The new front against Iran and its proxies: Underwater

written by Elie Klutstein | 20.10.2024

Israel and Iran have been clashing directly and through the Islamic republic's proxies over the past year. These confrontations occur in the air, on land, at sea, and even in the cyber front, often unnoticed by those not directly involved.

One surprising, not very central, front operates far from daylight: underwater. This new front offers with many opportunities and risks, mostly far from Israel's limited coastlines. Nevertheless, we are also involved, and our adversaries are not ashamed to extend their reach beneath the waves. For Israel, the main importance of this front lies in safeguarding strategic assets such as gas rigs in the Mediterranean Sea — Israel cannot afford to neglect this area.

The focus on the underwater front in the region began mainly after the Houthis' attacks on shipping routes leading from the Indian Ocean to the Mediterranean via the Red Sea. This was driven by two primary threats posed by the Yemeni rebels — attacks on ships using underwater means, and damage to the underwater communication cables that run from the Persian Gulf through the Red Sea, from Asia to Europe.

In March, three of the 14 underwater communication cables in the Red Sea were cut, reportedly affecting 25 percent of the region's internet traffic at the time. As a result, companies started exploring alternatives to bypass the Red Sea, considering re-routing network traffic through other regions.

One of the mysteries surrounding this event was how the Houthis allegedly managed to damage the cables, which lay on the seabed. It requires the ability to dive to depths of hundreds of meters, and even today, it's unclear if the Houthis possess the means for such a task. Of course, they denied having targeted the cables. One possible explanation raised at the time was the deliberate dropping and dragging of anchors along the seabed until they hit the cables. It's also possible that the cables were cut by the anchors of ships attacked by the Houthis.

At the time the cables were damaged, six additional cables were planned for installation in the region, where 90 percent of internet traffic between Asia and

Europe is concentrated. It's possible the conflict will now change the plans of some companies. However, since this is a vast network of cables, most of which do not pass through the Red Sea, there is no danger that intercontinental internet traffic will stop completely.

Even though it seems unlikely that the Houthis have the ability to dive hundreds of meters, they certainly possess the ability to operate below the surface. Evidence of this came a month earlier, when the Americans encountered an autonomous underwater vehicle (AUV) operated by the Yemeni rebels and destroyed it. According to them, this vessel, along with three anti-ship cruise missiles—whether the vessel launched them or they were part of another incident remains unclear—was intercepted "due to the threat they posed to merchant vessels and US Navy ships in the area."

That small Houthi submarine is what's known as an "unmanned underwater vessel" (UUV) or "unmanned underwater vehicle" (UUV). While not much is known about the Houthis' particular vessel, it's believed to be a relatively unsophisticated autonomous vehicle. Nevertheless, even such a simple device can pose a significant threat to ships in the area and is a greater challenge than conventional threats like drones or surface vessels.

Such vessels can release mines, launch torpedoes, or carry explosives for "kamikaze" attacks on targets. Even if their range is only tens of kilometers, these submarines could still threaten ships entering the Red Sea. While they likely aren't equipped with advanced guidance systems, they are extremely hard to detect. Most current defense systems in the region are simply not designed to deal with such threats, and sonar systems and other underwater tracking tools will be needed to combat them.

Where do the Houthis, operating in one of the world's poorest countries, get such capabilities? As usual, the answer is, of course, Iran. In February, US Central Command intercepted a shipment of weapons from Iran to the Houthis, which included components for surface and underwater unmanned vehicles. According to images published by the Americans, the shipments contained propellers typically used for UUVs, which Tehran is known to have in its military.

Iranian UUVs, according to reports, resemble torpedoes in appearance but are slower. They are particularly effective against stationary or slow-moving ships.

It’s believed they can be equipped with vision systems for target observation, and they may have been used in attacks on targets off the coast of the UAE.

Threats from the north and south

Iran’s military is no novice when it comes to underwater capabilities. Its first submarine series dates back to the 1990s, including three Russian-made “Kilo” class submarines. These are relatively old, but Iran has been working to refurbish them as of last year. Another series, Iran’s domestically produced “Ghadir” class midget submarines, is believed to include at least ten active vessels. These submarines, weighing 125 tons, are equipped with diesel engines, anti-ship cruise missiles, and torpedoes. These replaced Iran’s only other submarine from the “Nahang” class, a 115-ton midget submarine.

Iran’s most advanced submarine is the “Fateh” class, weighing around 600 tons, equipped with advanced sonar systems and four 533-mm torpedo tubes. It can also carry mines and anti-ship cruise missiles. According to local reports, this submarine can dive to a depth of 200 meters and remain at sea for up to five weeks without refueling. Currently, Iran is believed to be building three more of these submarines, but only one has been operational since 2019.

Aside from submarines, Iran also operates UUVs. These vehicles can reportedly dive to depths of 200 meters and stay underwater for up to 24 hours. They are capable of carrying mines and deploying them in deep waters to target enemy ships.

Tehran is also investing in underwater defense measures. Near strategic facilities, Iran maintains an underwater sensor network, sonar systems, advanced helicopters equipped with underwater tracking systems, torpedoes, and mines. All of these are in addition to air defense systems designed to protect these facilities from drone or cruise missile attacks.

Iran is not keeping these advanced capabilities only for its favored rebels in Yemen. Hamas, for example, has also begun building such underwater capabilities in recent years. In 2021, the IDF thwarted an attack by Hamas using such a vessel “launched toward Israel’s maritime territory.” The intended target was not specified, but in addition to Navy ships, it could have been aimed at Israel’s gas rigs, located dozens of kilometers from its coast.

In general, Hamas developed its underwater capabilities before the "Operation Guardian of the Walls" war. In addition to autonomous vessels, it trained divers and naval commando units, developed explosive boats, and more. During ground operations in Gaza, the IDF also discovered—sometimes within tunnels—workshops for producing additional such underwater vehicles. These are not advanced systems, and at this stage, they are likely torpedo-like missiles guided by GPS, packed with dozens of kilograms of explosives. Still, they pose a serious threat to both the Israeli Navy and Israel's gas rigs.

The maritime threat is also present in the northern Israeli front. Hezbollah, as is well known, possesses anti-ship missiles, which it used with deadly effect against the Israeli Navy's *INS Hanit* during the Second Lebanon War. It has naval commando units, and according to expert assessments, it may also possess versions of Iran's Ghadir submarines and attack or "suicide" UUVs, which were smuggled into Hezbollah's hands from Iran.

A different approach to armament

The underwater threat from Iran's axis has not gone unnoticed by Western powers or even by countries friendly to the Islamic Republic. In recent years, Persian Gulf states have begun arming themselves with underwater capabilities in an effort to protect their coastlines against such threats.

The UAE, for example, began this year building and testing "Cronus" class midget submarines, which feature advanced mobility capabilities, diesel-electric engines, and torpedoes. These submarines can dive to depths of 100 meters and accommodate around ten crew members.

At the start of the year, Saudi Arabia signed a contract with the Thales company for the purchase of towed sonar systems, which can be connected to new patrol ships that the Saudis bought from Spain. Riyadh sees the Houthi underwater threat as a serious danger, requiring preparation in case the Yemen conflict erupts again. The Saudis are also negotiating with a Chinese company to purchase UUVs and are exploring possible avenues for acquiring light submarines for anti-ship operations and underwater surveillance.

Another country making moves in this field is Qatar. The Qataris purchased two small submarines from Italy, at a value of over $200 million, which will allow them to carry out covert missions on the seabed and even lay mines.

In addition to these countries, the anti-Houthi coalition, led by the United Kingdom and the United States—two traditional maritime powers—also operates in the region. The US, of course, has advanced underwater capabilities, but in recent years it has found itself lagging behind another naval power: China. The US has been responding to developments related to warfare in the Red Sea and monitoring events in Ukraine, where Kyiv and Moscow have been battling each other in the Black Sea.

At the same time, the US has been investing relatively little of its resources in the field of unmanned underwater vehicles. The budget for medium and small UUVs in the US this year stands at $172 million, and next year it will drop to just over $100 million. By comparison, the White House's proposed budget for the entire US Navy next year amounts to $63 billion. It appears the US prefers to invest in building giant ships, even though market trends are moving towards autonomous vehicles.

What about Israel?

There's no need to go into detail about Shayetet 13's capabilities or the IDF's submarine fleet, which includes five diesel-powered "Dolphin" class submarines. Additionally, Israel has developed a UUV called the "Blue Whale," designed for intelligence gathering, submarine detection, and reconnaissance. This UUV is intended to be part of Israel's defensive efforts against Iran's increasing naval capabilities.

Meanwhile, Israel's Navy must continue working hard to deal with the wide range of threats facing the IDF. For example, it's unclear whether we have enough tools for prolonged and broad combat at sea. Experts estimate that the IDF needs to make adjustments to its naval defense systems, including for detecting and neutralizing UUVs, developing a coherent naval combat doctrine, and cooperating with other countries to share knowledge and experience for protecting strategic assets at sea.

Although drones currently pose a significant threat to Israel's home front, Iran is undoubtedly a power in the naval front. The development of autonomous waterborne threats is not an unrealistic scenario, and we must prepare for it. Unlike the trend in the air, Israel might need to consider adopting a different approach at sea. Until now, Israel has invested heavily in developing precise and

expensive systems to counter the Iranian threat, but from a budgetary standpoint, this is an unfair competition. The drones launched by Iran and its proxies are cheap, while Israel's missiles and defense systems cost exponentially more. This cannot continue for long, and Israel eagerly awaits the completion of laser-based interception systems to change the situation fundamentally.

In the naval front, which is not necessarily Israel's strongest area, we might need to consider a different approach. Perhaps we should initially focus on cheaper, less advanced, and less precise solutions that can be deployed on a larger scale. This would allow us to produce large quantities of low-cost defense systems and position them to counter any attempt to attack our strategic assets.

At the same time, Israel can and should cooperate with countries such as Ukraine, Taiwan, and Saudi Arabia to develop, based on their shared experiences, the most suitable tools to combat these threats. The future of the maritime front is already here, and artificial intelligence will only exacerbate the dangers it poses to us. We must not neglect addressing the underwater front.

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