



OFFSHORE GAS INFRASTRUCTURE
IN THE RUSSIAN COUNTERACTION TO NATO
ON THE EASTERN FLANK: POTENTIAL
FOR A HYBRID USE IN THE BLACK
AND BALTIC SEAS

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OFFSHORE GAS INFRASTRUCTURE IN THE RUSSIAN COUNTERACTION TO NATO ON THE EASTERN FLANK: POTENTIAL FOR A HYBRID USE IN THE BLACK AND BALTIC SEAS

The negative attitude of Russia towards NATO is a well-known fact and the Russian leadership believes it is necessary to declare it, under any possible occasion. “NATO’s attempts to deploy new bases and military infrastructure near our borders pose a direct threat to us, and the reaction will be extremely negative,”- said Vladimir Putin at a meeting with Russian diplomats on July 19, 2018 [1]. Previously, at the International Economic Forum in St. Petersburg on June 1, 2017, he warned Sweden on its possible attempts to join the Alliance : “If Sweden joins NATO this will affect our relations in a negative way because we will consider that the infrastructure of the military bloc now approaches us from the Swedish side. We will interpret that as an additional threat for Russia and we will think about how to eliminate this threat...[2].”

In fact, Russia won’t think about it, as it has not only come up with it, but also implements it. Putin’s declarations is the way to disguise what has already been done or is being done. Under the guise of propagandistic theory of the threat from NATO infrastructure expansion, which was actually provoked by aggression against Ukraine and saber-rattling near the Baltic States, Russia carries out a complex of measures aimed at deterring and defeating Alliance’s Eastern flank when necessary. The key to success is effective intelligence, in particular by applying signals intelligence (SIGINT) and even the use of unconventional methods.

In Europe, gas pipelines as Nord Stream are only evaluated by the business coordinate system. However, Russian gas flows incorporate additional dimensions, i.e. corruption. There is also a military dimension, which fits in the technology of polyhybression of Russia – multifrontal and multidimensional hybrid aggression the Kremlin maintains against Ukraine and the West including non-military means.

The Baltics in focus

The southern coast of the Baltic Sea can be considered a NATO coast as all three Baltic States, Poland and Germany are its members. Even though Sweden and Finland stay neutral, they represent the Nordic part of the Western world, being members of the EU. Russia didn’t ignore NATO’s approaches, which were outlined at the July Summit in 2018 in Brussels and determined in its Declaration [3]:

“19. ... We are reinforcing our maritime posture and have taken concrete steps to improve our overall maritime situational awareness... Through an enhanced exercise programme, we will reinvigorate our collective maritime warfighting skills in key

areas, including anti-submarine warfare, amphibious operations, and protection of sea lines of communications...”

“52. The Alliance has developed mutually beneficial security cooperation with Finland and Sweden on a broad range of issues. We remain dedicated to further strengthening our cooperation, including through close political consultations, shared situational awareness, and joint exercises, in order to respond to common challenges in a timely and effective manner.”

It serves as the basis for Moscow to build-up the propaganda about “strengthening of NATO” as well as it explains the necessity of deploying their own intelligence capabilities. Per Kremlin’s logic, the Alliance is preparing for aggression against Russia, trying to engage neutral Sweden and Finland to create regional military-strategic advantages over the Russian Federation.

According to the Fundamentals of the State Policy of the Russian Federation in the Field of Naval Operations for the Period Until 2030, which were approved by the Russian President in 2017, it faces a range of threats as deployment (buildup) of strategic high-precision sea-based non-nuclear weapons systems, as well as sea-based ballistic missile defense systems by foreign states in the waters adjacent to the territory of the Russian Federation. Therefore, every entry of US Navy ships into the Baltic Sea, equipped with guided missiles and ballistic missile defense systems such as Aegis (ABMD), as well as Landing Crafts, is identified by the Russian Federation as a threat to its sea lines of communications and the offshore energy infrastructure, in particular to underwater pipelines, oil, liquefied natural gas and petroleum products terminal transfer facilities, situated in the coastal zone of the Russian sector of the Baltic Sea.

In accordance with the policy documents of the Ministry of Defense of the Russian Federation, among others tasks the following are assigned to the Navy:

- creation and support of conditions to ensure security of the Russian Federation’s maritime activities in the world ocean;*
- identification of communications and equipment of ocean and marine theaters in strategically important parts of the world ocean;*
- study of probable areas of combat operations and conditions of use of various types of Navy forces, use of weapons and technical equipment;*
- exploration of the activities of foreign ships and aircraft.*

Paragraph 33 of the Fundamentals of the State Policy of the Russian Federation in the Field of Naval Operations for the Period Until 2030 states: *“With the development of high-precision weapons, the Navy of the Russian Federation faces a quali-*

tatively new objective: destruction of enemy's military and economic potential by striking its vital facilities from the sea [4]."

It is definitely worth paying attention to some blunt statements from Moscow. In particular, last year Kremlin's chief foreign policy advisor Sergey Karaganov was quite frank in his interview with the German magazine, Spiegel: *"Now, fears in countries like Poland, Lithuania and Latvia are to be allayed by NATO stationing weapons there... In a crisis, we will destroy exactly these weapons. Russia will never again fight on its own territory! ... We currently find ourselves in a situation where we don't trust you in the least ... You should know that we are smarter, stronger and more determined [5]."*

Such actions by Russia in line with "Karaganov's scheme" require corresponding intelligence capabilities. They have long existed in the Baltics and are constantly being improved. In the context of post-Crimean realities for the Russian subversive activities in Europe, it is about their development, principally about the attack on the NATO forces. Evidently, the Baltic Operations Zone cannot be compared to the ocean theatre, nevertheless it resembles more and more a zone of confrontation with NATO as the Russian Federation identifies Alliance member states' troops, which arrived in Poland and the Baltic States, as a threat. Elements of the anti-missile system represented by the land-based facility "Aegis Ashore" and the US Naval Support Facility in Redzikowo, Poland, as well as four Arleigh Burke-class destroyers based at Naval Station Rota, Spain, which are regularly on duty in the Baltic Sea, are constantly in the spotlight of the Russian Baltic Fleet Intelligence Service, aviation aircrafts and surveillance satellites. It is not yet known where the 'Fort Trump' will be located, but in any case, logistical support to the American base will be partly provided by sea through the Baltic using ports in Szczecin and Gdansk. Therefore, the routes to these ports will be in the focus of special attention of intelligence units of the Baltic Fleet of the Russian Federation.

In the 2000's, during the Nord Stream design stage, Russia has already tried to increase its signals intelligence capabilities by using a unique chance to mask it out with "the civil infrastructure equipment." It was planned to construct a service platform within 68 km from the Swedish island Gotland. However, in 2006 the Swedish Defence Research Agency and the Ministry of Defence of Sweden made an assessment in proper time and realized the dual-purpose of the structure in the middle of the Baltic Sea, in particular an opportunity to use it for deploying sea surface and underwater surveillance systems for the needs of the intelligence systems of the Baltic Fleet of the Russian Federation. The construction of that service platform was declined by Sweden that forced Russia to revise the gas pipeline project and adjust

the route. That was a defeat for the Main Intelligence Directorate of the General Staff of the Russian Armed Forces, but it did not stop the attempts to use civil marine and gas infrastructure to resolve military tasks, primarily for the signals intelligence.

Over 1220 km of the four-branch gas pipeline corridor of Russia - the existing Nord Stream and the potential Nord Stream 2 - is a chance for the Baltic Fleet of the Russian Federation to provide an advantage over NATO forces in the operational space of the Baltic. In essence, the gas pipeline corridor is a lengthy playground where Russia can hide additional mobile intelligence capabilities to scan underwater and surface environment along the entire coast of NATO.



Fig. 1. The corridor of Russian offshore gas pipelines Nord Stream and Nord Stream 2 in the Baltic Sea
<https://bizresurs.com.ua/evropeyskaya-komissiya-utverdit-nord-stream-2.html>

When the United States this year emphasized that Russia can use the Nord Stream 2 to resolve tasks that are unrelated to the gas transportation, i.e. reconnaissance activities, it was perceived with skepticism in the EU. It refers to the May statement made by Sandra Oudkirk, Deputy Assistant Secretary of State for Energy Diplomacy: “The planned Nord Stream 2 gas pipeline from Russia to Germany raises U.S. intelligence and military concerns since it would allow Moscow to place new listening and monitoring technology in the Baltic Sea” and the following June reaction in Europe, that the U.S. exaggerated the situation. Amongst others, Claus Hjort Frederiksen, Danish Minister of Defence was very skeptical referring to Danish Security and Intelligence Service assessment. However, confidence in the US, that the Russian Federation might use civil infrastructure, in this case gas pipelines routes, to

deploy reconnaissance equipment, has valid reasons. In order to find confirmations of aforementioned, it is worth looking at what Russia is doing in the Black Sea.

Situation at the Black Sea?

The drilling rigs of the Ukrainian state-owned company Chornomornaftogaz (a subsidiary of Naftogaz of Ukraine, 100 percent of shares) were captured by the Russian Special Forces in March 2014, during an operation on the occupation of Crimea, became a proper playground for the Black Sea Fleet of Russian Federation to practice signals intelligence based on civilian marine infrastructure located in the north-western part of the Black Sea.



Photo 1. A ship of Russian Black Sea Fleet patrols near fixed offshore platform in the exclusive maritime economic zone of Ukraine.

The first step was to ensure the legal basis for military operation by issuing an order of the Ministry of Transport of the Russian Federation “On establishing the boundaries of the security zone around artificial structures located on the continental shelf of the Black Sea.” The main purpose was to ensure security and safety of the captured objects of the Ukrainian company, in the exclusive economic zone of Ukraine, which was named State Unitary Enterprise of the Crimean Republic ‘Chernomorneftegaz’ (*hereinafter* SUE ChNG) after occupation and illegal annexation of the peninsula by Russia. Such artificial structures in gas and gas-condensate fields (GF and GCF) in the Ukrainian sector of the Black Sea are: fixed offshore platforms (FOPs, *укр. МСН*), jack-up drilling rigs (JDR, *укр. СІБУ*), wellhead platforms (WP, *укр. БК*), central processing platforms (CPPs, *укр. ЦТН*).

Table 1.

Artificial structures	Regulatory range of security zone around the objects located on the offshore gas and gas-condensate fields (in meters) *			
	The Holitsynske GCF	The Shtormove GCF	The Arkhangelske GF	The Odeske GCF
FOP-2	555			
FOP-4	580			
FOP-5	570			
FOP-17		575		
FOP-18	570			
WP-1				520
WP-2				518
WP-10	530			
WP-11	510			
WP-13	580			
WP-23		518		
CPP-7			520	

* Sources:

Notice to Mariners No. 1402-1541. — С-Пб., March 19, 2016. — Issue 12 (9956.12) — p. 15-17.

Notice to Mariners No. 2105-2258. — С-Пб., April 23, 2016. — Issue 17 (9956.17) — p. 19.

Notice to Mariners No. 3924-4074. — С-Пб., July 23, 2016. — Issue 30 (9956.30) — p. 18-19.

Notice to Mariners No. 6878-7005. — С-Пб., December 17, 2016. — Issue 51 (9956.51) — p. 18-19.

The next step was the deployment of a comprehensive surveillance system for surface and underwater environment for detection of surface, underwater and low flying aerial targets.

During the third and fourth quarters of 2016, the SUE ChNH purchased and installed surveillance systems for surface and underwater environment at jack-up drilling rigs and fixed offshore platforms. JSC The Marine Complexes & Systems (St. Petersburg) became a supplier. The total value of the contract was RUB 39.469 mln.

Reference. Surveillance system for surface environment is designed to monitor the situation in areas of protected objects location, as well as timely radar detection and escort of ships, vessels, low flying aerial targets. The system consists of: the post of technical observation (PTO) - three units, local automated workplaces (AWP) - five units, equipment of the situational center for surveillance of the surface environment. The maximum number of PTOs and AWP in a complex can reach more than ten. Digital information in the system is displayed in real time at all automated workplaces simultaneously.

Surveillance system for surface environment – the NEVA-BS centimeter-wave radar was deployed on TAVRIDA jack-up drilling rig, FOP-17 (MCII-17) on Shtormove gas- condensate field, FOP-4 (MCII-4) on Holitsynske gas-condensate field in three sets. NEVA-BS radar provides automated detection and tracking of up to 200 targets simultaneously. The detection range of targets varies depending on their dimension and conditions for radio waves propagation: up to 30 sea miles (55.5 kilometers) for large targets (cruiser, tanker), up to 15-20 miles (28-37 km) for medium targets (missile and patrol boats, pilot boats), up to 8 miles (15 km) for ultra-small targets of boat type. In addition, the NEVA-B millimeter-wave radar and imagery system set were installed on JDR TAVRIDA (СПБУ «Таврида»). The mentioned radar has the following range of target detection: head of frogman – up to 0.5 miles (~1 km), ultra-small targets – up to 4.3 miles (8 km), small targets – up to 8 miles (15 km), medium targets – up to 13.5 miles (25 km), large targets – up to 24.3 miles (45 km). The radar data reception is implemented through the channels of the international automatic identification system of AIS (Automatic Identification System), the mode of selecting targets, automatic sound alarm when transiting the border control zone. Radar has the ability to access optical-electronic systems [6].



Photo 2. The NEVA-type Radar. Photo by TETIS Integrated Systems LTD



Photo 3. Automated workplace based on NEVA-B Radar

Data transmission is run via radio relay channel provided by the set of digital radio relay stations. The real-time data is transmitted to the Border Service of the Federal Security Service of the Russian Federation in Crimea and passes to the intelligence chain of the Black Sea Fleet of the Southern Military District of the RF. Thus, as shown in the Figure 2, deployment of the surveillance systems for surface environment on the Chornomornaftogaz’s objects, captured in the exclusive maritime economic zone of Ukraine, provides Russia with almost complete control over the traffic of commercial ships and warships that head to the ports of Ukraine and in the opposite direction.

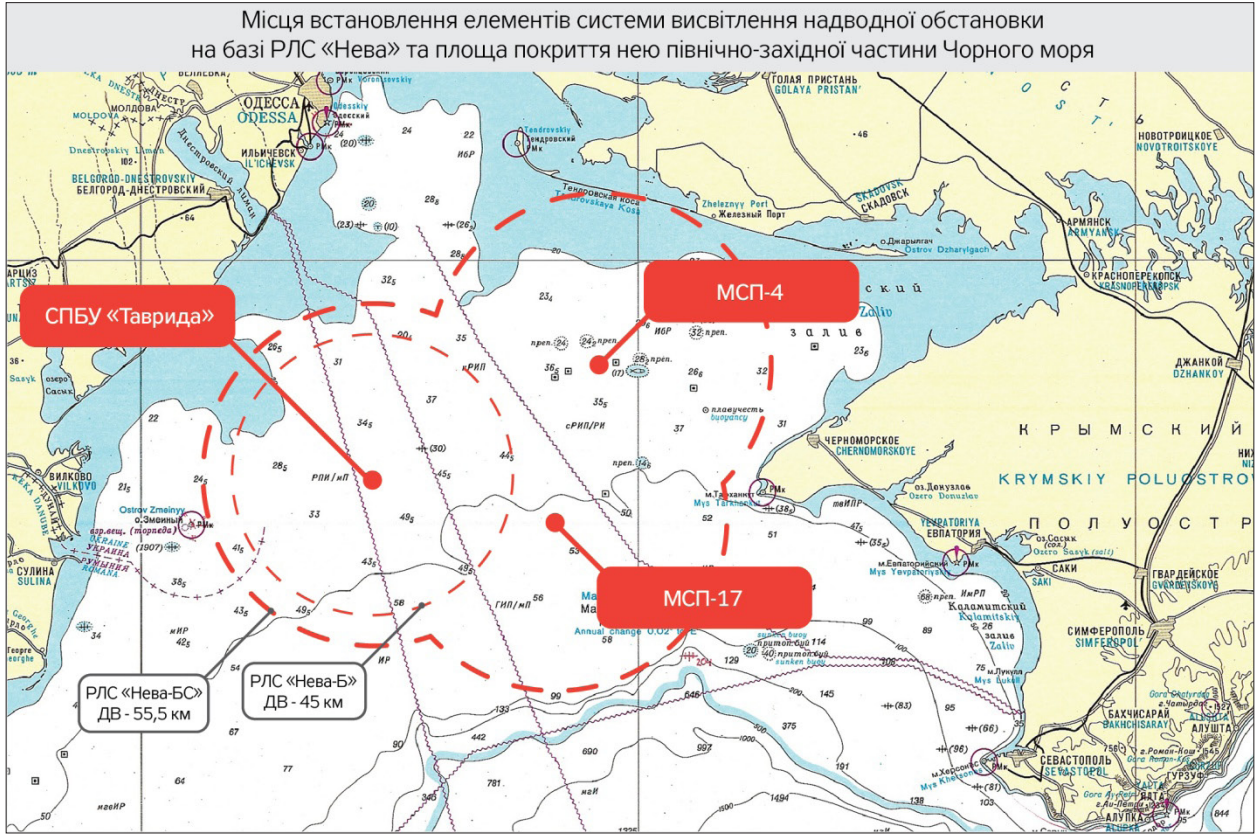


Fig. 2. The places of deployment of the elements of the surveillance system for surface environment on the base of NEVA radar and the coverage range of the north-western part of the Black Sea.



Photo 4. The NEVA-type radars installed on the TAVRIDA Jack-up Drilling Rig, captured as part of the Ukrainian state company Chornomornaftogaz on the Odeske gas field.

The photo was taken during the joint monitoring raid of the Coastal Guard of the State Border Guard Service of Ukraine and Chornomornaftogaz company in 2017.



Photo 5. The Neva-type radar installed at the JDR Sivash and FOP-4 on the Holitsynske gas condensate field of the Ukrainian JSC Chornomornaftogaz, captured by Russia.

The photo was taken during the joint monitoring raid of the Coastal Guard of the State Border Guard Service of Ukraine and the company Chornomornaftogaz in 2017.

In addition to installation of radars for surface surveillance, the sonar system for underwater environment surveillance was installed on the following SUE ChNG's objects (see Figure 3 below):

- FOP-4 (MCII-4) on Holitsynske GCF, located 61 km to north-west from the Crimean Cape Tarkhankut;
- FOP-17 (MCII-17) Shtormove GCF, located 72 km to west from Cape Tarkhankut;
- WP-2 (BK-2) on Odeske GCF, located 66 km to north-east from Snake Island.

In December 2016, the SUE ChNG purchased three sets of sonar system for underwater environment surveillance with a total value of RUB 67.684 mln. The supplier was the same - JSC The Marine Complexes & Systems.

Reference. Sonar system for underwater environment surveillance is designed to control the underwater environment in the area around the SUE ChNG's facilities and timely detect moving underwater objects, identify their coordinates by bearing of movement parameters, convoy in the area of seized technical extraction structures in gas and gas- condensate fields. This system has an ability to connect in accordance with the information and logistics protocol with the system for surface environment surveillance. The sonar system kit consists of two submarine modules and two mod-

ules of interaction, a processing unit and a visualization unit with the corresponding software. The submarine module is placed under water at depths up to 30 m. The search and detection of the targets is carried out automatically and controlled by the operator. Places for the installation of control equipment are JDRs, FOPs or aboard a ship. Range of detection is 900-400 meters.

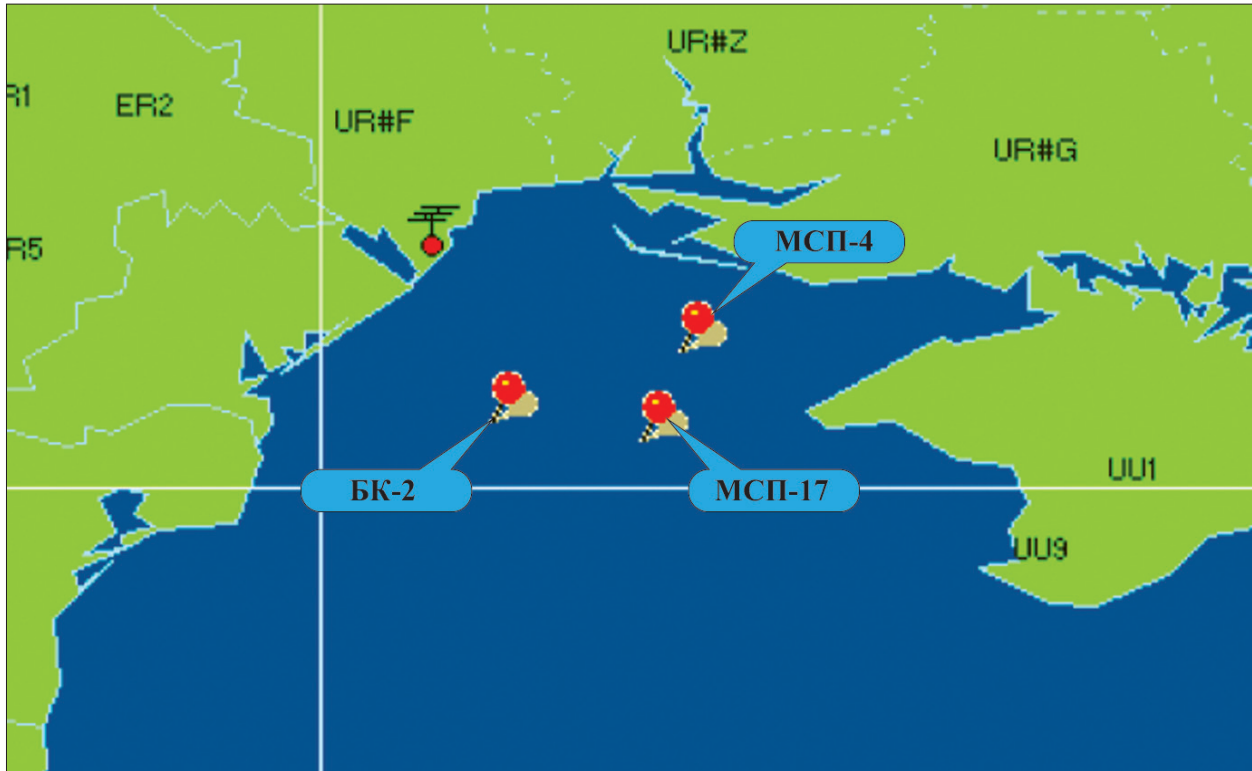


Fig. 3. The places of deployment of the elements of the sonar system for underwater environment surveillance

An inter-agency cooperation has been established within the framework of exchange of information on surface and in the underwater environment in the north-western part of the Black Sea, which through technical capabilities of SUE ChNG allows the leadership of the coastal guard of the FSB RF in Crimea and the command of the Black Sea Fleet of the Southern Military District to accomplish following tasks in real time:

- comprehensive monitoring of the surface and air environments on the Cape Tarkhankut – Snake Island line;
- control of international navigation;
- reconnaissance support of operational decisions to conduct warfare under supreme military command.

Based on the abovementioned, we can conclude that increasing the potential of the surveillance system for surface and underwater environment by placing navigation radars on the stationary and floating marine infrastructure objects, allows not only to expand the radar-tracking field and ensure protection of these objects, but also to monitor international navigation and operations of naval vessels of other countries in the north-western part of the Black Sea and provide critical information to the Black Sea Fleet of the Russian Federation to hold military operations in case of combat missions.

There is a question as to steadiness and systematic conduct of anti-diversion and anti-terrorism exercises particularly in the Black Sea Fleet and the Caspian Flotilla. In our opinion, they are obviously excessive. It seems that some hybrid technology is being developed, in particular the creation of casus belli for a “preventive strike,” which will be argued as “actions in response to attempted sabotage at the site.” It means that under the cover of an artificially created emergency situation, for example, reception of a signal from the security system about the alleged penetration of the subversive group into the protected zone of the object, mobile forces can resort to offensive actions against the country “saboteur.”

In this context, a military grouping of the Azov Sea formed under the pretext of protection of a new hydrotechnical structure – bridge crossing through the Kerch Strait against possible sabotage deserves attention as it impacts civil navigation and the economy of the “pirate state” – as Ukraine is described in Russian media. It should not be ruled out when the situation with sabotage or acts of terrorism on the objects of the marine infrastructure can be incited by Russia itself as a reason for further use of force. Special services of the Russian Federation have worked out technologies and experience.

Speculating on “the growing activity of NATO naval groups in the Black Sea,” Russia is deploying “a military range” for testing the latest radio equipment of surveillance for surface and underwater environment around Crimea and in the Black Sea as a whole. The components of this regional system are the means deployed on the sites of the so-called SUE ChNG.

Mastering new forms and methods of conducting intelligence, formation of architecture of the system managing its forces and means in the operational space of the Black Sea at the base of civilian maritime infrastructure, can serve as an example for the Baltic Sea, since geographically these are two similar closed sea waters. In addition, the maritime gas infrastructure of the Russian state-owned company Gazprom, which is a subject to protection on one hand, is located in the Baltic Sea.

On another hand it can be used as a platform for intelligence in the depths of NATO's response area, disguising the intelligence functions by performing a typical function of pipeline protection by signals intelligence capabilities.

On possible Russian approaches to signals intelligence in the Baltic in the context of the Nord Stream

The Baltic Sea, in contrast to the Barents Sea in the north or the Mediterranean in the south, does not play a strategic role either for NATO or for Russia on the whole eastern flank - from Norway to Bulgaria. But this is only at first glance. Geostrategically, Russia believes that membership of the Baltic States in NATO and the deployment of the Alliance forces and facilities on their territory has created a "knife at the Russian throat" effect. Accordingly, in their opinion the threat requires a comprehensive neutralization. The goal of conducting task-oriented, continuous, active and covert intelligence is at the forefront.

In 2006, during the preparation for the construction of the Nord Stream, Russian President Vladimir Putin was quite frank about the tasks of the Baltic Fleet: *"The Baltic Fleet has a task to secure our economic interests in the Baltic Basin. We have enough of them there. The Baltic Fleet has a task to ensure security of marine communications. ... Now, you know, one of our major priority projects is the construction of a North European gas pipeline that runs along the Baltic Sea and to supply our energy resources directly to our main customers in Western Europe [7]."* Similar statements were alarmed at that time by many in Europe; however, this was not an obstacle to the Nord Stream project.

Intelligence forces and facilities of the Baltic Fleet of the RF are concentrated in the European enclave of Russia bested by NATO – in Kaliningrad oblast. In particular the 1st Radio Intelligence Unit of Special Purpose (military unit 81304) located in Zelenogradsk and the 72nd Separate Navy Intelligence Division (military unit 15130) located in Baltiysk. The division includes medium-size intelligence ships SSV-520 Admiral Fyodor Golovin, SSV-231 Vasily Tatishchev of 864 Design and small intelligence ships GS-19 Zhygulevsk and GS-39 Syzran' of 503M Design. All ships are equipped with Signals Intelligence (SIGINT): different radios, as well as Imagery Intelligence (IMINT) and Acoustic Intelligence (ACINT) – using surface radars and such sonars as the hydroacoustic complex Pamyat', Ros'-K for taking a bearing of sonar beacons, etc. The ships are able to accomplish installation or de-installation of underwater special purpose equipment in the sea. All data from the ships and the coastal intelligence units is transmitted to the 105th Intelligence Command Centre of the Baltic Fleet located in Kaliningrad, at 24 Kirova Street. The final decryption and processing of all received intelligence information takes place there.

Northeast Atlantic is the intelligence overview area of the Baltic Fleet. The Baltic Sea and the eastern part of the North Sea is the zone of detailed intelligence. Russian intelligence ships regularly appear in the Baltic Sea near the coasts of Sweden, Poland, Germany, the Baltic States, as well as along the corridor of the Nord Stream.

Russians have almost completed their “Unified State Surveillance System for Surface and Underwater Environment of the Russian Federation”¹ that started in the 2000s. Simultaneously, the development of the new and improved existing high-tech tools with the possibility of their practical testing on real marine infrastructure objects is considered as one of the priority directions to create advantages over NATO using a variety of civilian platforms. For example, in the Arctic, a global information net-centric system of underwater surveillance is being deployed on the basis of the latest ‘Positioner’ underwater communications and navigation system, which has a civilian purpose – offshore service of oil and gas production, but can also be successfully used for military purposes, and not only in the Arctic.

Marine gas transportation infrastructure (Nord Stream and Nord Stream 2) does not only perform business, but also geoeconomic (providing the dominance of Russian oil and gas exports and infrastructure in the Baltic Sea) and geopolitical (military and political dominance under the guise of a thesis on the protection of its economic interests from encroachment by the non-European players) functions. Therefore, the issues of ensuring the security of marine gas transportation systems, including countering possible sabotage, will automatically lead to their military affiliations under the pretext of a threat from NATO. All this serves as the basis for defining security zones, as a guarantee of uninterrupted exploitation of the objects of the marine gas transportation infrastructure, with the aim of further deployment of dual-purpose security systems, including simultaneous activities of acoustic intelligence. This combination is a successful form of masking, that is, on the platform of security measures on purely civilian objects of the marine gas transportation infrastructure, intelligence activities in the operational space of the Baltic as a counteraction to NATO forces, will be carried out.

Prospective tools for acoustic intelligence can be robotic intelligence mini submarines of the Russian production, which are capable to immerse at depths as low as 300 meters and operate without human intervention for up to three months, providing a «vision» of the movement of underwater and surface objects from the underwater position that depends on their size, noise level and type of hydrology at a distance that can reach tens of kilometers. By the way, the route of the Nord Stream

¹ Translators’ note: Non-official translation for the Russian «Единая государственная система освещения надводной и подводной обстановки Российской Федерации», (ЕГСОНПО)

pipelines lies mainly at a depth of 80-110 meters. Such depths are «comfortable» for underwater surveillance equipment.

Also, it is possible to disguise combat equipment on the route of gas pipelines - underwater drones. The Russian media point to the «Russian revolution at sea» - the creation of a family of underwater drones ‘Klavesin’, ‘Galtel’, ‘Chilim’, which are in service of the Russian Navy since 2017.



Photo 6. Russian mobile underwater multipurpose complex Galtel-Alevrit.
Used in Syria in the Tartus Naval Facility Point of Russia

Despite a significant exaggeration by the Kremlin propagandists of their combat qualities, as technical improvements of the first prototypes that are now undergoing exploratory exploitation in the Eastern Mediterranean Sea will take place, they will represent a rather serious challenge for NATO forces and capabilities at sea.

One of the most important components of marine surveillance is passive acoustic surveillance systems. They do not radiate anything. They monitor the sea from the underwater position. At the end of 2016, the Ministry of Defense of the Russian

Federation began deployment of the global underwater acoustic surveillance system. The goal was to detect and identify all surface and underwater objects, as well as low-flying aircrafts, in the key areas of the World Ocean, and to create databases and algorithms of recognition and classification of targets. Its main element is 'Harmony' - a network of underwater robotic systems that can deploy powerful automatic hydroacoustic stations at the bottom of the ocean, which collect information and transmit it to the command intelligence post (KP-R). According to the Russian plans, Harmony should start working no later than 2020. For the Baltic region, this date is synchronized with the launch of the Nord Stream 2.

The basis of 'Harmony' is the robotic autonomous bottom stations (ABS). A special submarine or a surface ship (vessel) can invisibly install them at the bottom of the sea. ABS can conduct passive sonar surveillance, monitoring surrounding space. The station records specific noises of propellers, engines and other mechanisms of warships and vessels, as well as noise of low-flying helicopters and aircraft. The ABS may, if necessary, emulate a special active signal in the short pulse to classify surface and underwater purposes. Several ABSs can be integrated into a single complex and synchronize in a network to monitor the underwater and surface situation in an area of several hundreds of square kilometers, providing a simultaneous surveillance of large water areas [8].

The declared architecture and principles of the Harmony system and its ABS show the need for special vehicles, the task of which will be delivery of ABS to the installation and alternation points. As part of the Navy, there are several submarines and special purpose ships that can be carriers. The most convenient ABS carriers are specially equipped submarines, which unlike surface water vessels have more opportunities for unnoticeable exit into a designated area with the further deployment of the ocean bottom stations. At the same time, a probable adversary would have a minimal chance of learning about the ABS location, so the installation points of the Harmony system will remain a secret. Nevertheless, surface carriers could conduct the task of the unnoticeable placement of the ABS openly, if the carrier will use the appropriately rebuilt civil vessel, which carries out regular flights in the waters of the Baltic Sea. For example, one of the tankers of the Russian company Sovcomflot, or a research vessel.

An advanced SIGINT system can include three contours: marine, space and coastal. The marine contour is a small-sized positional sonar station with a network of remote receiving sonar devices that scan the area and transmit data to satellites of the outer contour. From the outer contour the information is transmitted to the coastal circuit for processing and making further decisions.

As a conclusion, it should be noted that Gazprom is able to provide access to information from the security systems of its facilities in the gas pipeline corridor to third parties, firstly to the FSB of the Russian Federation for protection of the sea borders and monitoring of commercial traffic, to the Intelligence Directorate of the Russian Naval General Staff in order to use it in the Russian Unified State Surveillance System for Surface and Underwater Environment, etc.

In addition, the expansion of the intelligence system will allow the unloading of mobile (submarine, surface and aviation) intelligence services of the Baltic Fleet of the Russian Federation, especially intelligence ships, which according to estimates by Russian military experts are lacking in the Russian Navy.

Swiss disguise for Russian intelligence in the Baltic region

Special attention should be paid to the general management system of the Nord Stream pipelines and how it is incorporated into the Russian intelligence contour in Europe.

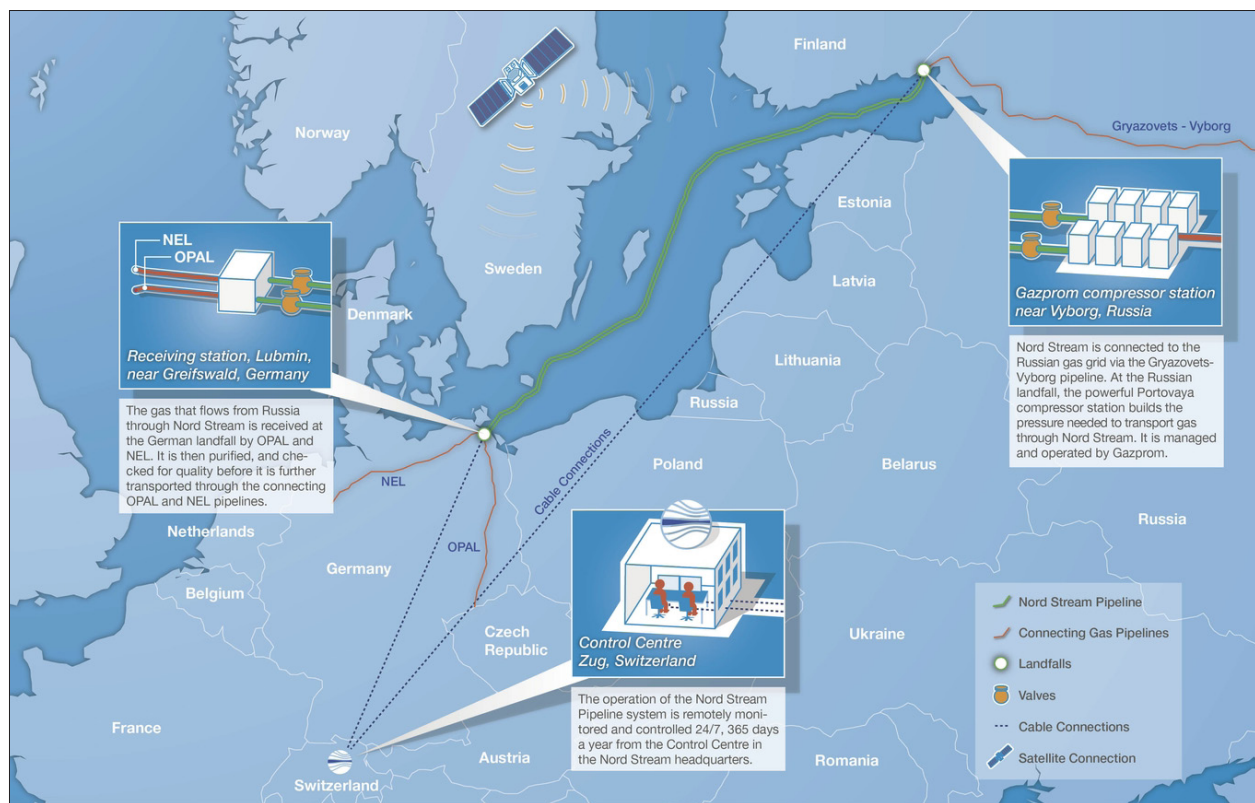


Fig. 4. General scheme of management of the Trans-Baltic gas transmission system with an offshore location of the Main Control Center in Switzerland, equipped with fiber optic and satellite communications.

https://www.nord-stream.com/press-info/images/nord-stream-operation-facilities-3244/?q=&category=115&year=all&page=9&per_page=12

The main Control Centre of the underwater gas pipeline system is neither in Russia, nor in Germany, as one would assume. It is located in the Swiss Canton of Zug and is a subsidiary of Nord Stream AG, which is also registered there (see Fig. 4 and 5).

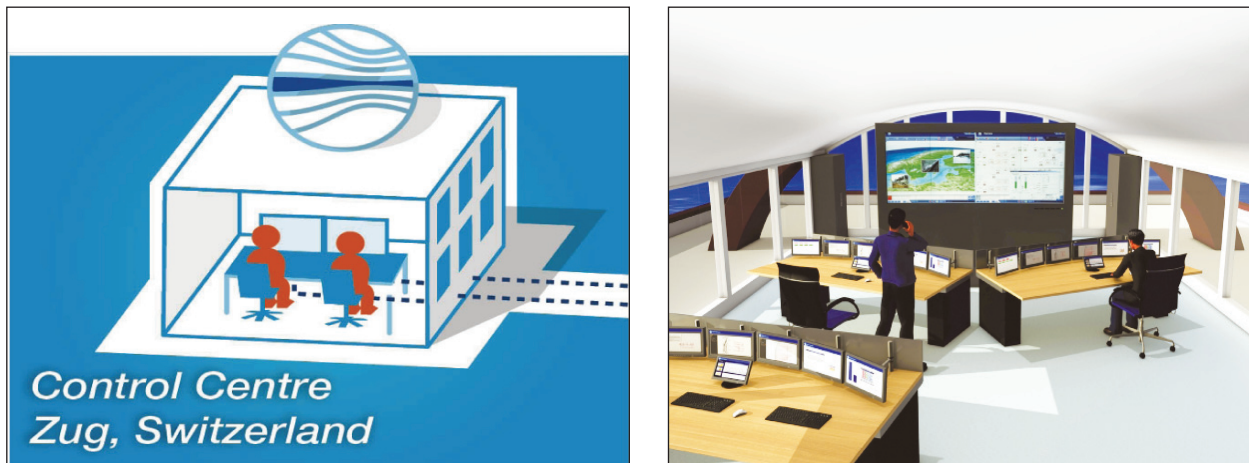


Fig. 5. Schematic view of the Nord Stream Management Center in Zug, Switzerland.

https://www.nord-stream.com/press-info/images/control-centre-switzerland-3306/?q=&category=115&year=all&page=9&per_page=12

https://www.nord-stream.com/press-info/images/control-centre-switzerland-3262/?q=&category=115&year=all&page=9&per_page=12

According to the company's official information, a backup Control Centre in the bay of Portova on the Russian coast, has the same installed equipment as the main centre [10]. The exchange of information between the backup and the main control centres is carried out continuously in real time via both the fiber-optic communication line and the reserve satellite channel. Thus, the backup Control Centre has access to all information that the main centre receives, including the information received from the underwater security system that scans the marine area. Information from the Nord Stream security system can be visible for the intelligence system of the Russian Baltic Fleet and the regional FSB structures through the contour of the backup Control Centre and the dedicated communication channel. The backup Control Centre can replace its status with the status of the main center on a given hour. It should be noted that the leading positions in the technical management of flows are occupied by Russian specialists. Matthias Warnig, a former officer of the East German intelligence service "Stasi" is accountable for the flows and will provide comfortable conditions and environment for his "partners." Thus, everything is well built and disguised, because intelligence activities are not conducted in Switzerland by the intelligence service of the Baltic Fleet, and the laws of the country are not violated. However, in reality intelligence in the Baltic region is carried out and is conducted from the corridor of "streams," which is being protected by the security system for ensuring safety of pipelines.

In practice, we can discuss a creation of a continuous hydroacoustic field around the corridor of “streams” with the zones overlapping between detectors, which excludes presence of hydroacoustic “shadow”. For example, ABSs located in the safeguarding zone of the “streams” will be able to analyze motion of targets, depending on their size, noise level and type of hydrology at a distance that can reach tens of kilometers from the corridor of pipelines that practically means control over international navigation to and from the seaports of the Baltic States, the traffic of ships and vessels of NATO countries in the framework of the Alliance’s commitments to them.

Nota bene!

Therefore, Russian streams – and the existing Nord Stream, possible new Nord Stream 2 and TurkStream, will be used as platforms for enhancing Russia’s intelligence capabilities in the Baltic and Black Sea regions in the context of its preparation for the warfare at sea. It is also logical to assume that on the eve of the “Time” in the corridors of gas pipelines as well as near them, facilities for defeat of the underwater and surface targets, in particular combat submarine drones, may also be hidden.

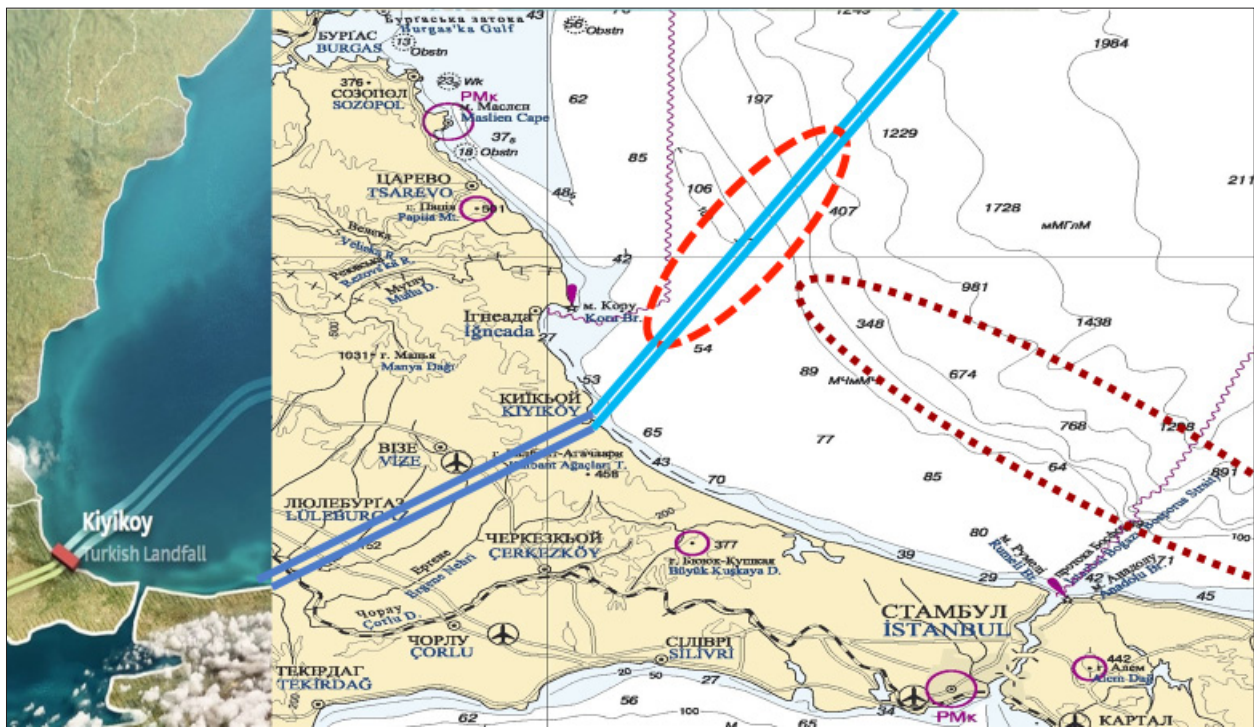


Fig. 6. Most likely zone of mobile ABS placement in the route of the TurkStream and the armed drones in the continental slope near the western coast of Turkey.

It is also worth noting that the route of the TurkStream pipeline in the part that goes through shallow waters of the Black Sea near the Turkish coast, could be used as a platform for installing of intelligence equipment and facilities to control movement of NATO ships and vessels through the Bosphorus and their visits to the ports of

Bulgaria, which is a NATO member country. The deep-sea zone near the continental slope of the Turkish coast could be an ideal combat alert zone for armed drones to intercept NATO ships at the entrance to the Black Sea after they pass the Bosphorus at the “Time” in accordance with the principle of “destroying the enemy on the far offensive” (see Figure 6). To accomplish the destruction task, there is absolutely no need to keep a Russian squadron near the Bosphorus. Underwater armed drones can be operated from an invisible civilian vessel, for example, a rebuilt tanker floating nearby (for the Black Sea Strait zone, intense tanker traffic to / from Russian ports is usual).

Since the Soviet era, the Russians have elaborated a technology for the use of civilian ships (research and transport) to perform special tasks for military purposes. The latest example of hybrid technology, which was documented by marine experts during “underwater activity” on October 3-18, 2014 in Swedish waters, - is the use by Russians of the NS CONCORD oil tanker of Sovcomflot company and the research vessel PROFESSOR LOGACHEV (FSUE “Polar Marine Geosurvey Expedition”) in the central part of the Baltic Sea where they have been maneuvering for a long time that is unusual for commercial and research vessels. This only led the experts to conclude that the designated vessels were rescuing an ultra-small submarine, which crashed while carrying out a special task in the area of the Swedish coast [11].

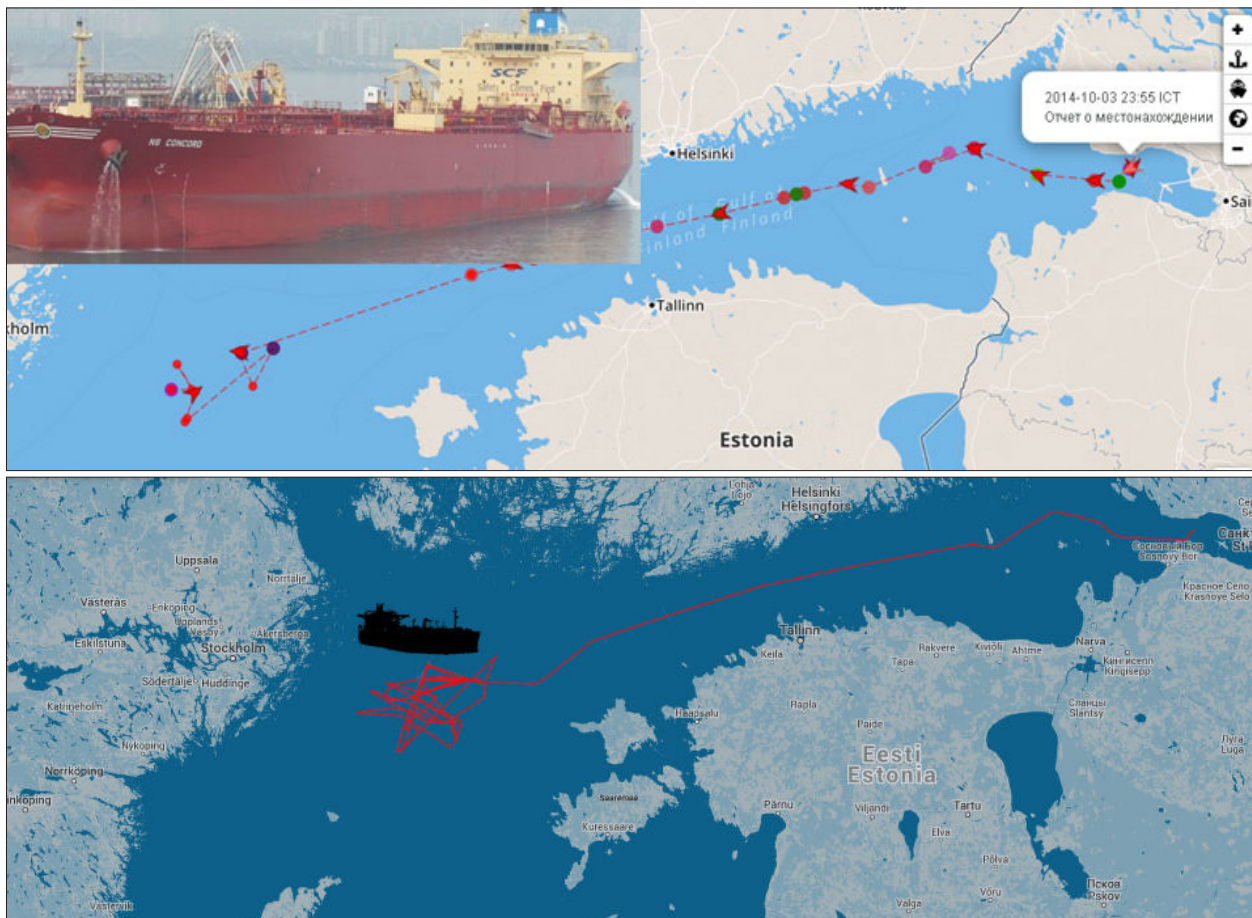


Fig. 7. Scheme of two-week maneuvering of the NS CONCORD tanker near the coast of Sweden in October 2014. Source: <https://www.fleetmon.com/maritime-news/2014/5213/mystery-russian-submarine-swedish-waters-and-scf-t/>

Another assumption is that this incident was the result of unsuccessful tests by the Russians of the hybrid intelligence system “civil ship-carrier - the ultra-small intelligence boat,” as both the tanker and the exploration vessel several months before the incident were in repair, confirms the version about the appropriate refurbishment in order to perform tasks not related to their conventional use.

Speaking about the Baltic region, the above-described requires all Baltic Member States of the NATO and the EU to cooperate in overcoming the threats from the sea, since the Baltic is primarily the territory of the EU and NATO, not the “Russian lake”, where both alliances allowed to turn the Black sea. Obviously, on the part of NATO it will be reasonable to deploy along the route of Russian streams a system of radar and sonar counteraction, interference and suppression.

Nevertheless today, it is already obvious that the best option for Europe is to reject Nord Stream 2, and in case of its implementation, require the Russian Federation to provide full and unconditional access to the pipeline route at any time by any means of control, as well as online access to information from the main and backup control centres over the streams. This requirement is well substantiated because Germany, France, and the Netherlands, whose companies have formed a partnership with Russian Gazprom and whose governments officially support the Nord Stream projects, are NATO members. The same approach should be applied to the Turkish Stream in the zone between the Strait of the Bosphorus and the Bourgas Bay where the depths of the sea range from several tens to several hundred meters and are accommodating for the placement of mobile ABS and the means of destruction. The control over them could be carried out from the board of a civilian vessel in accordance with the hybrid technology of conducting a modern warfare at sea.

The construction of the bridge across the Kerch Strait was the reason to expand the list of tasks set by Kremlin not only to the Black Sea Fleet, but also to the Russian Aerospace Forces, the National Guard of Russia, the FSB, and intelligence services of the Russian Federation. It can be confidently stated that the construction of the Nord Stream 2 in the Baltic Sea and the TurkStream in the Black Sea will be used by Russia to justify the increase and diversification of its military presence in the waters of both seas as well as on the coastline. There is the need to protect strategically important offshore infrastructure, common and mutually beneficial Russian-German, Russian-Turkish and Russian-Bulgarian gas trade relations, as well as to neutralize threats posed by NATO, the USA, Ukraine, Poland and the Baltic States that in accordance with a Russian view are ready to resort to aggressive actions to block / destroy the new infrastructure, as they actively opposed it. According to this approach, the likelihood of a scenario of hybrid occupation of the Baltic States and an increase

in forces in the Kaliningrad region under the pretext of establishing a security zone for greater securitization of the main Russian-EU and Russian-German gas trade route is sharply increasing. In this case, it can be expected that NATO members such as Germany, Turkey and Bulgaria may not be on the side of the Alliance, but vice versa. Therefore, again, the best option for Europe is to abandon the Nord Stream 2, and for the United States - to block it with all possible means.

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«Q: Who manages the operation of the gas pipeline?»
Vladimir Borovik: *The operation of the gas pipeline is carried out from the control center in the Swiss city of Zug. System components are also installed on coastal sites in Russia and Germany ...*
Q: What will happen if the equipment is out of control at the control center?»
Vladimir Borovik: *As an additional protection measure, the control center is duplicated. The backup control center has exactly the same equipment installed - control and monitoring systems. The exchange of information between the backup and the main control center is carried out continuously in real time».*
Available at: <https://www.nord-stream.com/ru/ekspluatatsiya/dispatcherskoe-upravlenie/>
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**OFFSHORE GAS INFRASTRUCTURE IN THE RUSSIAN
COUNTERACTION TO NATO ON THE EASTERN FLANK:
POTENTIAL FOR A HYBRID USE IN THE BLACK AND BALTIC SEAS**

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