Russian Federation, "СООБЩЕНИЕ ДЛЯ СМИ: О встрече в МИД России с советником-посланником Посольства Украины в Российской Федерации," ["PRESS RELEASE: About the meeting of the Russian Foreign Ministry with Minister-Counselor of the Embassy of Ukraine in the Russian Federation"] (28 February 2014), available at http://archive.mid.ru//brp_4.nsf/newsline/F2C86A40B49E817544257C8D00485C4F, accessed 26 July 2016; Ron Synovitz, "Russian Forces in Crimea: Who Are They and Where Did They Come From?" *Radio Free Europe/Radio Liberty* (4 March 2014).

[25] Synovitz, "Russian Forces in Crimea."

[26] Lukas Milevski, "Little Green Men in the Baltic States Are an Article 5 Event," *FPRI Baltic Bulletin* (January 2016). In these ways, Russian hybrid behavior was similar to that described as "maritime irregular warfare" by Molly Dunigan, Dick Hoffmann, Peter Chalk, Brian Nichiporuk, and Paul Deluca, *Characterizing and Exploring the Implications of Maritime Irregular Warfare* (Santa Monica: The RAND Corporation, 2012).

[27] Image available at http://13571113.blogspot.dk/2014_03_01_archive.html, accessed 27 July 2016 (License: 2014 CNES/Atrium).

[28] Anton Lavrov, "Russian Again: The Military Operation for Crimea," in Colby Howard and Ruslan Puhkov, editors, *Brothers Armed: Military Aspects of the Crisis in Ukraine* (Minneapolis: East View Press, 2014), page 167.

[29] Sam Webb and Damien Gayle, "Vladimir Putin Scuttles His Own Navy Warship in Black Sea to Block Ukrainian Vessels from Leaving Port as Crimeans Face Referendum on Whether to Join Russia," *Daily Mail* (6 March 2014).

[30] Philip Shishkin, "One-Ship Ukraine Navy Defies Russia to the End," *The Wall Street Journal* (26 March 2014); Cid Standifer, "Ukraine's Last Ship," *USNI News* (11 April 2014).

[31] Standifer, "Ukraine's Last Ship."

[32] Cimbala, "Sun Tzu and Salami Tactics?" page 362.

[33] Klaus Carsten Pedersen, "Denmark and the European Security and Defence Policy," in Alyson J. K. Bailes, Gunilla Herolf, and Bengt Sundelius, editors, *The Nordic Countries and the European Security and Defence Policy* (Oxford: Oxford University Press, 2006), page 49; Håkon Lunde Saxi, *Norwegian and Danish Defence*

Policy: A Comparative Study of the Post-Cold War Era (Oslo: Norwegian Institute for Defence Studies, 2010), page 22.

[34] For instance, Denmark permitted its naval forces to participate in naval exercises in the Baltic Sea east of Bornholm (Karoliina Honkanen, *The Influence of Small States on NATO Decision-Making: The Membership Experiences of Denmark, Norway, Hungary and the Czech Republic* (Stockholm: The Swedish Defence Research Agency, November 2002), page 44). See also Michael H. Clemmesen, "The Politics of Danish Defence, 1967–1993," in Carsten Due-Nielsen and Nikolaj Petersen, editors, *Adaptation and Activism: The Foreign Policy of Denmark 1967–1993* (Copenhagen: DJØF Publishing, 1995); Bertel Heurlin, "Danish Security Policy over the Last 50 Years – Long-Term Essential Security Priorities," in Bertel Heurlin and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 2001* (Copenhagen: Danish Institute for International Affairs, 2001); Jens Ringsmose and Sten Rynning, "The Impeccable Ally? Denmark, NATO, and the Uncertain Future of Top Tier Membership," in Nanna Hvidt and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 2008* (Copenhagen: Danish Institute for International Studies, 2008); Anders Wivel, "From Peacemaker to Warmonger? Explaining Denmark's Great Power Politics," *Swiss Political Science Review* 19, 3 (September 2013).

[35] Hans Mouritzen, "Denmark in the Post-Cold War Era: The Salient Action Spheres," in Bertel Heurlin and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 1997* (Copenhagen: Danish Institute of International Affairs, 1997); Ann-Sofie Lundgren, "Security in the Nordic-Baltic Region: From Cold War to a Unipolar World," in Ann-Sofie Frühling and Pauli Järvenpää, editors, *Northern Security and Global Politics: Nordic-Baltic Strategic Influence in a Post-Unipolar World* (Oxford: Routledge, 2014), pages 72-73; Saxi, *Norwegian and Danish Defence Policy*, pages 39–40.

[36] NATO, "Relations with Finland" (14 June 2016), available at http://www.nato.int/cps/en/natohq/topics_49594.htm, accessed 6 August 2016; NATO, "Relations with Sweden" (14 June 2016), available at http://www.nato.int/cps/en/natohq/topics_52535.htm?selectedLocale=en, accessed 6 August 2016.

[37] Anna Wieslander, "NATO, the U.S. and Baltic Sea Security," *UIpaper* No. 3 (Stockholm: Swedish Institute of International Affairs, 2016), page 5.

[38] Jacek Bartosiak and Tomasz Szatkowski, *Geography of the Baltic Sea. Military Perspective. Implications for the Polish Armed Forces Modernisation* (Warsaw: National Centre for Strategic Studies, December 2013), page 18.

[39] Global Ports, "Key Russian Gateways" (Undated).

[40] Gazprom Export, "Nord Stream," available at http://www.gazpromexport.ru/en/projects/, accessed 7 August 2016.

[41] Map created by authors with National Geographic MapMaker Interactive, available at http://mapmaker.nationalgeographic.org/.

[42] Matthew Bodner, "Massive Leadership Cull in Russia's Baltic Sea Fleet," *Defense News* (1 July 2016).

[43] International Institute for Strategic Studies, *The Military Balance 2016* (London: Routledge, 2016), page 196.

[44] Wertheim, *The Naval Institute Guide to Combat Fleets,* pages 230-1, 583-5, and 691-2. Arguably, the Russian *Kilo*-class and even the more recent *Lada*-class may be too large for effective Baltic Sea operations. Both classes are notably larger than the Swedish *Gotland*-class and the German 212A-class boats. They are also likely to be noisier, given that Russian industry is having problems mastering AIP propulsion systems. Reports suggest that Russia will abandon the *Lada*-class after three boats and concentrate instead on a follow-on ("fifth-generation") submarine – *Kalina*-class – which will be powered by Russian AIP technology. This boat is not expected to enter production before 2020 (Franz-Stefan Gady, "'Mini Red Octobers': Russia to Push on With Stealth Submarine Program," *The Diplomat* (2 February 2016); Dave Majumdar, "Russia Ramps up Switch to Next-Gen Submarines," *The National Interest* (19 January 2016); *The Russian Navy: An Historic Transition* (Washington: Office of Naval Intelligence, 2015), page 19).

However, Sweden's new A26 class, which is reported optimized for "surveillance operations and intelligence collection in littoral regions," is around the same size as the *Lada*-class. See Wertheim, *The Naval Institute Guide to Combat Fleets,* page 691. Russia probably operates hydrophone arrays around Kaliningrad.

[45] Damien Sharkov, "Russian Navy Practices Anti-Submarine Combat in Baltic and Arctic," *Newsweek* (10 July 2015).

[46] Kaarel Kaas, "Russian Armed Forces in the Baltic Sea Region," *Diplomaatia* 130/131 (June/July 2014). Each ship carries 8 Kh-35 Uran (NATO designation SS-N-25 Switchblade) SSMs with a 5-130-km range (Eric Wertheim, *The Naval Institute Guide to Combat Fleets of the World.* 16th Edition (Annapolis, MD: Naval Institute Press, 2013), pages 564 and 594.

[47] Kaas, "Russian Armed Forces in the Baltic Sea Region"; Rick Gladstone, "Air Force General Says Russia Missile Defense 'Very Serious'," *New York Times* (11 January 2016); "Moscow Confirms Deployment of Iskander Missiles on NATO Borders," *RT* (16 December 2013). The Danish Defence Intelligence Service more conservatively assesses that "Russia already has the military capability to threaten the access of substantial NATO reinforcements to the Baltic countries in the form of air defence missile systems in Western Russia that cover most of the airspace of the Baltic countries. In addition, in the next few years, Russia will highly likely improve its access denial capability with the deployment of new surface-to-surface missiles and coastal defence missiles to the Kaliningrad region" (Danish Defence Intelligence Service, Intelligence Risk Assessment 2015, page 19).

[48] Russia appears to have rotated *Iskander* missiles through Kaliningrad on two occasions. In 2016 Reuters reported that these missiles will be based there permanently starting in 2019. Andrew Osborn, "Russia Seen Putting New Nuclear-Capable Missiles Along NATO Border by 2019," *Reuters* (23 June 2016).

[49] "3M55 Oniks/P-800 Yakhont/P-800 Bolid/SS-N-26," *Global Security* website, available at http://www.globalsecurity.org/military/world/russia/ss-n-26.htm, accessed 23 June 2016.

[50] Marcus Weisgerber, "Russia Could Block Access to Baltic Sea, US General Says," *Defense One* (9 December 2015).

[51] Adapted from Konrad Muzyka, Sean O'Connor, and Ben Nimmo, "Kaliningrad: Rhetoric and Reality," paper presented at the 2015 Riga Conference (13 November 2015), available at https://www.rigaconference.lv/rc-views/21/kaliningrad-rhetoric-and-reality, accessed 20 May 2016. Data on Russian systems present in Kaliningrad and their capabilities derived by Muzyka, O'Connor, and Nimmo from data *IHS Jane's*.

[52] Danish Defence Intelligence Service, *Intelligence Risk Assessment 2015*, page 20.

[53] Arnold, "NATO's Readiness Action Plan," pages 85-86.

[54] Shlapak and Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*, page 4.

[55] Shlapak and Johnson, *Reinforcing Deterrence on NATO's Eastern Flank*, pages 3-4.

[56] Nikolai N. Somkov, "Why Russia Calls a Limited Nuclear Strike 'De-Escalation'," *Bulletin of the Atomic Scientists* 13 (March 2014); Ian Johnston, "Russia Threatens to Use 'Nuclear Force' Over Crimea and the Baltic States," *The Independent* (1 April 2015).

[57] Murphy, "Understanding Russia's Concept for Total War in Europe."

[58] Data for 2016. Central Statistical Bureau of Latvia, "ISG07. RESIDENT POPULATION BY ETHNICITY AT THE BEGINNING OF THE YEAR," available at:
http://data.csb.gov.lv/api/v1/en/Sociala/ikgad/iedz/iedzskaits/IS0070.px, accessed 29 July 2016.

[59] Data for 2016. Statistics Estonia, "PO0222: POPULATION BY SEX, ETHNIC NATIONALITY AND COUNTY, 1 JANUARY," available at http://pub.stat.ee/px-web.2001/Dialog/varval.asp?ma=PO0222&ti=POPULATION+BY+SEX%2C+ETHNIC+NATIONALITY+AND+COUNTY

%2C+1+JANUARY&path=../I_Databas/Population/01Population_indicators_and_composition/04Population_figure_and_composition/&lang=1, accessed 29 July 2016.

[60] Data for 2011. Official Statistics Lithuania, "Population_by_ethnicity_municipality.xls," available at http://osp.stat.gov.lt/en/regionine-statistika?p_p_auth=AC7pzLVO&p_p_id=101&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&_101_struts_action=%2Fasset_publisher%2Fview_content&_101_assetEntryId=224502&_101_type=document&redirect=http%3A%2F%2Fosp.stat.gov.lt%2Fen%2Ftemines-lenteles1%3Fp_p_id%3D3%26p_p_lifecycle%3D0%26p_p_state%3Dmaximized%26p_p_mode%3Dview%26_3_groupId%3D0%26_3_keywords%3Dethnicity%26_3_struts_action%3D%252Fsearch%252Fsearch%26_3_redirect%3D%252Fen%252Ftemines-lenteles1%26_3_y%3D0%26_3_x%3D0, accessed 29 July 2016.

[61] Data for each county or municipality taken from Statistics Estonia, Central Statistical Bureau of Latvia, and Official Statistics Lithuania.

[62] https://commons.wikimedia.org/wiki/User:Xil, "Russians in the Baltic States (2011).svg," *Wikipedia* (2016), available at https://en.wikipedia.org/wiki/Russians_in_the_Baltic_states, accessed 20 July 2016, modified by Gary Schaub, Jr. (License: Creative Commons Attribution-Share Alike 3.0 Unported).

[63] "Role of Russian Media in the Baltics and Moldova," (Washington: Broadcasting Board of Governors, 2016), page 1.

[64] "Role of Russian Media in the Baltics and Moldova," page 1.

[65] "Role of Russian Media in the Baltics and Moldova," page 1.

[66] "Role of Russian Media in the Baltics and Moldova," page 1.

[67] Jill Dougherty and Riina Kaljurand, "Estonia's 'Virtual Russian World': The Influence of Russian Media on Estonia's Russian Speakers," *RKK-ICDS Analysis* (October 2015).

[68] Stephen Hutchings and Joanna Szostek, "Dominant Narratives in Russian Political and Media Discourse During the Ukraine Crisis," *E-International Relations* (28 April 2015).

[69] Tim Krohn, "Russian Latvians: Target of Discrimination?" *DW* (1 May 2014); Aija Krutaine and David Mardiste, "Disquiet in Baltics Over Sympathies of Russian Speakers," *Reuters* (23 March 2014); Robert Coalson, "Putin Pledges to Protect All Ethnic Russians Anywhere. So, Where Are They?" *Radio Free Europe/Radio Liberty* (10 April 2014).

[70] Ieva Bçrziòa, editor, *The Possibility of Societal Destabilization in Latvia: Potential National Security Threats. Executive Summary of the Research Project* (Riga: National Defence Academy of Latvia, Center for Security and Strategic Research), pages 9-10, Figures 6 and 7.

[71] Bçrziòa, editor, *The Possibility of Societal Destabilization in Latvia*, pages 9-10, Figures 6 and 7.

[72] Indeed, the Chief of the General Staff of Russia, General Valeriy Gerasimov has emphasized the threat that color revolutions could pose to the Russian state and has appealed to Russia's strategic thinkers to develop ways to counter these threats. See Roger N. McDermott, "Does Russia Have a Gerasimov Doctrine?" *Parameters* 46, 1 (Spring 2016).

[73] Massimo Calabresi, "Inside Putin's East European Spy Campaign," *Time* (7 May 2014).

[74] Keir Giles, Philip Hanson, Roderic Lyne, James Nixey, James Sherr, and Andrew Wood, *The Russian Challenge* (London: Chatham House, June 2015), page 42.

[75] See Agnia Grigas, "The New Generation of Baltic Russian Speakers," *EurActiv* (28 November 2014); Andreas Kasekamp, "Why Narva is Not Next," in Anne-Sofie Dahl, editor, *Baltic Sea Security: How Can Allies and Partners Meet the New Challenges in the Region?* (Copenhagen: Centre for Military Studies, 2015), pages 30-2.

[76] Juhan Kivirähk, *Integrating Estonia’s Russian-Speaking Population: Findings of National Defense Opinion Surveys* (Tallinn: International Centre for Defence and Security, December 2014), page 22, Figure 11.

[77] Kivirähk, *Integrating Estonia’s Russian-Speaking Population*, page 22, Figure 12.

[78] Kasekamp, “Why Narva is Not Next,” page 31.

[79] Elaine M. Holoboff, “Bad Boy or Good Business? Russia’s Use of Oil as a Mechanism of Coercive Diplomacy,” in Lawrence Freedman, editor, *Strategic Coercion: Concepts and Cases* (Oxford: Oxford University Press, 1997).

[80] *European Economy. Member States' Energy Dependence: An Indicator-Based Assessment, Occasional Papers 145* (Brussels: European Commission, Directorate-General for Economic and Financial Affairs, April 2013).

[81] *Member States' Energy Dependence*, pages 107-111.

[82] *Member States' Energy Dependence*, pages 157–161.

[83] *Member States' Energy Dependence*, pages 167–171.

[84] *Member States' Energy Dependence*, pages 205–210.

[85] *Member States' Energy Dependence*, pages 107, 206.

[86] *Member States' Energy Dependence*, pages 167–168.

[87] European Commission, “Baltic Energy Market Interconnection Plan,” available at https://ec.europa.eu/energy/en/topics/infrastructure/baltic-energy-market-interconnection-plan, accessed 30 July 2016.

[88] Simon Hoellerbauer, “Lithuania Moves to Bolster Electricity Security,” *FPRI Baltic Bulletin* (March 2016).

[89] Hoellerbauer, “Lithuania Moves to Bolster Electricity Security”; NORDPOOL, “Expansion or Dismantling: New Transmission Facility,” *NORDPOOL* (12 July 2016), available at https://umm.nordpoolspot.com/messages/89994, accessed 30 July 2016.

[90] Hoellerbauer, “Lithuania Moves to Bolster Electricity Security.”

[91] Ministry of Foreign Affairs of the Republic of Lithuania, “Foreign Ministry of Lithuania Summoned the Russian Ambassador to Express Strong Protest” (14 May 2015).

[92] Hoellerbauer, “Lithuania Moves to Bolster Electricity Security.”

[93] J. M. Laats, “Elering: Russia Cannot Fine Us for Disconnecting From Its Power Grid,” *Estonian Public Broadcasting* (10 June 2015); Hoellerbauer, “Lithuania Moves to Bolster Electricity Security.”

[94] Robert Martinage, “Under the Sea: The Vulnerability of the Commons,” *Foreign Affairs* 94, 1 (January/February 2015), page 117.

[95] Michael Matis, *The Protection of Undersea Cables: A Global Security Threat* (Carlisle: U.S. Army War College, 2012), page 2.

[96] Matis, *The Protection of Undersea Cables*, pages 2-3.

[97] Michael Sechrist, *Cyberspace in Deep Water: Protecting Undersea Communication Cables by Creating an International Public-Private Partnership* (Harvard Kennedy School, 23 March 2010), page 20.

[98] Matis, *The Protection of Undersea Cables*, page 3.

[99] Matis, *The Protection of Undersea Cables*, page 6.

[100] Matis, *The Protection of Undersea Cables*, page 8.

[101] Source: http://i.imgur.com/xu9qIGK.png, accessed 23 June 2016.

[102] James Stavridis, "A New Cold War Deep Under the Sea?", *The Huffington Post* (28 October 2016).

[103] Operational Analysis Division, Office of Cyber and Infrastructure Analysis, *Consequences to Seaport Operations from Malicious Cyber Activity: Critical Infrastructure Security and Resilience Note* (Washington: U.S. Department of Homeland Security, 3 March 2016).

[104] Daniel J. Coulter, "Globalization of Maritime Commerce: The Rise of Hub Ports," in Sam J. Tangredi, editor, *Globalization and Maritime Power* (Washington: National Defense University Press, 2002), page 139.

[105] For a discussion of international shipping as a vulnerable system, see Martin N. Murphy, *Small Boats, Weak States, Dirty Money: Piracy and Maritime Terrorism in the Modern World* (New York and London: Columbia University Press/Hurst, 2009), pages 264-74.

[106] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 3.

[107] The Baltic and International Maritime Council, *The Guidelines on Cyber Security Onboard Ships, Version 1.1* (Bagsværd, Denmark: BIMCO, February 2016), pages 1 and 2.

[108] The Baltic and International Maritime Council, *The Guidelines on Cyber Security Onboard Ships*, pages 23-4; Kate B. Belmont, "Maritime Cyber Attacks: Changing Tides," *The Maritime Executive* (16 November 2015).

[109] "Maritime Cyber Attack – A Clear and Present Danger," *Baltic Briefing* (15 May 2015).

[110] "Bill on the Ratification of the Estonian-Russian Border Treaties Passed the First Reading," Parliament of Estonia, Plenary Session Press Release (25 November 2015); BNS/TBT Staff, "Russian Envoy: Ratification of Border Treaty with Estonia Obstructed by Bad Relations," *The Baltic Times* (9 July 2016).

[111] United States Central Intelligence Agency, "Latvia," *The World Fact Book* website, available at https://www.cia.gov/library/publications/resources/the-world-factbook/geos/lg.html, accessed 23 June 2016. In addition, the maritime border between Denmark and Poland south of the island of Bornholm has not yet been settled, but the matter is being addressed amicably through the European Union's marine strategy framework directive. Even so, during the construction of the Gazprom Nord Stream pipeline from Russia to Germany, "Danish officials said Nord Stream had changed the route because it wanted to avoid entering a potential political minefield because of an unresolved border dispute between Denmark and Poland. 'Nord Stream changed the route because there is no border demarcation between Poland and Denmark,' said Birgitta Jacobsen from the Danish Energy Authority, a division of the Danish Ministry of Transport and Energy. 'Nord Stream did not want to enter an area with unclear borders'," (Judy Dempsey, "Gazprom Plans to Re-route Controversial European Pipeline," *The New York Times* (23 August 2007)).

[112] For an overview, see Erik Franck, "Baltic Sea Boundaries," in David A. Colson and Robert W. Smith, editors, *International Maritime Boundaries, Volume V* (Leiden & Boston: Martinus Nijhoff Publishers, 2005).

[113] Stanislaw Pawlak, "The Baltic Sea Region: An Area of Interdependence of Baltic States," in Jon M. van Dyke, Sherry P. Broder, Seokwoo Lee, Jin-Hyun Paik, editors, *Governing Ocean Resources: New Challenges and Emerging Regimes: A Tribute to Judge Choon-Ho Park* (Leiden: Martinus Nijhoff Publishers, 2013), page 103.

[114] Jim Garamone, "NATO Focuses on Combating Hybrid Warfare," *DoD News* (14 May 2015); NATO, "NATO Foreign Ministers Address Challenges to the South, Agree New Hybrid Strategy and Assurance Measures for Turkey" (1 December 2015), available at http://www.nato.int/cps/en/natohq/news_125368.htm, accessed 1 August 2016; Jamie Shea, "Resilience: A Core Element of Collective Defence," *NATO Review* (30 March 2016); High Representative of the Union for Foreign Affairs and Security Policy, European Commission, *Joint Framework on Countering Hybrid Threats: A European Union Response. Joint Communication to the European Parliament and the Council* (Brussels: European Commission, 6 April 2016).

[115] In deference to members that were reluctant to antagonize Russia, NATO refrained from developing contingency plans to defend its eastern members until 2010 (Ian Traynor, "WikiLeaks Cables Reveal Secret NATO Plans to Defend Baltics from Russia," *The Guardian* (6 December 2010); Lucas, *The Coming Storm*, pages 7-8.

[116] NATO, "NATO's Readiness Action Plan," *NATO Fact Sheet* (May 2015); NATO, "NATO's Readiness Action Plan," *NATO Fact Sheet* (July 2016); John-Michael Arnold, "NATO's Readiness Action Plan Strategic Benefits and Outstanding Challenges," *Strategic Studies Quarterly* 9, 3 (Spring 2016); Louise Simon, "Assessing NATO's Eastern European 'Flank'," *Parameters* 44, 3 (Autumn 2014).

[117] NATO, "NATO's Readiness Action Plan," *NATO Fact Sheet* (May 2015); Megan Eckstein, "U.S. Led BALTOPS 2015 Begins With Heftier Presence Than Last Year's Exercise," *USNI News* (5 June 2015); Megan Eckstein, "Foggo: BALTOPS 2016 Includes More Anti-Sub, More Challenging Amphibious Operations," *USNI News* (15 June 2016).

[118] Pauli Järvenpää, "Nordic Defense Cooperation: NORDEFCO and Beyond," in Ann-Sofie Dahl and Pauli Jävenpää, editors, *Northern Security and Global Politics: Nordic–Baltic Strategic Influence in a Post-Unipolar World* (London: Routledge, 2014); Aaron Mehta, "Sweden, US Agree to Closer Defense Collaboration," *Defense News* (8 June 2016); Gerard O'Dwyer, "Sweden and Denmark Reach Bilateral Defense Agreement," *Defense News* (21 January 2016); Balazs Koranyi, Terje Solsvik, and Leslie Adler, "Nordic Nations Agree on Defense Cooperation Against Russia," *Reuters* (9 April 2015); Justyna Gotkowska and Piotr Szymański, "Pro-American Non-Alignment. Sweden and Finland Develop Closer Military Co-operation with the United States," *OSW Commentary* No. 205 (31 March 2016); Tyler Rogoway, "Unprecedented U.S. Air Force Jet Deployment to Finland Is Sure to Upset Russia," *Foxtrot Alpha* (10 February 2016).

[119] Gerard O'Dwyer, "US Supports Drive for Nordic Defense Cooperation," *Defense News* (18 May 2016).

[120] Anna Wieslander, "'Extended Cooperative Security' in the Baltic Sea Region," *The Polish Quarterly of International Affairs* 1 (2016), page 140.

[121] Bengt Lundgren, "Security and Surveillance Cooperation in the Baltic," presented to the Maritime Seminar of the Presidency of the Council of the European Union, Dublin Castle, Dublin, Ireland, 8–9 April 2013, slide 13.

[122] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 13; Stefan Lundqvist and J. J. Widen, "The New US Maritime Strategy: Implications for the Baltic Sea Region," *The RUSI Journal* 160, 6 (December 2015), page 46.

[123] Stefan Lundqvist and J. J. Widen, "The New US Maritime Strategy: Implications for the Baltic Sea Region," *The RUSI Journal* 160, 6 (December 2015), page 44.

[124] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 14.

[125] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 14.

[126] Marcin Lenda, "SUCBAS: Sea Surveillance Co-operation Baltic Sea," presented in Madrid, 9 June 2015, slide 9.

[127] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 14; Lundqvist and Widen, "The New US Maritime Strategy," page 44.

[128] "Maritime Surveillance (MARSUR)," European Defence Agency website, available at http://www.eda.europa.eu/what-we-do/activities/activities-search/maritime-surveillance-(marsur), accessed 15 June 2016.

[129] Lundgren, "Security and Surveillance Cooperation in the Baltic," slide 16.

[130] Magnus Nordenman, "NATO's Next Consortium: Maritime Patrol Aircraft," *Atlantic Council Issue Brief* (May 2016), page 4.

[131] Jacek Siminski, "Poland Establishes a UAV-Dedicated Airbase," *The Aviationist* (10 August 2015).

[132] See Kristian Søby Kristensen, Flemming Pradhan-Blach, and Gary Schaub, Jr. *Unmanned and Unarmed: On the Future Use of Unmanned Aerial Systems in the Danish Armed Forces* (Copenhagen: Centre for Military Studies, February 2014), pages 27–28, 31.

[133] Julian E. Barnes, "EU Defense Ministers Back New Group Focused on 'Hybrid Warfare'," *Wall Street Journal* (19 April 2016).

[134] High Representative of the Union for Foreign Affairs and Security Policy, European Commission, *Joint Framework on Countering Hybrid Threats: A European Union Response. Joint Communication to the European Parliament and the Council* (Brussels: European Commission, 6 April 2016).

[135] Andrew Rettman, "UK, Denmark Back EU Counter-Propaganda Plan," *EUobserver* (9 January 2015).

[136] Rettman, "UK, Denmark Back EU Counter-Propaganda Plan."

[137] Office of the Press Secretary, "Fact Sheet: U.S. Contributions to Enhancing Allied Resilience" (Washington: The White House, 9 July 2016).

[138] Milda Seputyte, "Lithuania Grabs LNG in Effort to Curb Russian Dominance," *Bloomberg* (27 October 2014); "Sweden Gets New LNG Terminal," *World Maritime News* (20 October 2014).

[139] David Crouch, "Lithuania Accuses Russia of Disrupting Work on Baltic Power Cable," *Financial Times* (2 May 2015); Ministry of Foreign Affairs of the Republic of Lithuania, "Foreign Ministry of Lithuania summoned the Russian ambassador to express strong protest," (14 May 2015).

[140] Stavridis, "A New Cold War Deep Under the Sea?"

[141] Scott Littlefield, "Anti-Submarine Warfare (ASW) Continuous Trail Unmanned Vessel (ACTUV)" Defense Advances Projects Research Agency website, available at http://www.darpa.mil/program/anti-submarine-warfare-continuous-trail-unmanned-vessel, accessed 20 August 2016.

[142] *United States Coast Guard Cyber Strategy* (Washington: United States Coast Guard, June 2015), page 19.

[143] "The NATO Shipping Centre (NSC) mission is to provide improved information exchange on merchant shipping matters, and facilitate increased voluntary co-operation between military commanders and commercial shipping operators" (NATO Shipping Centre, "About Us," available at http://www.shipping.nato.int/Pages/AboutUs.aspx, accessed 20 August 2016).

[144] European Network and Information Security Agency (ENISA), *Analysis of Cyber Security Aspects in the Maritime Sector* (Heraklion, Greece: European Network and Information Security Agency (ENISA), November 2011).

8. Bibliography

"3M55 Oniks/P-800 Yakhont/P-800 Bolid/SS-N-26," *Global Security* website, available at http://www.globalsecurity.org/military/world/russia/ss-n-26.htm, accessed 23 June 2016.

"Bill on the Ratification of the Estonian-Russian Border Treaties Passed the First Reading," Parliament of Estonia, Plenary Session Press Release (25 November 2015).

"Editor's Introduction: Complex Crises Call for Adaptable and Durable Capabilities," *The Military Balance 2015* (London: Routledge, 2015).

"Maritime Cyber Attack – A Clear and Present Danger," *Baltic Briefing* (15 May 2015).

"Maritime Surveillance (MARSUR)," European Defence Agency website, available at http://www.eda.europa.eu/what-we-do/activities/activities-search/maritime-surveillance-(marsur), accessed 15 June 2016.

"Moscow Confirms Deployment of Iskander Missiles on NATO Borders," *RT* (16 December 2013).

"Role of Russian Media in the Baltics and Moldova" (Washington: Broadcasting Board of Governors, 2016).

"Russia Targets NATO with Military Exercises," *STRATFOR* (19 March 2015).

"Sweden Gets New LNG Terminal," *World Maritime News* (20 October 2014).

"US NATO General Fears Rapid Russian Troop Deployments," *BBC News* (20 June 2016).

Amos, James. 35th *Commandant of the Marine Corps Commandant's Planning Guidance* (Washington: Headquarters, US Marine Corps, November 2010).

Arnold, John-Michael. "NATO's Readiness Action Plan Strategic Benefits and Outstanding Challenges," *Strategic Studies Quarterly* 9, 3 (Spring 2016).

Balmforth, Tom. "Russia Mulls Special Day to Recognize its 'Polite People'," *Radio Free Europe/Radio Liberty* (4 October 2014).

Bandow, Doug. "Why on Earth Would Russia Attack the Baltics?" *The National Interest* (7 February 2016).

Barnes, Julian E. "EU Defense Ministers Back New Group Focused on 'Hybrid Warfare'," *Wall Street Journal* (19 April 2016).

Bartosiak, Jacek and Tomasz Szatkowski, editors. *Geography of the Baltic Sea: Military Perspective. Implications for the Polish Armed Forces Modernisation* (Warsaw: National Centre for Strategic Studies, December 2013).

Batchelor, Tom. “Putin Preparing for Next Crimea? Russia Using Exercises to Mass Troops at Europe Border,” *Express* (31 May 2016).

Bçrziòa, Ieva, editor. *The Possibility of Societal Destabilization in Latvia: Potential National Security Threats. Executive Summary of the Research Project* (Riga: National Defence Academy of Latvia, Center for Security and Strategic Research).

Belmont, Kate B. “Maritime Cyber Attacks: Changing Tides,” *The Maritime Executive* (16 November 2015).

Birnbaum, Michael. “In Latvia, Fresh Fears of Aggression as Kremlin Warns about Russian Minorities,” *The Washington Post* (27 September 2014).

BNS/TBT Staff. “Russian Envoy: Ratification of Border Treaty with Estonia Obstructed by Bad Relations,” *The Baltic Times* (9 July 2016).

Bodner, Matthew. “Massive Leadership Cull in Russia’s Baltic Sea Fleet,” *Defense News* (1 July 2016).

Calabresi, Massimo. “Inside Putin’s East European Spy Campaign,” *Time* (7 May 2014).

Carter, Ashton. “Remarks at EUCOM Change of Command. As Delivered by Secretary of Defense Ash Carter, Stuttgart, Germany, May 3, 2016” (Washington: Department of Defense, 3 May 2016).

Central Statistical Bureau of Latvia. “ISG07. RESIDENT POPULATION BY ETHNICITY AT THE BEGINNING OF THE YEAR,” available at: http://data.csb.gov.lv/api/v1/en/Sociala/ikgad/iedz/iedzskaits/IS0070.px, accessed 29 July 2016.

Cimbala, Stephen J. “Sun Tzu and Salami Tactics? Vladimir Putin and Military Persuasion in Ukraine, 21 February–18 March 2014,” *The Journal of Slavic Military Studies* 27, 3 (Autumn 2014).

Clemmesen, Michael H. “The Politics of Danish Defence, 1967–1993,” in Carsten Due-Nielsen and Nikolaj Petersen, editors, *Adaptation and Activism: The Foreign Policy of Denmark 1967–1993* (Copenhagen: DJØF Publishing, 1995).

Coalson, Robert. “Putin Pledges to Protect All Ethnic Russians Anywhere. So, Where Are They?” *Radio Free Europe/Radio Liberty* (10 April 2014).

Conway, James T., Gary Roughead, and Thad W. Allen. *A Cooperative Strategy For Maritime Security* (Washington: Department of Defense, October 2007).

Conway, James T. *Marine Corps Vision and Strategy 2025* (Washington: Headquarters, U.S. Marine Corps, June 2008).

Coulter, Daniel J. “Globalization of Maritime Commerce: The Rise of Hub Ports,” in Sam J. Tangredi, editor, *Globalization and Maritime Power* (Washington: National Defense University Press, 2002).

Crouch, David. “Lithuania Accuses Russia of Disrupting Work on Baltic Power Cable,” *Financial Times* (2 May 2015).

Danish Defence Intelligence Service. *Intelligence Risk Assessment 2015: An Assessment of Developments Abroad Impacting on Danish Security* (Copenhagen, Danish Defence Intelligence Service, 27 October 2015).

Dempsey, Judy. “Gazprom Plans to Re-route Controversial European Pipeline,” *The New York Times* (23 August 2007).

Dempsey, Martin. “Versatility as an Institutional Imperative,” *Small Wars Journal* (10 March 2009).

Dougherty, Jill and Riina Kaljurand. “Estonia’s ‘Virtual Russian World’: The Influence of Russian Media on Estonia’s Russian Speakers,” *RKK-ICDS Analysis* (October 2015).

Duffield, Mark. *Global Governance and the New Wars: The Merging of Development and Security* (London: Zed, 2001).

Dunigan, Molly, Dick Hoffmann, Peter Chalk, Brian Nichiporuk, and Paul Deluca. *Characterizing and Exploring the Implications of Maritime Irregular Warfare* (Santa Monica: The RAND Corporation, 2012).

Echevarria, Antulio J. II. *Fourth-Generation War and Other Myths* (Carlisle: Strategic Studies Institute, November 2005).

Eckstein, Megan. “Foggo: BALTOPS 2016 Includes More Anti-Sub, More Challenging Amphibious Operations,” *USNI News* (15 June 2016).

Eckstein, Megan. “U.S. Led BALTOPS 2015 Begins With Heftier Presence Than Last Year’s Exercise,” *USNI News* (5 June 2015).

European Commission. “Baltic Energy Market Interconnection Plan,” available at https://ec.europa.eu/energy/en/topics/infrastructure/baltic-energy-market-interconnection-plan, accessed 30 July 2016.

European Network and Information Security Agency (ENISA). *Analysis of Cyber Security Aspects in the Maritime Sector* (Heraklion, Greece: European Network and Information Security Agency (ENISA), November 2011).

Evans-Pritchard, Ambrose. “Putin Could Attack Baltic States Warns Former NATO Chief,” *The Telegraph* (5 February 2015).

Franck, Erik. "Baltic Sea Boundaries," in David A. Colson and Robert W. Smith, editors, *International Maritime Boundaries Volume V* (Leiden & Boston: Martinus Nijhoff Publishers, 2005).

Gady, Franz-Stefan. "'Mini Red Octobers': Russia to Push on With Stealth Submarine Program," *The Diplomat* (2 February 2016).

Gallup. "Contemporary Media Use in Ukraine" (Washington: Broadcasting Board of Governors, June 2014), available at https://www.bbg.gov/wp-content/media/2014/06/Ukraine-research-brief.pdf, accessed 27 July 2016.

Garamone, Jim. "NATO Focuses on Combating Hybrid Warfare," *DoD News* (14 May 2015).

Gates, Robert M. "The National Defense Strategy: Striking the Right Balance," *Joint Force Quarterly* 52 (January 2009).

Gazprom Export. "Nord Stream," available at http://www.gazpromexport.ru/en/projects/, accessed 7 August 2016.

Giles, Keir, Philip Hanson, Roderic Lyne, James Nixey, James Sherr, and Andrew Wood. *The Russian Challenge* (London: Chatham House, June 2015).

Gladstone, Rick. "Air Force General Says Russia Missile Defense 'Very Serious'," *New York Times* (11 January 2016).

Global Ports. "Key Russian Gateways" (Undated).

Gotkowska, Justyna and Piotr Szymański. "Pro-American Non-Alignment. Sweden and Finland Develop Closer Military Co-operation with the United States," *OSW Commentary* No. 205 (31 March 2016).

Grigas, Agnia. "The New Generation of Baltic Russian Speakers," *EurActiv* (28 November 2014).

Hammes, Thomas X. *The Sling and the Stone: On War in the 21st Century* (St. Paul: Zenith Press, 2004).

Her Majesty's Government. *National Security Strategy and Strategic Defence and Security Review 2015: A Secure and Prosperous United Kingdom* (London: Her Majesty's Stationary Office, November 2015).

Heurlin, Bertel. "Danish Security Policy over the Last 50 Years – Long-Term Essential Security Priorities," in Bertel Heurlin and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 2001* (Copenhagen: Danish Institute for International Affairs, 2001).

High Representative of the Union for Foreign Affairs and Security Policy, European Commission. *Joint Framework on Countering Hybrid Threats: A European Union Response. Joint Communication to the European Parliament and the Council* (Brussels: European Commission, 6 April 2016).

High Representative of the Union for Foreign Affairs and Security Policy, European Commission. *Joint Framework on Countering Hybrid Threats: A European Union Response. Joint Communication to the European Parliament and the Council* (Brussels: European Commission, 6 April 2016).

Hoellerbauer, Simon. "Lithuania Moves to Bolster Electricity Security," *FPRI Baltic Bulletin* (March 2016).

Hoffman, Frank G. "Hybrid vs. Compound War: The Janus Choice of Modern War: Defining Today's Multifaceted Conflict," *Armed Forces Journal* (October 2009).

Hoffman, Frank G. "Hybrid Warfare and Challenges," *Joint Force Quarterly* 52, 1 (Spring 2009).

Hoffman, Frank G. *Conflict in the 21st Century: The Rise of Hybrid War* (Arlington: Potomac Institute for Policy Studies, 2007).

Holoboff, Eleaine M. "Bad Boy or Good Business? Russia's Use of Oil as a Mechanism of Coercive Diplomacy," in Lawrence Freedman, editor, *Strategic Coercion: Concepts and Cases* (Oxford: Oxford University Press, 1997).

Honkanen, Karoliina. *The Influence of Small States on NATO Decision-Making: The Membership Experiences of Denmark, Norway, Hungary and the Czech Republic* (Stockholm: The Swedish Defence Research Agency, November 2002).

https://commons.wikimedia.org/wiki/User:Xil, "Russians in the Baltic States (2011).svg," *Wikipedia* (2016), available at https://en.wikipedia.org/wiki/Russians_in_the_Baltic_states, accessed 20 July 2016, modified by Gary Schaub, Jr. (License: Creative Commons Attribution-Share Alike 3.0 Unported).

Hutchings, Stephen and Joanna Szostek. "Dominant Narratives in Russian Political and Media Discourse during the Ukraine Crisis," *E-International Relations* (28 April 2015).

International Institute for Strategic Studies. *The Military Balance 2016* (London: Routledge, 2016), page 196.

Järvenpää, Pauli. "Nordic Defense Cooperation: NORDEFCO and Beyond," in Ann-Sofie Dahl and Pauli Jävenpää, editors, *Northern Security and Global Politics: Nordic–Baltic Strategic Influence in a Post-Unipolar World* (London: Routledge, 2014).

Johnston, Ian. "Russia Threatens to Use 'Nuclear Force' Over Crimea and the Baltic States," *The Independent* (1 April 2015).

Kaas, Kaarel. "Russian Armed Forces in the Baltic Sea Region," *Diplomaatia* 130/131 (June/July 2014).

Kaldor, Mary. *New and Old Wars: Organized Violence in a Global Era* (Cambridge: Polity, 2001).

Kamp, Karl-Heinz. “The Agenda of the NATO Summit in Warsaw,” *Bundesakademie für Sicherheitspolitik Security Policy Working Paper* No. 9 (2015)

Kasekamp, Andreas. “Why Narva is Not Next,” in Anne-Sofie Dahl, editor, *Baltic Sea Security: How Can Allies and Partners Meet the New Challenges in the Region?* (Copenhagen: Centre for Military Studies, 2015).

Kivirähk, Juhan. *Integrating Estonia’s Russian-Speaking Population: Findings of National Defense Opinion Surveys* (Tallinn: International Centre for Defence and Security, December 2014).

Kofman, Michael. “Fixing NATO Deterrence in the East or: How I Learned to Stop Worrying and Love NATO’s Crushing Defeat by Russia,” *War on the Rocks* (16 May 2016).

Kofman, Michael. “Russian Hybrid Warfare and Other Dark Arts,” *War on the Rocks* (11 March 2016).

Koranyi, Balazs, Terje Solsvik, and Leslie Adler. “Nordic Nations Agree on Defense Cooperation Against Russia,” *Reuters* (9 April 2015).

Kramer, Mark. “Russia, the Baltic Region, and the Challenge for NATO,” *PONARS Eurasia Policy Memo* No. 267 (July 2013).

Kristensen, Kristian Søby, Flemming Pradhan-Blach, and Gary Schaub, Jr. *Unmanned and Unarmed: On the Future Use of Unmanned Aerial Systems in the Danish Armed Forces* (Copenhagen: Centre for Military Studies, February 2014).

Krohn, Tim. “Russian Latvians: Target of Discrimination?” *DW* (1 May 2014).

Krutaine, Aija and David Mardiste. “Disquiet in Baltics Over Sympathies of Russian Speakers,” *Reuters* (23 March 2014).

Kulish, Nicholas. “Georgian Crisis Brings Attitude Change to a Flush Poland,” *The New York Times* (20 August 2008).

Laats, J. M. “Elering: Russia Cannot Fine Us for Disconnecting From Its Power Grid,” *Estonian Public Broadcasting* (10 June 2015).

Lavrov, Anton. “Russian Again: The Military Operation for Crimea,” in Colby Howard and Ruslan Puhkov, editors, *Brothers Armed: Military Aspects of the Crisis in Ukraine* (Minneapolis: East View Press, 2014).

Lenda, Marcin. “SUCBAS: Sea Surveillance Co-operation Baltic Sea,” presented in Madrid, 9 June 2015.

Lind, William S. “Understanding Fourth Generation War,” *Military Review* (September-October 2004).

Lind, William S., Keith Nightengale, John F. Schmitt, Joseph W. Sutton, Gary I. Wilson. "The Changing Face of War: Into the Fourth Generation," *Marine Corps Gazette* (October 1989).

Littlefield, Scott. "Anti-Submarine Warfare (ASW) Continuous Trail Unmanned Vessel (ACTUV)," Defense Advances Projects Research Agency website, available at http://www.darpa.mil/program/anti-submarine-warfare-continuous-trail-unmanned-vessel, accessed 20 August 2016.

Lucas, Edward. *The Coming Storm: Baltic Sea Security Report* (Warsaw: Center for European Policy Analysis, June 2015).

Lundgren, Ann-Sofie. "Security in the Nordic–Baltic Region: From Cold War to a Unipolar World," in Ann-Sofie Dahl and Pauli Järvenpää, editors, *Northern Security and Global Politics: Nordic-Baltic Strategic Influence in a Post-Unipolar World* (Oxford: Routledge, 2014).

Lundgren, Bengt. "Security and Surveillance Cooperation in the Baltic," presented to the Maritime Seminar of the Presidency of the Council of the European Union, Dublin Castle, Dublin, Ireland, 8–9 April 2013.

Lundqvist, Stefan and J. J. Widen. "The New US Maritime Strategy: Implications for the Baltic Sea Region," *The RUSI Journal* 160, 6 (December 2015).

Majumdar, Dave. "Russia Ramps up Switch to Next-Gen Submarines," *The National Interest* (19 January 2016).

Martin, Michelle, Adrian Croft, and Sonya Hepinstall. "NATO Would Respond Militarily to Crimea-style Infiltration: General," *Reuters* (17 August 2014).

Martinage, Robert. "Under the Sea: The Vulnerability of the Commons," *Foreign Affairs* 94, 1 (January/February 2015).

Matis, Michael. *The Protection of Undersea Cables: A Global Security Threat* (Carlisle: U.S. Army War College, 2012).

McCord, Mike. *European Reassurance Initiative. Department of Defense Budget Fiscal Year (FY) 2016* (Washington: Office of the Under Secretary of Defense (Comptroller), February 2015).

McCulloh, Timothy and Richard Johnson. *Hybrid Warfare. Joint Special Operations University Report 13-4* (August 2013) available at http://jsou.socom.mil/JSOU%20Publications/JSOU%2013-4_McCulloh,Johnson_Hybrid%20Warfare_final.pdf, accessed 25 July 2016.

McDermott, Roger N. "Does Russia have a Gerasimov Doctrine?" *Parameters* 46, 1 (Spring 2016).

Mehta, Aaron. “Sweden, US Agree to Closer Defense Collaboration,” *Defense News* (8 June 2016).

Member States’ Energy Dependence: An Indicator-Based Assessment European Economy Occasional Paper 145 (Brussels: European Commission, Directorate-General for Economic and Financial Affairs, April 2013).

Milevski, Lukas. “Little Green Men in the Baltic States are an Article 5 Event,” *FPRI Baltic Bulletin* (January 2016).

Ministry of Foreign Affairs of the Republic of Lithuania. “Foreign Ministry of Lithuania summoned the Russian ambassador to express strong protest” (14 May 2015).

Ministry of Foreign Affairs of the Russian Federation. “СООБЩЕНИЕ ДЛЯ СМИ: О встрече в МИД России с советником-посланником Посольства Украины в Российской Федерации,” [“PRESS RELEASE: About the meeting of the Russian Foreign Ministry with Minister-Counselor of the Embassy of Ukraine in the Russian Federation”] (28 February 2014), available at http://archive.mid.ru//brp_4.nsf/newsline/F2C86A40B49E817544257C8D00485C4F, accessed 26 July 2016.

Mouritzen, Hans. “Denmark in the Post-Cold War Era: The Salient Action Spheres,” in Bertel Heurlin and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 1997* (Copenhagen: Danish Institute of International Affairs, 1997).

Munkler, Herfried (Patrick Camiller, translator). *The New Wars* (Cambridge: Polity Press, 2005).

Murphy, Martin N. “Understanding Russia’s Concept for Total War in Europe,” *Heritage Foundation Special Report No. 184 on National Security and Defense* (Washington: Heritage Foundation, 12 September 2016), available at http://www.heritage.org/research/reports/2016/09/understanding-russias-concept-for-total-war-in-europe.

Murphy, Martin N. *Small Boats, Weak States, Dirty Money: Piracy and Maritime Terrorism in the Modern World* (New York and London: Columbia University Press/Hurst, 2009).

Murray, Williamson and Peter R. Mansoor, editors. *Hybrid Warfare: Fighting Complex Opponents from the Ancient World to the Present* (Cambridge: Cambridge University Press, 2012).

Muzyka, Konrad, Sean O’Connor, and Ben Nimmo. “Kaliningrad: Rhetoric and Reality,” paper presented at the 2015 Riga Conference (13 November 2015), available at https://www.rigaconference.lv/rc-views/21/kaliningrad-rhetoric-and-reality, accessed 20 May 2016.

NATO Shipping Centre. “About Us,” available at http://www.shipping.nato.int/Pages/AboutUs.aspx, accessed 20 August 2016.

NATO. “NATO Foreign Ministers Address Challenges to the South, Agree New Hybrid Strategy and Assurance Measures for Turkey” (1 December 2015), available at http://www.nato.int/cps/en/natohq/news_125368.htm, accessed 1 August 2016.

NATO. “NATO’s Readiness Action Plan,” *NATO Fact Sheet* (May 2015).

NATO. “NATO’s Readiness Action Plan,” *NATO Fact Sheet* (July 2016).

NATO. “Relations with Finland” (14 June 2016), available at http://www.nato.int/cps/en/natohq/topics_49594.htm, accessed 6 August 2016.

NATO. “Relations with Sweden” (14 June 2016), available at http://www.nato.int/cps/en/natohq/topics_52535.htm?selectedLocale=en, accessed 6 August 2016.

Nordenman, Magnus. “NATO’s Next Consortium: Maritime Patrol Aircraft,” *Atlantic Council Issue Brief* (May 2016).

NORDPOOL. “Expansion Or Dismantling: New Transmission Facility,” *NORDPOOL* (12 July 2016), available at https://umm.nordpoolspot.com/messages/89994, accessed 30 July 2016.

O’Dwyer, Gerard. “Sweden and Denmark Reach Bilateral Defense Agreement,” *Defense News* (21 January 2016).

O’Dwyer, Gerard. “US Supports Drive for Nordic Defense Cooperation,” *Defense News* (18 May 2016).

Obama, Barack. *Statement by the President on the FY2017 European Reassurance Initiative Budget Request* (Washington: The White House, 2 February 2016).

Office of the Press Secretary. *Fact Sheet: U.S. Contributions to Enhancing Allied Resilience* (Washington: The White House, 9 July 2016).

Official Statistics Lithuania. “Population_by_ethnicity_municipality.xls,” available at http://osp.stat.gov.lt/en/regionine-statistika?p_p_auth=AC7pzLVO&p_p_id=101&p_p_lifecycle=0&p_p_state=maximized&p_p_mode=view&_101_struts_action=%2Fasset_publisher%2Fview_content&_101_assetEntryId=224502&_101_type=document&redirect=http%3A%2F%2Fosp.stat.gov.lt%2Fen%2Ftemines-lenteles1%3Fp_p_id%3D3%26p_p_lifecycle%3D0%26p_p_state%3Dmaximized%26p_p_mode%3Dview%26_3_groupId%3D0%26_3_keywords%3Dethnicity%26_3_struts_action%3D%252Fsearch%252Fsearch%26_3_redirect%3D%252Fen%252Ftemines-lenteles1%26_3_y%3D0%26_3_x%3D0, accessed 29 July 2016.

Oliphant, Richard. “Ukraine Crisis: ‘Polite People’ Leading the Silent Invasion of the Crimea,” *Daily Telegraph* (2 March 2014).

Ollivant, Douglas A. “The Rise of the Hybrid Warriors: From Ukraine to the Middle East,” *War on the Rocks* (9 March 2016).

Operational Analysis Division, Office of Cyber and Infrastructure Analysis. *Consequences to Seaport Operations from Malicious Cyber Activity: Critical Infrastructure Security and Resilience Note* (Washington: U.S. Department of Homeland Security, 3 March 2016).

Odierno, Raymond T. “The U.S. Army in a Time of Transition,” *Foreign Affairs* 91, 3 (May/June 2012).

Orr, Robert. “Why Crimea Matters to Russia,” *The Financial Times* (3 March 2014).

Osborn, Andrew. “Russia Seen Putting New Nuclear-Capable Missiles Along NATO Border by 2019,” *Reuters* (23 June 2016).

Panetta, Leon. “Lee H. Hamilton Lecture, As Delivered by Secretary of Defense Leon E. Panetta, Woodrow Wilson Center, Washington, DC, Tuesday, October 11, 2011,” (Washington: Department of Defense, 11 October 2011).

Pawlak, Stanislaw. “The Baltic Sea Region: An Area of Interdependence of Baltic States,” in Jon M. van Dyke, Sherry P. Broder, Seokwoo Lee, Jin-Hyun Paik, editors, *Governing Ocean Resources: New Challenges and Emerging Regimes: A Tribute to Judge Choon-Ho Park* (Leiden: Martinus Nijhoff Publishers, 2013).

Pedersen, Klaus Carsten. “Denmark and the European Security and Defence Policy,” in Alyson J. K. Bailes, Gunilla Herolf, and Bengt Sundelius, editors, *The Nordic Countries and the European Security and Defence Policy* (Oxford: Oxford University Press, 2006).

Person, Robert. “6 Reasons Not to Worry about Russia Invading the Baltics,” *Monkey Cage* (12 November 2015).

Rettman, Andrew. “NATO Chief Warns Russia against ‘Green Men’ Tactics,” *EUobserver* (18 August 2014).

Rettman, Andrew. “UK, Denmark Back EU Counter-Propaganda Plan,” *EUobserver* (9 January 2015).

Ringsmose, Jens and Sten Rynning. “The Impeccable Ally? Denmark, NATO, and the Uncertain Future of Top Tier Membership,” in Nanna Hvidt and Hans Mouritzen, editors, *Danish Foreign Policy Yearbook 2008* (Copenhagen: Danish Institute for International Studies, 2008).

Rogoway, Tyler. “Unprecedented U.S. Air Force Jet Deployment to Finland Is Sure to Upset Russia,” *Foxtrot Alpha* (10 February 2016).

Roughead, Gary. “Remarks at the Current Strategy Forum, Naval War College, Newport, R.I.” (16 June 2009).

Saxi, Håkon Lunde. *Norwegian and Danish Defence Policy: A Comparative Study of the Post-Cold War Era* (Oslo: Norwegian Institute for Defence Studies, 2010).

Schadlow, Nadia. "The Problem with Hybrid Warfare," *War on the Rocks* (2 April 2015).

Sechrist, Michael. *Cyberspace in Deep Water: Protecting Undersea Communication Cables by Creating an International Public-Private Partnership* (Harvard Kennedy School, 23 March 2010).

Seputyte, Milda. "Lithuania Grabs LNG in Effort to Curb Russian Dominance," *Bloomberg* (27 October 2014).

SHAPE Public Affair Office. "Enhanced NATO Air Policing Patrols Baltic Airspace" (Mons: NATO, 30 January 2015).

Sharkov, Damien. "Russian Navy Practices Anti-Submarine Combat in Baltic and Arctic," *Newsweek* (10 July 2015).

Shea, Jamie. "Resilience: A Core Element of Collective Defence," *NATO Review* (30 March 2016).

Shishkin, Philip. "One-Ship Ukraine Navy Defies Russia to the End," *The Wall Street Journal* (26 March 2014).

Shlapak, David A. and Michael W. Johnson. *Reinforcing Deterrence on NATO's Eastern Flank: Wargaming the Defense of the Baltics* (Santa Monica: RAND Corporation, 2016).

Shuster, Simon. "Putin's Confessions on Crimea Expose Kremlin Media," *Time* (20 March 2015).

Siminski, Jacek. "Poland Establishes a UAV-Dedicated Airbase," *The Aviationist* (10 August 2015).

Simon, Louise. "Assessing NATO's Eastern European 'Flank'," *Parameters* 44, 3 (Autumn 2014).

Smith, Rupert. *The Utility of Force: The Art of War in the Modern World* (New York: Alfred A. Knopf, 2007).

Somkov, Nikolai N. "Why Russia Calls a Limited Nuclear Strike 'De-Escalation'," *Bulletin of the Atomic Scientists* 13 (March 2014).

Speller, Ian. "Introduction to the Second Edition," in David Jordan, James D. Kiras, David J. Lonsdale, Ian Speller, Christopher Tuck, and C. Dale Walton, *Understanding Modern Warfare. Second Edition* (Cambridge: Cambridge University Press, 2016).

Standifer, Cid. "Ukraine's Last Ship," *USNI News* (11 April 2014).

Statistics Estonia. "PO0222: POPULATION BY SEX, ETHNIC NATIONALITY AND COUNTY, 1 JANUARY," available at http://pub.stat.ee/px-

web.2001/Dialog/varval.asp?ma=PO0222&ti=POPULATION+BY+SEX%2C+ETHNIC+NATIONALITY+AND+COUNTY%2C+1+JANUARY&path=../I_Databas/Population/01Population_indicators_and_composition/04Population_figure_and_composition/&lang=1, accessed 29 July 2016.

Stavridis, James. "A New Cold War Deep Under the Sea?" *The Huffington Post* (28 October 2016).

Synovitz, Ron. "Russian Forces in Crimea: Who Are They And Where Did They Come From?" *Radio Free Europe/Radio Liberty* (4 March 2014).

Taksøe-Jensen, Peter, et al. *Dansk diplomati og forsvar i en brydningstid: Vejen frem for Danmarks interesser og værdier mod 2030* (Copenhagen: Ministry of Foreign Affairs, May 2016).

The Baltic and International Maritime Council. *The Guidelines on Cyber Security Onboard Ships, Version 1.1* (Bagsværd, Denmark: BIMCO, February 2016).

The Russian Navy: An Historic Transition (Washington: Office of Naval Intelligence, 2015).

Traynor, Ian. "WikiLeaks Cables Reveal Secret NATO plans to defend Baltics from Russia," *The Guardian* (6 December 2010).

U.S. Army Doctrine Publication 3–0, Unified Land Operations (Washington: Headquarters U.S. Army, October 2011).

U.S. European Command. *EUCOM Announces European Reassurance Initiative Implementation Plan* (Brussels: U.S. Mission to the North Atlantic Treaty Association, 30 March 2016), available at https://nato.usmission.gov/eucom-announces-european-reassurance-initiative-implementation-plan/, accessed 18 May 2016.

United States Central Intelligence Agency. "Latvia," *The World Fact Book* website, available at https://www.cia.gov/library/publications/resources/the-world-factbook/geos/lg.html, accessed 23 June 2016.

United States Coast Guard Cyber Strategy (Washington: United States Coast Guard, June 2015).

United States National Intelligence Council. *Global Trends 2030: Alternative Worlds* (Washington: Office of the Director of National Intelligence, April 2012).

Van Puyvelde, Damien. "Hybrid War – Does it Even Exist?" *NATO Review* (May 2015).

Wales Summit Declaration Issued by the Heads of State and Government participating in the meeting of the North Atlantic Council in Wales (Brussels: North Atlantic Treaty Organization, 5 September 2014).

Webb, Sam and Damien Gayle. “Vladimir Putin Scuttles His Own Navy Warship in Black Sea to Block Ukrainian Vessels from Leaving Port as Crimeans Face Referendum on Whether to Join Russia,” *Daily Mail* (6 March 2014).

Weisgerber, Marcus. “Russia Could Block Access to Baltic Sea, US General Says,” *Defense One* (9 December 2015).

Wieslander, Anna. “‘Extended Cooperative Security’ in the Baltic Sea Region,” *The Polish Quarterly of International Affairs* 1 (2016).

Wieslander, Anna. “NATO, the U.S. and Baltic Sea Security,” *UIpaper* No. 3 (Stockholm: Swedish Institute of International Affairs, 2016).

Wertheim, Eric. *The Naval Institute Guide to Combat Fleets of the World.* 16th Edition (Annapolis, MD: Naval Institute Press, 2013).

Wilkinson, Tracy. “Former Soviet Bloc Gets Jitters: Poland, Ukraine, Moldova and the Czechs Worry They Could be Next after the Invasion of Georgia,” *Los Angeles Times* (19 August 2008).

Wivel, Anders. “From Peacemaker to Warmonger? Explaining Denmark’s Great Power Politics,” *Swiss Political Science Review* 19, 3 (September 2013).