Original article

Small sea, big problems: chances and challenges of military security in Baltic region

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INFORMATION	ABSTRACT
	The article aims to analyze the chances and challenges related to the military security of states surrounding the Baltic Sea. Notably, the problem of the protection of maritime traffic and other sea-related economic activities shall be described. Particular attention shall be given to possible scenarios of "hybrid warfare." Based on possible threats characteristics, several aspects of changes in organizations and ways of employment of naval forces, border, and coast guard forces and special operations forces.

Introduction

Since the Crimean Crisis and the beginning of the Ukrainian Civil War in 2015, the term "hybrid warfare" became one of the most discussed topics in contemporary security affairs discourse, in science papers, politicians' speeches and news media, mostly in relations to Russian foreign policy, military, and intelligence activities. It reflects new security reality, where powerful actor – Russia can conduct a broad spectrum of overt and covert operations using, in a combined manner, tools of diplomacy, intelligence, information operations, paramilitary elements, and special and conventional military forces. It applies most certainly to the Baltic Sea area. This article shall describe the environment of the Baltic and later chances and challenges related to military security in this region.

1. General characteristic of Baltic Sea area

The Baltic Sea is a semienclosed arm of the Atlantic Ocean, surrounded by landmasses of Central and Northern Europe. Only natural access from Atlantic is possible only through the system of straits – two large ones – Skagerrak and Kattegat, followed by several smaller straits called "belts" or "sounds" between Danish islands. The number of human-made waterways

exists, including the White Sea-Baltic Sea Canal linking Baltic and Arctic White Sea, Gota Canal, which connects Kattegat to the eastern part of Baltic across Sweden and Kiel Canal. The latter connects the North Sea to the Baltic and permits to avoid sailing through Danish Straits. Only the last one canal has economic and navigational importance nowadays. Gota Canal is used mostly for recreational purposes, and the White Sea-Baltic Sea Canal is limited only to Russian internal shipping.

Baltic Sea covers an area of 413 000 square kilometers, medium depth is 52 meters, and the shape of the sea, including gulfs, is stretched from southwest to the northeast. The coastline is long (22 000 kilometers) and rich in islands, straits, gulfs, and other features[1] [1].

Due to shape and size, there is no high sea in the Baltic. The entire area is divided into territorial waters and exclusive economic zones (EEZs). Outside of territorial waters, there are no limits for the sailing of warships because rules of EEZ apply only to commercial exploitation of maritime resources (fishing, drilling, etc.). According to the Copenhagen Convention of 1857, all Danish straits are considered international waterways open to all military and commercial shipping.

Due to limited accessibility, small – compared to other seas size and location, which is almost landlocked, Baltic may seem to be an area of low maritime activity. Hard data, based on AIS system entries, deny this notion. Only in 2015, more than seven thousand ships operated in Baltic, including cargo ships (bulk and general cargo), tankers, container ships, ferries, passenger (cruise) ships, fishing vessels, and others – like sailing vessels, tugs and other. Data from 2006 to 2016 from the Helsinki Commission report also show that number of port visits, which describes the intensity of shipping and flow of goods, increases in the case of container ships, which visit ports serving as hubs of intermodal transportation.

Among those hubs, apart of German, Swedish and Danish ports are Polish ports of Gdansk and Gdynia and the ports of Baltic post-soviet republics: Klaipeda and Riga. It is also interesting that while container traffic is concentrated in the southern part of Baltic, tankers, and bulk or general cargo ships show more balanced patterns, including the Gulf of Finland and Gulf of Bothnia. Passenger traffic is concentrated on ferry connections, like Poland – Sweden or Estonia – Finland and similar short lines [2, p. 18-35].

The Baltic Sea is also an area of other activities. The fishery is still an essential part of the economy of coastal regions. It is strongly connected with regional culture and, in the case of recreational fishing (sea angling), is a part of tourist and leisure – related business. Also other recreational activities – yachting, scuba diving, and leisure cruises are offered.

More important from a strategic point of view is the production and transport of energy. While offshore oil and gas exploration may be typical for other parts of the world, like the Persian Gulf, there are limited activities in the southern part of Baltic. In Polish Exclusive Economic Zone, there are four oil fields, and two are currently in operation, with two manned production rigs. Russia uses one area, near Kaliningrad Oblast, with two active platforms [2, p. 162-4].

Pipelines, carrying crude oil and natural gas, and underwater cables – for communication and transfer electric energy – are another sector of the maritime economy. There are extensive

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[1] Much more detailed information is provided in official documents published by naval institutions and hydrographic offices, including *Locja Bałtyku. Wybrzeże Polskie [502]*. Gdynia: Biuro Hydrograficzne Marynarki Wojennej; 2009, especially Part Two: Natural Conditions.

networks of all of those connections. All of them must be considered vitally important to the Baltic Area's security, mainly because, like ships, cables and pipelines allow to bypass land connections, thus allowing for a diversity of energy transfer. Any disruption of those connections may lead to severe political and economic problems.

When it comes again to the ship traffic problems, it must be noted that the significance of maritime traffic on the Baltic Sea extends beyond sheer numbers. It may seem a paradox if we consider Baltic as an almost landlocked sea. Still, for most countries, maritime shipping lanes have critical importance from a strategic point of view due to the political situation.

Some countries have limited access to land routes because of geographical conditions. For example, Sweden has a long land border with Norway, but high mountains and harsh climate limit options of placing railroads or highways. Similar is the situation in Finland.

Latvia, Lithuania, and Estonia have land borders with Russia or Belarus, the only exception being short land border with Poland, already dubbed "Suwalki Gap". On the other hand, Russias' Kaliningrad Oblast in exclave without any land connection with the rest of Russia.

Poland's situation can be considered better, due to long land borders with NATO and EU countries so that any goods could be loaded or offloaded in German od Dutch ports. However, this assumption fails to notice that railroads and roads have limited capacity.

For example, in the case of container ship of the capacity of 10 000 TEUs (twenty feet equivalent), it translates nowadays in five thousand of the typical, forty-foot equivalent unit container. One hundred semi-trailer trucks would have to make fifty round trips to the port and back to carry such cargo. Each travel from Hamburg or Rotterdam to Poland would take about twenty-four hours, which means that assuming a lack of maintenance problems, full availability of drivers, and fuel – transfer of such large amount of cargo would take almost two months.

Trains are more effective – one train can be composed of forty railcars (assuming that infrastructure permits for using such long trains), each carrying one container, but it would still take one hundred and twenty-five trainsets or smaller number making several round trips. Also, rail transport rules are much different from road ones, requiring train drivers from several countries and changing locomotives on the border[2]. All those problems which affect the transport of goods in peacetime can be multiplied in case of crisis. For example, Poland constructed the Liquid Natural Gas import terminal as a back-up option for the import of LNG by pipelines from Russia.

Therefore, it is possible to list several general problems related to the Baltic region's military security:

- denial of use maritime lines of communication may lead to the severe economic and political crisis, especially if multiplied by denial of use land routes (by embargo or other means – violent or non-violent),
- it is possible to try to seize control over the main (southern) area of Baltic Sea using Anti-Access/Area Denial (AA/A2) means or try to control check-points – islands, straits, and gulf inlets in order to make any adversary maritime activity impossible,

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[2] The number of locomotives that are allowed to travel in both Poland and Germany is limited due to differences in safety systems and voltage in overhead power lines. Also, only two border crossings are electrified, which further limits the use of multi-system locomotives.

- attaining control of the Baltic Sea permits power projection, including artillery and missile strikes to coastal areas and amphibious operations, supporting air and land operations in case of major armed conflict,
- due to small, medium depth, mine warfare can be exercised in various forms,
- due to size and shape, it is relatively easy to conduct surveillance activities using naval, air, and land-based assets. For parties who may consider military activity in the Baltic Area, it means two requirements: having their assets (platforms) and the ability to deny the use of adversary ones,
- shape and size do not allow for full control of this area using available today land-based or airborne platforms. That also includes power projection.

2. Hybrid warfare in Baltic Sea area

The term hybrid warfare or, more precisely, the hybrid threat was defined as a situation when "an adversary simultaneously and adaptively employs a fused mix of conventional weapons, irregular tactics, terrorism and criminal behavior in the battlespace to obtain their political objectives" [3]. The entire concept of "hybrid war" is visible in this definition. Contrary to the conventional war, when all state efforts are focused on gaining advantage and achieving victory in open combat against other states (or coalition), different tools from different toolboxes are used in hybrid warfare. They may be used simultaneously or in different phases of conflict.

According to US Army Cpt. J. Chambers, hybrid threats may be generally divided into two broad groups. One is gray-zone hybrid threats, which include a variety of covert activities, like information and intelligence operations use of criminal networks and terrorism. Others are open warfare hybrid threats, including the use of conventional armed forces in an overt manner [4].

In the current political situation, possible hybrid conflict in this area shall be a one between Russia and one or more NATO or European Union member states. Russia's goals shall be possibly aimed at restoring control over the Baltic Sea because nowadays, as a result of the breakup of the Soviet Union, the majority of coastline and ports were lost, limiting civilian and military activities.

Latvia, Lithuania, and Estonia are particularly vulnerable due to several factors. They are former Soviet Union republics, with substantial Russian ethnic minority, and long land border with Russia. The fact that three small countries managed to free themselves from Russian domination, and now are members of Western World, bringing NATO troops close to major Russian cities can be even interpreter as a humiliation of Russia. Robust response in the form of the cyberattack on Estonia, which was triggered after the removal of the Soviet-era monument from the center of Tallinn in 2007, is strong evidence of the role those factors play in Russian politics.

Attack on NATO and EU members would also be a part of weakening those structures, which Russia has seen as a threat to Russia's international status. It must be assumed that any act of covert or overt aggression in the Baltic Region is a part of a broader strategic plan.

Russian activities against Baltic republics may be mostly covert actions, targeting local authorities, including police and military, as well as critical infrastructure and symbolic targets societies, creating the impression that well-organized insurgent activity exists. Also, there are

possible provocative actions to make legal authorities overreact and strike into larger groups. Then, Russia would announce that the Russian minority is subject to discrimination and repressions from local authorities and would threaten or conduct unilateral action, disguised as "peacekeeping mission" or humanitarian action. This course of action is consistent with the so-called "Gerasimov" model, recognized as a doctrinal basis for Russian hybrid warfare [4]. Similar threats are described in the Polish Strategic Concept of Maritime Security, published in 2017, in which "hybrid warfare" includes action targeting critical maritime infrastructure, like oil rigs, ports, undersea pipelines, and cables [5, p. 17].

Such activities would possibly initiate reactions from NATO countries, especially there is constant NATO air defense deployment (NATO Air Policing mission), and since 2016 there are forward-deployed land units present [6, p. 32-40]. Also response from EU members – Sweden and Finland is possible.

In order to deny NATO and EU response, further actions would have to be undertaken. Apart from non-kinetic informational and influence operations aimed at public opinion and decision-makers in Western states, more kinetic activities may be required. That may be achieved by creating more crises – forcing governments to focus on their backyard or by actions that make the impression that any assistance to Baltic states is highly risky or impossible. Those two kinds of operation may also be combined.

For example, in Poland's case, which is strategically placed as a platform for NATO reinforcements, an effortless way of blackmail and intimidation can be the cessation of delivery of crude oil and natural gas from Russia. Poland can use maritime terminals to import those energy resources by sea, thus reducing dependency on Russian sources.

Increasing traffic of tankers can be stopped by various means. One of the possibilities is covert action using secretly sponsored non-governmental organizations, which would start a political protest against the transportation of gas and oil through Danish straits and Baltic, citing the risk of environmental crisis in case of a maritime accident. Such actions can be similar to already known cases of direct actions conducted by environmental organizations – including obstruction of traffic by ships and yachts used by protestors or even attempts to board the ships.

After this phase of shaping public opinion, another one can start. It is easy to prepare sea mine, placed covertly by submarine or another vessel that would be used against tanker. Another scenario is a different form of terrorist attack called "Maritime Renegade", in which ship is seized by armed terrorists and then used to hit other ships, oil rig, or port facility. It is also possible to place the explosive device (the so-called limpet mine) on the hull of the ship, below the waterline, using divers or unmanned underwater vehicles. Destruction of the ship, large scale of destruction and pollution could become "evidence" of "reckless Polish policy". It could then force governments of Baltic states, under the pressure of public opinion, to stop tanker traffic, thus cutting Poland from deliveries of energy resources, making Poland comply with distinct Russian demands not to participate in any NATO efforts.

Russia already has a vast potential of conducting such operations, using special operations forces (Naval Spetsnaz). Those units use a variety of submersible vessels, which can operate from submarines, surface ships, and vessels disguised as civilian research, fishery, or other ships [7].

Nevertheless, this scenario is not over yet. It is possible that in such a crisis, the Russian fleet shall be sent on the Baltic to act as an "intervention force" to provide security. In this

scenario, Russia using act or act of maritime sabotage and terrorism would have the pretext to deploy ships which would de facto conduct "show of force" mission, discouraging Western states from sending any reinforcements to the Baltic States. Those actions could be followed by open use of force, such as open (conventional) attacks on naval vessels or military installations of Baltic states, to show that even open acts of aggression do not initiate an allied response. After that, the Baltic States could be quickly seized by Russian land forces.

After such a crisis, the credibility of NATO, in which three states became occupied by Russia and others, were forced not to take any actions would be devastated [8]. Russian-backed parties can later achieve major electoral victories in Europe, propelling more states – like Poland into the Russian sphere of influence.

3. Desired military capabilities

Such worst-case scenario, combining multiple elements of military and non-military actions, covert and overt raises specific questions about military capabilities needed to prevent its fulfilling. Due to the described above factors, several capabilities are needed.

First of all, due to complicated and unclear pictures of possible crises, Intelligence, Surveillance Target Acquisition, and Reconnaissance (ISTAR) capabilities are needed. They encompass continuous monitoring of situations, including maritime traffic, air traffic, the situation on land areas by various means and events occurring in the electromagnetic spectrum and cyberspace. Multiple ways of gathering intelligence and conducting surveillance are required – from imagery intelligence, through signals intelligence to measurement and signature intelligence. Platforms should be flexible and permitting long-lasting access to areas of interest. For example, in case of monitoring the situation in the Baltic Sea Area, it is possible to use specially equipped intelligence-gathering ships. However, usually, those specialized vessels have limited armament (if any), which makes their unescorted operations in crisis areas risky, as illustrated by the case of the American ship "Pueblo" seized by North Korean forces on international waters. Therefore they need support and protection from other ships.

Another important capability is Mine Countermeasure (MCM) activities, which mean the ability to detect, analyze and, if needed, render safe or destroy any mines or similar objects placed on the sea bed or floating on the sea surface or below. This capability requires having dedicated ships – minehunters, equipped with sonar systems, unmanned underwater vessels, and able to deploy specially trained divers.

Special operations in such an environment require a variety of supporting elements. The target must be located, and as much as possible information must be collected. The assault forces itself must be transported to the crisis area, and there may be necessary to provide fire, intelligence, and medical support during operation. There is also a combination of helicopters equipped to operate over water-covered areas, manned and unmanned fixed-wing assets, and surface ships. Due to political and legal reasons, both military and law enforcement (border or coast guard) elements may be used.

Covert operations, as mentioned above, might be supported by submarines or submersible vessels. Anti-Submarine Warfare (ASW) capabilities are required to detect such threats and react appropriately (including the destruction of said submarines). ASW is an activity where only properly equipped ships with sonars (including towed array devices), supported

by helicopters and maritime patrol aircraft, placing sonobuoys and using other devices as sensors may be used. The only way to destroy a submersed vessel is the use of dedicated ASW torpedoes.

In the case of hybrid war moved from "gray zone", or be combined with "white zone" threats, more capabilities are needed. These are the ability to detect and destroy enemy air threats (airplanes, helicopters, unmanned aerial vehicles, missiles), which is Anti-Aircraft Warfare (AAW), and the ability to detect and destroy enemy surface threats (ships) which are Anti Surface Warfare (ASuW). It may seem that the Baltic area permits to delegate those activities to land-based forces: multi-role fighter aircraft and missile launchers. However, a range of land-based missiles is limited, even considering the most optimistic conditions. For example, MIM-104 PAC-2 missiles of the US-made Patriot system have the maximum range of 55 nautical miles (which is correct, due to Earth curvature and other factors – only to targets on high altitudes). It means that about fifteen batteries can hardly cover the southern Baltic Sea – assuming there are missile batteries in all countries, in places like islands or peninsulas, to maximize parts of the sea covered.

Another problem is target detection, and again, land-based radars have limited range, notably when targets flying on low altitudes are taken into account. Such a solution is impractical because, due to political conditions, a single air defense system is unlikely to be created. Also, this does not solve the problem of the fact that land-based systems could be attacked or forced to be removed from a particular country as a result of hybrid actions.

Air assets can help solve several problems, notably target detection and area surveillance using airborne early warning planes (like NATO E-3A Sentry AWACS system). Multirole fighter planes can be used as missile launching platforms, but here another restriction appears. Flight duration of modern tactical fighters is limited and more armament is loaded, less weight and space is left for fuel. For example, F-16 can conduct 2 hours of patrol in the distance of 200 nautical miles from base, but only if three external tanks are taken, and air-to-air missile load is reduced to four missiles [9]. That is not only a loss of a third of air-to-air capabilities (F-16 can carry up to six air-to-air missiles) but the loss of air-to-surface options. Any addition of any element – targeting pods, ECM pods, anti-ship missiles, or bombs equals a reduction of combat radius and loiter time due to weight and drag of additional equipment.

If even this most basic option is considered, having Combat Air Patrol over Baltic, using two fighters requires significant effort. For every plane on the station, one is on its way to patrol area, or back to the base, another is on the ground undergoing inspections, service refueling, and if possible, rearming and a spare plane must be taken into account. Because fighters never operate alone, having the smallest possible element – a pair of planes – requires eight dedicated to this task. Also, airbases must be protected from terrorist or special operations forces attacks, due to this should be not located in areas where the risk of such attack is high. Therefore, the ideal situation is basing air assets in a distance of crisis area and using air refueling (tanker aircraft) to support combat air patrols and possible airstrikes.

It does not mean that land and air assets are useless in responding to the Baltic Sea area's hybrid threat. It simply means that other platforms are needed, capable of staying in the sea for some time, with presence independent of political factors, able to conduct and support a variety of activities, and such platforms are multi-role ships in the form of large corvettes or frigates.

Baltic may seem to be an area where small, fast vessels – like a missile or even torpedo boats of maximum length about 50 meters and displacement less than 500 tons – may play an important role, like during the Cold War. However, this notion fails to understand the realities of modern naval operations.

In the Baltic Sea, where it is relatively easy to conduct surveillance activities using naval, air, and land-based assets, small ships may be detected and tracked using networked sensors as well as bigger ones. A small ship is a ship with limited armament and countermeasures. Precision guided munitions can compensate target speed and agility, so speed itself is less relevant to chances of survival.

A frigate like Danish Iver Huitfeldt-class, German F124 Sachsen, or recently considered to purchase for Polish Navy Adelaide – class vessels have many different capabilities. First of all, its size is an essential advantage. Ship which displacement is more than 3000 tons, and the length exceeds 120 meters is a platform for a variety of sensors: radars, sonars, and SIGINT devices.

For monitoring the airspace, this means that assuming the position of a frigate 50 nautical miles north of Rozewie Penisula, there is a possibility of monitoring the airspace's situation over the entire southern Baltic Sea, up to the entrance to the Gulf of Finland. The range of detection of low-flying objects will be shorter, but still longer than for land-based radars. Because such ships have helicopter pad and hangar, they can use manned or unmanned rotorcraft as another airborne ISTAR platform. Helicopters and boats launched from frigates can also support special operations forces, and modern ship design allows for the embarkation of additional personnel like soldiers of special operations forces units.

The ship can operate for weeks on the sea and is independent of land bases, so their long-term presence in a crisis area is possible. The very presence of the naval vessel in a given part of Baltic may already act of show of force and have significant political consequences, as a clear sign of assurance of an allied support [10].

Frigates are nowadays the core of naval forces because their capabilities in anti-aircraft area defense allow them to create safe space for other ships. According to an officer of Danish Navy serving as Air Warfare Officer on Iver Hutfeldt frigate, "A vessel that has area air defense capabilities at its disposal does not only protect the individual warships but a whole area where the allied naval assets, land forces, as well as marine and land critical infrastructure (harbors, drilling facilities, oil platforms) may freely operate" [11]. It has important implications.

For example, if Poland decided in a crisis situation to support the Baltic republics or even intensify the operations of reconnaissance vessels, then the frigate shield significantly increases the efficiency of such operations. Smaller ships, such as missile boats or patrol vessels, are not able to provide it. First of all, because they will need reliable protection, frigates can also provide cover for land-based assets [12].

In the case of Russia, sometimes it is argued that air and land-based missile systems like Bastion and Bal create A2/AD "bubble" on the Baltic, where Surface ships cannot successfully operate and according to this narrative, purchasing of any such vessels by Baltic states is a mistake.

However, this argument fails to notice that modern ships, like Adelaide – class or newer units, are highly protected against air and missile strikes. Long-range missiles – like SM2 – can threaten any airborne ISTAR platforms and aircrafts carrying missiles in the distance up to

160 kilometers. Therefore the efficiency of said A2/AD bubble is reduced by the elimination of remote sensor platforms. Lack of precise targeting data means that missiles cannot be launched from maximum distance to target and under much less than ideal conditions. Air platforms will be forced to approach targets, putting themselves at risk. Land launchers may not be able to receive targeting data.

Those missiles which would be eventually launched can be eliminated by Surface-to-air missiles launched by ships, and even saturation attack (launching a large number of missiles) is difficult because modern ships are equipped precisely to deal with such attacks, which is seen in the configuration of sensors, command and control systems, weapons, and launchers [13]. Moreover, when missiles do not neutralize threats, ships can use point defense systems, like artillery and other countermeasures.

Also, it must be noted that the presence of area defense systems forces attackers to use attack profiles, which reduces performances of weapon system – for example, Russian P-800 missile used in the Bastion system has a maximum range 300km with high altitude trajectory, but 120 km if low altitude is used [14]. It also must be noted that while older designs of Surface to air missiles like SM-2 or SeaSparrow family use semi-active radar homing, which mean that even with the use of mid-course update, at some point target must be "light up" for missile by ship's radar, newer ones – like SM-6 use active mode and track its target autonomously and more complex engagement mode like „launch on remote" or "engage on remote" schemes. That means that targeting data can be provided by other platforms, like AWACS planes, other ships, fighter aircraft like F-35, and in the future, any others equipped with adequate sensors and datalinks.

Those factors raise the cost of any offensive action – in terms of platforms (ships and aircraft) used, launched munitions and time, multiplied by the fact that ships operate in groups, mutually supporting each other.

In addition to defense measures, ships also carry offensive weapons. It is entirely possible to after detection of attack, launch surface-to-surface weapons (like cruise missiles) from a ship or relay data for the use of other platforms and systems. In such a scenario, hybrid warfare that employs open methods may have a surprising outcome: not only adversary fails to achieve desired results, but it also suffers painful losses of expensive and hard to replace weapons systems.

The trend of using heavy corvettes of frigates (and destroyers in case of countries having them) instead) is highly visible. Two of NATO standing maritime groups SNMG-1 and SNMG-2 are composed of such ships, and they – along with two Mine Countermeasure groups are part of NATO Very High Readiness Joint Task Force (VJTF) to the NATO Response Forces (NRF) providing Alliance with tools of crisis response. Danish and German navies ceased to operate small missile boats and replaced them with bigger ships. Finland, not a NATO member, also decided to replace smaller ships with four well-armed large corvettes, and it is openly explained that "Since the vessels are more massive than before it is possible to install highly capable surveillance and weapon systems on the vessels and to ensure a better battle damage tolerance"[3].

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[3] See more, with the full description of the operational environment and required capabilities at: *The new multi-role corvettes are the most suitable surface combatants for Finland*, [online]. Puolustusministeriö Försvarsministeriet – Ministry of Defence. Available at: https://www.defmin.fi/en/administrative_branch/ strategic_capability_projects/squadron_2020/squadron_2020/the_new_multi-role_corvettes.

Another supporting element of naval forces is also required. Submarines are key platforms of ISTAR capabilities. Even in a shallow sea, they may remain undetected, notably when like German 212A class with Air-Independent Propulsion (AIP) for a long time [15], and any enemy Anti-Submarine Warfare activities consume valuable resources. Submarine activity is also highly relevant when undersea cables and pipelines are considered. Both sides may be forces to conduct intelligence – gathering operations (wiretapping of communication cables) and operations aimed at disruption or destruction of said connections. Moreover, again, due to the covert nature of such operations, underwater platforms are required. Submarines may also support special operations, acting as a transport and support platform. In many modern designs, features allowing conducting special operations are provided. For example, German 214 class allows for embankment up to 14 special operations soldiers [16].

Conclusions

All the mentioned above factors show that due to current threats of sophisticated hybrid threats in the Baltic Sea region, maritime security is one of the most critical sectors. In order to prevent crisis situations and be able to respond if a crisis occurs efficiently, maritime security must be provided by adequately composed, trained, and equipped forces. In Poland's case, for example, the core of those forces should be three guided-missile frigates, similar to Danish Iver Huitfeldt-class, German Sachsen class, or future British City-class (Type 26). Capability to provide area air defense by sensors and missiles must be considered fundamental, along with surface-to-surface weapons and anti-submarine warfare capabilities.

Those ships should be supported by MCM vessels – like Polish-based Kormoran II class, up to six ships. They can provide essential capabilities to allied and national operations. Another element of the naval forces should be AIP-equipped submarines, up to three vessels. Due to the limited number of cruise (land attack) missiles, which may be carried by submarines, it is not recommended to include this armament in fleet modernization plans. Submarines do have, however vital role to play as intelligence gathering and special operations support platform and can conduct operations aimed at hostile surface and submarine vessels. Small missile boats could be withdrawn from service since other platforms would overtake their capabilities. The acquisition of new vessels of this type should not be necessary. Also, land-based missile force (Naval Missile Unit, currently in size of two NSM missile squadrons) do provide critical Anti Surface Warfare capabilities (notably in the southern part of Baltic due to the range of missiles).

Due to the earlier multipurpose corvette program's problems, only one ship (ORP "Ślązak") built as a result of this program shall soon be in service of the Polish Navy as an Offshore Patrol Vessel, which should be upgraded to corvette equipped with missiles and ASW equipment. If new helicopters and maybe fixed-wing patrol aircraft, able to supports ships in Anti-Submarine Warfare and Anti Surface Warfare activities would be purchased, such force, also having land-based missile units, would be an essential contribution to coalition efforts in Baltic Sea Area. It might also be reasonable to purchase new Offshore Patrol Vessels for Border Guard.

In conclusion, it may be assumed that upgraded Polish Navy supported by Air Force and Special Operations Forces, together with Allied forces, may be a useful tool of deterrence against any attempts to conduct extensive-scale hybrid warfare in Baltic Sea Area.

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Biographical note

Michał Piekarski – assistant professor at the Institute of International Studies of the University of Wrocław, author of 20 peer-reviewed publications, a founding member of the Polish National Security Association. His research interest encompasses maritime security, hybrid warfare, contemporary terrorism, and strategic culture. Besides academic work, a regular contributor to military-related magazines "Special Ops", "Frag Out!" and other media.

	Małe morze, duże problemy: szanse i wyzwania w zakresie bezpieczeństwa militarnego w regionie Morza Bałtyckiego
STRESZCZENIE	Tematem artykułu jest analiza szans i wyzwań związanych z bezpieczeństwem militarnym państw otaczających Morze Bałtyckie. W szczególności opisano problem bezpieczeństwa transportu morskiego oraz innej działalności gospodarczej związanej z morzem. Szczególna uwaga została zwrócona na możliwe scenariusze „wojny hybrydowej" w tym regionie.
	W oparciu o możliwą charakterystykę zagrożeń istotnymi aspektami są postulowane zmiany w organizacji oraz sposobach wykorzystania sił morskich, formacji granicznych oraz wojsk specjalnych.
SŁOWA KLUCZOWE	Morze Bałtyckie, wojna hybrydowa, bezpieczeństwo morskie, Marynarka Wojenna

How to cite this paper