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The Unmanned Maritime Threat: Implementing Lessons From the Aerial Theater

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Given Hezbollah's increasing success in the use of unmanned aerial vehicles (UAVs) and the IDF's limited success in intercepting them, we must ask whether the Israeli military is prepared to deal with a similar threat from unmanned systems in the maritime theater. Terrorist organizations like Hamas and the Houthis have started using these systems, which has created a new challenge for states and other international bodies. Currently, unmanned maritime systems (UMSs) are primarily used to protect ports, to SSW (subsea warfare), to employ in electronic warfare, and to collect intelligence information. Iran and its proxies also use unmanned surface vehicles (USVs) to attack maritime vessels and infrastructure. All of this, coupled with the limited success of the IDF in defending against UAVs, indicates that Israel urgently needs to examine its ability to protect maritime assets against such systems—some which are simple, inexpensive, and readily available—and adapt its defensive systems to deal with these threats. The IDF must cooperate with international bodies to study the phenomenon, persist with intelligence surveillance, and invest in research and development to ensure that defenses are adequate and to avoid any costly mistakes that could damage the State of Israel's vital infrastructure.

Considering the increased success that Hezbollah has enjoyed in recent weeks in deploying unmanned aerial vehicles (UAVs) to attack Israel, and the IDF's limited success in intercepting them, we must ask whether and to what extent Israel is prepared to deal with similar unmanned threats that could be unleashed in the maritime domain. Unmanned systems are operated at sea and from sea, both unmanned surface vessels (USVs), which float on the surface of the water, and unmanned underwater vehicles (UUVs). While developed countries have been building and using these systems for several years, the past decade has also seen terrorist organizations like Hamas and the Houthis add them to their arsenals. This has created a genuine challenge not only for the State of Israel but also other countries, international bodies, commercial companies, and any other player that could be harmed by the threat to the freedom of navigation as well as offshore infrastructure or ports.

Unmanned Maritime Systems

Some of the capabilities of unmanned maritime systems were developed in the civilian market and later transferred to the military. Currently, these systems are a significant component in many military forces across the globe. USVs and UUVs are used to

protect ports, conduct SSW (subsea warfare), locate mines, wage electronic warfare, misdirect, conduct routine security and, more recently, to collect and attack as noted especially in the war in Ukraine and the de-facto war between the Houthi terrorists in Yemen and the maritime coalition led by the US Navy.

The significance of these weapons increases even more when they are used by an inferior force against a superior enemy, especially in asymmetrical warfare close to the shore. The relatively low cost of USVs and UUVs, along with the ability to procure them in large numbers without relying on an advanced military industry, allows terrorist militias and developing countries to use them. At the same time, some of the world's leading navies appear to recognize the opportunities and challenges involved in using these systems. It is evident that this requires navies to adapt and understand the need to invest in formulating a doctrine that combines manned and unmanned vehicles in both defensive and offensive plans of action, as demonstrated in combat in Europe and in the Red Sea between the Houthi terror group and the international coalition. Hamas also has demonstrated the use of these systems against Israel. However, the number of attacks against Israeli assets using unmanned systems in the maritime domain is fewer than in the aerial theater. That said, these systems could be used against Israel in any future war against Hezbollah. In light of this, an opportunity has arisen to study what is happening in other combat zones and determine whether Israel is prepared to deal with the challenge.

The Use of Unmanned Systems in the Maritime Theater in Other Combat Zones

In the war between Russia and Ukraine, the use of unmanned systems has reached new heights. As far back as October 2022, Ukraine began using maritime and aerial systems, both manned and unmanned, to launch attacks in the maritime domain. It used both USVs and UUVs and caused severe damage to Russian battleships, commercial vessels, port infrastructure, and other maritime infrastructure—often more than 500 kilometers from Ukrainian territory. One of the unmanned operations that received widespread coverage in the early stages of the war was an attack using unmanned systems on the Russian fleet in the Black Sea. The maritime attack, conducted simultaneously with an aerial attack, caused severe damage to a Russian warship, demonstrating that Ukraine's capabilities in this field were relatively advanced. Since then, Ukraine has engaged in many attacks using USVs, compared to just a handful of such attacks by Russia.

Just before the second anniversary of the outbreak of the Russia–Ukraine war in March 2024, the commander of the Russian Black Sea navy was removed from his post due to dissatisfaction with his performance, given the large number of Russian vessels sunk in the Black Sea by Ukrainian UUVs. This highlights the importance of utilizing advanced technologies even in a traditional theater—the maritime arena. These

Ukrainian attacks influenced the Russian navy's operations, as well as the use of ports and allocation of resources to defend vital assets in the maritime arena.

The use of unmanned systems also demonstrates that even if the physical damage is insignificant, the achievement in terms of perception is enormous, while there is almost zero risk to troops and the costs are minimal. This is very similar to the considerations involved in the use of UAVs, although the use of unmanned systems in the aerial theater is infinitely greater than in the maritime arena.

In recent years, Iran and its proxies have also employed USVs and UUVs . The Iranians are currently developing unmanned maritime systems, including intelligence-gathering systems, explosive USVs for attacking ships and maritime infrastructure, boats with counter-warfare capabilities (remote missile launching) and UUVs for targeting maritime infrastructure.

The Houthis, who primarily rely on Iranian weaponry, also employ USVs to attack military and civilian vessels in the Red Sea. This activity led to the establishment of an international maritime coalition, led by the US Central Command (CENTCOM), which is working intensively in many areas, including physically targeting Houthi capabilities during manufacture and in storage, as well as installing defensive systems on vessels, such as laser canons and electronic jamming equipment.

Hamas has also demonstrated that it invested many efforts in underwater offensive capabilities, as was evident both during Operation Guardian of the Walls in May 2021 when it tried to attack Israel's gas platform using an armed UUV, and in the ongoing Operation Swords of Iron, during which it significantly increased efforts to target Israeli maritime infrastructure and vessels using UUVs. The IDF thwarted all these efforts, either before they were launched or before they struck their targets.

In light of this, CENTCOM started developing the capabilities to meet the challenge several years ago. Among the activities CENTCOM is involved in is Task Force 59, which was especially established to harness unmanned and artificial intelligence technologies from various countries and to provide protection to areas used by the US Fifth Fleet. It is an international cooperation that conducts tests and holds training exercises in which Israeli organizations and companies participate. This indicates that while unmanned warfare is a serious challenge, it also presents an opportunity for cooperation and the development of innovative technologies.

Is Israel Prepared to Meet This Challenge?

Given the global increase in the use of USVs, UUVs, and, of course, UAVs, it is important to ask whether the IDF is prepared to deal with unmanned systems that could be deployed on a massive scale, including in the maritime arena. This question becomes even more relevant considering the IDF's limited success in dealing with the challenge

posed by UAVs, especially on the northern front. The use of UAVs and Israel's difficulty in combating them demonstrates that terrorist organizations have chosen to make widespread use of cheap, easily assembled and operated systems that lack a high level of precision. At the same time, Israeli air defense systems struggle to identify these systems, partly due to their low radar cross-section, which is the result of their small physical size, low-flying altitude, and the enemy's sophisticated use of areas where these systems penetrate, in which identification and interception is difficult.

Given the situation in the aerial theater, it is reasonable that the IDF will have to make adjustments in the maritime arena to ensure that it can effectively respond to these severe threats. With international cooperation and intelligence on the unmanned maritime systems being developed by Iran and North Korea, it is likely that the use of these weapons will increase if the conflict with Hezbollah escalates any further.

The consequences of failing to provide adequate defense and protection to maritime assets could be significant, especially for a country like Israel. Israel relies extensively on infrastructure in the maritime arena: from its means of trade—seaports, which handle 99% of the goods entering and leaving the country; energy infrastructure, such as the off-shore gas production platforms and submarine pipelines that provide energy to Israeli homes; and subsea communications infrastructure, which enables 96% of Israel's communication with the outside world.

Therefore, the IDF must act quickly to assess whether its naval operations are prepared and equipped with suitable defense systems against USVs and UUVs, including technology to detect threats early and neutralize them. This will require learning from international partners, engaging in continuous and ongoing intelligence gathering, formulating a clear policy, investing in research and development, and adapting the military doctrine to ensure an effective response to this growing threat, surpassing the previous response to a similar threat in the aerial arena.

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