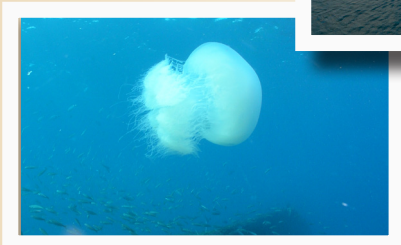
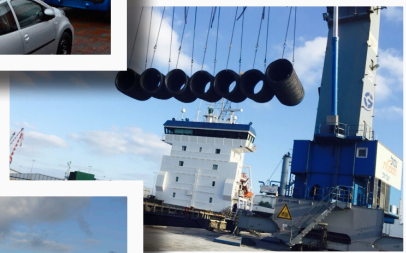
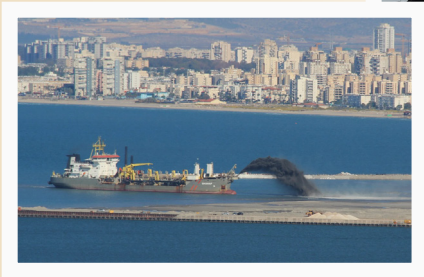


MARITIME STRATEGIC EVALUATION FOR ISRAEL 2018/19

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The Naval War against the Houthis in Yemen

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Background

The Shiite uprising in Yemen against the Sunni regime under President Ali Abdullah Saleh began in July 2004 and was led by the Houthi organization, a militant group that was created by Hussain badar din al Houthi, the leader of the Shiite-Zaidi faction. This Shiite faction accounts for about one-third of the population in Yemen.

The Houthi rebels claim that the goal of the rebellion is to protect the Shiite Zaidi population from discrimination and the aggression of the current regime in Yemen, while the Sunni regime, which is aligned with Saudi Arabia, claims that the Houthi organization is essentially trying, under the patronage of Iran, to overthrow the government and to establish an Islamic Shiite state.

The fighting has continued since June 2004 and is taking place in all regions of the country. Up until the time of writing, the fighting had exacted a high price in lives, with thousands of civilians and soldiers killed on both sides.

The Houthi rebel organization, which is characterized by an extremist Shiite ideology and has close connections to the Iranian regime and even with Hezbollah, views the Sunni countries, including Egypt and Saudi Arabia, as enemies, as it does the Western countries, and in particular the US and Israel.

The Houthis are equipped with Iranian weapons and they are also trained by Iran. They are fighting against the Sunni regime in Yemen, against Saudi Arabia and against US forces in the region, in a number of contexts and at various ranges. This is manifested in ground attacks and battles, suicide attacks in crowded locations and mosques, the operation of unmanned vessels and even the use of ground-to-ground and ground-to-air missiles, which have been fired multiple times at cities and targets in Saudi Arabia and at aircraft of the Saudis and the Americans.

The Houthi organization has a naval force that is equipped with weaponry supplied by the Iranians and utilizes tactics similar to those of the Revolutionary Guard navy against the US and Saudi vessels in the vicinity of the Bab el Mandeb Strait.

The naval arm of the Houthi organization constitutes a means of creating pressure and power projecting (as in the case of the Iranian navy in the Hormuz Straits) with the goal of closing the Bab el Mandeb Strait, a choke point and a critical passage

for world trade and the transport of goods and petroleum from Asia and Africa to Europe.

As a counterweight to the Houthi activity at sea, the navies of Egypt, Saudi Arabia and the United Arab Emirates and a coalition of vessels from the US, France and Australia are working in collaboration in the Bab el Mandeb Strait with the goal of creating a naval blockade on the Houthi rebels. The blockade is intended to prevent the supply of weapons and other goods from Iran.

This chapter will try to shed light on the naval activity of the Houthi rebel group in Yemen and naval warfare taking place in the area, as well as their implications for Israel.

The Naval Domain

Naval operations constitute an important component in the Houthi rebels' strategy in its war against the Yemenite government and its allies, i.e. the Saudis and the Egyptians. The Houthis' fighting doctrine at sea is based on Iranian asymmetric tactics, which emphasize the importance of naval operations as a means of achieving international pressure and the ability to affect trade and the global economy. This is accomplished by means of a naval blockade that blocks the passage of ships, goods and oil, at locations that constitute choke points on international trade routes.

Yemen lies on the Bab el Mandeb Strait, which is a global chokepoint, one of nine worldwide, through which numerous vessels from Asia and Africa pass on their way to the Mediterranean by way of the Suez Canal.

The Houthis, who are utilizing Iranian tactics, are operating at sea to essentially impose a naval blockade, which is confronted by a broad coalition of countries, including Egypt, Saudi Arabia, the United Arab Emirates, the US, France and Australia. Under the authority of UN resolutions, they are, on the one hand, using offensive tactics to prevent a naval blockade of the Bab el Mandeb Strait by the Houthi naval force and, on the other hand, are seeking to create their own naval blockade in order to prevent the supply of arms from Iran to the rebels.

The efforts by the Houthi rebels to create a naval blockade include the laying of naval mines near the Bab el Mandeb Strait, the use of naval commando tactics, the firing of land-to-sea missiles and the use of unmanned vessels which are remotely controlled and which are used to attack ships operating in the region.

As mentioned, Iran's supply of weapons to the rebels is transported by sea. In December 2017, US naval forces stopped an "innocent" Iranian fishing vessel near the coast of Yemen, which was carrying a large quantity of weapons destined for the Houthi rebels, including about 1500 Kalashnikov assault rifles, about 200 RPG launchers, about 20 heavy machine guns and more.

In February of that same year, the Australian navy stopped a similar vessel that was carrying an even larger quantity of weapons and in March 2017, the French navy also stopped a shipment of weapons that included anti-tank weapons and other advanced weaponry.¹

With respect to the use of weapons at sea, in late September 2018 the Saudi navy detected an unmanned vessel about 45 km off the coast of Yemen.² The vessel, which belonged to the Houthi rebels, was guided by remote control by means of satellite navigation; it was driven by a powerful engine and carried a number of wooden boxes on its deck which contained hundreds of kilos of explosives.

This is not the first time that the use of an unmanned vessel by the Houthi rebels has been documented. In January 2017, the Houthis carried out a coordinated attack on a Saudi warship using three remotely controlled unmanned vessels.³ One of the unmanned vessels rammed the hull of the Saudi ship, blew up and caused the deaths of two Saudi crew members and the injuring of three more.



Figure 1: The unmanned vessel captured in September 2018⁴

- 1 Denis Simon. Proof of Iranian Missiles Launched by Houthis in Yemen (14/12/2017), retrieved from: <https://founderscode.com/proof-iranian-missiles-launched-houthis-yemen/>
- 2 Jeremy Binnie, New unmanned bomb boat found off Yemen (14/9/2018), retrieved from: <https://www.janes.com/article/82987/new-unmanned-bomb-boat-found-off-yemen>
- 3 Reuters, Yemen Houthi Rebels Attacked Saudi Warship (30/1/2017), retrieved from: <https://www.tesfanews.net/yemen-houthi-rebels-saudi-warship-attack>
- 4 <https://www.janes.com/article/82987/new-unmanned-bomb-boat-found-off-yemen>

In October 2016, a naval force of Houthi rebels attacked a Saudi ship by means of Iranian Noor missiles (the Iranian name for the Chinese C-802 missiles which are produced in Iran), which were fired from a land-based launcher. The attack disabled the ship.



Figure 2: The Saudi ship that was damaged by a missile fired by the Houthi rebels⁵

Two days after the attack on the Saudi warship, at the beginning of October 2016, the Houthi naval force attacked the USS Mason with a coordinated attack utilizing two missiles, apparently of the same type.⁶ The defensive systems on the American warship successfully disrupted and intercepted the missiles while in flight and prevented any damage to the ship. The American ship apparently used ESSM anti-missile missiles and SM2 missiles and advanced Nulka decoy rockets.⁷

The American naval force identified the coastal radar which had apparently detected the target at sea and had conveyed the data to the rebel missile launcher. It was attacked by missiles from the American ship and destroyed.⁸

5 <https://defence-blog.com/news/uae-media-releases-photo-of-hsv-2-swift-it-was-attacked-by-a-c-802-missile.html>

6 Tesfanews, Houthi rebels fire missiles at US warship in Red-sea: navy (10/8/16), retrieved from: <https://www.tesfanews.net/houthi-rebels-fire-missiles-us-warship-red-sea>

7 BIMCO, Intelligence Report: Update on Houthi missile attacks off Yemen, and US strikes against Houthi radar sites (13/10/2016), retrieved from: http://www.mast-security.com/i/Downloads/MAST_Intrep_attack_on_USSMASON_Update1.pdf

8 Tesfanews, A New Danger Rises in the Red Sea (8/10/2016), retrieved from: <https://www.tesfanews.net/houthi-new-red-sea-danger>

About a year after the series of attacks on the Saudi and American ships, the Houthis unveiled Iranian Mandib-1 missiles (the Iranian export version of the Noor missiles which take their name from the Bab el Mandeb Strait) in their possession.

It is not known how many missiles the Houthi organization possesses.



Figure 3: The Iranian Mandib-1 missile⁹

The Houthi rebels are not operating only by means of coastal missiles but are also using naval commando forces, which have two main missions. The first is to carry out attacks on vessels from high-speed boats and to utilize light weapons, such as anti-tank missiles (against ships), RPG rockets and machine guns (as in the case of Iranian tactics).

Another mission assigned to the naval commando force is to lay naval mines in the Bab el Mandeb Strait and near the coast. The mines discovered in late 2017 were similar to the Sadaf floating mines which are in use by the Iranian Revolutionary Guard and are presented during the annual exercises of the Revolutionary Guard naval forces. These naval mines can be used individually (like the one in the picture below) or as a network of mines, which are connected one to the other and which are detonated one by the other in a chain explosion when they come in contact with a ship.

⁹ <https://twitter.com/WithinSyriaBlog/status/927549276049330176>



Figure 4: A naval mine discovered on the Saudi coast¹⁰

Building of a maritime picture for the detection of ships operating in the region

According to various American assessments, the Houthi rebels are using advanced measures to build a maritime picture, including a combination of mobile and fixed naval radar, which are also apparently supplied by Iran, and identification data from the Automatic Identification System (AIS)¹¹ which makes it possible to differentiate between civilian and military vessels (the latter do not usually operate AIS).¹² In addition, the Houthi rebels operate seemingly innocent fishing vessels that report targets at sea to the coast.

Implications

The naval war against the Houthi rebels, though it is being waged far from Israel's shores, has wide-ranging implications for trade to and from Israel and in gaining insight into the use of naval forces by Iran and by the organizations that they support, train and equip, such as Hamas and Hezbollah.

10 <https://www.thebaghdadpost.com/en/Story/17086/Underwater-mines-planted-by-Houthis-off-Yemeni-coast-dismantled>

11 The system is operated automatically and enables the identification of a ship at sea by means of a unique identification number for every vessel, as well as additional information about it. The system is operated according to global guidelines and standards. The system makes it possible to observe any ship (displacement of over 300 tons) at sea at any given moment and all of its details (nationality, location at sea, etc.) by means of Internet sites or even using an app on a cellular phone.

12 BIMCO, Intelligence Report: Update on Houthi missile attacks off Yemen, and US strikes against Houthi radar sites.

With regard to the former, maritime trade between Israel and Asia is an important component in Israeli foreign trade and accounts for about one-quarter of its total imports and exports.¹³ This trade travels by way the of Red Sea, with only a small proportion carried by ships flying an Israeli flag. Land-to-sea missiles and naval mines used by the Houthi rebels constitute a threat to the freedom of passage in the Red Sea in general and to Israeli ships in particular, as can be seen from the map showing the range of C-802 missiles, particularly when Israeli ships use identification means (the AIS) which enable their identification as Israeli ships or as having Israeli ownership.

In this context, it is worth quoting the words of Prime Minister Benyamin Netanyahu that "Israel will be part of a coalition to prevent Iran from blocking the shipping lanes through the Red Sea."¹⁴



Figure 5: Range of the C-802 missile possessed by the Houthi organization¹⁵

Second, by observing the equipment, weapons and tactics of the Houthi rebels at sea Israel will gain insight into the tactics and weapons of the Hamas and Hezbollah

13 Central Bureau of Statistics, Foreign Trade – Goods, 2017 http://www.cbs.gov.il/www/presentations/16_18_008maznis.pdf

14 <https://www.haaretz.co.il/news/politics/1.6338303>

15 <https://www.tesfanews.net/houthi-new-red-sea-danger>

naval forces, which are similar in nature to the Houthi force in that they rely on Iranian asymmetric tactics and Iranian weapons.

By observing the operations of the Houthi naval forces, it is possible to identify a number of elements:

1. The Iranian supply of weapons (including ground force weapons) by sea by means of seemingly innocent vessels. This Iranian method of operation was also revealed in the seizure of weapons-carrying vessels such as the *Karin A*, the *Francop* and *Victoria*, among others during the last decade.
2. The building of a maritime picture, which is based on a number of capabilities, including mobile and fixed coastal radar, seemingly innocent fishing vessels that report on targets in their vicinity and use of AIS data, as means of detecting targets but also of determining whether they are civilian or military. What this means is that civilian ships flying the Israeli flag, as well as ships that are listed in publicly available international registries as Israeli-owned (by means of subsidiaries in other countries), are liable to be targets for missiles if they are identified. Military vessels, which do not operate AIS, will be identified as such even they are not explicitly identified as Israeli military vessels.
3. The use of land-to-sea missiles of various types and of various ranges enables the hermetic closure of the Bab el Mandeb Strait.
4. Rapid and coordinated attacks ("sting") by means of high-speed boats using light weapons. Defending against such attacks is complicated even if the target vessel has advanced defensive systems (since, for example, it is difficult to defend against a barrage of RPG rockets from different directions).
5. Use of naval mines, whether they are dispersed or in a network (in which one can detonate the rest). This enables the coverage of a large area and the ability to harm not only vessels that hit a mine but also vessels in its vicinity, if there are any.
6. Intensive use of unmanned vessels that are remotely controlled and navigated by means of satellite and which carry on board explosive material. A number of unmanned vessels have been used in coordinated attacks. It is possible that in the future, unmanned vessels will be used against a maritime target simultaneously with the firing of land-to-sea missiles.

Conclusions and Recommendations

The fighting in Yemen against the Houthi rebels, which began in 2004, appears to be far from over. And since this is the Middle East, it is impossible to foresee how it will end.

Not only is the military confrontation continuing but Iran views this theater as a platform from which to attack its Sunni adversaries—Egypt, the United Arab Emirates and Saudi Arabia—and even the US forces that are deployed in the region. Iran, which supports the rebels, is continuing to fan the flames by means of the Kuds force of the Revolutionary Guard and by means of the supply of weapons, advice, infrastructure, funding and training (which is carried out in Iran).

Since Hezbollah is occupied by the fighting in Syria and its deployment in Lebanon, Iran is finding it difficult to test new weapons and tactics, particularly at sea. Therefore, it appears that Yemen is being used for testing Iranian weapons, particularly naval weapons, with emphasis on unmanned vessels and their operation.

Following are a number of recommendations that are based on the above and on the implications of what has been presented:

1. First priority should be given to building and maintaining an up-to-date intelligence picture of what is happening in the region: Iranian involvement, the weapons and infrastructure being supplied by Iran and also the Iranian-Houthi tactics which are being developed and applied in the region. The urgent need for intelligence is a result of a number of needs:
 - To understand the developments in the region and the level of the threat to Israeli freedom of passage (civilian and military), as part of the identification of trends and the intentions of the Yemenite organization to act against Israel or to assist Iran or Hamas and Hezbollah.
 - To Identify Iranian development of technologies and weapons in order to construct a response.
 - To understand the asymmetric tactics which are likely to be employed by Hamas and Hezbollah against the navies of Israel and other Western countries who are operating in the relevant theaters.
2. To examine the capability of the Israeli navy in the detection, identification and disruption of unmanned vessels and their operation.
3. Examining the ability of the Israel navy to detect and neutralize a network of mines, whether floating, submerged or on the seabed.
4. Refraining to whatever extent possible (and according to the decision of the International Maritime Organization (IMO)) from the use of Israeli identification in the AIS of ships operating in this region.
5. Examining the feasibility of installing means of mine detection and neutralization and means of disrupting missiles on civilian Israeli ships operating in the region.