

Cuprins

The French frigate Normandie escorted the Russian submarine Novorossiysk, which is experiencing possible technical problems	1
Rumours of the fall of the front in Herson (south) and the capture of 25,000 Russian soldiers on the right bank of the Dnieper River	2
Bayraktar Akinci, the Turkish Air Force's newest drone, conducted a reconnaissance mission over Syria.....	4
The Nord Stream accident could have led to the largest methane release in history.....	5
Norway to patrol oil and gas platforms with help from allies.....	6
Norway's armed forces have stepped up patrols at the country's energy facilities, and NATO allies have rushed to offer help as sabotage of key pipelines has raised the stakes in Europe's energy conflict with Russia.....	6
5.5 million tonnes of agricultural products were exported from Ukraine through the "Grain Corridor" in two months	8
An explosion and fire at the Belbek military airfield in Crimea	8
China's third Type 075 LHD Anhui 安徽 ship commissioned by PLAN.....	8
Dutch submarine replacement programme reaches milestone	9
Submarine cables: security risks and threats	10

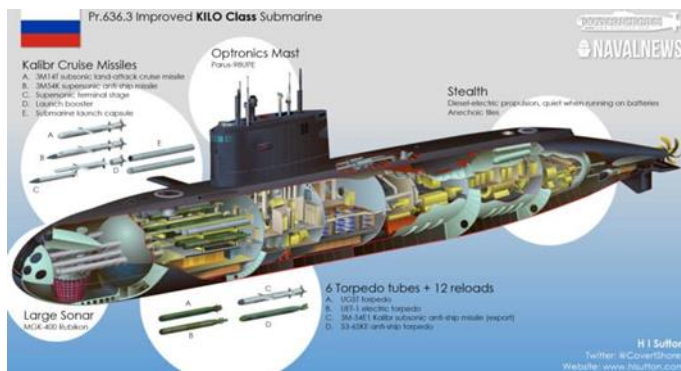
The French frigate Normandie escorted the Russian submarine Novorossiysk, which is experiencing possible technical problems



The Maritime Prefecture of the Atlantic Region has reported that the French Navy has escorted a submarine and a tugboat belonging to the Russian Naval Forces, which were moving in the Bay of Biscay area.

"On 29 September, the multirole frigate Normandie and its helicopter Caiman, in close cooperation with our European partners, escorted the Russian submarine Novorossiysk and the tug Sergei Balk in the Bay of Biscay," a prefecture press release said.

According to data reported by Marinetransport.com, the tug Sergei Balk is currently southwest of the French town of Boulogne sur Mer and is about to start crossing the English Channel.



The submarine Novorossiysk and the tug Sergei Balk belong to the Russian Black Sea Fleet and have recently been carrying out missions in the Mediterranean squadron in the area of the Syrian port of Tartus. The submarine is probably on its way to the Kronstadt Shipyard for repairs.

The Novorossiysk submarine is likely to have technical problems

Given that the submarine has already been repaired in the Baltic Sea and in early 2021, it is not excluded that the submarine may have some technical problems.

Currently, Russia officially has two submarines of this type in the Mediterranean Sea region. These are the Novorossiysk and Krasnodar submarines of the Russian Black Sea Fleet, which carry out missions in the framework of the Mediterranean Task Force in the area of the port of Tartus in Syria.

In recent months, the Russian naval grouping in the eastern Mediterranean Sea has had the following composition: Submarine B-265 Krasnodar (FRMN), Submarine B-261 Novorossiysk (FRMN), Cruiser Marshal Ustinov (FN), Cruiser Varyag (FROP), Destroyer Vice Admiral Kulakov (FN), Destroyer Admiral Tributs (FROP), Frigate Admiral Kasatonov (FN), Frigate Admiral Grigorovich (FRMN), the small missile carrier Orekhovo-Zuevo (FRMN), the sea dredger Vladimir Emelyanov (FRMN), the tanker Boris Butoma (FN), the tanker Vice-Admiral Paromov (FRMN), the tanker Vyazma (FRMB), the floating workshop PM-82 (FRMB), the radio research vessel Vasili Tatischev (FRMB).

Sources: <https://www.navalnews.com/naval-news/2022/09/russian-navy-kilo-class-submarines-retreating-from-crimea/>

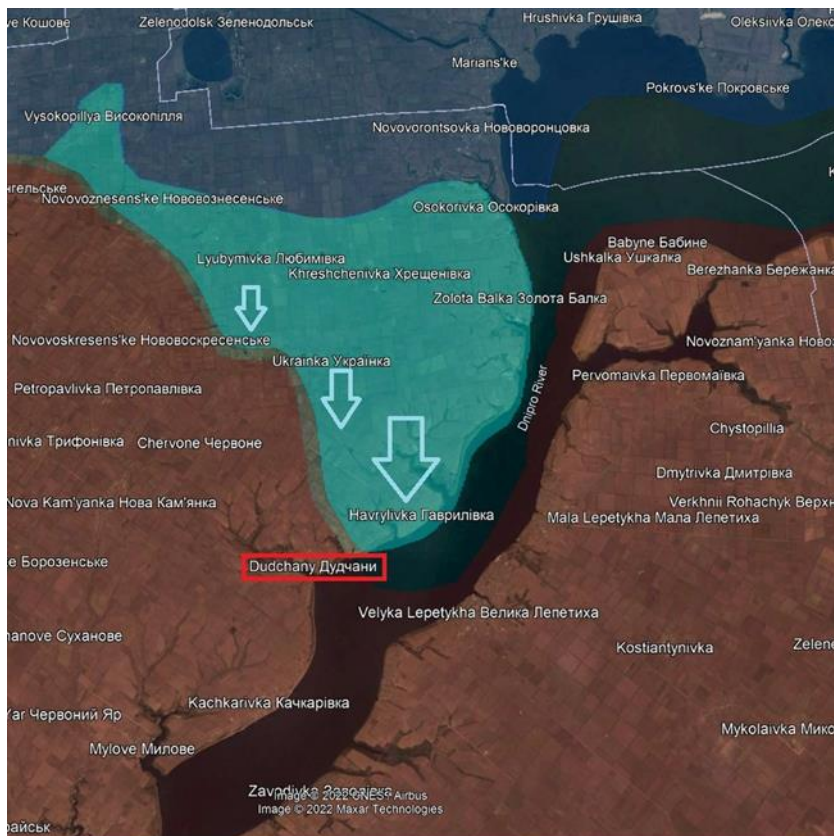
https://www.defenseromania.ro/fregata-franceza-normandie-a-escortat-submarinul-rus-novorossiysk-care-intampina-possibile-probleme-tehnice_618522.html

Rumours of the fall of the front in Herson (south) and the capture of 25,000 Russian soldiers on the right bank of the Dnieper River



Photo credit: Foreign Policy Research Institute

President Volodimir Zelenski announced on Sunday that Ukrainian forces have liberated the towns of Arhanhelske and Miroljubivka in the Herson region. President Zelenski mentioned the two settlements in his speech on Sunday night, Reuters reports, citing Agerpres. Zelenski thanked some units of the Ukrainian forces for standing out on the front line.



The information could not be immediately verified.

In his speech, President Zelenski also said, without giving details, that the success of Ukrainian forces in the Donetsk region was not limited to Liman.

Rumours of the collapse of Russian lines in Herson (south)

During the night yesterday there were numerous reports of the fall of the frontline in the south as well.

DefenseRomania states that the information cannot be verified.

However, Business Ukraine Magazine reports that as a result of Ukraine's counter-offensive in the south, between 15,000 and 25,000 Russians are believed to be trapped between the right bank of the Dnieper and the Ukrainian defence forces. On the other hand, the Ministry of Defence of the Russian Federation announced that it has successfully repulsed a major Ukrainian three-way counter-offensive in the south in Herson. It should be recalled that since August Ukraine announced the decommissioning of all bridges in Herson, so that Russian troops risk getting stuck. The Russians have occupied Herson since the first days of the invasion. Russian troops have occupied Herson on the Dnepr River, the only regional capital they have managed to seize, since the beginning of the invasion of Ukraine. They have advanced several dozen kilometres to the west but the three bridges (two road and one rail) crossing the river in the area they control have been bombed in recent weeks. The most important is the Antonivski bridge, in a suburb of Herson, which has been hit by several missiles since late July. Another is the bridge at Nova Kahovka, 50km to the north-east, hit this week.

https://www.defenseromania.ro/zvonuri-privind-caderea-frontului-in-herson-sud-si-prinderea-a-25-000-de-soldati-rusi-pe-malul-drept-al-niprului_618535.html

Bayraktar Akinci, the Turkish Air Force's newest drone, conducted a reconnaissance mission over Syria



A Bayraktar Akinci drone, the newest UAV developed by the Turkish defense industry, has been spotted over Syria. A photo of its image was published on the Clash Report Twitter account on 22 September. We can claim that the source that published this information is a reliable one, as Clash Report is a Turkish news portal that became known after it presented images and videos in 2020 of Bayraktar TB2 drones destroying several Pantsir-S1 anti-aircraft systems in Libya. The flight of a Bayraktar Akinci drone in Syrian airspace is a first, at least so far. It has not even been 1 year since its official unveiling and use by the Turkish Air Force, and the drone is already flying a mission over Syria. As far as the

image quality allows, we can see that the drone is not armed. This may suggest that the mission it was carrying out was reconnaissance or surveillance.

Bayraktar Akinci is the newest drone developed and mass-produced by the Turkish defence industry. It is equipped with an AESA [Active Electronic Scanned Array] radar. The drone has a satellite communication system [SATCOM] and an ISTAR+C3 system - which means a direct connection to Turkish command, without communication going through foreign satellites or third countries.

The drone's combat capabilities are not to be ignored. It can carry all types of air-to-air missiles developed by the Turkish defence industry, as well as other Western-designed missiles. The Akinci can be armed with anti-radar missiles or air-to-ground missiles. The drone also has an integrated electronic warfare system.

During a combat mission, the Akinci drone can be additionally armed with GPS-guided bombs. Two Ivchenko-Progress Motor Sich AI-450T engines, developed by the Ukrainian aviation industry, power the Akinci drone. They guarantee a maximum speed of 361 km/h and a cruising speed of at least 240 km/h. The drone's best operating altitude is just over 9,000 metres, although it can fly at over 13,000 metres. On a full tank of fuel, the drone can fly 7,500 km. Currently, 12 such drones (six AKINCI-A and six AKINCI-B) are operated by the Turkish Air Force and at least one has reportedly been involved in a mission over Syrian territory. The first three A-type drones were handed over in a festive setting on 29.08.2021, in the presence of President Recep Tayyip Erdogan, and the next three on 03.12.2021. According to the manufacturer, the first three Type B drones were delivered to the Turkish Air Force on 03.08.2022 and the last batch of three Type B drones on 24.08.2022. The AKINCI attack UAV is part of the HALE (High Altitude Long Endurance) class and is intended for the execution of missions of search, surveillance, real-time IMINT intelligence gathering, as well as target discovery, identification, tracking and destruction both day and night.

https://www.defenseromania.ro/bayraktar-akinci-cea-mai-nou-drona-dezvoltata-de-turcia-a-efectuat-o-misiune-de-recunoastere-deasupra-siriei_618531.html

[The Nord Stream accident could have led to the largest methane release in history](#)

Accidents on the Nord Stream pipeline system in the Baltic Sea have led to what is probably the largest methane release in history. This is damaging the climate, said representatives of the UN Environment Programme, reports ZN.UA with reference to Reuters. A huge blob of highly concentrated methane, a much more potent but less "lively" greenhouse gas than carbon dioxide, was discovered in an analysis of satellite images this week by researchers at the International Methane Emissions Observatory (IMEO). "It's very bad, probably the largest amount of emissions ever detected. It's at a time when we need to reduce emissions," IMEO head Manfredi Caltagirone told Reuters. Researchers at GHGSat, which uses satellites to monitor methane emissions, estimated that the leakage rate from one of the Nord Stream gas pipeline's four rupture points was 22,920 kilograms per hour. That equates to burning about 630,000 pounds of coal every hour, GHGSat said in a statement. "This figure is very high, especially given that it has been four days since the first breach," the company said. The total amount of methane leaking from Gazprom's pipeline system could be larger than the large leak that occurred in December from oil and gas fields in Gulf of Mexico waters, which released about 100 metric tons of methane per hour, Caltagirone said. According to a study by the Polytechnic University of Valencia published in the journal *Environmental Science &*

Technology Letters, the Gulf of Mexico spill, which can also be seen from space, ultimately released about 40,000 metric tons of methane in 17 days. According to US Environmental Protection Agency calculations, this is equivalent to burning 1.1 billion pounds of coal. Improved satellite technology in recent years has rapidly expanded scientists' ability to locate and analyse greenhouse gas emissions. Some governments hope it will help companies detect and prevent methane emissions. The large leaks that have occurred in the Nord Stream system have given rise to many theories, but few clear answers about who or what caused the damage. Both Russia and the EU claim the explosions were sabotage. Europe and the United States have imposed sanctions on Russia in response to its invasion of Ukraine, sparking concern that the Kremlin will try to deprive Europe of crucial energy supplies before winter. Caltagirone said that whatever the cause, the pipeline damage has created a problem that goes beyond energy security. It was the biggest sabotage in the history of the world's gas transmission systems. In the Baltic Sea, three of the four wires of both "Nordic currents" broke at short intervals. Seismographs in Denmark and Sweden detected explosions near the Danish island of Bornholm. First the Nord Stream-2 pipeline, which has not yet been launched, ruptured, then the Nord Stream-1 pipeline, which has been inactive since late August, was blown up.

Source: <https://www.blackseanews.net/read/195021>

[Norway to patrol oil and gas platforms with help from allies](#)

Norway will get help from Britain, Germany and France to patrol the seas around its oil and gas platforms amid suspicions that sabotage caused leaks in Nord Stream pipelines earlier this week, Norway's prime minister said on Friday. Russia's Nord Stream 1 and Nord Stream 2 pipelines burst this week, draining gas into the Baltic Sea off the coasts of Denmark and Sweden. Seismologists have recorded explosions in the area. The European Union has said it suspects sabotage caused the damage, while Russian President Vladimir Putin on Friday accused the United States and its allies of blowing up the pipelines. Washington said it was too early to confirm it was sabotage and rejected talk that it was responsible. Norway, Europe's largest gas supplier and a major oil exporter, has more than 90 oil fields, most of which are connected to a network of gas pipelines stretching about 9,000 km (5,590 miles). Norway deploys its navy, coastguard and air force to strengthen oil and gas security. "We are in a dialogue with our allies on increasing our presence in the Norwegian (offshore) sector and we have said yes to contributions from Germany, France and the UK," Prime Minister Jonas Gahr Stoere told a news conference. "It is only natural that our allies sail alongside our ships," he said. Stoere did not say how much assistance Norway, a NATO member nation of just 5.4 million people, would receive. He reiterated that the country has no indication of direct threats to Norway or Norwegian infrastructure, but said it was still prudent to beef up security. "In this situation, it is safe to have allies," Stoere said. On Saturday, Norway's prime minister will visit the Sleipner field in the North Sea, a major source of gas reaching Europe. "I will get a briefing and meet employees on the platform. There are many of them and they are important," Stoere said.

Source: <https://www.marinelink.com/news/norway-patrol-oil-gas-platforms-help-499858>

[Norway's armed forces have stepped up patrols at the country's energy facilities, and NATO allies have rushed to offer help as sabotage of key pipelines has raised the stakes in Europe's energy conflict with Russia.](#)

Prime Minister Jonas Gahr Store said Norway has accepted offers of assistance from Germany, France and the UK as it increases its presence around North Sea oil and gas installations. NATO is also using its naval and air capabilities to monitor the Baltic and North Seas. The explosions on the Nord Stream pipeline system in the Baltic Sea this week - which Germany indicated on Friday were likely perpetrated by Moscow - have dramatically changed the rules in Europe's economic and energy struggle with Russia. The European Union is planning a stress-testing operation on energy assets in response, but non-member Norway is seen as the most vulnerable potential target. "This sends a message of readiness to allies and NATO to protect and defend each other and critical infrastructure," NATO Secretary General Jens Stoltenberg told reporters. "These allies, these capabilities, these aircraft, these ships are also collecting intelligence - data that can be useful both for the ongoing investigation, but also for the monitoring of this critical energy infrastructure." After the gas leak in the Baltic Sea, Norwegian armed forces are now more present and visible in the areas around our oil and gas installations.

Norway is a vital supplier of energy to the EU and the UK, and this role has increased as Russia has tightened pressure on flows in retaliation for sanctions imposed in response to its invasion of Ukraine. As Europe struggles to fill its gas stores before winter and secure alternative supplies, it must now reassess the risk to pipelines and even LNG tankers. The Kremlin has denied responsibility for the Nord Stream explosions. Drone sightings Norwegian forces are strengthening their presence on land, at sea, in the air, below the surface and in cyberspace, a spokesman said. An abnormally high number of drone sightings has been reported on the Norwegian continental shelf in the North Sea, raising further alarm. "Everyone is shocked by the Nord Stream sabotage, so it has been very fruitful that colleagues from Denmark, Sweden and Germany have informed us en route that they are investigating to find out what happened there," Dutch Energy Minister Rob Jetten told reporters after a meeting in Brussels. "And we have changed the way member states can protect this crucial infrastructure as best we can." Colossal consequences for maritime security Failure to protect Norway's energy links with the European continent would have "colossal" consequences, according to economist Maeva Cousin of Bloomberg Economics. It would trigger energy rationing and "brutally" escalate geopolitical risks, leading in the first instance to a more than 4% drop in eurozone output, even with a swift and controlled response, she said. Norway has also pledged to make its defence forces "more visible" around oil and gas installations, with energy giants Equinor ASA, Var Energi ASA and others adding to the security of their facilities. The country's pilots' union on Friday demanded immediate government action to ensure the safety of helicopters flying to offshore installations. It is calling for technical equipment that could be available on board military ships to track drones and find out who is operating them. The prime minister will visit a rig at the Equinor-operated Sleipner field in the North Sea on Saturday to meet oil workers, he said. Norway needs naval support Some also question Norway's ability to secure all its assets, given the vastness of the North Sea areas where gas pipelines and submarine cables run. "It's impossible to protect 8,300 kilometres (5,200 miles) of pipeline," Dag Harald Claes, a professor at the University of Oslo, said by phone, adding that patrolling with the navy and coast guard will have to be stepped up. The country's security service also claimed that it has no tools to prevent sabotage and is not allowed to use means such as interception and data mining for that purpose. The government plans to propose changes in parliament later this year to the legal framework for security police, allowing them "to adapt to the changing and developing environment in which they work," Justice and Public Security Minister Emilie Enger Mehl said. Friday interview. The government's actions build on months of work to increase security, Enger Mehl said. "We are a coastal nation. We are a nation with a large oil sector, which is very strategically important to our country," she said.

Submarine cables are also at risk Norway has also increased its preparedness in the electronic communications sector, paying particular attention to marine fibre cables. Earlier this year, a data cable linking the Arctic islands of Svalbard to the Norwegian mainland was damaged, with officials concluding that "human action" led to the submarine cable breaking. The country's officials have warned of sabotage risks in the sector, saying in a 2020 report that foreign intelligence services are working to map the oil network on the Norwegian continental shelf. The report highlighted Russia and China among potential actors and said such intelligence could "at worst" be used for sabotage.

Source: <https://gcaptain.com/europe-bolsters-maritime-security-pipeline-explosion/>

5.5 million tonnes of agricultural products were exported from Ukraine through the "Grain Corridor" in two months

As part of the implementation of the Grain and Food Safe Transport Initiative, 241 ships left Ukrainian Black Sea ports and exported 5.5 million tonnes of agricultural products to Asian countries in the two months of the Grain Corridor's operation. , Europe and Africa. This was reported by the press service of the Ministry of Infrastructure, writes the publication Porta Ukrainy. In particular, on Friday, September 30, as part of the implementation of the "grain initiative", three ships bound for the countries of Africa, Asia and Europe were dispatched from the ports of the Odessa Sea. On board are more than 45,000 tonnes of Ukrainian agricultural products.

Source and Continued: <https://www.blackseanews.net/read/195017>

An explosion and fire at the Belbek military airfield in Crimea

At the Belbek military airfield under Sevastopol, which is temporarily occupied by Russia, there has been at least one explosion, a large column of smoke is rising. Local publications publish numerous videos of the adventure, LIGA.News reports. According to the occupation authorities, the explosion at Belbek airfield was caused by the fact that "the plane crashed during take-off". At the same time, local Telegram channels are writing about a whole series of explosions and doubting that such a large-scale fire of a plane is possible.

VIDEO: <https://www.youtube.com/watch?v=AZIOPWfLjkk&t=5s>

Source: <https://www.blackseanews.net/read/195028>

China's third Type 075 LHD Anhui 安徽 ship commissioned by PLAN



China's third Type 075 (LHD) helicopter ship (NATO reporting name: Yushen-class LHA) was commissioned this week (probably today) with the People's Liberation Army East

Sea Fleet (PLAN or China Navy). The ship is named after Anhui (安徽), a province in eastern China known for its Huangshan Mountains.

A local ship spotter provided an image on Weibo showing the new Type 075 ship (with the 33rd board number) named Anhui (33) which is the third ship of the class and was expected to join the PLAN by the end of the year.

About the Type 075 LHD in China

The Chinese Navy officially started development work on the Type 075 in 2011. The project envisaged a helicopter port with a displacement of more than 30,000 tonnes. Its purpose is likely to increase "vertical" amphibious assault capability, given Taiwan's very mountainous east coast. As for its specifications, the open data speaks of "36,000 tons displacement", "28 helicopter capacity", "diesel engine propulsion with 16PC2-6B of 12,000 kW" and "four CIWS including two HQ-10 and two H/PJ-11". While the Type 075 appears to be slightly smaller than the US Navy's LHA, it is larger compared to the French or Spanish/Australian LHD equivalents. It's actually quite close in size to Italy's upcoming Trieste LHD. The first Type 075 was built in record time (this has become the norm nowadays for Chinese shipbuilding: extremely fast construction pace that nobody can match). Although there is currently no evidence of more hulls being built, the PLAN is said to have an expressed need for eight ships in this class. It is rumoured that a larger version (sometimes referred to as Type 076) will be planned. When fully operational, the new Type 075 LHD will strengthen the PLAN's amphibious capabilities, which today are based on the Type 071 LPD design.

The first Hainan-class ship (board number 31) was commissioned by PLAN during a grand ceremony on 23 April 2021 at the naval base in Sanya (Hainan Island) in the presence of Chinese President Xi Jinping. The ship was launched in September 2019 and started sea trials in August 2020. The second ship Type 075 Guangxi (32) was launched in April 2020, started its sea trials in December 2020 and was commissioned in December 2021.

Anhui (33) was launched in January 2021 and started sea trials in November 2021. This represents an impressive rate of one LHD launched every 6 months by the Hudong Zhonghua shipyard in Shanghai. The same yard also produces frigates and LPDs for export.

Source: <https://www.navalnews.com/naval-news/2022/10/chinas-3rd-type-075-lhd-anhui-%e5%ae%89%e5%be%bd-commissioned-with-plan/>

[Dutch submarine replacement programme reaches milestone](#)

The Dutch "walrus-class replacement programme" has reached a major milestone, according to the Netherlands Ministry of Defence (MOD): the request for quotation is ready.

A year after the Dutch Ministry announced a delay, the submarine replacement programme has reached an important milestone. The announcement was made today by the Dutch Ministry: "Defence has reached an important milestone in the submarine replacement project. The tender is ready. This application will be sent to the 3 candidate yards in mid-November 2022. The yards are expected to send their bids around summer 2023. The Ministry of Defence needs a few months to review these bids and then make a decision on the award. Secretary of State Christophe van der Maat wrote to the House of Representatives today." The four in-service Walrus-class submarines will be replaced by four next-generation diesel-electric submarines. The three competing shipyards are Naval Group, Saab Kockums and Thyssenkrupp Marine Systems. The down-selection of the three companies was announced in December 2019. It is now expected that the four submarines will be in service in the 2030s.

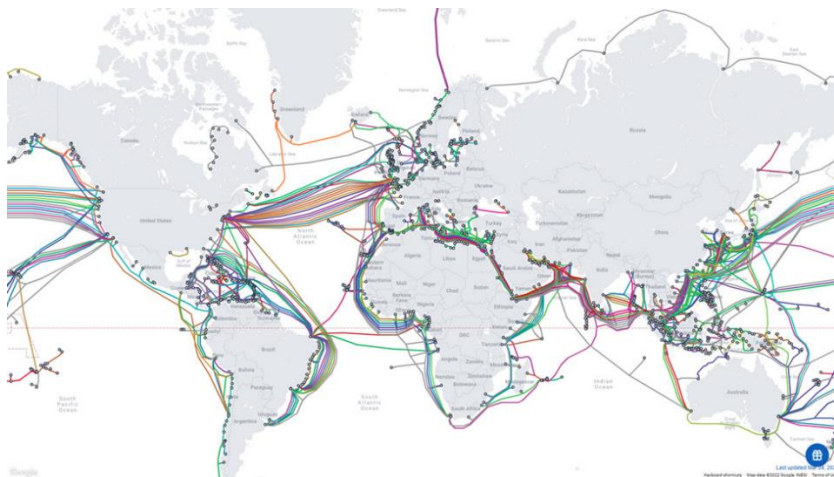
The Dutch State Secretary for Defence reiterated the importance of the programme: "This is a big project and a lot of money. That's why we didn't take the risk with the request for quotation to establish what kind of submarines we want and how much we are willing to pay for them. In addition, we want the boat to be able to be armed, the boats to be delivered on time and the Dutch industry to be involved in the construction and maintenance. This milestone heralds the next phase." Christophe van der Maat - Secretary of State for Defence.

The Dutch ministry also added that it is looking for "long-range missiles" (read land-attack cruise missiles) to be deployed from both frigates and future submarines. The House of Representatives will be briefed further on this need in 2023. Budget increased The Dutch Ministry of Defence also announced that the budget for the procurement programme has been increased: "This extra money is partly earmarked in the Defence budget for 2023. The Ministry of Defence has also freed up money by identifying a number of long-term projects. planning for which the mid-life update can be carried out later. Defence considers this acceptable for the time being as the effect on operational readiness would be limited. The government believes the project is worth the investment." Local industry The Dutch Ministry wants competing shipbuilders to involve Dutch industry in the construction and maintenance of the vessels: "the winning shipyard will have to conclude an agreement with the Ministry of Economic and Climate Affairs: a so-called industrial cooperation agreement." "The Navy's Material Maintenance Department will also have a coordinating role in the maintenance of the new submarines. In this way, we retain staff and can invest in new personnel and infrastructure. Den Helder must become a 'submarine maintenance valley'", Christophe van der Maat - state secretary for defence.

Source: <https://www.navalnews.com/naval-news/2022/09/netherlands-submarine-replacement-program-reaches-milestone/>

<https://www.youtube.com/watch?v=Gg1aFmsKQgk&t=308s> Film launch cables technology

Submarine cables: security risks and threats



99% of the internet runs over submarine cables. It is estimated that more than \$10 trillion in financial transactions now take place over these "highways on the seabed". This is particularly the case for the main global financial exchange system, SWIFT (Society for Worldwide Interbank Financial Telecommunications), which was recently banned from many Russian banks. The security of these transactions is a political, economic and social issue. This is a major issue that has long been ignored.

The extreme geographical concentration of cables makes them particularly vulnerable. There are more than 420 submarine lines in the world, totalling 1.3 million kilometres, more than three times the distance from the Earth to the Moon. Record: 39,000 kilometres long for the SEA-ME-WE 3 cable, linking South-East Asia to Western Europe via the Red Sea. Undersea internet cables are as crucial as oil and gas pipelines. In the context of Russia's invasion of Ukraine, the seabed is more than ever a battleground to be protected. Western armed forces are considering a nightmare scenario of total internet disruption in Europe, as 99% of the global network runs over undersea cables. Satellites account for just 1% of data exchanges. The reason is simple: they cost more than cables and are infinitely slower.

One hundred submarine cables break every year

These infrastructures are as important today as oil and gas pipelines. But are they as protected? Modern submarine cables use optical fibre to transmit data at the speed of light. However, while in the immediate vicinity of the shore, cables are generally hardened, the average diameter of an undersea cable is not much larger than that of a garden hose. For some years now, the major powers have been waging a "hybrid war", half overt, half covert, for control of these cables. As Europe increasingly focuses on cybersecurity threats, investing in the security and resilience of the physical infrastructure that underpins its communications with the world does not seem to be a priority today. Fear of action will only lead to vulnerability of these spying systems, disruption of data flows and undermining the security of the continent. On average, there are over a hundred submarine cable breaks every year, mostly caused by fishing boats pulling anchors. It's hard to measure intentional attacks, but the movements of some vessels have been attracting attention since 2014, with their route following undersea telecoms cables. The first attacks of the modern era date back to 2017: these are on cables between the UK and the US and between France and the US. While these attacks remain unknown to the general public, they are no less worrying and demonstrate the ability of external powers to separate Europe from the rest of the world. In 2007, Vietnamese fishermen cut a submarine cable to retrieve composite materials and try to resell them. Vietnam thus lost almost 90% of its connectivity with the rest of the world for a period of three weeks.

Potential risks A European programme to increase the EU's capacity to prevent attacks on this infrastructure and repair the damage they could cause is more urgent than ever. Russian "fishing" or "oceanographic" vessels, which are generally intelligence-gathering vessels, are increasingly passing along the coasts of France and Ireland, through which these "information highways" pass. Yantar, an "oceanographic" vessel with an AS-37 mini-submarine, was able to dive in August 2021 to a depth of 6,000 metres off the Irish coast, following the route of the Norse and AEConnect-1 cables linking Europe to the United States. Russia, which cut the Ukrainian cables in 2014, would therefore have the ability to repeat the operation for the whole of Europe. A map of submarine cables around the world TeleGeography, a US telecoms consultancy, has created the Submarine Cable Map portal, an interactive map of all submarine cables running around the world, with data on the companies that own them, such as Google, Facebook, Amazon, Verizon and AT&T. On the map, we can see that a key highway lies in the Atlantic Ocean, connecting Europe and North America. Meanwhile, the Great Pacific Highway links the United States to Japan, China and other Asian countries. From Miami, several cables connect Central and South America. In the case of Mexico, for example, most cables run from the east of the country, across the Gulf of Mexico to Florida and from there connect to Central and South America. Although we tend to think of our smartphones, computers and other machines as being interconnected through space, the bulk - almost 99% of all internet traffic - is carried by global telecoms links. There are more than 420 cables in the world, totalling 1.3 million kilometres, more than three times

the distance from the Earth to the Moon. Record: 39,000 kilometres long for the SEA-ME-WE 3 cable, which connects South-East Asia to Western Europe via the Red Sea.

Cutting submarine cables, an ancient and war-proven practice Recent attacks on cables carrying voice and data traffic between North America and Europe suggest they appear to be undergoing a new development. France and the UK have already faced this experience from the Germans during the First World War. These infrastructures were part of the global cable telegraph network. Similarly, the United States cut wartime cables as a means of disrupting an enemy power's ability to command and control distant forces. The first such attacks occurred in 1898 during the Spanish-American War. That year, in the Gulf of Manila (Philippines), the USS Zafiro cut the cable connecting Manila to the Asian mainland to isolate the Philippines from the rest of the world, as well as the cable connecting Manila to the Philippine city of Capiz. Other spectacular cable attacks took place in the Caribbean, plunging Spain into darkness during the conflict in Puerto Rico and Cuba, which contributed greatly to the final US victory. Russia is interested in NATO's submarine infrastructure Russia seems to be concretising concerns at the highest level in this area. In 2015, the presence of the Russian ship Yantar along the US coast near the cables did not fail to stir tensions between the two countries. At the end of 2017, the situation was repeated. "We are now seeing Russian underwater activity near submarine cables that I don't think we've ever seen before. Russia is clearly interested in the undersea infrastructure of NATO and NATO nations," said Admiral Andrew Lennon, the organization's submarine force commander. It's like going back to the days of the Cold War... So much so that Policy Exchange devoted an entire chapter of its 'Russia Risk' report to the subject. The think tank recalls the episode of the annexation of Crimea in 2014, when the peninsula was cut off from the rest of Ukraine by physically disrupting communications. "If the relative weakness of Russia's position makes a conventional conflict with NATO unlikely, fibre-optic cables may be a target for Russia. We should prepare for an increase in hybrid maritime actions, not only in Russia but also in China and Iran," points out former NATO allied forces commander, US Admiral James G. Stravridis. Three major security risks The first risk factor is the growing volume of data flowing over cables, which encourages third countries to spy on or disrupt traffic. The second risk factor is the increasing capital intensity of these facilities, leading to the creation of international consortia involving up to dozens of owners. These owners are separate from the entities that produce the cable components and those that position the cables along the seabed. Timeshare makes it possible to substantially reduce costs, but at the same time allows the entry into these consortia of state actors who could use their influence to disrupt data flows, or even interrupt them in a conflict scenario. At the other end of the spectrum, the GAFAMs (Google, Apple, Facebook, Amazon and Microsoft) now have the financial and technical capacity to build their own cables. For example, the Dunant cable linking France to the United States is wholly owned by Google. The Chinese giants have also embarked on a strategy of undersea conquest: this is the case of the Peace cable linking China to Marseille, owned by the Hengtong company, which is considered by the Chinese government to be a model of "civil-military". Another threat is espionage, which requires specially equipped submarines, or submarines operating from ships, capable of intercepting, or even altering, data passing through fibre-optic cables without damaging them. So far, only China, Russia and the United States have such means. But the most vulnerable point for submarine cables is where they reach land: landing stations. The town of Lège-Cap-Ferret, where the Franco-American "Amitié" cable interface chamber is to be built, has recently become a veritable spy nest, according to informed sources. But the most worrying trend is that more and more cable operators are using remote management systems for their networks. Cable owners are delighted with the staff savings. However, these systems have poor security, which exposes submarine cables to cybersecurity risks.

Solutions for multiple attacks

The US executive recently investigated possible risks in the event of multiple attacks. In addition to expanding the SSGP grant programme, it has encouraged the Maritime Administration to involve various civil society associations, such as the International Propeller Club, in programmes aimed at minimising these threats. The idea is to create a kind of "submarine cable militia" capable of responding quickly in a crisis. The Propeller Club has more than 6,000 members and recently provided \$3.5bn in aid to the maritime industry in the fight against Covid-19. Similarly, the creation of a "submarine cable Airbus" capable of competing with the GAFAMs, whose market share could grow from 5% to 90% in six years, can obviously only become a reality if Europe pays attention. In a context of rising international tensions, it has become very important to create a European programme modelled on the US and Japanese programmes, which aims to increase operations to deter attacks on these infrastructures and to develop high-stakes construction and repair.

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