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FEATURE ARTICLE

One Year after October 7th

An assessment of the intelligence failings

MICHEL WYSS

FEATURE ANALYSIS

A Draw Is a Win: The Houthis After One Year of War

MICHAEL KNIGHTS

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FROM THE EDITOR

A year on from the Hamas-led October 7, 2023, terrorist attack on Israel, the Middle East is entering its most dangerous period in living memory. The unfolding events will have far-reaching consequences for the region and the international terror threat.

In our feature article, Michel Wyss assesses the intelligence failings in the lead-up to October 7. He writes: "Israel's inability to detect the impending attacks was not the result of a single glaring failure but rather the result of multiple problems at different levels and across the various intelligence services and the top political and military echelons," adding that "failures and negligence hampered both Israel's overall political assessment as well as collection, analysis, and dissemination at the intelligence level." He argues that one lesson learned is the need for humility and that also includes "the recognition that even seasoned intelligence analysts can fall prey to their own blind spots."

Our interview is with Christopher O'Leary, former FBI Counterterrorism Senior Executive and Director of Hostage Recovery. He provides insights from his more than two decades of working on counterterrorism investigations for the FBI. Reflecting on the Israeli experience since October 7, he discusses key variables for a government to consider when faced with a hostage crisis.

Michael Knights examines a year of Houthi attacks against Israel and shipping off the coast of Yemen. He writes: "Facing weak domestic opposition and arguably strengthening their maritime line of supply to Iran, the Houthis are stronger, more technically proficient, and more prominent members of the Axis of Resistance than they were at the war's outset. The Houthis can now exploit new opportunities by cooperating with other Axis of Resistance players in Iraq as well as with Russia, and they could offer Yemen as a platform from which Iran can deploy advanced weapons against Israel and the West without drawing direct retaliation."

Matthew Levitt assesses the threat posed by Iran's weaponized pharmaceutical-based agents (PBAs). He writes: "Today, with Iran's proxies wreaking havoc throughout the region, officials worry Tehran may have already provided weaponized PBAs to several of its partners and proxies. Such a capability, tactically deployed on the battlefield, could enable further October 7-style cross-border raids or kidnapping operations."

This issue is my hundredth at the helm of *CTC Sentinel*. It is an ongoing privilege to feature the insights of the best and brightest in our field and to count as my colleagues the extraordinary group of leaders and thinkers at West Point's Combating Terrorism Center.

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Cover: Paratroopers Brigade soldiers regain command of Kibbutz Be'eri in southern Israel after the October 7, 2023, terrorist attack. (Israel Defense Forces)

The October 7 Attack: An Assessment of the Intelligence Failings

By Michel Wyss

Hours after the Hamas attack of October 7 began, they were widely attributed to an apparent Israeli intelligence failure, with pundits pointing to several possible sources, including a misunderstanding of Hamas' intentions, cognitive biases, and an overreliance on the country's technological superiority. To date, however, there have been few systematic analyses that examine in detail the various causes of the apparent inability of Israel's intelligence services to provide warning before the attack. This article reviews the relevant data that has since become publicly available. Building on previous literature on surprise attacks and intelligence failures, it examines both Israel's political level and intelligence level prior to October 7, 2023. Drawing some preliminary conclusions, its findings suggest that the attack was likely not the result of a single glaring failure but rather the accumulation of several problems at both levels.

A year after Hamas' onslaught in Southern Israel, which resulted in the deaths of at least 1,195 civilians and security personnel and the abduction of an additional 251, tensions across the region remain high.¹ In Gaza, the Israeli Defense Forces continue military operations amidst a large and continuing death toll and extensive damage to infrastructure. The Israeli government's initial stated aims were to degrade the military capabilities of Hamas and associated terrorist groups, secure the release of Israeli hostages, and remove the Islamist movement from power.² But the conflict Israel is engaged in is much wider than Gaza now. A year on from October 7, Israel is waging an intense military campaign against Hezbollah in Lebanon, engaged in a confrontation across the region with the various nodes of the "Axis of Resistance," including the Houthis and pro-Tehran Iraqi militias, and—in the wake of the October 1 ballistic missile strikes on its territory—is on the brink of direct war with Iran.

At the time of publication, many aspects of the October 7 attack

remain uncertain, murky, and contested. Some analysts, the U.S. intelligence community, and reportedly even Hamas leaders themselves have noted the group's surprise at the ease with which its operatives breached the barrier separating the Gaza Strip from Israel, as well as the slowness of the Israeli response.³ A number of articles have invoked the notion of a "catastrophic success"^a that, while briefly overwhelming Israeli security forces, would lead to devastation among the Palestinian population of Gaza.⁴ Other pundits have argued that Hamas meticulously planned its operation with the primary objective of "[goad[ing]] the Israelis into Gaza for a prolonged confrontation."⁵ Some media reports even suggest that the attackers had prepared to penetrate even deeper into Israeli territory, carrying supplies for several days to push as far as the West Bank, with the intent of attacking larger Israeli cities along the way.⁶

Finally, an assessment by the Royal United Services Institute states that "Hamas fighters deviated significantly from their own plan during its execution [...as the] original planning documents showed that Hamas had intended to fortify the positions it had seized and use hostages to complicate the IDF's retaking of these positions." However, the chaotic massacre, carried out in large part by some 1,000 Gazans who followed the Hamas strike force through the barrier, "diverted efforts to prepare for a deliberate defense."⁷

A similar panoply of different interpretations and assessments concerns the sources of Israel's failure to anticipate and prevent the October 7 attack. The first takes on who or what was to blame for the security lapse emerged even as the attacks were still unfolding, and they multiplied in the days that followed.⁸ Among other things, pundits and experts pointed their fingers at Israeli intelligence relying on a flawed "conception" relying on "wishful thinking:" namely that Hamas was deterred from seeking a violent confrontation with Israel and was instead busy with governing Gaza, leading subsequent governments to allow Qatari funds streaming into Gaza; "the toxic relationship between a far-right government and the intelligence services;" "political instability;" an overreliance on "technological superiority;" as well as a lack of appreciation for the "the creativity and competence" of Hamas and

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a Writing about regime change, Alexander B. Downes has described "catastrophic success" as the achievement of short-term objectives that ultimately lead to disastrous long-term consequences. See Alexander B. Downes, *Catastrophic Success: Why Foreign-Imposed Regime Change Goes Wrong* (Ithaca, NY: Cornell University Press, 2021), p. 5. Similarly, James J. Wirtz has argued that while surprise attacks may succeed at the operational level, success at the strategic and political level is far more elusive, and that successful operational surprise "may even hasten defeat by mobilizing the victim (e.g., the U.S. response to the Japanese attack on Pearl Harbor) or by expending scarce assets without achieving a decisive victory (for example, the fate of the Nazi offensive through the Ardennes forest in the winter of 1944)." See James J. Wirtz, "Theory of Surprise," in Richard K. Betts and Thomas G. Mahnken eds., *Paradoxes of Strategic Intelligence: Essays in Honor of Michael I. Handel* (London: Routledge, 2003), p. 104.

its “operational capabilities,” to name only a few.⁹

Early analysis was further compounded by several alleged “facts” that were initially taken at face value but later turned out to be controversial, dubious, or outright false. First, within days there were media assertions about a deep Iranian involvement in the operation,¹⁰ but evidence has remained elusive¹¹ and Iranian government officials have offered contradictory statements.^b Initially, there were also assessments that Israeli intelligence had received no prior warnings and indications at all about a possible Hamas attack,¹² which as will be elaborated below, turned out to be wrong.^c Finally, there were also rumors about Gazan workers in Israel gathering intelligence for Hamas,¹³ which were later dismissed by Israel’s domestic intelligence service Shin Bet.¹⁴

In contrast to these early takes, however, systematic analyses are few and far between.^d This is not surprising, given that many of the facts and facets of the October 7 attacks are likely to remain classified for decades while at the same time, the establishment of an official commission of inquiry has become a highly politicized matter in Israel.¹⁵ Nevertheless, the anniversary of the Hamas attacks provides an opportunity to revisit the plausible sources of Israel’s failure to uncover them. As such, this article does not purport to be a final judgment or an exhaustive account. It is also important to note that it is strictly limited to the time period leading up to the assault and does not examine the actions of both Israel and Hamas during the course of the attack. Neither does it discuss other shortcomings that directly impacted the outcome of Hamas’ onslaught, including failures in military preparedness prior to the attack and the failure to respond in a timely manner. Instead, the article reviews what has become public knowledge about the intelligence failures leading up to October 7, and, with the benefit of

hindsight, offers several insights that speak to the issue of surprise and intelligence, including relating to non-state armed groups in particular.

To this end, this article first offers a brief summary of the main lessons from surprise attacks and intelligence failures, as well as their applicability to non-state armed groups. The next section examines plausible Israeli failures in the run-up to the October 7 attack at two levels of analysis, building on the previous section as well as the existing assessments and analyses. The first level is the political level, which includes Israel’s leadership, its strategic assumptions, assessments, and courses of action vis-à-vis Hamas. The second level deals with the operational/tactical aspects of intelligence, thus consisting of the various components that make up the idealized model of an “intelligence cycle,” namely planning and direction, collection, analysis, and dissemination.^e The final section of the article offers some preliminary conclusions and lessons from the failure to uncover the attacks.

Are Strategic Surprises and Intelligence Failure Inevitable?

One of the primary tasks of any intelligence service is to avoid strategic surprise.¹⁶ Yet, as numerous case studies from Pearl Harbor to 9/11 illustrate and as conventional wisdom holds, surprise (and thus failure to anticipate it as such) is almost inevitable.¹⁷ There are a number of competing schools of thought about the reasons for this conundrum. According to Erik Dahl, the so-called “traditional school” holds that although warnings and indicators typically become apparent in hindsight, intelligence failures are not only inevitable but quite natural due to cognitive biases and other psychological factors such as groupthink, mirror-imaging,^f and so on.¹⁸ Moreover, intelligence scholars such as Michael Handel, Richard Betts and others argue that often the problem is not the intelligence analyst’s warning but the policy maker’s unwillingness to believe it and subsequent failure to act on it.¹⁹

In contrast, the so-called “reformist school” tends to locate failures at the organizational and structural level, rather than at the individual level.²⁰ According to this line of thinking, intelligence failures are primarily the result of bureaucratic deficiencies such as stovepiping, rigid organizational barriers, etc.²¹ Compared to the traditionalists, the reformist school has a somewhat more optimistic outlook on the prospects of improving intelligence performance through organizational reform.²²

Furthermore, what Erik Dahl calls the “contrarian school” challenges the notion that pathologies at the individual-analytic level or the organizational-structural level are the main culprits in intelligence failures.²³ Instead, such failures are seen as the result of problems in the collection of relevant intelligence.²⁴ For example, according to Ariel Levite, actual signals and accurate warnings may have not been available in advance.²⁵ Yet “in hindsight, observers are too willing to identify all sorts of information as accurate signals of

b The U.S. intelligence community assessed early on that Iran was “surprised” by the October 7 attack and has so far offered no contradictory evidence. See Zachary Cohen, Katie Bo Lillis, Natasha Bertrand, and Jeremy Herb, “Initial US intelligence suggests Iran was surprised by the Hamas attack on Israel,” CNN, October 11, 2023. Iran’s leadership has also denied any direct involvement. See Hamidreza Azizi and Erwin van Veen, “Iranian Reaction to 7/10 and the Invasion of Gaza,” Clingendael, November 30, 2023. On the other hand, there are some statements by Iranian officials, including claims about the “strategic role in the planning and execution of the attack” of General Mohammad Reza Zahedi, who was killed by an Israeli airstrike on April 1. See “Iranian Officials Acknowledge Iran’s Role In Planning And Executing October 7 Hamas Invasion And Massacres In Southern Israel,” MEMRI, July 10, 2024. Already in December, an IRGC spokesman had characterized the attack as “revenge for the for the assassination of General Soleimani,” but the statement was retracted after a spat with Hamas. Yaghouh Fazeli, “Iran’s IRGC retracts statement on Oct. 7 attacks after rare public spat with Hamas,” Al-Arabiya, December 28, 2023.

c Israel was aware of Hamas’ plan to invade southern Israel for several years but dismissed it as “aspirational.” See Ronen Bergman and Adam Goldman, “Israel Knew Hamas’s Attack Plan More Than a Year Ago,” *New York Times*, November 30, 2023.

d So far, there are two major exceptions. The first is Avner Barnea’s preliminary analysis in the *International Journal of Intelligence and Counterintelligence*, which concludes that October 7 was a strategic surprise with elements of tactical surprise, facilitated primarily by cognitive biases and an inability to interpret “weak signals” accurately. See Avner Barnea, “Israeli Intelligence Was Caught Off Guard: The Hamas Attack on 7 October 2023—A Preliminary Analysis,” *International Journal of Intelligence and Counterintelligence* 37:4 (2024): pp. 1,075-1,077. The other is James J. Wirtz’s article in the *Military Strategy Magazine*, which draws on Michael Handel’s theory of surprise, and in particular his “risk paradox,” to explain how and why the events of October 7 unfolded as they did. See James J. Wirtz, “Michael Handel, October 7, and The Theory of Surprise,” *Military Strategy Magazine* 9:3 (2024): pp. 4-10.

e There are various conceptions of the intelligence cycle, some of which add “processing and exploitation” as an additional step in between collection and analysis, for example. See Mark Phythian ed., *Understanding the Intelligence Cycle* (London: Routledge, 2013).

f According to the late CIA analyst Richards Heuer, mirror-imaging occurs when analysts fill “gaps in [their] own knowledge by assuming that the other side is likely to act in a certain way” based on how they would expect their own side to behave or think. See Richards J. Heuer, *Psychology of Intelligence Analysis* (Langley, VA: Center for the Study of Intelligence, 1999), p. 70.

what was about to transpire when in fact these signals just share some sort of similarity with subsequent events.”²⁶

A related problem arises from the fact that broad strategic warning may not provide enough clues to act on, as opposed to precise tactical warning that indicates “who is doing the acting, what is about to happen and where, when, and why it is about to occur.”^{27 g}

Finally, studies of surprise attacks and intelligence failures have mostly focused on cases of conventional interstate conflicts. Some work, particularly spurred by the 9/11 attacks, has highlighted additional challenges in dealing with surprise by non-state actors. These include the small size, diffuse nature, and comparatively short life span of a non-state actor’s organizational structure, the potentially global reach of their networks, and their specific efforts to evade surveillance.²⁸ In consequence, human intelligence (HUMINT) is often cited as a particularly important type of intelligence in order to defeat non-state armed groups—while also noting the difficulties in obtaining it.^{29 h} It has even been argued that the “lack of clear boundaries around organizations and ambiguous links between individuals and threatening groups” significantly weakens and limits the applicability of the conventional threat assessment model (threat = intent x capability).^{30 i}

The Failures to Stop October 7

For decades, Israel has faced a complex threat environment that includes numerous non-state adversaries as well as several—actual and potential—state adversaries.³¹ In the past decade alone, and before October 2023, Israel has fought several limited conflicts in Gaza, namely Operation “Protective Edge” in July–August 2014,³² “Guardian of the Walls” in May 2021,³³ “Breaking Dawn” in August 2022,³⁴ and “Shield and Arrow” in May 2023.³⁵ It has also faced large-scale protests at the Gaza border in 2018–19, dubbed the “Great March of Return,”³⁶ as well as waves of lone attacker terrorism in the West Bank, East Jerusalem, and Israel proper in both 2015–2016³⁷ and 2022.³⁸ There have been frequent attacks against security forces and Israeli civilians,³⁹ and—in the months leading up to the Hamas onslaught—a low-level insurrection throughout the Palestinian territories that observers at the time feared could turn into a full-scale uprising.⁴⁰ At the regional level, Israel has waged the so-called “campaign between the wars” to impede Iran’s efforts to build up offensive capabilities and entrench itself in Israel’s immediate neighborhood, and to interdict arms

transfers to Hezbollah and other Iranian proxy groups.⁴¹ Before October 7 this “whole-of-government” approach had included covert action and diplomatic efforts as well as cyber-attacks and kinetic operations in Syria, Lebanon, Iraq, and reportedly even Yemen.⁴² As a result, Israel’s intelligence and military assets were necessarily stretched and had to be prioritized against a wide range of adversaries.⁴³

The Political Level

The surprise nature of the October 7 attack suggests that Israel’s political, security, and military leadership in recent years neglected the threat by Hamas, focusing instead on Hezbollah and Iran.⁴⁴ As retired Israeli intelligence official Miri Eisin noted in these pages, many in Israel had been “waiting for a very similar kind of attack to be carried out by Hezbollah in the north” in the years before October 7, 2023.⁴⁵ However, it is important to consider that for more than a decade, there has been little doubt that Hezbollah’s capabilities have indeed exceeded those of Hamas and that a new war in Lebanon would be devastating for both sides, so it seems unsurprising that the Lebanese terrorist group was given a higher priority by the Israeli security establishment.^{46 j} At the same time, it would be wrong to conclude that Israel was completely unaware of the potential threat of Hamas. The IDF’s new operational concept introduced in 2019, for example, refers to both Hezbollah *and* Hamas as “rocket-based terror armies,” that are “organized, well-trained [...] well-equipped for their missions, with straightforward operational ideas and tactics.”⁴⁷ Israeli planners also appear to have been aware of Hamas’ increasing military capabilities including precision guidance and the use of UAVs.⁴⁸

Beyond the group’s capabilities, it also seems evident that Israel misread Hamas’ intentions. There are several parallels with the infamous conception that had guided Israel intelligence prior to the 1973 war. Before October 1973, Israel’s “conceptziya” had assumed that its Arab neighbors would not mount an attack as long as they could not hope to defeat the IDF militarily.⁴⁹ It does not take much fantasy to imagine that Israel’s basic assessment prior to October 7 relied on a similarly misguided conception, namely that Hamas would be deterred from seeking another military confrontation and that Israel’s intelligence would provide timely warning if the group nevertheless decided to attack.⁵⁰ There is at least some evidence

g According to Erik Dahl, this leads to a “strategic warning paradox” in which “strategic-level intelligence and warnings are surprisingly easy to acquire and are often readily available before major attacks [b]ut unlikely to be acted upon by decision makers, [and in] any case are too general to be useful” whereas “tactical-level intelligence is much harder to acquire, but when available it is much more likely to be useful and actionable.” See Erik J. Dahl, *Intelligence and Surprise Attack: Failure and Success from Pearl Harbor to 9/11 and Beyond* (Washington, D.C.: Georgetown University Press, 2013), p. 22.

h In contrast, Daniel Byman has argued that overemphasizing the importance of HUMINT risks ignoring the equally critical role of signals intelligence (SIGINT). See Daniel Byman, “The Intelligence War on Terrorism,” *Intelligence and National Security* 29:6 (2014): pp. 846–848.

i This formula can be traced back to a 1958 article by J. David Singer in which he proposes a “quasi-mathematical form” of the relationship between two adversaries—namely, “threat-perception = estimated capability x estimated intent.” See J. David Singer, “Threat-Perception and the Armament-Tension Dilemma,” *Journal of Conflict Resolution* 2:1 (1958): p. 94.

j In fact, recent decapitation strikes against Hezbollah’s military and political leadership and covert action against Hezbollah operatives such as exploding pagers and hand-held radios are a testament to Israel’s extensive preparations for a new conflict with Hezbollah.

that Israeli policymakers thought Hamas indeed was restrained,^k not least because it had been sitting out several rounds of fighting between Israel and the Palestinian Islamic Jihad, including one as recently as May 2023.⁵¹

The belief in having successfully contained Hamas may also explain why Israel recognized the group as the de facto ruler of Gaza as it conducted “negotiations with Hamas using Egypt’s help,”⁵² and why successive Israeli governments decided to keep Qatari money flowing into Gaza.⁵³ To be clear, Israel might have had few viable alternatives to recognizing Hamas’ de facto authority in Gaza. Meanwhile, Qatari officials have insisted that the monetary donations were “fully coordinated with Israel, the UN and the US” and “distributed directly to needy families and public servants in Gaza.”⁵⁴ Future inquiries will undoubtedly scrutinize these donations and the corresponding oversight mechanisms or the lack thereof. Yet, even if they indeed were not diverted, they might have still indirectly helped Hamas preparing for the attack by freeing up funds that without Qatari financial support would have been earmarked for social services and paying the salaries of Hamas officials. While Israel argued that its measures were designed to preserve the calm in Gaza, a less charitable reading suggests its primary aim was to marginalize the Palestinian Authority in the West Bank, “treating the terror group as a partner, at the expense of Abbas and Palestinian statehood.”⁵⁵

Finally, it should not be omitted that several former government officials had repeatedly warned against underestimating Hamas.⁵⁶ In addition, both former senior security officials as well as a leading national security think-tank cautioned between the spring and summer of 2023 that the political crisis and triggered by the government’s attempted judicial reform and public tensions between Prime Minister Benjamin Netanyahu and the White House could erode Israel’s regional deterrence and prompt Israel’s enemies to seek renewed confrontation.⁵⁷ Indeed, a travel advisory issued by Israel’s National Security Council on August 31, 2023, mentioned “increased motivation on the part of Hamas and PIJ terrorists to carry out kidnapping attacks in Israel, in order to increase their bargaining chips against Israel.”⁵⁸

The Intelligence Level

With regard to Israeli intelligence activities vis-à-vis Hamas prior to October 7, publicly available information on many specific aspects remains unsurprisingly scarce. According to Israeli scholars Uri

Bar-Joseph and Avner Cohen, the Shin Bet has been primarily responsible for HUMINT in Gaza and Israel’s Military Intelligence Directorate (AMAN) for SIGINT.⁵⁹ In addition, AMAN has its own HUMINT unit (Unit 504) that reportedly operates and manages informants outside of Israel’s borders.⁶⁰ It is generally believed that Israel has a sophisticated network of human sources in Gaza,⁶¹ and a Israeli media report recently claimed that “Israel uses thousands of informants in Gaza to gain information needed to locate and eliminate senior Hamas officials and terror infrastructure.”⁶² At the same time, there are some indications that in recent years, Israel may have increased its reliance on technical means,⁶³ and that the overall quality of intelligence collection on Hamas’ intentions has declined.⁶⁴ As Avner Barnea puts it, “the capability of the ISA [i.e., the Shin Bet] to act internally in Gaza has been seriously damaged” after Israel’s disengagement from Gaza in 2005 and Hamas’ takeover in 2007.⁶⁵ While Hamas has repeatedly arrested and tried “collaborators” in recent years,⁶⁶ it remains unclear to what extent Israel has been able to penetrate its organizational structure.⁶⁷

Beyond HUMINT, *The New York Times* reported on October 30, 2023, that Israel had stopped monitoring Hamas hand-held radio communications about a year before the attack.⁶⁸ The impact of this decision is difficult to measure, however, as Hamas reportedly made deliberate use of wired phones in the planning stages of the attack.⁶⁹ Apparently, Hamas intended to offset Israel SIGINT capabilities by limiting the use of digital communications.⁷⁰ There is also speculation that Hamas operatives tried to deceive Israel about the group’s intentions by communicating a desire to avoid a new confrontation on channels they could assume were monitored by Israeli intelligence.⁷¹ Hamas also reportedly sought to reinforce this impression by providing Israel with information about the PIJ.⁷² In addition, there are several indications that Hamas’ efforts to gather intelligence, including through open-source information as well as cyber-attacks, have in part gone undetected.⁷³

At the same time, and notwithstanding early reporting, Israel had managed to collect some information that could have been considered indicators pointing to the attack, even if they were supposedly “weak signals.”⁷⁴ These included the annual “Strong Pillar” exercises by Hamas, PIJ, and other groups that make up the so-called “Joint Operations Room,”⁷⁵ including drills in which attacks against Israeli military structures and kidnappings were staged, as well as the digging of holes and planting of explosives along the border, as reported by female surveillance soldiers in the IDF’s Combat Intelligence Corps.⁷⁶

In addition, for more than a year before October 7, the IDF had reportedly been in possession of a document, the “Jericho Wall” file, that outlines a plan to invade Israel that largely corresponds to the October 7 events, as well as the training required to carry out such an operation.⁷⁷ A report by Channel 12 alleges the document

k For example, Brigadier General (Reserves) Nitzan Nuriel, former director of the Counter-Terrorism Bureau in the Prime Minister’s Office of Israel, told this publication in July 2022 that “by observing what’s going on right now in Gaza, the results of the last year’s operation—Guardian of the Walls—maybe we created a new level of deterrence. Based on the intelligence, and I cannot share everything with your readers, Hamas is very disturbed and it’s doing almost everything it can to avoid its organization and its supporters opening fire against us and is also preventing others from doing so. How long is it going to stay like that? I don’t know; it’s too soon to say.” See Stevie Weinberg, “CTC-ICT Focus on Israel: A View from the CT Foxhole: Brigadier General (Reserves) Nitzan Nuriel, Former Director of the Counter-Terrorism Bureau in the Prime Minister’s Office of Israel,” *CTC Sentinel* 15:7 (2022): p. 13. Also, *The New York Times* reported that Israel’s National Security Advisor Tzachi Hanegbi described Hamas as understanding “the implications of further defiance” and that unnamed intelligence officials “barely mention[ed] the challenge by Hamas,” characterizing the group as “deterred” in the week before the attack. See Ronen Bergman and Patrick Kingsley, “How Israel’s Feared Security Services Failed to Stop Hamas’s Attack,” *New York Times*, October 10, 2023.

l As Ariel Levites noted in *War on the Rocks*, “intelligence officials are reported to have concluded in the months preceding the attack that the quality of their coverage of Hamas’ intentions was slipping and required bolstering.” It is plausible that this affected HUMINT in particular. See Ariel Levite, “How was Israel Caught Off-Guard?” *War on the Rocks*, February 22, 2024.

m According to the report by *Israel Hayom*, Hamas’ Military Intelligence Department consisted of approximately 2,100 operatives and included five main areas—namely, observation, cyber, SIGINT, OSINT, and HUMINT. See Itay Ilina, “The road to Oct. 7: How Hamas got the intelligence it needed,” *Israel Hayom*, March 16, 2024.

had been seen by IDF intelligence chief MG Aharon Haliva, 8200 commander BG Yossi Sarel, Gaza Division commander BG Avi Rosenfeld, and then IDF Southern Command chief Maj. Gen. Eliezer Toledano.⁷⁸ However, it was neither shared with the IDF's top leadership nor with the top political leadership such as Prime Minister Benjamin Netanyahu, Defense Minister Yoav Gallant, or the Knesset's Foreign Affairs and Defense Committee.⁷⁹

Meanwhile, in July 2023, a non-commissioned officer in AMAN's 8200 SIGINT unit warned that a recent exercise by the group "closely followed the Jericho Wall plan, and that Hamas was building the capacity to carry it out."⁸⁰ The soldier issued additional warnings about Hamas' plans over the coming weeks.⁸¹ According to Israeli media, these warnings reportedly led to a meeting between the soldier, an intelligence officer in the IDF's Gaza Division, and others.⁸² While there was no specific information regarding time, date, and exact location, the Gaza Division subsequently prepared a document warning that Hamas was planning a large-scale invasion and intended to take up to 250 hostages.⁸³ The same noncommissioned officer from Unit 8200 sent another warning to a number of IDF officers a few days before October 7, urging them to make preparations to minimize the impact of the expected attack.⁸⁴ According to *The New York Times*, the soldier's superiors dismissed her analysis, calling the plan "aspirational," "totally imaginative," and therefore beyond Hamas' capabilities.⁸⁵ One of the former heads of Israeli military intelligence, Amos Malka, has argued that these warnings were never passed on "to the top echelons of Military Intelligence or the top political decision-makers."⁸⁶ There have been some allegations that male chauvinism may have played part in dismissing her as well as the reports of the above-mentioned surveillance soldiers.⁸⁷ However, it is possible that there was a reluctance to pass on these warnings due to an earlier warning in early 2023 of an attack that did not materialize.

Some reports indicate that Hamas had originally planned its assault for the eve of Passover but then canceled it, fearing informants in its ranks after detecting changes in the IDF's force posture,⁸⁸ thus creating a textbook case of the "warning paradox." Such a paradox occurs when an adversary calls off an attack in response to detecting action (such as raising alert levels, sending reinforcements etc.), which itself is the result of intelligence accurately determining the adversary's intention and providing timely warning.⁸⁹ In typical fashion, the IDF then dismissed the incident as a false alarm.⁹⁰

There has been additional noteworthy reporting on the warnings that went out before October 7. On the one hand, Israel apparently received alerts by Egypt's intelligence services that "something big" was about to happen, including "an apparent direct notice from

Cairo's intelligence minister" to Prime Minister Netanyahu.⁹¹⁰ It is not clear, however, that they included specific information that could be considered tactical intelligence.^p On the other hand, Channel 12 in Israel reported in January 2024 that the head of AMAN's "Devil's Advocate" or "Red Team" unit ("Ipcha Mistabra" in Hebrew), which systematically challenges prevailing assessments, issued four warnings in the three weeks before October 7 that Hamas "would soon launch a confrontation with Israel, because it identified deep processes that were fundamentally changing the strategic situation."⁹² The officer has claimed that two of his written assessments "were widely distributed among all decision-makers in the military and the political echelons."⁹³

Finally, in the late hours of October 6, 2023, Shin Bet was reportedly alerted to the activation of a large number of Israeli SIM cards in Gaza.⁹⁴ While such activations had occurred during previous Hamas training exercises, the event seemed serious enough for Shin Bet Director Ronen Bar and the top officers of the IDF's Southern Command to arrive at their respective headquarters.⁹⁵ While, reportedly, there were several situational assessments, at least one of which included IDF Chief of Staff LTG Herzi Halevi at 4 a.m. on October 7, neither Shin Bet nor AMAN were able to detect additional indicators and suspicious activities.⁹⁶ There are some indications, however, that an intelligence officer in the Southern Command tried to alert more senior military officers, including AMAN chief MG Aharon Haliva and Southern Command chief MG Yaron Finkelman, to what he recognized as "something extremely unusual going on — heightened readiness on the other side [in Gaza]."⁹⁷ Haliva at the time was on vacation in Eilat and—while being updated at 3 AM—took no part in the IDF leadership's consultations.⁹⁸ Eventually, the IDF reportedly decided to cautiously raise the alert level in the air and at sea, but not on the ground, for fear that Hamas would notice changes in the force disposition.⁹⁹ In the end, Prime Minister Netanyahu's military secretary, MG Avi Gil, was reportedly briefed on the still ambiguous situation at 6:15 AM, just 15 minutes before Hamas launched its attack.¹⁰⁰

Preliminary Lessons

Many facets of the October 7 attack and the events leading up to it will likely remain classified for decades, if not longer. Nevertheless, based on the information that has become public so far, it is possible

n Reports by *The New York Times* and *The Jerusalem Post* indicate that Israel had been aware of Hamas' invasion plans for several years. In 2016, a top-secret memorandum signed by then-Defense Minister Avigdor Liberman referenced an earlier attack plan, noting that Hamas "had purchased sophisticated weapons, GPS jammers and drones" and was looking to increase its fighting force to 40,000 by 2020. See Bergman and Goldman. According to Yonah Jeremy Bob, "Prime Minister Benjamin Netanyahu essentially presented to the Knesset State Control Committee in 2017 the threat of a Hamas invasion along the lines of the terrorist group's 'Walls of Jericho' battle plan, which Israel later intercepted." See Yonah Jeremy Bob, "Ex-IDF intel. chief: These are the failures that led to October 7," *Jerusalem Post*, April 2, 2024.

o While Netanyahu initially denied receiving such advance warning, U.S. House of Representatives Foreign Affairs Committee Chairman Michael McCaul later confirmed Israel had received them three days prior to October 7. This, in turn, was denied by Israel's National Security Advisor Hanegbi. See "Egypt warned Israel days before Hamas struck, US committee chairman says," BBC, October 12, 2023, and Jonathan Lis, "'Utterly Fake': Israel's National Security Adviser Denies Receiving Egyptian Warning of Hamas Attack," *Haaretz*, October 13, 2023.

p A report in *The Financial Times* quoted unnamed officials familiar with the matter characterizing it as "not hard intelligence about a specific attack" but instead a "general warning" that "relayed concerns that 'matters could explode because of the political and humanitarian situation in Gaza.'" See Samar Al-Atrush, "Egypt claims it warned Israel that Gaza could 'explode' before Hamas assault," *Financial Times*, October 11, 2023.

q As *The Times of Israel* noted, "Haliva was quoted as later telling those around him that, even if he had participated in the consultations, he would have concluded that it was apparently a drill and dealing with the matter could wait until the morning." See "More details unveiled of IDF intel on Oct. 7 plans, consults hours before Hamas attack," *Times of Israel*, December 5, 2023.

“Israel’s inability to detect the impending attacks was not the result of a single glaring failure but rather the result of multiple problems at different levels and across the various intelligence services and the top political and military echelons.”

to draw at least some preliminary conclusions about Israel’s intelligence failure.

First, it seems likely that Israel’s inability to detect the impending attacks was not the result of a single glaring failure but rather the result of multiple problems at different levels and across the various intelligence services and the top political and military echelons. Some of these problems may be more crucial than others, but it is likely that their combined effect caused the Hamas attack to unfold as it did. As the previous paragraphs show, failures and negligence hampered both Israel’s overall political assessment as well as collection, analysis, and dissemination at the intelligence level. Investigations in the coming months and years will scrutinize both the source of Israel’s mistaken belief in having Hamas successfully contained as well as seek to determine whether additional signals had been missed. At the same time, it also seems clear that not only Hamas’ intentions but also its capabilities were incorrectly assessed.^r The exact reasons for these misjudgments remain to be determined. Yet, in all likelihood, there will be no monocausal explanation, but instead several sources including a general underestimation of Hamas, an overestimation of Israel’s technological capabilities, or perhaps—as Amos Malka has suggested—an “obsession with the tunnel threat” that led intelligence and political officials to dismiss Hamas’ ability to launch a mass attack above ground.¹⁰¹ From an academic point of view, the October 7 attack also suggests that each of the schools of thought outlined in this article on intelligence failure offer partial but at the same time incomplete explanations.

Second, the Hamas attack on October 7 once again demonstrated how a determined non-state armed group can successfully confront a much stronger adversary, precisely because it is—and rightly so, according to objective criteria—considered to be an order of magnitude weaker. Michael Handel’s “risk paradox” thus appears to hold.¹⁰² According to Handel, the riskier a surprise attack appears to be, the quicker it will be dismissed as unlikely to occur, thus in fact becoming *less* risky and likelier to succeed.^s There are also unanswered questions about Hamas’ intelligence-gathering capabilities as well and the role of deception in the attack’s

preparations. In addition to the aforementioned intercepted communications making Hamas seem like it had a general aversion to conflict and Hamas’ reported provision of information about PIJ to Israel, there is some speculation that Hamas deliberately staged border protests in Gaza.¹⁰³ It is possible that Hamas purposefully ended these protests a week before to the attack to create a false sense of calm.^{104 t}

A third point relates to the challenges of designing effective mechanisms to prevent intelligence failure. Given Israel’s own history, the country and its intelligence services are well aware of potential weaknesses including cognitive biases and bureaucratic pathologies.¹⁰⁵ On paper, Israel has implemented several measures to reduce the likelihood of intelligence failures and challenge conventional wisdom, including the “Devil’s Advocate” unit and the “Different Opinion” mechanism, that is designed to ensure that dissenting assessments are received at higher levels, regardless of the rank of their authors.¹⁰⁶ However, the limitations of a devil’s advocate, including the fact that he or she will presumably be wrong most of the time, which in turn leads to a “routinized and ritualized” role, have long been recognized.¹⁰⁷ Similarly, implementing a speak-up culture that disregards rank and command hierarchy in a *hierarchical* organization is probably easier in theory than in practice.

This leads to a final point, made by Netanel Flamer, about the importance of humility. As he argues, no mechanism designed to prevent future failures will have the desired effect unless humility is built into the DNA of intelligence services.¹⁰⁸ This is as true for intelligence analysts as it is for outside observers who, in retrospect, tend to quickly identify “obvious” errors and omission that may have been far more ambiguous or even contradictory signals at the time. Humility also includes the recognition that even seasoned intelligence analysts can fall prey to their own blind spots and “don’t see the elephant in the room because they don’t think that there’s supposed to be an elephant in the room.”^{109 u} And finally, as Israel’s own experience shows, even deriving lessons from the past will not necessarily protect against novel incidents. The prevalence

t The violent protests along the border in mid-September 2023 coincided with the Jewish High Holidays and were organized by a previously unknown group called the “Revolutionary Youth,” which is reportedly affiliated with Hamas. By its own accounts, the group protested various topics including the treatment of security prisoners in Israel and Jewish visits to the Temple Mount. Nidal Al-Mughrabi, “Three Palestinians wounded in clashes on Israel-Gaza border, Palestinian officials say,” Reuters, September 23, 2023. Israel reacted to the protests by bringing in IDF reinforcements while also promising more entry permits for Gazan workers, the expansion of fishing zones, and more funding from Qatar. Once the group declared the protests over around September 28 (and after Hamas promised Egypt a return to order), security tensions decreased and the IDF lowered its troop presence again (although likely not below its regular strength). Some of those forces were redirected to the West Bank where Hamas may have also deliberately stoked tensions. See Itay Ilanai, “The signs were there: How the brightest minds failed to sound the alarm on the night of Oct. 7,” *Israel Hayom*, March 18, 2024.

u Miri Eisin also makes a related point regarding the attack’s “unthinkability” before the fact: “The second thing that shocked me to the core that I still can’t grasp, is the unthinkability of it. Why do I say unthinkability? I could not think of the kind of atrocities they did. As terrorism and counterterrorism experts, you have to understand the other side. You have to think like the other side. That’s part of how you counter it. But it was unthinkable. We knew atrocities were committed by ISIS against the Yazidis, yet none of us here projected that onto a potential attack. Not by Hezbollah, not by Hamas. So that’s the unthinkability.” See Morrow and Spain, p. 22.

r As Miri Eisin argued, one of the major surprises of October 7 “was the military breadth of the planning of what was a military terror attack: to simultaneously do rockets, missiles, air assaults under that cover. This is a new kind of modus operandi.” Sean Morrow and Asher Spain, “A View from the CT Foxhole: Colonel (Ret.) Miri Eisin, Director, International Institute for Counter-Terrorism (ICT),” *CTC Sentinel* 17:4 (2024): p. 22.

s In Michael Handel’s most succinct formulation, “the greater the risk, the smaller it becomes.” See Michael Handel, “The Yom Kippur War and the Inevitability of Surprise,” *International Studies Quarterly* 21:3 (1977): p. 468.

of “unavoidable cognitive trap[s],”¹¹⁰ bureaucratic deficiencies as well the often-fraught relationship between policymakers and the

intelligence community all mean that October 7 will be far from the last intelligence failure. **CTC**

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A View from the CT Foxhole: Christopher O'Leary, Former FBI Counterterrorism Senior Executive and Director of Hostage Recovery

By Brian Dodwell

Christopher O'Leary has over two decades of working on counterterrorism investigations and operations for the Federal Bureau of Investigation (FBI). Before leaving federal service, O'Leary served as the U.S. Government's Director of Hostage Rescue and Recovery, leading an interagency task force dedicated to the mission of safely bringing home Americans taken hostage abroad by a terrorist organization. He began his career with the FBI in the Minneapolis Field Office serving as a Special Agent on the Joint Terrorism Task Force (JTTF) and as an FBI SWAT Operator.

Over his career in counterterrorism, O'Leary served in numerous critical leadership roles including Supervisory Special Agent of the Al-Qaeda Squad of the New York JTTF, Unit Chief in command of the FBI's elite Counterterrorism Fly Team, Assistant Special Agent in Charge of the New York JTTF, and as a Senior Executive in the Counterterrorism Division at FBI Headquarters. O'Leary has extensive experience working on counterterrorism matters around the world with the U.S. Special Operations and Intelligence Community, as well as with Intelligence and Security Services from numerous international partners.

In addition to his time with the FBI, O'Leary also has more than 20 years of service as a United States Marine, where he attained the rank of Gunnery Sergeant.

CTC: In over two decades of service in the FBI, you had numerous significant roles in counterterrorism, from the tactical to the strategic. Was there a particular role that you found most impactful or formative in terms of your own understanding of how to combat terrorist threats? What were the most significant lessons you learned about CT in that role?

O'Leary: I would say that my time as the unit chief of the Counterterrorism Fly Team for the FBI was maybe my most meaningful and impactful to the CT fight. As you are aware, the unit formed in response to the findings of the 9/11 Commission and it's kind of a unique entity. It sits at the intersection of law enforcement investigations and operations, intelligence operations, and military operations. My time leading the men and women who compose that exceptional unit allowed me to impact investigations everywhere from the Boston bombing to the response to Benghazi to counter-ISIS operations in Syria and Iraq. So, the depth and breadth of what I was able to experience in my seven years in command of the Counterterrorism Fly Team allowed me to see terrorism at every level, from the tactical and operational level to strategy and policy making. I dealt with the White House on several occasions regarding how we were going to develop and implement policy. So, it was definitely an interesting time.

I would say the most significant lesson that I took away during

that time was to never forget the tragedy of 9/11. The terrorism threat is an enduring and ever-evolving threat. If we become complacent and we have another failure of imagination, we will get struck again. So, I was always paying attention and learning, being a lifelong student of terrorism and striving to understand the threat and ensuring that the people who I was charged with leading were also given the tools and the access to training and education so they could continue to develop their knowledge base and have the flexibility and adaptability to address any threat that popped up.

CTC: Can you talk a little bit about what makes the Fly Team different or how that experience was different than perhaps your more traditional assignments?

O'Leary: Counterterrorism Fly Team agents and intelligence analysts are no different than any other agents or analysts within the FBI. They just focus specifically on counterterrorism, and they're trained at a very high level to be able to conduct FBI investigations or operations anywhere in the world and in partnership with a variety of units or entities from across the Department of Defense, the U.S. Special Operations community, our intelligence community, and military or intelligence components from our close international partners. Counterterrorism Fly Team Special Agents all must pass a very challenging selection course and then go through an additional eight-month training pipeline. The goal is to create a kind of 'super agent' who's capable of doing anything and everything you would hope and imagine an FBI Counterterrorism Agent should be able to do. The FBI has highly specialized teams that are usually utilized for specific mission requirements, however these teams are often not suitable for deployment to high-threat environments on a moment's notice. That is where the Fly Team comes in, with the ability to deploy highly trained Counterterrorism Agents with a variety of highly specialized skill sets to any corner of the globe. This capability gives the FBI investigative reach to conduct investigations and operations from Afghanistan, to Libya, to East Africa, to Syria and Iraq, or anywhere there may be a need. While deployed, the Counterterrorism Fly Team Agents are often partnering with a unit from U.S. Special Operations, and they bring all the resources and authorities and capabilities that the FBI has with them in a two- or four-person team—whether that's conducting sensitive site exploitation, which is gathering evidence for us, ripping phones or imaging computers and exploiting them, conducting interviews and interrogations, whatever it may be—the litany of skill sets that FBI agents have, all of that is built into one small team that's forward deployed with our partners.

CTC: What would you say was the most challenging aspect of that particular job?

O'Leary: Probably maintaining the skill sets that we developed. All

the different requirements regularly have an agent deployed. They come back, and they're immediately training up in their next cycle on all of those different skill sets—everything from the tactical to the technical, to their language skills or their interview/interrogation skills, getting everything refreshed right before they go into an alert phase. So, trying to maintain the force, have their force readiness always in the forefront because we have a responsibility to be able to address a threat, but also monitoring the welfare of our agents and analysts so that they're not getting burned out over three or four or five years on the team, constantly going. Because the terrorism threat didn't abate; we were constantly sending folks from one place to the next. And it's a relatively small team, so that was really the biggest challenge. And to find people within the FBI who were capable and willing to make that sacrifice for their career, which was going to directly affect their family as well.

CTC: Your most recent position was as the Director of Hostage Rescue and Recovery for the Bureau. That's an interagency assignment and entity, I believe. I imagine that poses a different set of challenges. Can you speak to what some of the most significant ones were?

O'Leary: Much like my job commanding the Counterterrorism Fly Team, the position as Director of Hostage Recovery is, as you highlighted, a very unique billet. So, I was serving as an FBI senior executive under the Counterterrorism Division, sitting above an interagency task force, which was charged with recovering Americans taken hostage by terrorist organizations abroad. The position required myself and my team, this interagency task force, to coordinate not only the tactical responses to a hostage event, [but] we would lead the negotiations, provide support to victims and their families, engage the National Security Council and the interagency, and then, where my FBI role would come in, also deliver justice by supporting FBI investigations and preserving law enforcement prosecutions against the perpetrators.

All of those things don't naturally go together. The National Security Council is policy. DoD is tactics and operations. FBI is law enforcement and investigations. There's always going to be friction points, and each agency has their own internal priorities. Trying to create some kind of synergy of effort was probably the biggest challenge. The way I did it, I just brought in the right team. I was fortunate [that] one of my two deputies was a Special Operations colonel, so he would take the lead in dealing with the Pentagon policy and coordinating tactical response. I had also was fortunate to have a State Department Diplomatic Security Service senior executive as my other deputy, handling the diplomatic coordination and liaison with the Special Presidential Envoy for Hostage Affairs office. So, building the right team to provide us with that flexibility and connectivity to the broader interagency was probably the best approach.

One of the things we also created while we were there was this initiative called the multilateral fused response. Those of us who've been in counterterrorism and in the hostage recovery business, we all have worked pretty regularly with the interagency, really since General [Stanley] McChrystal created the 'team of teams' concept: It takes a network to defeat a network. And that's just been the norm in my career. Well, acknowledging the fact that a critical hostage crisis could happen where there are victims from multiple countries and the response could be the United States



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alongside our British counterparts or French counterparts, we needed to develop a concept where we responded with unity of effort—synchronizing our tactical response with our partners, our diplomatic engagements, our media messaging, and our negotiations, and everything else that goes into how we respond. Strangely, we actually initiated this the summer before October 7th, and as one of the last things I did in government, we actually ran an exercise in Doha, with the Qataris serving as intermediaries and negotiators. We did that in July of last year. We didn't think it was going to be something exactly like what happened in Israel on October 7th, but we were concerned that—going back to critical incidents like the *Achille Lauro* [hijacking] or TWA 847 [hijacking] or a host of other examples—we were not prepared to respond with our partners in setting some kind of standard out there. And the initiative continues now.

CTC: Given the focus internationally on hostages in the aftermath of October 7th, what are the most important variables for a government to consider when faced with a hostage crisis, specifically one presented by a terrorist actor?

O'Leary: I think the biggest thing to recognize, being a student of terrorism like yourself, is that October 7th is unfortunately going to be a reminder to our adversaries that the tactic of hostage-taking is effective. It's an asymmetric tactic; it provides the terrorist organization—in the case October 7th, Hamas—with the ability to have the leverage and give them the opportunity to endure and possibly survive this struggle with Israel. And all they have to do is survive to potentially win. So, hostage-taking in the last couple of decades, other than ISIS, has been something carried out by groups like JNIM or the Haqqani network, but it was done purposely either for monetary reward, in the case of JNIM, or with the Haqqanis where they were looking for some kind of exchange/negotiated release and that was purposeful. It wasn't traditional hostage-taking in the modern-day terrorism standard. I think Hamas has brought it back to that. And certainly, Hezbollah set a standard in the '80s

and early '90s, too. I think this is going to be a reminder that it works, and Americans and our international partners can have people exposed abroad. So we must have the ability to react either tactically in partnership with our Five Eyes partners or Five Eyes Plus partners, synchronizing our efforts—because the U.S. does not have as many forward-deployed people—and sharing information, sharing capabilities in places where maybe the French are, but the United States isn't or vice versa. Those are the things [where] we need to figure out some kind of way to support each other, to respond to these events, which inevitably are going to continue.

CTC: And because, as you so rightly said, it's seen by these organizations as being an effective tool to use, how did you balance the CT and other considerations when thinking about how to respond to these events? So, for example, you might want to respond in a certain way to meet your counterterrorism objectives, but those actions might conflict with some of the things you talked about earlier like administering justice expeditiously or a certain policy objective that the White House might have or, frankly, the desires of the family members of those taken hostage. How did you balance those potentially competing needs?

O'Leary: So, anything that I did always obviously fell under policy. What is the policy of the U.S. government and what are my authorities conducting my operations? Having said that, what's the most creative way I can solve this problem? And sometimes, it is going back to our playbook. Maybe it's a tactical response. Maybe it's using the exquisite capabilities of our Special Operations forces to gather intelligence and develop a recovery plan, or targeting the network of the terrorist enterprise and working our way in to the captors. We have done this successfully year after year to include on hostage cases that I worked as well. The biggest challenge during my tenure was the pivot away from counterterrorism and towards great power competition. And with that went resources, capabilities, and authorities, which are some of the same resources, capabilities, and authorities that you need for hostage recovery. Many of the collection capabilities have been repositioned to the South China Sea or to Ukraine or other places, so having fewer tools to conduct your operations was very difficult, especially when you're used to having all the tools that you need. That was one of the reasons that we started pivoting towards more of a partnership with our Five Eyes Plus partners, trying to combine our resources and our capabilities and our intelligence collection in different areas where we might not have the collection platforms that we're used to.

The other thing is I always looked at things [from the perspective of] what is best for the hostage. Oftentimes, family members have opinions on how they'd like to see things done. But at the end of the day, I thought the best way to support a family member and to do what's best for the hostage was focus on operational resolution of the problem. We put, during my time in the position, an emphasis on solving the problems operationally as quickly as possible, not letting them drag out and endure. So that was number one. Number two [was] bringing justice for the hostage victims and their families—identifying the people who were responsible for violating U.S. law and taking Americans hostages and bringing them to justice.

And then the third thing we put a lot of effort into was locating people that we knew were deceased, who died during captivity, and trying to bring them back and repatriate them and connect

them with their families. There were a number of efforts, a lot of them in partnership with the Department of Defense, to do that. We did successfully locate Cydney Mizell in Afghanistan after the U.S. withdrawal from that country. She was taken in 2008, and we successfully brought her home to the United States last summer and reconnected her with her family, which was one of the most challenging and important things our team was able to do.

CTC: If we can go a little bit more local, you spent much of your career protecting New York City from the terrorist threat. I would expect that operating in a complex environment like New York presents both challenges and opportunities from a CT perspective. What were some of the key aspects that we need to consider as we think about future counterterrorism in large urban environments like New York?

O'Leary: I would say the most important thing, going back to General McChrystal, was the 'team of teams' approach. [Some] background on the New York Joint Terrorism Task Force: It was founded in 1980 and essentially took 10 NYPD detectives and partnered them with 10 FBI agents, who collectively had little experience with terrorism at the time. But it was to really address what we would consider now to be a domestic terrorism threat. It was primarily [though] not exclusively FALN, which was a Puerto Rican separatist group [that] had done a string of bombings across the United States in the 1970s, to include a couple of horrific ones in New York City. And then we had some other domestic terrorism actors that perpetrated things like the Brinks armored car robbery. And so, it was recognized that this was far beyond simple crime and needed dedicated individuals to address it. The New York JTTF grew in maturity, experience, and size over time. It is now comprised of roughly 500 Counterterrorism professionals from 50 different agencies, all sitting under one umbrella, led by the FBI but with leadership from across all those other federal, state, and local agencies. And everybody works the problem together. The great thing about terrorism, if there is a great thing, [is it] unifies those practitioners to pull together and not be parochial about how we do it. That's the strength of the Joint Terrorism Task Force concept, which is why the 9/11 Commission insisted that it be spread across the United States after 9/11.

The other part of working New York City, which is also connected to the JTTF, is the multicultural nature of New York. In a big urban environment, you have people from around the world living there. Some may be U.S. citizens; some may not. That can increase the threat at times, but it also gives you access into communities and reach back into host countries that you might not otherwise get. So, having cultural expertise on the JTTF and with some of our partners from NYPD Counterterrorism and Intelligence division, you have true cultural experts with linguistic skills that we can tap into. We also have sources in the communities and access to community leaders that we can reach out to that can partner with us on certain issues. All of those things are important on the international terrorism stage.

On the domestic terrorism side—and half of all FBI counterterrorism cases are domestic terrorism cases now—a large urban environment like New York City presents some challenges no different than a small town in America, just at scale. Freedom of speech and freedom of assembly, all of those things are constitutional rights that need to be protected. But your would-

be domestic terrorism actor uses those to their benefit, so trying to thread the needle on how you can identify what crosses over from freedom of speech to potential radicalization and spreading of ideology, or hate speech crossing over into threat speech and understanding how we can get after it is a challenge. And that's most recently surfaced with the protests on college campuses like Columbia and NYU and other places where people are assembling, the majority of them to support the victims in Gaza, but at the same time, there are people intermingled into those crowds that are overtly talking about supporting Hamas or Palestinian Islamic Jihad or others. And that becomes a challenge to try to identify those people and excise them out of those larger crowds.

CTC: Is there a particular case that you can talk about that was a good example of the type of cooperation and interagency coordination that you described?

O'Leary: I would say the response to the attack on the U.S. mission in Benghazi. Just [as] background, after the attack happened in September of 2012, I was fairly new to the Counterterrorism Fly Team—had only just gotten settled—and a U.S. Special Operations Force was alerted to immediately respond. I led a small, handpicked FBI detachment that responded with them and went into Benghazi, collected evidence, documented the crime scene, gathered information on what had happened, and unfortunately found out that four Americans had died. We brought everything back to the United States and started the investigation, which fell under the New York Joint Terrorism Task Force—which I had just left, running an al-Qa`ida squad there. Because the New York JTTF has extraterritorial jurisdiction for Africa, they led the investigation.

Over time, in partnership with the interagency, the JTTF investigation, and the sharing of information and intelligence, we were able to illuminate the network of people involved in the attack on Benghazi and identify those culpable for the deaths of the U.S. ambassador and the other three American victims. We were then able to start tracking some of these individuals and, over the period of the next couple of years, we conducted two separate joint operations back into Libya with an arrest warrant to take custody of these individuals and bring them back to the United States to face prosecution. So, the combining of resources, capabilities, authorities, information, and intelligence, and the emphasis on partnerships is what's critical because in order to conduct these capture operations, FBI personnel went back into Libya with Special Operations forces to affect an arrest of these individuals. Then we took them out to a U.S. Navy ship and brought them back to the United States to face prosecution. Both prosecutions were successful, and both individuals who were captured [and] prosecuted will serve the rest of their life in jail for carrying out terrorist attacks and killing Americans. The only way that was successful was because of that 'team of teams' approach and the emphasis on partnership.

CTC: As you talked about before, we've transitioned into a period where counterterrorism has taken more of a back seat to strategic competition, given the change in our national defense strategy and broader policy decisions. Given that, the necessity of this team approach seems to be even more important. So, as we think about counterterrorism moving forward, what, in your experience, does it take to operate effectively in those team

situations? Is there something specific about how you interact in or approach those environments that would be particularly important to think about?

O'Leary: I would say, bringing capabilities that somebody else does not have. If you're partnering with U.S. Special Operations forces, which I did quite a bit of over the years, they don't need additional tactical capabilities as they have that thoroughly handled. You of course have to have the requisite tactical skills to be alongside them, but they don't need somebody else to be able to clear a room for them. They need somebody who's capable of conducting FBI investigations and operations. So, bringing something that's value-added to the network that's out there is key. As is a willingness to work with anyone, to partner with anyone, because your goal is to conduct counterterrorism operations, because you have an obligation to do it. It's a massive responsibility and you need to be mission-focused, so it's a mindset. And also, as you go out and partner with some very elite units, you have to bring a standard of excellence with you and the ability to adapt to any environment, exercise some initiative and problem solving to get mission success, sometimes in very austere environments, and also bring a mindset focused on resourcefulness, determination, and resilience. Terrorism investigations and operations are rarely linear and don't happen quickly. Having that creativity and that determination to see things through and have a successful end state is really what it takes.

CTC: I suspect that your comfort operating jointly, as you've talked a lot about already, especially with the military, comes in part from your background as a United States Marine. How did that service impact and prepare you for your future career in the FBI and beyond?

O'Leary: The Marine Corps gave me so much. One of the biggest things they gave me was the humility and willingness to work with anybody and a focus on service and mission success. I took being a Marine as an awesome responsibility. I took being an FBI agent as an equally awesome responsibility and my assignment working counterterrorism as being a real privilege and something that I wasn't going to be just 'pretty good' at. That standard of excellence the Marine Corps gave me that carried on with the FBI allowed me to conduct operations at a level that the American people should expect and demand to prevent the next 9/11. I also think being a Marine, you're under-resourced and you develop a certain level of adaptability to get things done no matter what, to improve your situation every day, making your investigation or your operation more developed each and every day, and having a plan to have success and have an end state. No two counterterrorism cases that I have seen are identical, and there is no simple investigative checklist to work through. As I said, CT investigations are not exactly linear in nature, so you often need to develop creative and adaptive approaches. As a counterterrorism investigator, you are really just limited by your imagination, and the four corners of the Constitution and the attorney general guidelines, but everything else within that is kind of fair game. So having the creativity to conduct an operation that is unique and that's going to have success at the end of the day—not everything's going to be a checklist. Sometimes, it's going to be a little more creative and more adaptable.

CTC: For as long as I've known you, you've always shown an interest in and a commitment to education and academic study as a means to ensure both you and your teams have a firm understanding of the adversary, its ideology, and its motivations. And in fact, you already talked about this in the context of your time with the Fly Team, in making sure your team was prepared to address the threats you faced. But can you dive a little bit deeper into why you think it's an important investment for teams like the ones you led that were directly engaged in the operational fight to gain that level of knowledge?

O'Leary: I've always felt that professional education and developing subject matter proficiency is a critical requirement for successful counterterrorism investigations and operations, and I've been extremely disappointed at the systemic deficiency to develop and deliver the level of training needed by our counterterrorism professionals. Simply put, we have failed to provide those who need the knowledge the right resources over the years. West Point CTC has been a leader in education. Unfortunately, it's not the norm, and I'd like to see it expand. If terrorism is an enduring threat, which it is, and it's still the number-one threat for the FBI, we should make sure that we're providing the resources and capabilities to those who are working it day in, day out. I just haven't seen that, and it's a critical shortfall.

And as we have pivoted towards great power competition, when you have fewer resources to array against what is an entrenched adversary and an enduring threat, the way you counter that is [by] professionalizing your force. And we need to really take that seriously. I look at individuals like [RAND terrorism specialist] Brian Jenkins who we had the opportunity to spend some time with just a few weeks back. With five decades of experience researching terrorism and political violence, Brian Jenkins is a true counterterrorism expert. A lot of people like to assign themselves that title. Very few of them are. Brian Jenkins would not call himself a terrorism expert. At the conference we were just at together, he spent all day, every day there. And he was actually taking notes because he knows that things are constantly changing, and there's too much to know in this space. And he never wanted to be just 'pretty good' at his job. And I never wanted to be just 'pretty good' at my job. I read incessantly on it, and it's been a point of friction with friends and family that I read nothing other than books about terrorism and political violence. It's because that's my profession. It's my vocation, and I wanted to understand it as deeply as I could.

There are lessons to be learned in history. For example, going back to reading about the Orsini bomb being developed and used by Anarchists against Napoleon III in 1858, and how that that capability spread bombings across the anarchist community as a tool, and spread to the People's Will in Russia who successfully assassinated Tsar Alexander II. Studying how this simple utilitarian explosive device and the effective use of violence to effect political change spread across Europe and eventually made it way to U.S. is important to understand. Learning how terrorism and political violence develops and spreads is essential knowledge for any counterterrorism professional. Understanding how terrorism moved into the modern era and the eventual emergence of groups like al-Qa`ida, ISIS, Hezbollah, and Hamas all started with post-World War II and "the right to self-determination." CT professionals who possess this historical knowledge and research curiosity were not surprised when October 7th happened and people were shocked

about the gliders. Like many other counterterrorism researchers and professionals, I quickly remembered that, 'Oh no, it's not the first time that gliders have been used. PFLP used them a couple of times back in the 1980s, and it was a huge embarrassment to the IDF back then.' What's the saying?: If we don't learn from history and learn from our mistakes, we are doomed to repeat them. History repeats itself. We should learn, and I think we're going to see another cyclical effect with terrorism. October 7th has unfortunately demonstrated that hostage-taking works, and terrorism as a tactic works. Hamas was more or less a local movement on October 6, 2023, and now the Palestinian cause is a global movement once again. So, my concern as 9/11 becomes more distant in our rearview mirror, and we pivot towards great power competition, our terrorist adversaries are looking at Hamas' recent success and are being inspired by it. Make no mistake, ISIS is surviving and enduring, and we're going to see a reemergence likely from them. Al-Qa`ida, which almost nobody outside the CT community talks about, was roughly 500 members before September 11th, mostly relegated to Afghanistan, but has swelled its ranks to many times that size and is in two dozen countries around the world now. So, despite our over two decades of fighting terrorism, the problem is worse not better. To succeed in our mission requires generational commitment from leadership and dedicated counterterrorism practitioners studying the problem, learning from it, and trying to develop policies and strategies that are effective and capable for the long term.

CTC: Learning from our adversaries is critical, as you pointed out. Given your experiences with the Fly Team and elsewhere, you've had the opportunity to have a number of face-to-face experiences with some of these individuals. Are there any particular interactions that you found the most surprising or perhaps the most impactful in terms of understanding who these adversaries are?

O'Leary: I've had the unique opportunity to be face-to-face with quite a few high-profile terrorists, but I've also talked to and conducted interviews and interrogations of foot soldiers from al-Qa`ida and ISIS and others, and domestic terrorism actors as well. I think the one thing I take away is you can't paint ideology with broad brushstrokes. Back in the day when it was smaller and stricter, it took some time to become a member of al-Qa`ida. You [had to] really embrace the ideology, and you were vetted. Not that everybody in al-Qa`ida was exactly the same, but a majority of them embraced a certain ideology. That has definitely been diluted over time. They're much bigger. Somebody from JNIM, their ideology is very watered down compared to an old school member of al-Qa`ida from back in the day that grew out of Egyptian Islamic Jihad or something else.

ISIS was interesting in terms of understanding motivations and ideology. No two people that I interviewed traveled to Syria and Iraq for the same reasons. Some were hardcore Islamists who believed in a *takfiri* ideology, but others were opportunists. Some were looking for empowerment, a club patch, to belong to something. Some were looking for a wife or a job. Some were adventurers and some homicidal maniacs and everything in between. So, not all of them were alike. And members of ISIS are drastically different from members of Hamas.

Then on the domestic terrorism problem, you have everything from accelerationists—you know, folks from the Atomwaffen

Division who want to bring the downfall of society—to people from the militia movements or patriot movements who, if you trace back the history of those movements, some of them grew out of legitimate grievances against the government that snowballed over time.

Understanding why people are frustrated, what their grievances [are], what are the push-pull factors that are leading to their radicalization and mobilization towards violence is the key towards countering terrorism and political violence, and that's the thing that I've been trying to get after over the years. The hardcore extremists, you're really never going to be able to break through to them, but there are plenty of people left of that who are on different levels of the ideological spectrum. Understanding what that grievance is and addressing it without a heavy-handed governmental response is a more effective counterterrorism approach than looking at everybody who's a member of a particular group as a nail and we're the hammer all the time. We have to be smarter about our approach to counterterrorism. If we look at everything tactically, with a military response, the problem's going to get worse, not better.

CTC: We've spoken a lot about your past experiences in counterterrorism, but as we look to the future, how do you think the CT fight has changed or is changing as we get further away from seminal events like 9/11 and deeper into what is perhaps a more complex international security situation?

O'Leary: I think as we have recalled a lot of our forward-deployed CT forces it will have a measurable negative impact on many of the partnerships that we built and developed and sustained for a long time. In our absence, our partners' ability to conduct unilateral CT operations will be challenged and our relationship with them will become strained at the very time when we need more reliance on some of those partners. So, you should look at CT strategy in partnership with great power competition and reinvest in our critical partners. [There are] some regions around the world that you can look at—the Sahel is one of them, but certainly the Middle East right now with what's going on there as well—that are spiraling out of control. To create regional stability, creating functional CT partners that can maintain their own security and stability is really what we want so that the U.S. can have some level of retrenchment. But we went from handling all the CT threats around the world to rapidly withdrawing with no transition plan. That quick pivot from CT-focused to GPC left a void that was going to be filled by someone. And we saw that happen in Mali, and you can see the instability in the Sahel and the growth of JNIM and ISIS-GS because of that. After the U.S. and France retrograded, Russia's Wagner PMC pushed in there, and there are functionally no constraints on what JNIM and ISIS are doing. They're spreading like wildfire. The Sahel is particularly concerning because terrorist organizations historically flourish in locations that have failed or semi-failed states and ungoverned space, and that defines the Sahel. There's nothing countering that right now and no way to push back in. Wagner obviously is not going to be an effective stabilizing force.

So, the U.S. can look at those things and come up with a different approach. We have plenty of resources to have an effective counterterrorism strategy, but we have traditionally looked at it in almost that tactical lens only. We need to create an interagency approach where we are effectively synchronizing multiple effects from across the U.S. government. Things like aid from USAID, training from State Department ATA, investigative support and

mentorship from the FBI and DOJ, Department of Defense Special Forces advising and assisting, and so on—all those things we have in our toolkit, but I've never seen them synchronized well.

It's the idea of smart power: still having military and tactical capabilities, but really bringing—and I hate to use the term because it's somewhat a dirty word at times—a whole-of-government approach. For a country that developed and enacted the Marshall Plan, we can do this. We can create stability and security and governance and fight back the spread of extremism, *and* in the new Cold War fight back great power competitors at the same time. We have done that before. Counterterrorism and great power competition and a synchronized interagency approach, that kind of defines what we did in the '60s, '70s, and '80s as a country. Just go back, dust off that playbook, somebody like Brian Jenkins probably still has it because he wrote it.

CTC: I also wonder about the role of technology in all of this, both in terms of how we can make better use of technology to address some of the issues you're talking about, but also how we handle our adversaries' innovative use of technology to achieve their objectives. What are your thoughts on how we address the technological aspect of this?

O'Leary: I'd say, fighting off complacency and not running counterterrorism investigations the way we ran them in the past, and understanding that new technologies [are] developing every day. Our adversaries are innovative and adaptive. October 7th took Israel by surprise because they underestimated the ingenuity and innovative mindset of their adversary; they underestimated them.

We have to understand what their capabilities are, and understand the spread of technology, things of concern like 3D printing and AI. We have to figure out ways to counter them. On the domestic threat, we also need to really think about laws and policies that don't infringe upon constitutionally protected rights, but close loopholes that allow individuals who are members of Atomwaffen Division or other extremist groups to build ghost guns like it's a routine thing. A lot of these extremist organizations never need to walk into a gun store to buy a legal firearm. They have the capability to make it themselves, either through ghost guns or 3D printing, so being able to counter that I think is important. But because we're an interconnected, globalized world, you could have somebody sitting in one country printing a 3D component for a firearm or drone for somebody half the world away.

We need to bring together CT professionals and folks from technology industries and come up with solutions to some of these problems, because again, one of the unifying things with counterterrorism is, in my experience, everybody usually pulls together to solve problems, whether from different agencies, from our international partners, or the public-private partnership, which I think is one of the places we need to go. We've had very good partnerships with a lot of the social media and Silicon Valley giants. Some of it has been challenging at times, but for the most part they've been very good partners. But there's a lot more that we need to do together, and we also have to figure out ways to attack some of the other, more nefarious social media platforms like Telegram and Gab and 4Chan and some of the others. Because these are platforms that people gather on, they recruit, they radicalize, they come up with operational plans and there's no absolute way to counter all of these right now, other than trying to have our own people in some of

these chat rooms, and the bandwidth problem of that alone would make it impossible.

CTC: As we think about how to prevent acts of terrorism in this environment, are there any key variables or key lessons that you think we are missing or not talking about enough?

O'Leary: The big thing is that we've had a singular approach in many ways over the last couple of decades, which has been very tactically focused and military-led, which is an important component, but we've been trying to attack terrorism head on militarily in conflict zones. And then when the threat has spread outside of those conflict zones, we've been somewhat anemic in addressing it. We've used law enforcement tools at times, but it has not been effective to the scale that we need it to be. So, I would say focusing on the things that have worked and the interagency approach is critical here in the United States. And then we need a partnered approach with our key allies, supporting and enabling other countries to address the terrorism threat in their own country without us forward-deploying massive resources.

We're not going to solve terrorism. The title of the Global War on Terrorism is somewhat a misnomer. Terrorism is a tactic of violence and an enduring problem. So, we need to develop a strategy and policies that can mitigate the threat, preventing the next 9/11, but can be adjusted over time and sustained over time without costing U.S. taxpayers a fortune. We have to strike the balance. And we also need to develop clearly defined policies. The current U.S. policy against international terrorism is kind of loosely defined, whereas in the past it was very well-structured. The Biden administration has put out a domestic terrorism policy, but I would hope to see whoever steps into the White House refocus on our transnational threat as well, and develop a very defined policy with the right authorities spelled out on how and why we have to continue to address the threat. Because if we become complacent, we will absolutely have another tragic event, whether it's another USS Cole bombing, East Africa embassy bombing, Benghazi attack, Boston Bombing, or another 9/11. Violence will come to us if we let down our guard. Our adversaries are intent on using terrorism to do us harm, and we must remain committed to stopping them. **CTC**

A Draw Is a Win: The Houthis After One Year of War

By Michael Knights

The Iran-backed Houthi movement has delivered a strong military performance in the year of anti-Israel and anti-shipping warfare since October 2023. They seem to be aiming to be the ‘first in, last out,’ meaning the first to cross key thresholds during the war (for instance, attack Israel’s major cities) and the last to stop fighting (refusing to be deterred by Israeli or Anglo-American strikes inside Yemen). Facing weak domestic opposition and arguably strengthening their maritime line of supply to Iran, the Houthis are stronger, more technically proficient, and more prominent members of the Axis of Resistance than they were at the war’s outset. The Houthis can now exploit new opportunities by cooperating with other Axis of Resistance players in Iraq as well as with Russia, and they could offer Yemen as a platform from which Iran can deploy advanced weapons against Israel and the West without drawing direct retaliation.

In the year since the October 7, 2023, atrocities, Yemen’s Houthi movement^{1a} is arguably (in the author’s view) the “Axis of Resistance”² member that has gained the most newfound recognition on the global stage. It was the Houthis who committed most quickly to support Hamas after October 7, including their dramatic October 31, 2023, launch of the first-ever medium-range ballistic missile (MRBM) against Israel by a member of the Axis of Resistance, Iran included.³ Among the axis, only the Houthis—formally known as Ansar Allah (Partisans of God), and (since February 17, 2024) once again sanctioned by

the United States for terrorism^b—have struck and sunk commercial ships in support of Hamas.⁴ After a year of notable setbacks for the axis—loss of terrain and leaders by Hamas,⁵ the deaths of Iranian and Iraqi commanders,⁶ an underwhelming Iranian strategic strike on Israel,⁷ heavy leadership losses for Hezbollah (including overall leader Hassan Nasrallah),⁸ and now Israeli ground incursions into Lebanon⁹—the Houthis have arguably weathered the year of war without suffering major setbacks.^c

This study aims to update the April 2024 study in *CTC Sentinel*,¹⁰ which looked in detail at the Houthi war effort against Israel, the United States, and the United Kingdom, and global shipping from October 2023 to a data cut-off of April 11, 2024.¹¹ This article also builds on two other foundational *CTC Sentinel* pieces: the September 2018 analysis¹² of the military evolution of the movement and the October 2022 study (co-authored with Adnan Jabrani and Casey Coombs)¹³ that provided an in-depth profile of the Houthi political-military leadership, its core motivations, and the considerable extent of Islamic Revolutionary Guard Corps (IRGC) and Lebanese Hezbollah influence within the movement.¹⁴

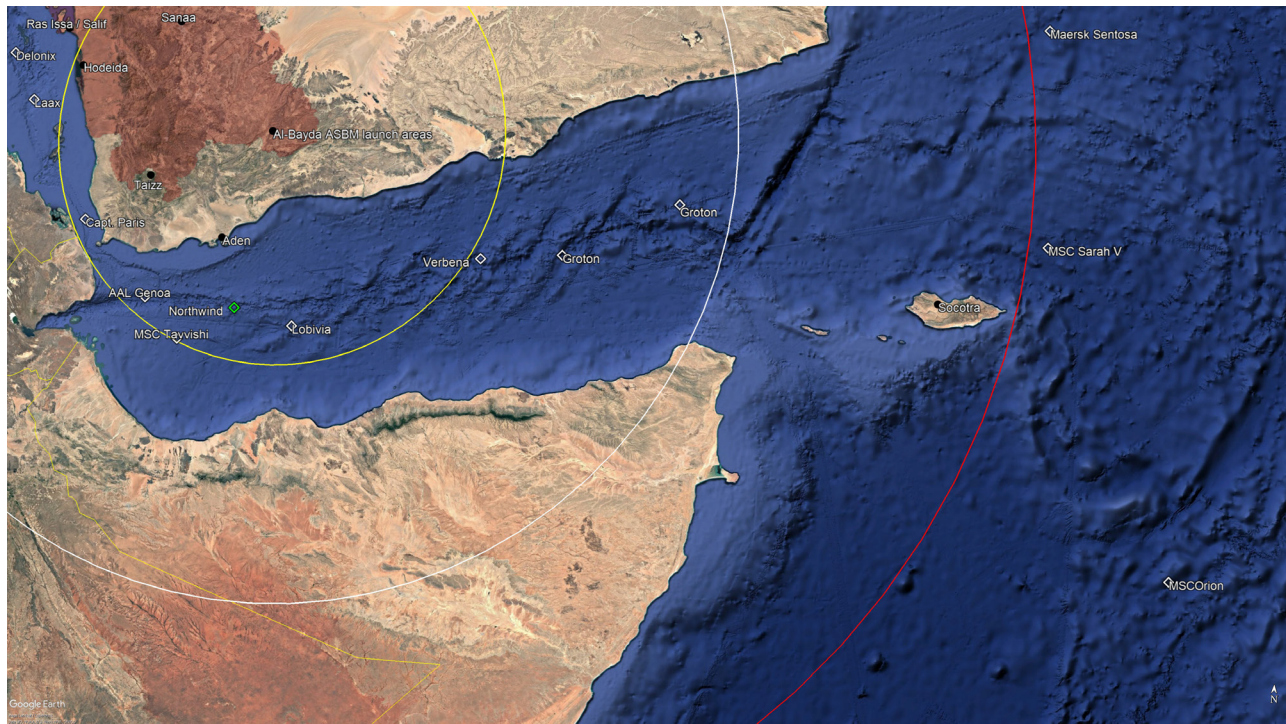
The sections below will take forward (to the time of writing (October 1, 2024, for news events, and an attack data cut-off of August 31, 2024)) the analysis of the military development of the Houthi movement. The analysis will draw on open-source reporting

a Salmoni, Loidolt, and Wells note that the Houthis are known by a variety of names: “the ‘Houthis’ (al-Houthiyyin), the ‘Houthi movement’ (al-Haraka al-Houthiya), ‘Houthist elements’ (al-‘anasir al-Houthiya), ‘Houthi supporters’ (Ansar al-Houthi), or ‘Believing Youth Elements’ (‘Anasir al-Shabab al-Mu’min).”

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- b On January 19, 2021, the outgoing Trump administration designated the Houthi organizational institution Ansar Allah as a foreign terrorist organization (FTO), a step that the Biden administration almost immediately revoked on February 16, 2021. Since then, some Houthi leaders remained covered by older sanctions (and additional Houthi military leaders continue to be added to U.S. sanctions lists) for posing a “threat to the peace, security, or stability of Yemen.” Then on January 17, 2024, the Biden administration redesignated the Houthis as a Specially Designated Global Terrorist (SDGT) entity but not as an FTO, a difference that enables easier access for humanitarian organizations and peace negotiators when the designation went into effect on February 17, 2024. For the newest SDGT designation, see “Terrorist Designation of the Houthis: Press Statement by Antony J. Blinken, Secretary of State,” U.S. Department of State, January 17, 2024. For the prior sanctions, see “Revocation of the Terrorist Designations of Ansarallah,” U.S. Department of State, February 12, 2021. The U.S. government noted: “Ansarallah leaders Abdul Malik al-Houthi, Abd al-Khaliq Badr al-Din al-Houthi, and Abdullah Yahya al-Hakim remain sanctioned under E.O. 13611 related to acts that threaten the peace, security, or stability of Yemen.” See also “Treasury Sanctions Key Military Leaders of the Ansarallah Militia in Yemen,” U.S. Department of the Treasury, March 2, 2021; “Treasury Sanctions Senior Houthi Military Official Overseeing Group’s Offensive Operations,” U.S. Department of the Treasury, May 20, 2021; and “Treasury Targets Key Houthi Finance Network in Coordination with Regional Gulf Partners,” U.S. Department of the Treasury, February 23, 2022.
- c One might look at the Israel July 20 attack on Houthi port facilities or the January 17, 2024, designation of the Houthis as a Specially Designated Global Terrorist (SDGT) entity as setbacks, but neither effort changed the Houthi behavior and the Houthis appear to have lost no senior leaders and no terrain since the war began, nor have they been notably economically damaged and the Houthi currency remains more stable than that of the internationally recognized government of Yemen. See “The Economy,” Yemen Review, April-June 2024.



This map shows a selection of ships (white diamonds) attacked by Houthi stand-off weapons (missiles and/or UAVs). The range ellipses show distances from the most easterly Houthi launch areas in Abyan, 300km in yellow, 600km in white, and 1,000km in red. Houthi anti-ship ballistic missile hits or very near misses in the 300-600km range band—such as the strikes on the Groton in August—are significant feats of marksmanship. The ships attacks farther out beyond 1,000km distance are likely to have been tracked by Houthi or Iranian vessels using radar or visual shadowing and communicating these targeting cues to long-range one-way attack UAVs capable of receiving mid-course corrections to their route planning software. (The green diamond shows the extension of Houthi integrated long-range missile/UAV strikes alongside USV/drone boat flotillas, called “complex attacks” due to the difficulty of coordinating such multi-weapon attacks.)

of Houthi military activities, which includes vast amounts of marine traffic analysis, social media, and broadcast media imagery, and U.S. and U.K. government announcements regarding military operations. The piece will also draw heavily on the collation and analysis work undertaken by Noam Raydan and Farzin Nadimi at the Washington Institute for Near East Policy’s Maritime Spotlight platform,¹⁵ which maps and analyses Houthi attacks on shipping, and the Joint Maritime Information Center (JMIC), run by the UK Maritime Trade Operations (UKMTO).¹⁶ Some data has been drawn from contacts in Western naval and intelligence services, and from contacts in Yemen with extensive on-the-ground access in Houthi-held areas.

The article starts by summarizing the trends visible in Houthi military activities in the second half of the post-October 7 period, from April to September 2024. With the broad outlines set, a detailed analysis follows. Houthi military performance will be dissected in terms of the operational tempo of Houthi attacks, the geographic reach demonstrated in Houthi strikes, and the evolution of Houthi tactics and preferred weapons systems. Special focus will be directed at the issue of why the Houthis strike the ships they do, with a view to better understanding the real level of intentionality (or otherwise) in Houthi targeting of specific vessels. The article will conclude with assessment of the impact of U.S.-led military operations to protect shipping and an update to the April 2024 *CTC Sentinel* assessment of the Houthi movement’s strengths, weaknesses, opportunities, and threats.¹⁷

Recent Trends in the Houthi War Effort

The overall trend in the Houthi war effort since the last *CTC Sentinel* analysis in April, and more broadly across the entire post-October 2024 period, has been the successful continuation and improvement of Houthi attacks on shipping and on Israel. Despite the commitment of significant U.S., European, and Indian naval forces, the Houthi anti-shipping campaign was not suspended at any point.^d Escalating U.S. and U.K. military strikes on Houthi targets in Yemen also did not end the Houthi anti-shipping campaign or even significantly reduce its operational tempo.¹⁸ If anything, in the author’s view, the Houthis have arguably improved their effectiveness and efficiency as the war has progressed, by learning lessons and taking advantage of fluctuating U.S. aircraft carrier presence in the Red Sea. In the manner of an underdog

^d There were two short pauses in Houthi anti-shipping attacks in 2024—April 9-24 and August 15-20—that are unexplained, though it is notable that these pauses coincided closely with periods of intense rain and flooding in Yemen, which tends to disrupt all military and non-military activities.

boxer trying to ‘go the distance’ to the final bell,^e the Houthis have shown resilience and resisted a superpower’s effort to suppress their anti-shipping campaign. The Houthis also weathered a heavy Israeli retaliatory strike on one of their two main port complexes and continued to attack Israel. *If*, as the April 2024 *CTC Sentinel* article assessed,¹⁹ the Houthi aim is to vault to the front ranks of the Axis of Resistance by demonstrating fearlessness and pain tolerance in support of Hamas and in opposition to Israel and the U.S.-U.K. coalition,²⁰ *then* the Houthis have succeeded. From the perspective of Ansar Allah’s leaders, in this author’s view, the Houthis may see themselves as the main winners in the post-October 2023 conflict.

As the following sections will dissect in detail, the Houthis can claim to have maintained a broadly consistent operational tempo against shipping, with an apparent surge of effort in June and July 2024—precisely at the point that the U.S.-led international effort might have hoped the Houthi arsenals would be emptying and their pace of attacks reducing.^f In this author’s view, as the below sections will outline, the resilience of Houthi domestic drone and drone boat production has been demonstrated, as has the movement’s line of supply to Iran-provided experts and resupply of irreplaceable Iran-sourced materiel.²¹ As this article evidences below, many of the Houthi’s claims—of extended-range attacks in the eastern Indian Ocean or the Mediterranean—appear unfounded and perhaps deliberately falsified, but the Houthis have nonetheless spread growing fear that they can attack shipping beyond the Red Sea and Gulf of Aden. Houthi capacity to precisely identify, find, track, and strike ships by their owner’s nationality or ties to Israel may have been greatly overstated, but there are signs that the Houthis are gradually improving their targeting effort. In the author’s view (see “Tactical Evolution” below), the tactical sophistication of Houthi attacks is also steadily increasing from a very low initial base, aided by their ability to operate small boat flotillas in close proximity to the Red Sea and Gulf of Aden shipping lanes.

Updating the SWOT analysis (strengths, weaknesses, opportunities, threats) from the April 2024 *CTC Sentinel* article,²² it is sobering to note that assessed Houthi weaknesses—such as the technical deficiencies of their anti-shipping attacks and air defenses—may be less apparent now. Other exploitable Houthi weaknesses, such as their extended maritime line of supply to Iran and related smuggling networks, have not yet been effectively addressed by their adversaries. Regarding potential threats facing the Houthis, Iran has not been effectively levered into making the Houthis cease their attacks; nor has more united Yemeni opposition been aided to present a more urgent land warfare threat to the Houthis that might divert effort and attention from anti-shipping operations. As a result, in this author’s view, the Houthis can look back at the last year of war with satisfaction: Their position has

strengthened, enemy countermeasures have been weathered, and they have no imminent threats on the horizon. This strongly suggests that the Houthis will sustain their anti-shipping and anti-Israel attacks as long as a Gaza and/or Lebanon war continues, if not beyond.

Operational Tempo and Geographic Reach

The Houthi military campaign has gone through some distinct stages since October 2023, often (but not always) reflected in the “phases” announced by Houthi leader Abdul Malik al-Houthi.^g The key trend has been a Houthi effort to sustain or increase their attacks on shipping and on Israel proper, despite obstacles such as U.S./U.K. airstrikes on launchers or the declining number of shippers using the Red Sea and Gulf of Aden.^h The liberal Houthi claiming policy, which either accidentally or deliberately appears to claim attacks that have not happened,ⁱ hints at their desire to maximize the apparent tempo, reach, and impact of their attacks. With a strong historic focus on propaganda operations, causing the impression of attacks may be as useful to the Houthis as the number of real attacks itself.^j

Assessing how many attacks the Houthis have sent into the shipping lanes is an imprecise art because one must factor in both proven and strongly suspected completed attacks (evidenced by hits or near-misses on ships)²³ but also strongly suspected un-completed attacks (evidenced by the interception of inbound attacks by naval

^e It is hard not to think of the movie boxer “Rocky” when looking at the fighting characteristics of the Houthis. Though this is charitable in the extreme—and does not reflect a sympathy for the Houthis—it is useful to view the Houthis in the Gaza war as an underdog boxer taking on much stronger opponents, whose aim may simply be to “go the distance” by supporting Hamas and the axis of resistance until the war ends (until the bell rings). Endurance and dogged pain aversion can be said to be characteristics of both the Houthis and the apocryphal Rocky Balboa.

^f This was the hope contained in this author’s assessment in his April 2024 *CTC Sentinel* article, which envisaged a triadic mechanism—increased usage and destruction of Houthi systems, compounded by tightened interdiction—slimming down Houthi arsenals.

^g The first phase, announced on November 14, 2023, called for attacks on Israeli ships in the Red Sea and on Israel proper. See Mohammed al-Harissi, “Yemen’s Houthis vow to attack Israeli ships in Red Sea,” *National*, November 14, 2023. The second phase, announced on December 9, 2023, declared Houthi intent to attack all ships headed to Israeli ports via the Red Sea. The third phase, announced after U.S./U.K. strikes on the Houthis on January 12, 2024, called for strikes on all U.S.- and U.K.-linked ships as well. Abdul Malik’s fourth phase was announced on May 3, 2024, broadened targeting to all ships whose owners or operators have visited Israeli ports. A fifth phase announced by Abdul Malik on July 21 was unclear in its expanded aims but seemed to focus more effort on Israel proper and its Mediterranean traffic and ports.

^h Lloyd’s List traffic metrics suggest volume of shipping in the Red Sea dropped by 46 percent between November 2023 and February 2024, and has remained at these low levels since. Lloyd’s List traffic metrics similarly suggest Bab el-Mandab transits dropped by 57 percent in the same comparison and stayed at this lower level since February 2024. Maritime Spotlight data; Lloyd’s List Intelligence presentation, August 9, 2024, provided to the author.

ⁱ This study lists a number of cases in which Houthi attack claims do not appear to have been correct, notably attacks on the Mediterranean shipping and Indian Ocean vessels. Some examples cited include claimed but apparent false or at least erroneous attacks (all in 2024) on the Veracruz (April 24), MSC Vittoria 1 (May 7), Destiny (May 15), the Essex (May 23), MSC Alexandra (May 23), Minerva Antonia (May 29), Aloraiq (June 1), and Anvil Point (July 1). All the maritime attack case studies in this article draw upon the very useful Washington Institute Maritime Spotlight online tracker by Noam Raydan and Farzin Nadimi.

^j In the author’s long study of the Houthi movement since the 2000s, a recurring feature is their keen eye for propaganda operations, about which the following listed authors dedicated entire chapters in their 2010 study. See Barak Salmoni, Bryce Loidolt, and Madeleine Wells, *Regime and Periphery in Northern Yemen: The Houthi Phenomenon* (Santa Monica, CA: RAND, 2010).

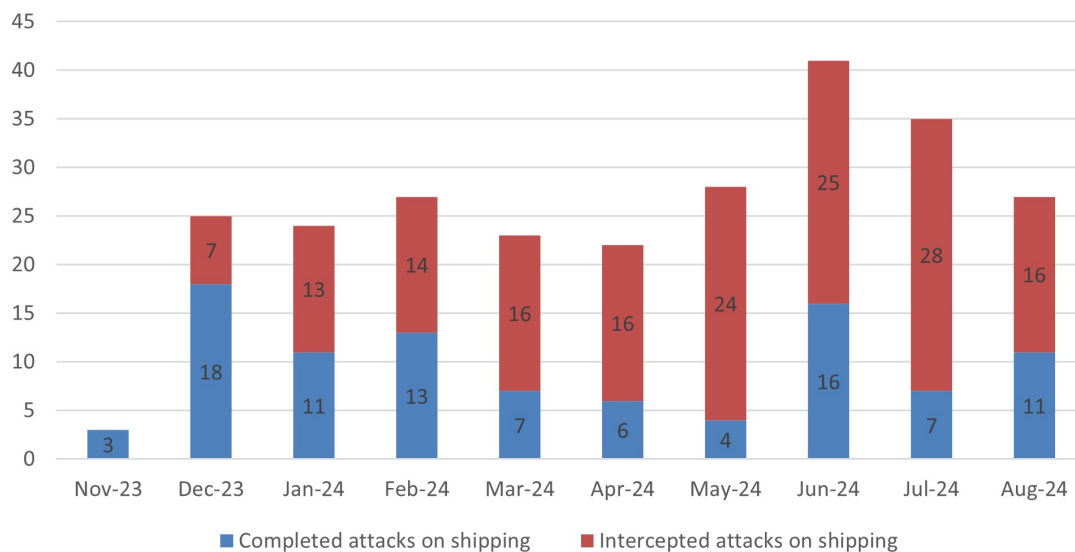


Figure 1: Houthi operational tempo against shipping

vessels in the shipping lanes).^k Most collators of attack metrics versus commercial ships (such as JMIC and Maritime Spotlight) count only completed attacks on commercial ships. By slotting together JMIC incident data and other shipping data (collated by Maritime Spotlight) with the intercept data, one can gain a fuller picture of how many attacks the Houthis actually launch.

Figure 1 includes the Maritime Spotlight-reported strikes on shipping,²⁴ fused with an additional set of intercepted attacks gathered in the author's own dataset of U.S., U.K., and European-claimed interceptions in the shipping lanes.²⁵ Even then, these composite figures are probably a slight underreporting of actual strikes, as some attacks will be missed completely by collators,^l and some attacks are disrupted in the launch phase by U.S. strikes^m in Yemen but may be confused with strikes on storage sites where the weapons are not being readied for use against shipping at that moment.ⁿ

With these caveats noted, the below statistics tell a story of

relative consistency in Houthi anti-shipping efforts, with an upward step-change of attacks in the summer of 2024.²⁶ What the chart clearly does *not* show is a steady decline in Houthi attack activity in the face of international countermeasures—even during periods of constant U.S. aircraft carrier presence in the Red Sea (November 4, 2023, to April 26, 2024, and May 6, 2024, to June 22, 2024).^o The percentage of completed attacks is 38 percent, averaged across the entire coverage period, with minimal variation across the period, suggesting a large proportion of intercepts (especially of slower-moving Houthi drones).²⁷

As well as wanting to be seen to sustain the tempo of their attacks, the Houthis also took pains to portray their geographic reach as ever-expanding. A new phase of claimed long-range strikes started in March 2024, with Houthi communiqués threatening to strike out across the Indian Ocean basin as far south as the Cape of Good Hope off South Africa.²⁸ At the start of the Gaza war, there were two anti-shipping attacks on Israel-linked vessels in the eastern Indian Ocean: drone attacks on the CMA CGM Symi (November 24, 2023) and the Chem Pluto (December 23, 2024), both of which occurred closer to India than to Yemen and which may have employed Iranian

k Operation Prosperity Guardian (OPG) also reports the interception of incoming attacks that are not counted by JMIC incident reporting. JMIC incidents are reported by shippers, who are not themselves witness to interceptions far away from their vessels. To give an example of the OPG intercept data, on September 24, 2024, a tweet released by @CENTCOM noted that “U.S. Central Command (USCENTCOM) forces successfully destroyed one Iranian-backed Houthi uncrewed aerial vehicle over the Red Sea.” See U.S. Central Command, “Sept 24 U.S. Central Command Update: In the past 24 hours, U.S. Central Command (USCENTCOM) forces successfully destroyed . . .,” X, September 24, 2024.

l If JMIC and thus Maritime Spotlight are reliant on self-reporting of attacks by shippers, it stands to reason that some attacks will be simply not detected (neither intercepted nor landing close enough to a vessel to be noticed) or simply not revealed for some reason (perhaps insurance-related).

m The United Kingdom takes part in Poseidon Archer planned joint strikes with the United States in Yemen, but it does not appear to mount preemptive ‘dynamic’ (opportunistic) strikes on launchers ashore, which are all undertaken by the United States.

n It is hard to tell sometimes whether a reported strike on a “missile launcher” is a preemptive U.S. action (as a missile is readied for launch, arguably counting as an ‘attack’) or a strike on a storage site that cannot be considered an attack by Houthi forces. In the data collation in this piece, all such marginal or inconclusive cases are not counted as an attack.

o Interestingly, the chart does appear to show a rise in Houthi attacks after the end of the extended presence of the USS Eisenhower and supporting escort vessels in the Red Sea from November 4, 2023, to April 26, 2024. The Eisenhower returned to the Red Sea for a very intense period of Houthi attacks between May 6, 2024, and June 22, 2024, and there was no apparent downturn in attacks in that period. Since June 22, as later sections will detail (see “Tactical Evolution”), the Houthis seem to have exploited the reduction of U.S. presence. See “IKE Carrier Strike Group Arrives in Middle East Region,” U.S. Naval Forces Central Command Public Affairs, November 4, 2023; Bernat Armangue and Tara Copp, “On the USS Eisenhower, 4 months of combat at sea facing Houthi missiles and a new sea threat,” Associated Press, February 15, 2024; Mallory Shelbourne, “Carrier USS Dwight D. Eisenhower Back in Red Sea, Passes 200-Day Deployment Mark,” USNI News, May 6, 2024; and “IKE Carrier Strike Group Arrives in the Eastern Mediterranean Sea,” U.S. Navy, June 24, 2024.

naval and intelligence assets rather than Houthi ones.^p Closer to Yemen, the Houthis did undertake three attacks on vessels at the eastern and southern edges of the Gulf of Aden: one near Djibouti (MSC Orion, April 26, 2024), and two east of Socotra (MSC Sarah V of June 24, 2024, and Maersk Sentosa, July 9, 2024).²⁹ A rash of claimed attacks in the eastern Indian Ocean by the Houthis appear to be erroneous or deliberately falsified.^q A concatenation of these events put a chill on Indian Ocean shipping and resulted in some shipping lines taking longer mid-ocean routes to avoid the Yemeni and Horn of African littoral.³⁰ As has often been the case, an inflated perception of Houthi capability and aggressiveness may have achieved the effect the Houthis were seeking.

Houthi Direct Attacks on Israel

Houthi attacks against Israel itself were never numerous and have become rarer as the war has dragged on. Direct Houthi attacks on Israel were most numerous in November 2023, with five attacks in that month following the first-ever MRBM attack on Israel by an 'Axis of Resistance' member on October 31, 2024. Thereafter, Houthi-claimed direct attacks on Israel averaged just three per month in December 2023 to August 2024.^r

Of these Houthi-claimed direct attacks on Israel, a large proportion (10 of 27, or 37 percent) are claimed to have originated in Iraq,³¹ where the Houthis have had an increasingly visible presence as 2024 unfolded.³² The Houthis and the Islamic Resistance in Iraq (IRI)³³ began to jointly claim attacks on Israel from June 6, 2024, onward.³⁴ The IRI is an online brand used since October 2023 to gather together and anonymize the claims of Iran-backed militants in Iraq as they attacked Israeli and U.S. targets, purportedly in connection to the Gaza war.³⁵ From June 6 to July 15, IRI and the Houthis (the latter using the moniker "Yemeni Armed Forces") jointly claimed six long-range attacks on Israel-linked ships in Israeli Mediterranean coastal waters or harbors, plus four attacks on Israeli onshore port facilities in Eilat, Haifa, and Ashdod.³⁶ These attacks appear to be servicing Abdul Malik al-Houthi's May 3 instruction to commence the fourth phase of the anti-shipping war in which any ships interacting with Israeli ports should be struck—not only those closest to the Houthis in Eilat but also those interacting with Israel's Mediterranean ports.³⁷

As is the case with more than 169 drone and missile attacks on Israeli land targets solely claimed by the IRI (at the time of writing on September 24, 2024),³⁸ it is almost impossible to verify that

these Houthi-IRI launches occurred,^s and it appears likely (based on multi-source analysis) that very few of the attacks reached Israel.^t As attacks on shipping are more likely to be reported (via systems like JMIC), it might be expected that more evidence would exist of the six Houthi-IRI-claimed long-range attacks on Israel-linked ships in Israeli Mediterranean coastal waters or harbors,^u yet these also cannot be confirmed.³⁹ An earlier set of three Houthi-claimed (i.e., without IRI) long-range strikes on Israel-linked ships in the eastern Mediterranean in the May 15–29, 2024, period also do not correspond with maritime security incident reporting, casting doubt on the fidelity of the claims.^v However, the June 30, 2024, killing of a mid-level Houthi officer (by a U.S. airstrike) at a drone or missile launch site in Iraq does lend additional credence to the claims of Houthi-IRI joint operations.⁴⁰

While Houthi attacks on Israel have been sporadic and ineffective, they have occasionally been spectacular. MRBM strikes were launched on Israel on June 3⁴¹ and July 21⁴² (both on Eilat), and September 17. The latter case was claimed by the Houthis as the first MRBM (out of seven efforts) to penetrate Israel's Arrow and Iron Dome systems,⁴³ with either a whole missile or intercepted debris falling in an area 15 kilometers from Ben Gurion airport and 25 kilometers from Tel Aviv—wounding nine people in this civilian area,⁴⁴ which neither Iran nor Hezbollah has attacked since the Gaza war started.⁴⁵ Though the MRBM was claimed to be a new "hypersonic" design by the Houthis,⁴⁶ there has been no Israeli or Western admission of a hypersonic attack, and it was more likely an extended-range supersonic MRBM such as the Houthi Burkan-3/Zulfikar.^w Since then, one more MRBM was fired by the Houthis at Israel (on September 27, 2024), again being intercepted.⁴⁷

A final notable Houthi strike on Israel was the July 19, 2024, drone attack on the center of Tel Aviv, which killed one Israeli civilian and injured at least four—once again, an action that neither Iran nor Hezbollah has dared to take since the outset of the Gaza war.⁴⁸ The drone, named Jaffa by the Houthis (the Arabic name for the Tel Aviv area) was an extended-range Iranian-made Sammad-3 drone.⁴⁹ The drone penetrated Israel's battle-tested, low-level defenses by arriving from the west, over the Mediterranean coast, after apparently having taken a very long route via the African continent.⁵⁰ U.S. and Israeli officials speaking on condition of anonymity confirmed that it traveled via Eritrea, Sudan, and Egypt,

p On November 25, 2023, the Houthis claimed to strike an Israeli-linked container ship, CMA CGM Symi, in the Indian Ocean using a one-way attack drone, over 2,200 kilometers from the nearest Houthi-controlled area in Yemen. Considering the range, targeting support from Iran (in the form of the Safir surveillance ship off the coast of India) is considered likely in this case. Details gathered from interviews with U.S. and U.K. military personnel for this study. Names of interviewees, and dates and places of interviews withheld at interviewees' request.

q These include claimed attacks (all in 2024) on the Veracruz (April 24), MSC Vittoria 1 (May 7), MSC Alexandra (May 23), Aloraiq (June 1), and Anvil Point (July 1). Maritime Spotlight data.

r This includes all Houthi-claimed attacks launched either from Yemen or Iraq, which are likely to be comprehensive as the Houthis have a strong incentive to seek credit for such attacks. These Houthi-claimed attacks do not always result in confirmation of the attacks by Israel, particularly not when they are launched from Iraq. Author's security incident dataset.

s The attack claims by IRI (including joint claims with the Houthis) often include videos of launches. The videos are not duplicated, being original each time, which is one indicator that attacks are genuinely being launched, but the lack of any supporting data means that it is still unclear whether all claimed attacks occur.

t Very few Israeli press or government communiques give any insight into whether such IRI or IRI/Houthi-claimed projectiles reach Israel.

u These are the claimed attacks on the Shorthorn Express (June 23), MSC Manazillo (June 26), Waler (June 28), the Ionnis (June 28), Lucky Sailor (July 1), and the Olvia (July 15). Maritime Spotlight data.

v These are the claimed attacks on the Destiny (May 15), the Essex (May 23), and the Minerva Antonia (May 29). The Essex, in particular, was quite far away from Israeli waters and docked at an Egyptian gas terminal at the time it was meant to be attacked near Israel. Maritime Spotlight data.

w The U.S. Defense Intelligence Agency (DIA) identified Houthi MRBMs used against Israel to be extended-range variant of the Houthi Burkan-3/Zulfikar, known in Iran as Qiam/Rezvan. See the declassified dossier "Iran: Enabling Houthi Attacks Across the Middle East," Defense Intelligence Agency, February 2024.



This map shows a selection of ships (green diamonds) attacked by Houthi forces with integrated long-range missile/UAV strikes alongside USV/drone boat flotillas, called “complex attacks” due to the difficulty of coordinating such multi-weapon attacks. These events have sunk one vessel (Tutor) and badly damaged another (Sounion). They are particularly dangerous because the Houthis use boat flotilla to maintain contact with a target vessel, allowing updated coordinates to be sent to missile and UAV attacks. These kind of “wolf pack” tactics can also allow the Houthis to re-attack drifting and abandoned vessels with additional USV strikes or even boarding parties with demolition charges. The extension of such attacks into the Gulf of Aden (see Northwind, attacked August 21, 2024) suggests that wolf packs can pass through the Bab el-Mandab and attack targets outside the Red Sea.

thus avoiding the picket line of U.S. and European air defense vessels in the Suez area, and bypassing Israel’s own main south-facing defenses.⁵¹ While the tactical surprise generated by the intricate and well-planned flightpath will be difficult to replicate, the incident demonstrated the higher-end of Houthi technical capability, potentially utilizing Iranian or Hezbollah route planning assistance, in this author’s view. In finding a new—but fleeting—way to penetrate Israeli defenses, the July 19, 2024, drone attack on Tel Aviv is reminiscent of the March 19, 2024, cruise missile strike on Eilat,⁵² another ‘first’ where successful penetration was enabled by elaborate route planning, that time via central Iraq and Jordan airspace.⁵³

Israel’s powerful counterstrike to the Tel Aviv drone attack—Operation Outstretched Arm, the July 20, 2024, destruction of a significant portion of the Houthi oil storage infrastructure at Hodeida⁵⁴—was probably painful to the Houthis, as was the September 29, 2024, follow-on strike on Hodeida and Ras Issa ports.⁵⁵ However, these blows also (in the author’s view) brought the Houthis attention and recognition as the ‘Axis of Resistance’ member hitting Israel the hardest and in the most novel and spectacular ways.⁵⁶ The July 21 Houthi MRBM strike at Israel was one immediate response to the July 20, 2024, Hodeida strike,⁵⁷ and another was Abdul Malik al-Houthi’s statement the same day that the fifth phase of Houthi military operations in the current war would involve moving “to a new level of anti-Israel operations.”⁵⁸ He added that the “Yemeni people are pleased to be in direct

confrontation with the Israeli enemy.”⁵⁹ A new September 27, 2024, MRBM strike on Israel drew a further September 29, 2024, Israeli strike on Hodeida and Ras Issa.⁶⁰

The Puzzle of Houthi Targeting Choices

Since November 2023, risk analysts, shipping companies, and insurers have all put a great deal of effort into understanding why the Houthis do or do not target vessels in the Red Sea and Gulf of Aden.⁶¹ The Houthi clearly employ a kind of elective and selective targeting because only a tiny proportion of ships using the Red Sea and Gulf of Aden have been targeted. For example, there was still an average of 852 ships a month transiting the Bab el-Mandab in February to August 2024,⁶² the level at which the Red Sea reset after an initial drop from pre-war levels of over 2,100 ship transits each month.⁶³ Of these 850-odd transits,⁶⁴ the Houthis have, in the most intense month of attacks in June 2024, completed or attempted attacks on only 4.9 percent of ships.⁶⁵ That means 95.1 percent of ships transited the Red Sea without being attacked in that month,⁶⁶ underlining the manner in which the Houthis have a very large universe of potential targets to choose from, even when the Red Sea is less busy.

How do the Houthis choose their targets out of this mass of ships? Their main source of targeting guidance is the Houthi leader Abdul Malik al-Houthi, whose announced phases of the war have tended to focus on defining the categories of ships that may be legitimately targeted; the first phase (November 14 to December

9, 2023) included Israel-linked ships in the Red Sea;⁶⁷ then the second phase (December 9, 2023, to January 12, 2024) broadened to all ships headed to Israeli ports;⁶⁸ and the third phase (January 12 to May 3, 2024) included all U.S. and U.K. ships;⁶⁹ and the fourth phase (May 3, 2024, to the time of publication) added in any ships owned or operated by companies whose vessels service Israeli ports.⁷⁰

All of these categorizations require a degree of knowledge about the ownership, management, and vessel movement and port visits of commercial shipping. This data can be gained from open-source websites, but care and experience are required to differentiate between current and outdated information. As noted by Maritime Spotlight founding editor Noam Raydan, the Houthis appear to have started the war with knowledge about shipping lines and vessels that Iran had previously linked to Israeli owners and Israeli management—and which Iran had often targeted in the Persian Gulf in the 2019–2023 period.⁷¹ To this short list, the Houthis also added new research on shipping assets linked to Israel and then (after January 12, 2024) also ships linked to the United States and the United Kingdom.⁷² In the fourth phase of anti-shipping attacks undertaken since May 3, 2024, the Houthis will have needed to try to identify vessels not directly involved in Israeli trade but owned or managed by companies and individuals with apparent business in Israel or even personal connections to Israel.⁷³ The number of vessels tangentially linked to Israel, the United States, or the United Kingdom provides a very wide set of target options.

The broadening net of targets authorized by Abdul Malik al-Houthi has also included many Russian-linked and Chinese-linked vessels.^x These great powers should, in theory, be well-positioned to negotiate safe passage due to their geopolitical alignment with the anti-Western ‘Axis of Resistance,’^y yet they have both seen their cargos and vessels attacked repeatedly.^z One reason may be the sheer availability of such targets: As the U.S. Energy Information Administration noted, nearly 74 percent of the southbound Red Sea oil traffic in the first half of 2023,⁷⁴ just before the war started, was made up of Russian oil cargos carried by the so-called “dark fleet,” often headed to East Asia.⁷⁵ As LNG tankers and major global shipping lines abandoned the lower Red Sea early in the conflict,⁷⁶ an even higher proportion of the remaining Red Sea transits was presumably (in the author’s view) made up by these smaller, cost-conscious, and risk-acceptant shippers willing to risk the journey. These same shippers have often, in the past, brought Russian oil to Israel, and are therefore perfectly valid targets from a Houthi perspective.⁷⁷

JMIC statistics suggest that 14 percent of ships attacked by the Houthis from November 19, 2023, to August 31, 2024, were

targeted because outdated ownership data triggered the extant Houthi targeting criteria.⁷⁸ In some cases vessels carrying Russian oil, notably *Andromeda Star*, have also been misidentified with consulted outdated materials as British-owned and attacked.^{aa} In other cases, Chinese-owned vessels such as the *Pumba* have been attacked after being identified as U.K.-owned by outdated ownership intelligence.^{ab}

Can the Houthis Maintain a Target Lock?

If one problem is incorrect characterization of whether a ship meets the targeting criteria, a parallel problem is whether the Houthis have a sufficiently good ability to differentiate and track targets during an attack. If they do not, then it is very possible (in the author’s view) that they may undertake attacks on a certain ship but end up striking a different one. Quite a lot of evidence supports this theory. First, JMIC statistics suggest that as high as 37 percent of ships attacked by the Houthis from November 19, 2023, to August 31, 2024, did not meet the Houthis’ own extant targeting criteria.⁷⁹ Second, the Houthis have struck Iranian ships^{ac} and vessels that had recently left Houthi ports,^{ad} or which were visiting Houthi ports,^{ae} all categories of vessel that would presumably have a lower risk of being intentionally targeted.

Third, the Houthis have frequently appeared confused about which ships they struck:^{af} for instance, claiming hits on multiple ships on July 11, 2024, with no apparent knowledge of the presence of the only actual ship struck (the Russian oil-bearing *Rostrom Stoic*), or the unwitting Houthi targeting of a Saudi tanker, *Amjad*, on September 2, 2024, which the Houthis mistook for the Russian oil-bearing *Blue Lagoon 1*.⁸⁰ Fourth, the Houthis have sometimes claimed to hit ships that are not physically present in the targeted waterway: For instance, the May 7, 2024, claim to have targeted the *MSC Michela* in the Red Sea when the ship (and indeed all *MSC* vessels) are no longer using the Red Sea, and the *Michela* was instead in the Atlantic Ocean.⁸¹

To understand how the Houthis “find, fix and finish”^{ag} a ship, once

aa *Andromeda Star* was attacked with multiple ASBMs on April 26, 2024. After the attack, Houthi spokesmen stated (incorrectly) that the vessel was attacked because it had British owners. Maritime Spotlight data.

ab The Houthis have undertaken a spate of attacks on shipping in which China has an interest, such as the *Pumba*, Chinese-owned container vessels attacked on July 20, 2024, with anti-shipping ballistic missiles (ASBMs), unmanned aerial vehicles (UAVs), and explosive unmanned surface vehicles (USVs) because the Houthis appear to have consulted outdated materials that showed the vessels as British-owned. After the attack, Houthi spokesmen stated (incorrectly) that the vessel was attacked because it had British owner. Maritime Spotlight data.

ac On February 12, 2024, the *Star Iris* cargo ship was struck by Houthi missiles while transporting corn from Brazil to Iran. Maritime Spotlight data.

ad For instance, *Cyclades* (attacked May 27, 2024) had, 12 days earlier, offloaded its cargo at the Houthi-held port of Salif. Maritime Spotlight data.

ae In one case, the *Sea Champion*, carrying grain from Argentina to the Houthi-held port of Hodeida was attacked by Houthi missiles. Maritime Spotlight data.

af Examples include erroneous claims of striking *Morea*, *Sealady*, *Maersk Hartford*, and *Alba* (all May 29); *Happy Condor* and *Stolt Sequoia* (both June 20); and *Ionnis* (June 28). Maritime Spotlight data.

ag The ‘find, fix, and finish’ targeting model refers to identifying a target (find), determining and tracking its precise location (fix), and then employing force or other effects on the target (finish). See “US Army Doctrine Reference Publication No. 3-05: Special Operations,” U.S. Department of the Army, August 31, 2012, pp. 3-11.

x As many Chinese- and Russian-linked vessels have themselves visited Israeli ports in the past.

y In the framework of great power competition, the Axis of Resistance clearly leans toward the non-U.S. bloc, led by China and Russia. In March 2023, Chinese and Russian diplomats reportedly sought Houthi guarantees that their shipping would not be hit in return for ongoing support to the Houthis in the UN Security Council. See Sam Dagher and Mohammed Hatem, “Yemen’s Houthis Tell China, Russia Their Ships Won’t Be Targeted,” Bloomberg, March 21, 2024.

z For instance, attacks (all 2024) on ships carrying Russian cargo to China include (but is not limited to): *Andromeda Star* (April 26); *Wind* (May 17); *Ula Lisbon* (June 25); *Bentley 1* and *Chios Lion* (both July 15); *Groton* (August 30); and *Blue Lagoon* (September 1).

they think they have identified a legitimate target, it is important to look at the sensors available to them. Wide-area surveillance giving a ‘common operational picture’ of what vessels are visiting the Red Sea is mostly provided by ship-based transponders, the Automatic Identification System (AIS).⁸² This system—available in simple form via non-subscription websites and in fuller form via subscription services—accurately maps all vessels in a maritime space with a velocity vector (indicating speed and heading), ship name, classification, call sign, registration numbers, and other information.⁸³ To reduce the risk of AIS being used to predict the location of a vessel (say, in the three to five minutes flight time of an Anti-Ship Ballistic Missile (ASBM) at 300 kilometers distance),⁸⁴ the UK Maritime Trade Organization advised from June 13 onward that vessels weigh the navigational and collision risks of turning their AIS off in high-threats areas of the Red Sea and Gulf of Aden, and consider turning their AIS off when under attack and altering course in order to prevent their targeting by dead reckoning (i.e., projecting their future location due to their bearing and speed).⁸⁵

AIS is likely not the only source of targeting information used by the Houthis, not least as the JMIC data shows that 13 percent of attacks have successfully struck a ship even when AIS was turned off. There are indications that long-range electronic intelligence (ELINT) is used by the Houthis to track ships, even those with their AIS transponders switched off. For example, JMIC guidance stresses the need to reduce “non-essential emissions: other than AIS such as ‘intraship UHF/VHF transmissions.’”⁸⁶ U.S. and U.K. naval officers privately confirm that the Houthis do listen in to bridge-to-bridge communications.⁸⁷ The United States and the United Kingdom seem to have tried to reduce Houthi ELINT capabilities: As noted in the April 2024 *CTC Sentinel* article,⁸⁸ the United States undertook multiple sequences of airstrikes in 2023 and 2024 on retransmission towers and GSM cell towers on high ground overlooking the Red Sea and Gulf of Aden.⁸⁹ Cellphone emissions close to shore may also be vulnerable to direction-finding,⁹⁰ not least because the Houthis control the key Yemeni telecommunications service providers, who are based in Sanaa.⁹¹ It is also possible the Houthis have found ways to subscribe to commercial services that can triangulate terrestrial radio and combine it with AIS tracking. The Houthis are known to have received so-called Virtual Radar Receivers from Iran⁹² that can create a targeting solution for aerial targets by fusing together open-source transponder and radio detection services.⁹³ ^{ah} In the author’s view, the Houthis have probably already (with Iranian help) developed similar systems to combine vessel monitoring and radio direction-finding data.

In a final addition to this sensor network, the Houthis also probably utilize close-in sensors, such as surveillance UAVs, ship-borne AIS and radio monitoring, and visual scanning from boats.⁹⁴ At the outset of the conflict, the Houthis appear to have received radar and electronic intelligence steers from Iranian vessels⁹⁵ (such as Iranian frigates purportedly undertaking counter-piracy patrols,^{ai} or various Iranian spy ships before they left the Red Sea

and Gulf of Aden by mid-April 2024).^{aj} More recently, Houthi small boat flotillas have made and sustained contact with targeted vessels, flying small UAVs near them⁹⁶ and maintaining a visual link in order to provide updated location information to long-range strike systems (like ASBMs) and to observe and correct the fall-of-shot.⁹⁷

By achieving closer shadowing of target vessels (see “Tactical Evolution” below), the Houthis appear to be reducing the time-in-flight limitation of their long-range strike systems (which can exceed 100 minutes for a drone flying 300 kilometers, during which time a ship can move by as much as 75 kilometers).⁹⁸ Houthi missiles and drones may carry terminal guidance systems—certainly semi-active radar homing for anti-ship cruise missiles (ASCMs),⁹⁹ also electro-optical cameras in UAVs,¹⁰⁰ and possibly (though this is unconfirmed) some form of guidance system in some ASBMs as well.¹⁰¹ The combination of wide-area surveillance, close-in target shadowing, and terminal guidance has allowed the Houthis to achieve some impressive feats of marksmanship, such as an apparent near-miss on a U.S. aircraft carrier^{ak} and a number of hits or very close misses by ASBMs on ships approximately 150–200 kilometers from launch points.^{al}

Tactical Evolution

The prior April 2024 *CTC Sentinel* study on the Houthi war effort in October 2023 to April 2024 provided an in-depth review of Houthi anti-shipping weapons—the Mohit and Asef ASBMs, the Al-Mandab-2 anti-ship cruise missile, a variety of fixed and delta-wing explosive-carrying UAVs, plus explosive drone boats (unmanned surface vehicles, or USVs).¹⁰² This study will not repeat the lengthy profiles of these weapons and how they have been employed by the Houthis, only insofar as their mode of employment has changed significantly since then. The April 2024 study anticipated a gradual depletion of higher-end systems like ASBMs, but this did not manifest.¹⁰³ The following chart (Figure 2) shows numbers of *projectiles* detected by the author as having been employed by the Houthis in anti-shipping attacks since the end of April 2024.¹⁰⁴ Like all attack data, this is an imprecise art and is only meant to be indicative of the number of missiles,^{am} UAVs, and USVs reported by coalition forces as intercepted during attacks, or reported by shippers impacting near or on vessels in proven attacks. Trends include the rise in attacks by explosive drone boats (USVs) in the summer; a more even spread of attack types; and a consistent

aj The Iranian spy ship Behshad left the Gulf of Aden on April 14, 2024, and has not returned. Maritime Spotlight data.

ak By some accounts, an ASBM or other missile arrived at a very shallow trajectory, with minimal warning, without a chance for interception, and splashing down around 200 meters from the Eisenhower. Details gathered from interviews with Yemen-focused U.S. and U.K. intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees’ request. The Houthis propagandized the carrier’s departure. See “America’s withdrawal from the Red Sea confirms the fall of the myth of Washington’s great power,” Sabant - Saba Agency, May 1, 2024.

al For instance: Tawishi (June 8, hit by single ASBM); Captain Paris (June 16, two within 100m); MSC Sarah V (June 24, first and only shot within 50m); Delonix (June 28, three within 200m); Bentley 1 (July 1, four under 100m ending with a hit); Groton (August 3, four within 50m, including one hit); and Groton again (August 30, two within 100m). Maritime Spotlight data.

am ASBMs and cruise missiles are placed together here due to the large number of JMIC and @CENTCOM tweets that simply state “missiles.” Taking contextual factors into account, a high proportion appear to be ASBMs.

ah Iranian-supplied VRRs provide geolocation, altitude, and even roll/track angle, heading, speed, nationality, and call signs for aircraft.

ai On June 13, 2024, the bulk freighter Verbenia was attacked with Houthi anti-ship cruise missiles while being shadowed by an Iranian frigate. Details gathered from interviews with Yemen-focused U.S. and U.K. intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees’ request.

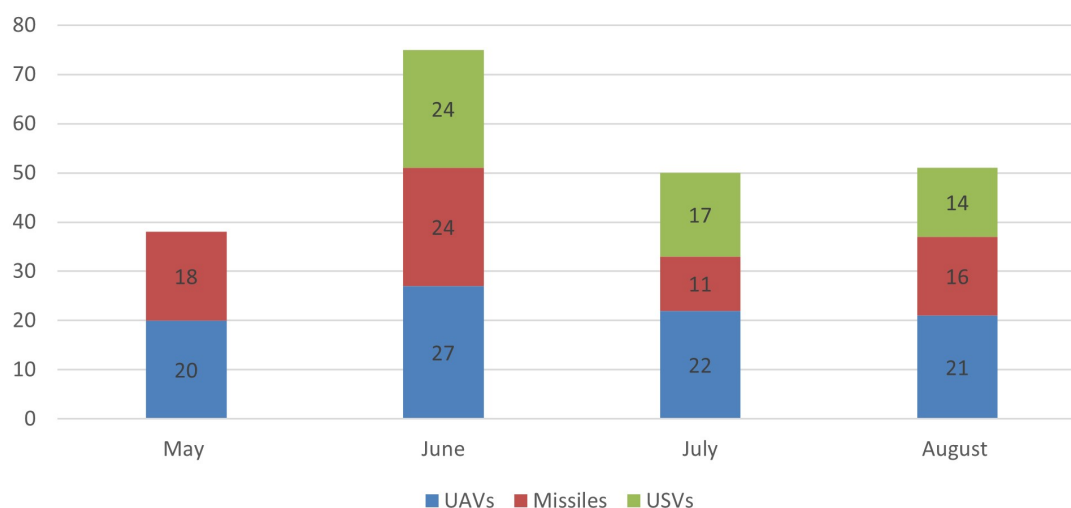


Figure 2: Houthi expenditure of anti-shipping weapons, May-August 2024

drumbeat of UAV attacks, probably reflecting the relative ease of producing such systems inside Yemen.¹⁰⁵

In qualitative terms, the main change in Houthi anti-shipping attacks was the continual refinement of tactics regarding the combination of weapons systems. Three stages of development can be observed; in each case, the tactics were first applied in the Red Sea and then were extended to the Gulf of Aden.¹⁰⁶ The stages overlap and are not exclusive—in many cases, the Houthis mixed and matched older and newer tactics—but they do seem to have unfolded as a progression to more complex operations.¹⁰⁷

Single-system stand-off. After a brief period of failing to replicate the seizure of the *Galaxy Leader*, the Houthis commenced stand-off attacks in December 2023 to late May 2024, largely using either UAVs or ASBMs or cruise missiles but not a mix.¹⁰⁸ Accurate ASBM shots became regular in the Red Sea toward the end of June 2024 and continued through mid-July.^{an} They extended into the Gulf of Aden slightly later.^{ao}

Multi-system stand-off. The Houthis appear to have begun mixing UAVs and ASBMs or other missiles in series of attacks on single vessels in the Red Sea from the end of May and into early June.^{ap} This period witnessed torturous chases in which individual vessels were bombarded with missile and drone attacks that followed them for many hours,^{aq} in one case throughout the ship's transit from the Gulf of Aden all the way to the central Red

Sea.^{ar} This kind of action gave a sense of the targets being tracked effectively and periodically targeted in a kind of 'pursuit by fire.'

All-systems, close-up, and stand-off. The third stage of development also overlapped the first two, manifesting first in the Red Sea, and was characterized by much greater involvement of Houthi small boat flotillas, typically including at least one USV.¹⁰⁹ These 'hunter-killer' packs first targeted the bulk carrier *Tutor* in the Red Sea on June 12, causing the vessel to sink on June 18, only the second ship to be sunk (at the time of publication) by the Houthis.¹¹⁰ The *Tutor* attack was notable for a successful "tail-chase" by at least one explosive drone boat that crippled the vessel,^{111 as} followed by subsequent attacks on the stranded and abandoned vessel that may have included UAVs, ASBMs, and possibly demolition charges placed by Houthis on small boats.^{at} Such wolf pack tactics—slowing or stopping the target, then maintaining contact with a wounded vessel and continuing to attack—was then replicated (albeit without new sinkings) in the Red Sea^{au} and later also the Gulf of Aden.^{av} A clear example of this tactics was the attack on the *Sounion* between August 21-23, when a determined wolf pack raked the

ar In the case of *Transworld Navigator* (June 21-23), the ship was pursued from the Gulf of Aden through the central Red Sea, probably being handed off from the Houthi launch areas in Al Bayda to those in Taizz and then to those near Hodeida. In between ASBM attacks, Houthi UAVs attacked the bridge of the vessel.

as The "tail-chase" refers to the USV tendency to detect the visual silhouette of a ship from abeam and then begin following it, resulting in a stern attack that tends to hit the propulsion area.

at One theory for why *Tutor* sank (the sinking was not witnessed) is that the vessel was finished off with limpet mines or other demolitions devices or USVs. Details gathered from interviews with Yemen-focused U.S. and U.K. intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees' request.

au Examples include *Seajoy* (June 27), *Chios Lion* (July 15), *Pumba* (July 20), *Delta Blue* (August 8), *Delta Atlantica* (August 12), and *Sounion* (August 21-22). Maritime Spotlight data.

av The key example here is *Northwind* (August 21). Maritime Spotlight data. As the Houthis have no naval bases in the Gulf of Aden, this suggests either very long-range flotilla patrols that transit the Bab el-Mandab, or flotillas based in the Gulf of Aden or on coastlines in the Horn of Africa.

an Notable Red Sea long-range attacks included *Deconix* (June 28, five ASBMs), *Rostrum* (June 11, five ASBMs), and *Bentley 1* (July 11, five ASBMs). Maritime Spotlight data.

ao Notable Gulf of Aden long-range attacks included *Maersk Sentosa* (July 7) and *Lobivia* (July 19, two ASBM hits) Maritime Spotlight data.

ap Notable mixed UAV and ASBM attacks included *Laax* (May 28), *AAL Genoa* (June 6), and *Tavvishi* (June 8). Maritime Spotlight data.

aq In the case of *Cyclades* (April 29), the ship was periodically bombarded in the Red Sea over a seven-hour period with a mix of UAVs and ASBMs. Maritime Spotlight data.

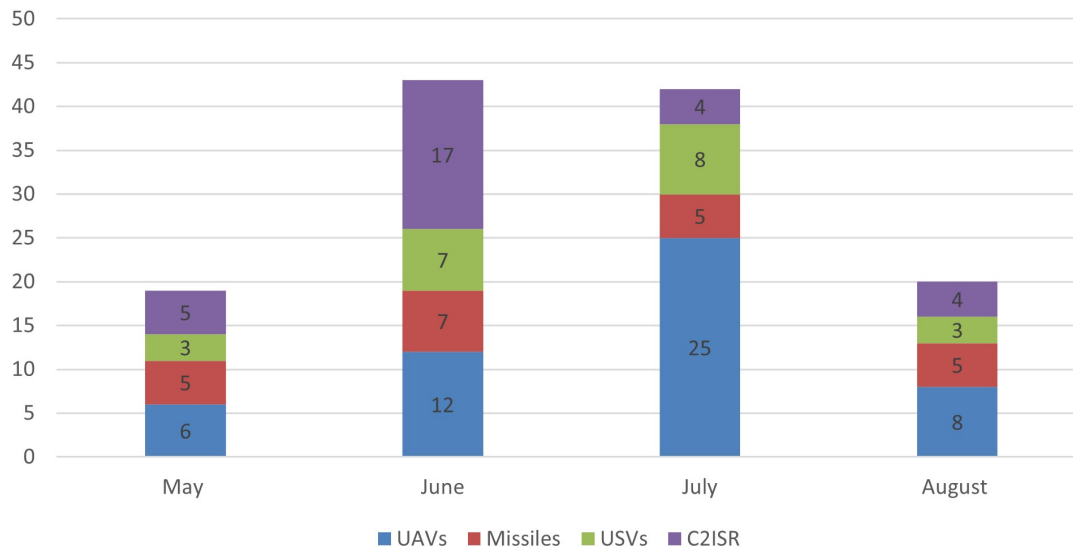


Figure 3: U.S.-U.K. strikes inside Yemen, May-August 2024

vessel with close-in medium weapons fire^{aw} from small craft and detonated at least one USV or missile near enough to the ship to cause it to lose power.¹¹² While evacuating the crew, a coalition naval vessel destroyed another nearby USV. Days later, while adrift and unguarded, the Sounion was boarded by Houthi commandos who set barrels of explosive on the deck and detonated them in a vivid videoed propaganda attack that demonstrated almost complete Houthi freedom of action.¹¹³

As the author's April 2024 *CTC Sentinel* article noted, the Houthis were extensively drilling their fast attack boat and USV flotilla between early August 2023 and the outset of the Gaza war in October,¹¹⁴ probably related to rising U.S.-Iran naval tensions in the Arabian Gulf, where Iran had made six attacks on Israeli or U.S.-linked vessels between February and July 2023.^{ax} In a sense, the Houthi anti-shipping campaign has returned to its roots—albeit now with ASBMs and other weapons incorporated into the attacks of these wolf packs.¹¹⁵ Houthi naval commander Brigadier General Mansour al-Saadi had boasted in mid-December that around 80 such USVs had been stockpiled,¹¹⁶ and this author's April 2024 report noted that very few of these had been used at that time, but many have been subsequently employed in June-August 2024.¹¹⁷ The Houthi flotilla utilizes fishing boats, islands, and even foreign coastlines (in Sudan, Eritrea, and Somalia) as sustainment hubs,¹¹⁸ exploiting restrictive coalition rules of engagement to merge within civilian traffic.¹¹⁹ The Houthi flotilla has employed tactical drones, electronic intelligence-gathering equipment, and AIS trackers to shadow and report on target ships,¹²⁰ with periodic reports of them approaching or hailing vessels to confirm their identity.¹²¹ Houthi flotilla are very rarely attacked and do not appear to suffer

communication problems with the mainland.¹²² This would seem (in the author's view) to be from the Houthi perspective an ideal combination of forward observation and close-in attack options, backed-up by long-range strike capabilities that can now be assured of updated information on ship locations.

The Balance Sheet Between the Houthi and U.S. Efforts

Operations Prosperity Guardian (the U.S.-led escort and interception effort),¹²³ Aspides (the E.U. equivalent),¹²⁴ and Poseidon Archer (U.S.-U.K. airstrikes inside Houthi-held Yemen)¹²⁵ have been marked by undoubted feats of valor, endurance, and professionalism. For U.S., U.K., and E.U. naval forces, these operations arguably (in the view of the author) represent the most intense maritime trial-by-fire since conflicts like the Iran-Iraq War and the Falklands.^{ay} Operating for extended periods in an unforgiving, high-threat engagement zone, the U.S. and partner navies have been fortunate not to have suffered a serious missile impact so far, and there have been near-misses.^{az} (As recently as September 27, Houthis forces appear to have fired a salvo of cruise missiles and drones at or near a cluster of U.S. military vessels, albeit with all the unspecified number of munitions being intercepted.¹²⁶) The Houthis (and the broader Axis of Resistance) might achieve a significant propaganda boon if a U.S. vessel were badly damaged or sunk, and even the withdrawal of a U.S. carrier battle group from the Red Sea was loudly trumpeted by the Houthis as a victory. In the sphere of air defense, the Houthis have not come close to

^{aw} This probably included rocket-propelled grenades and heavy machine-guns. Details gathered from interviews with Yemen-focused U.S. and U.K. intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees' request.

^{ax} This included three successful seizures of vessels by Islamic Revolutionary Guard Corps Navy (IRGC-N) forces and two failed efforts to undertake visit, board, search, and seizure (VBSS) operations against U.S.-linked ships. Maritime Spotlight data.

^{ay} Nick Childs of the International Institute for Strategic Studies made a similar point, noting at the very outset of the conflict that "events in the Red Sea have represented the most intense air defence action that any navy has faced probably since the 1982 Falklands War." Nick Childs, "Red Sea challenges give naval planners more to ponder about future warfare," IISS, January 31, 2024.

^{az} In addition to a strongly rumored near-miss on the USS Eisenhower in June 2024, the USS Gravelly also appears to have had a close call, with an enemy missile eluding two layers of defense and only being intercepted by the ship's last-line-of-defense Close-In Weapons System. Geoff Ziezulewicz, "A Houthi missile got within a nautical mile of USS Gravelly on Tuesday," *Navy Times*, February 1, 2024.

“Freedom of safe navigation has clearly not been restored by the efforts of international navies, respectable shippers have not been assured, and Houthi attacks are not deterred.”

threatening U.S.-manned aircraft, but they have taken a heavy toll on the U.S. drone fleet, destroying at least nine MQ-9 Reapers between November 8, 2023, and October 1, 2024.^{ba}

The United States and partner forces in the Red Sea and Gulf of Aden have clearly reduced the damage that the Houthis could do to global shipping, as evidenced by an assessed 62 percent interception rate shown in Figure 1 of this study. In addition to interception of launched attacks, the U.S.-U.K. air campaign over Yemen has undoubtedly limited Houthi capabilities to find and fix commercial ships—for instance, a determined effort to blind the Houthi targeting system with intensified strikes on Command, Control, Communications, Computers, Intelligence, Surveillance and Reconnaissance (C4ISR) in June 2024.^{bb}

However, the reduction of U.S. naval presence in the Red Sea, particularly the withdrawal of the U.S. aircraft carrier USS Eisenhower in late June, has arguably opened up the space needed for the Houthis to redeploy their small boat flotillas and recommence more effective wolf pack tactics.¹²⁷ Of note, naval assets do not appear to have been sufficient to guard the Tutor and the Sounion after they lost power and were abandoned,¹²⁸ allowing the Houthis to access these stricken ships. Houthi attack patterns in June and July appeared to show greater freedom of movement for their small boat and USV flotillas and an enhanced ability to follow and repeatedly attack ships.¹²⁹ In sum, in the view of the author, freedom of safe navigation has clearly not been restored by the efforts of international navies, respectable shippers have not been assured, and Houthi attacks are not deterred.

Equally concerning, one of the greatest exploitable weaknesses of the Houthis—significant reliance on a maritime line of supply to Iran, for military resupply and for financing—has not been addressed by the international naval presence in the Red Sea. Whatever military supplies cannot be made entirely locally in Yemen—notably missile guidance, engines, fuel, warheads, and C4ISR systems¹³⁰—has to be squeezed through the Houthi Red Sea ports or smuggled overland through enemy territory controlled by Yemen’s internationally recognized government. Yet, the policing of the U.N. embargo on arms deliveries to the Houthis seems to have slackened during the current conflict, not tightened, in the author’s

view. At least six large ships have visited the Houthi-held port of Hodeida in 2024 without stopping for inspection, as required by a U.N. Security Council resolution, at the UN Verification and Inspection Mechanism (UNVIM) hub at Djibouti.¹³¹ This is unusual behavior that only started in the spring of 2024 when the war was underway.^{bc} On May 13, 2024, the U.K. representative to the United Nations, Barbara Woodward, revealed that as many as 500 truckloads of material were known to have bypassed inspections by this method.¹³² Alongside the risk of large ship transfers, which are legally difficult to interdict as they require flag-state permission to board,¹³³ there have also been a trickle of large dhows and fishing boats entering the Houthi-held inlets south and north of Hodeida (which were detailed in the April 2024 article),¹³⁴ with around 12 ships subsequently docking there in May–August 2024, according to the author’s local contacts.¹³⁵ On June 26–27, 2024, the Houthis also managed to overcome the aerial embargo by diverting a Yemenia flight to Amman so that it instead landed in Beirut, Lebanon, and returned from there to Sanaa, Yemen.¹³⁶ What all this points to is the likelihood that the Houthis have been able to sustain their operational tempo—despite increased expenditure of munitions and U.S.-U.K. strikes—because they are being resupplied at an adequate rate.

Updating the SWOT Analysis of the Houthi War Effort

The April 2024 *CTC Sentinel* study issued an assessment of the demonstrated strengths, weaknesses, opportunities, and threats facing the Houthis in the first period of their war against Israel, the United States, the United Kingdom, and global shipping. As the war turns one year old, the picture is arguably even bleaker for the forces trying to contain the Houthi threat.

The strengths shown by the Houthis are abundant and have been reinforced by events: Their pain tolerance was illustrated by their apparent insensitivity to having at least a third of their oil storage facilities destroyed by Israel on July 20, which they answered immediately by firing a ballistic missile at Israel and vowing to double their efforts to strike the Israeli state. The strategic depth of Yemen—its size and mountainous terrain—had complicated the task of finding and destroying Houthi missile and drone systems.^{bd} The weak and divided state of the anti-Houthi opposition on the Arabian Peninsula was graphically underlined when a promising Yemeni government economic warfare effort from late May 2024 began to destabilize the Houthi banking system,¹³⁷ only to have the effort curtailed just days after the Houthi July 7 threat to recommence their missile and drone attacks on Saudi Arabia.¹³⁸

Some weaknesses identified in April 2024 appear to have been partially addressed by the Houthis. One senior U.S. naval officer with responsibility for the Yemen theater told the author in mid-2024, “We came to see that the Houthis are not a ragtag force: they are

ba The nine Reapers were lost on November 8, 2023; February 19, 2024; April 25, 2024; May 17, 2024; May 19, 2024; May 29, 2024; August 4, 2024; September 10, 2024; and September 16, 2024; and September 30, 2024. On the most recent incidents, see Jon Gambrell, “US military acknowledges Yemen’s Houthi rebels shot down 2 MQ-9 Reaper drones,” Associated Press, September 17, 2024; and Jon Gambrell, “Yemen’s Houthi rebels claim shooting down another US-made drone as US acknowledges losing one,” Associated Press, September 30, 2024.

bb This included numerous strikes on radar, communications, and ground control stations. Maritime Spotlight data.

bc Prior to May 2024, there are no reports from UNVIM of vessels bypassing their system. Details gathered from interviews with Yemen-focused maritime interdiction specialists for this study. Names of interviewees, and dates and places of interviews withheld at interviewees’ request.

bd Very few Houthi missile systems have been struck on the ground, in part because they can be fired from a much wider range of areas due to their short time-in-flight, while drones are limited mostly to the more open coastal plain (as they need to begin their slow flights closer to the seaplanes). In mountain launch areas such as Muyakris, Al Bayda, the Houthis have many ideal hiding spots for weapons and searchers have a great deal of ground to cover.

resourced, trained, funded, stocked, supplied, and resupplied.⁷³⁹ As noted, the Houthis line of supply to Iran has probably strengthened, with no apparent cost for bypassing a U.N. inspection regime.¹⁴⁰ As outlined above, Houthi air defenses are gradually strengthening, albeit only against drones, and the technical weakness of long-range target acquisition and tracking are arguably being mitigated with new wolf pack flotilla tactics. As one U.K. naval officer with experience of the Red Sea operations told the author: “Iran has excellent marine traffic intelligence; the Houthis don’t.”¹⁴¹ Yet, there is some evidence to suggest that the Houthis have learned how to offset this weakness and track intended targets.¹⁴² As this author noted previously, the Houthis could not operate in proximity to strong Western naval forces in the Red Sea, but the thinning out of these forces offsets the Houthi weakness in tactical proficiency. The economic weakness of the Houthi regime was briefly exploited by the Yemeni government before being abruptly turned off by Yemen’s backers—Saudi Arabia, the United Nations, and the United States.

Major opportunities now beckon for the Houthis and the ‘Axis of Resistance,’ with the Houthis arguably having delivered the best military performance of all the axis players in the current war, in the author’s view. There is strong potential for the Houthis to build on their successes in severely constricting one of the world’s busiest global chokepoints, the Bab el-Mandab. International shippers, insurers, and governments must be careful to ensure the Houthis do not learn how to effectively monetize their ability to shut the Bab el-Mandab and Suez Canal to selected nations or shipping companies, which can be levered into a lucrative extortion racket.¹⁴³ As Houthi targeting capability gets more selective, this terrorist threat finance risk may rise, unless it is actively monitored and deterred through sanctions enforcement.^{be} The caution shown toward the Houthis by international players such as Saudi Arabia^{bf} could make them more aggressive, and this tendency may deepen as the Houthis learn to threaten their way out of tight spots—for instance, using threats of infrastructure attacks to extort political concessions in peace talks^{bg} or, as was tried recently, to coerce the Yemeni government to provide oil revenues to the Houthis.^{bh}

be Counter-threat finance teams need to be on the lookout for shippers and insurers seeking to negotiate safe passage through the Red Sea from the Houthis, recognizing that this could become a lucrative source of terrorist threat finance for the Houthi movement.

bf In the view of this author, based on numerous conversations with diplomats, investors, and aid workers on the Yemen file in 2024, there is a strong argument to be made that Saudi Arabia now inadvertently enables the Houthis—providing favors (such as reduced scanning of containers headed to Houthi ports) and on-tap political influence to rein in Yemeni government actions such as the anti-Houthi economic warfare in June-July 2024. To shut down the Yemen war, an obstacle to better U.S.-Yemen relations, and to keep the investment climate clear from west coast giga-projects like Neom, the Saudis appear to be yielding to the consolidation of Houthi control in northern Yemen.

bg Note the Houthi July 7 threat to strike Saudi infrastructure, with Saudi and United Nations pressure then ending all Yemeni government economic warfare efforts in the 10 days following the threat. See “Houthis threaten Saudi Arabia with attacks on airports, oil installations,” *Arab Weekly*, July 9, 2024, and (on the collapse of the economic warfare) Robert Worth, “The Houthis’ Dream Come True,” *Atlantic*, July 14, 2024.

bh The Houthis launched three Iran-made Khatif-2 x-wing drones at the Safer oil and gas facility in Marib on August 23, 2024, probably (in the author’s assessment) to impose pressure on the Marib local authorities to share oil products and revenues with the Houthis. See “Houthis attack Safer oil facility in Marib with drones,” Marib (South 24), August 24, 2024.

The Houthis’ elevation to a top-tier member of the ‘Axis of Resistance’ presents other opportunities to the whole Iran-led bloc. Under the Houthis, Yemen has become a place from which the Iran threat network can undertake attacks on Israel that Iran itself does not dare to mount—already including ballistic missile and drone attacks on Tel Aviv.¹⁴⁴ Yemen might also be used by the axis as a way to mount attacks on other targets—such as U.S. forces—in a way that may not draw retaliation on more pain-sensitive parts of the axis—for instance, Iran. At present, the Houthis have used the boogey-man reputation of hypersonic weapons as an attention-grabber, but in the future, Yemen could be an ideal site for such weapons considering its geographic placement and its proven ability to conceal launch sites in its rugged interior.

Likewise, the expansion of Houthi presence into areas like Iraq—where a senior Houthi missileer was killed by a U.S. strike on June 30, 2024—could put Houthi strike capabilities in new areas such as Saudi Arabia’s northern border,^{bi} the Iraq-Jordanian border,^{bj} and Syria.¹⁴⁵ Where Iran and its local partners can sometimes be fearful of the consequences of striking foes such as Israel or the United States, the Houthis may be more willing. This is particularly the case as key Iranian partners like Hamas and increasingly Hezbollah face severe military pressure from Israel. It is intriguing that a more visible Houthi presence in Iraq¹⁴⁶ seemed to coincide with the first use by Iraqi groups (under the IRI umbrella) of what the Houthis call the Quds-type land attack cruise missiles (LACM), known in Iran as the 351/Paveh.^{bk} In the author’s view, it is worth investigating whether this capability entered Iraq for the first time precisely because Houthis were on-hand to help Iraqi militias open this new front using unprecedentedly advanced weapons.

The Houthi attacks in the southern Gulf of Aden—south of Socotra and toward Djibouti—hint at what expeditionary Houthi boat flotillas might accomplish one day, off the African littoral and even operating on the eastern coast of Africa in weak state environments like Sudan, al-Shabaab enclaves, and Somalia.^{bl} The Gaza war has shown that the Houthis need to undertake very few real attacks in the Indian Ocean to send a shiver through the global shipping networks. Imagine what a more effective capability could do, in the manner of the German merchant raiders that haunted the Indian Ocean in both world wars.¹⁴⁷ Addressing this threat more

bi The Houthis are reported via some contacts to be present (since the summer of 2024) in the Popular Mobilization Forces Muhandis General Company-owned and Kataib Hezbollah-controlled areas of Muthanna province. Details gathered from interviews with Iraqi intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees’ request.

bj Likewise, the Houthis are reported via some contacts to be present (since the summer of 2024) in the Popular Mobilization Forces Muhandis General Company-owned and Kataib Hezbollah-controlled areas of western Anbar province, notably the Trebil free trade zone. Details gathered from interviews with Iraqi intelligence officers for this study. Names of interviewees, and dates and places of interviews withheld at interviewees’ request.

bk The DIA assessed at least one of the launched missiles to have been an extended-range variant of the Quds, known in Iran as Project 351/Paveh. “Iran: Enabling Houthi Attacks Across the Middle East.”

bl U.S. envoy to Yemen Tim Lenderking noted on September 18, 2024: “They [the Houthis] are also partnering across ideological lines with terrorist groups like al-Shabaab in Somalia.” Quoted in “A Conversation With H.E. Mohammed A. Al-Hadhrami and Timothy A. Lenderking,” Arab Gulf States Institute in Washington, September 18, 2024.

effectively will very likely be a priority issue for U.S. policymakers in the future, and one that the intelligence community will be called upon to support with analysis.

The Houthis could also view Russian military support as an opportunity. In a recent on-the-record address in Washington, D.C., the U.S. envoy to Yemen, Tim Lenderking, was explicit about the risks of Russo-Houthi partnership, noting: “Their relationship with Russia is extremely troubling ... Russia is irritated by our strong policy on Ukraine, and they are seeking other outlets to retaliate, including in Yemen. They have been seeking to arm the Houthis, which would be a game-changer.”¹⁴⁸ Lenderking was reflecting widespread press reporting of a potential Iran-brokered Russian supply of Yakhont/P-800 Onik anti-ship cruise missiles to the Houthis, which U.S. comments were probably intended to dissuade.¹⁴⁹

Perhaps the only sharp threat facing the Houthis is the possibility that the Axis of Resistance writ large could suffer a crippling number of defeats in the current war—in Gaza, Lebanon, and elsewhere—and that Iranian and Lebanese Hezbollah support to the Houthis might not be as available in the future as it has been in the past. For instance, Hassan Nasrallah’s death¹⁵⁰ removes one of the most ardent supporters in Lebanon of the Houthi cause, potentially disrupting a key relationship and potentially focusing Hezbollah on its own internal problems. Indeed, one wonders if the abundant manpower of the Houthis could provide a source of outsider regime

security forces willing to crack down on local populations where Iran-backed groups are feeling pressure—such as Lebanon, Syria, and even Iraq or Iran.^{bm}

This underlines the unusual potential finding that Iran itself may be more vulnerable than the Houthis. As U.S. Central Command’s General Erik Kurilla told Congress on March 7, 2024, the key to suppressing Iranian partner forces like the Houthis may come in the form of pressuring Iran itself to force the axis to back down¹⁵¹—a kind of inside-out approach in which Iran uses its soft power, its ideological leadership role within the axis, to convince a Houthi ceasefire (probably temporary) in the shipping lanes. If this turns out to be true, this would suggest that it may be easier to try to threaten “the head of the octopus”¹⁵² (Iran) than to try to directly coerce its newest and most resilient and aggressive tentacle. **CTC**

bm Iran has used Iraqis to crack down on internal dissent. The Assad regime has used Lebanese, Afghan, Pakistani, and Iraqi personnel to crack down on its people in places like Aleppo. News reporting of Houthi foot soldiers being deployed to Syria might be a leading indicator of impoverished Yemeni recruits being used overseas to bolster axis member regime security. For an example of the phenomenon, see “Iran Brings in Iraqi Popular Mobilization Militias to Suppress Ahvaz Revolution,” MENA Research Center, July 27, 2021, and “Iran Reportedly Brings Iraqi Allies To Crack Down On Protests,” Iran International, November 1, 2022. For recent claims of Houthi deployments to Syria, see “The Houthis in Yemen threaten Israel with ground attacks,” Meir Amit Intelligence and Terrorism Information Center, September 13, 2024.

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Tehran's Tactical Knockout: Weaponized Pharmaceutical-Based Agents

By Matthew Levitt

As early as the 1980s, the U.S. intelligence community documented the ways in which Iran deployed chemical weapons for tactical delivery on the battlefield. Nearly 40 years later, U.S. officials formally assessed that Iran was in non-compliance with its Chemical Weapons Convention (CWC) obligations, pointing specifically to Tehran's development of pharmaceutical-based agents (PBAs) that attack a person's central nervous system as part of a chemical weapons program. Over time, concern about this program has increased, with reports to the Organisation for the Prevention of Chemical Weapons (OPCW), statements by multilateral groups such as the G7, and a variety of U.S. government reports and sanctions. Today, with Iran's proxies wreaking havoc throughout the region, officials worry Tehran may have already provided weaponized PBAs to several of its partners and proxies. Such a capability, tactically deployed on the battlefield, could enable further October 7-style cross-border raids or kidnapping operations. With the region on edge following the targeted killing of Hezbollah leader Hassan Nasrallah, followed by an Israeli ground campaign targeting Hezbollah infrastructure along the border, and the Iranian ballistic missile attack on Israel, concern about the use of such tactical chemical weapons is high.

Since at least 2005, U.S. authorities contend, Iran has conducted extensive research and development of pharmaceutical-based chemical agents (PBAs), primarily anesthetics used to incapacitate victims by targeting the central nervous system, in violation of the Chemical Weapons Convention.¹ While Tehran contends its PBA program is allowed under an exception for developing crowd control tools for law enforcement, Iran has been called out—along with Russia and Syria—for developing these dual-use chemical agents by the Organisation for the Prohibition of Chemical Weapons (OPCW).² While the issue has received scant public attention, the U.S. State,³ Treasury,⁴ and Defense⁵ departments, as well as the Office of the Director of National Intelligence⁶ and the G7,⁷ have highlighted the issue and begun taking action against Iranian entities tied to this activity.

Iran's weaponization of PBAs, however, is no longer just a matter of research and development. Beyond its R&D program, Iran now appears to have produced fentanyl-based or other types of weaponized PBAs and provided these to partners and proxy groups that may have already used them in several cases in Iraq and Syria.⁸ At home, Iranian journalists have investigated the poisoning of thousands of school-aged girls with some suspecting

the symptoms displayed suggest the involvement of PBAs (some believe this was an Iranian government response to a protest movement, while the Iranian government claims it was an attack by unspecified 'enemies').⁹ Now, after a year of near-daily rocket fire by Hezbollah into northern Israel, Israeli authorities fear Hezbollah may attempt an October 7-style cross border raid into Israel from Lebanon in which the group could use Iranian-manufactured PBAs to incapacitate and kidnap Israeli soldiers deployed along the border, and enable fighters to penetrate farther into Israel to attack civilian communities.¹⁰ In the post-October 7 security environment, U.S. officials have prioritized the issue of Iran's weaponization of PBAs in their diplomatic engagement at multinational fora like the OPCW and in bilateral engagements with allies around the world. The stakes are now higher still after the targeted killing of Hezbollah leader Hassan Nasrallah and the Israeli military maneuvers in southern Lebanon aimed at rooting out Hezbollah military infrastructure there.

This article briefly explains what pharmaceutical-based agents are, and explores the dangers posed by weaponized PBAs as tactical battlefield weapons developed by Iran. Based on declassified CIA reports, the article explores the history of Iraq's use of chemical weapons against Iran, Iran's own development and deployment of chemical weapons, and concerns that Iran has provided weaponized PBAs to its partners and proxies. This led the United States to take a leading role calling out Iran's weaponized PBA program, which became a more immediate national security concern for Israeli in particular in light of Lebanese Hezbollah's 'Plan to Conquer the Galilee.' This year, the U.S. intelligence community inserted a warning about Iran's chemical weapons program, including incapacitating agents, in its 2024 annual threat assessment. All of which means far more multilateral and national-level actions are needed to counter Iran's development of PBAs and its transfer of these dangerous agents to partners and proxies.

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The Danger of Weaponized PBAs

According to the Government Accountability Office, PBAs are “chemicals based on pharmaceutical compounds, which may or may not have legitimate medical uses, and can cause severe illness or death when misused.”¹¹ PBAs present not only a national security concern, but can also have severe and even fatal health effects. These dual-purpose chemicals are often used for medical and veterinary purposes, but can also be weaponized for offensive goals.¹² For example, the U.S. State Department has highlighted a case in which the chemistry department at Iran’s Imam Hossein University sought large quantities of medetomidine, a veterinary anesthetic drug with potent sedative effects, even though the department had little history of veterinary or other medical research. The university specifically researched the drug as an aerosolized incapacitant, and the quantities it sought (over 10,000 effective doses) were inconsistent with the reported research purposes.¹³

In an April 2023 report to Congress, the State Department determined that Iran’s riot control agent (RCA) declaration, which is required under the CWC, was incomplete.¹⁴ The report, which fulfills a congressionally mandated requirement for an annual report from the president, found that Iran developed more than one riot control agent that it marked for export but which it never declared as a chemical agent it holds for riot control purposes, as required by the CWC. “The United States has concerns,” the State Department concluded, “that Iran is pursuing PBAs and toxins with utility for CW applications for offensive purposes.”¹⁵

From Mustard Gas to Fentanyl-Based Incapacitating Agents

The use of chemical weapons (CW) is a sensitive issue for Iran, which suffered from Iraq’s widespread use of chemical weapons during the Iran-Iraq war. While Iran registered over 50,000 victims of Iraqi chemical attacks requiring medical care, an estimated one million Iranians were estimated to have been exposed to nerve agents or mustard gas throughout the war.¹⁶ And yet, Iran also used chemical weapons and riot control agents during the Iran-Iraq war, according to a declassified CIA report, including those using mortars and artillery as delivery systems.¹⁷ Tehran started producing small quantities of CW “since at least 1984,” according to the CIA.¹⁸ “Iran,” the CIA reported in 1988, “used chemical weapons on a very limited scale beginning in 1985, probably for testing or training.”¹⁹ That R&D progressed to the point of being able to deploy CW agents within a couple of years. Iran produced about 100 tons of CW agent (mostly mustard) in 1987, the CIA determined, adding it anticipated Iran could produce twice that by the following year. “Since April 1987,” the CIA report continued, “Iran has launched several small-scale chemical attacks with mustard and an unidentified agent that causes lung irritation.”²⁰ This, the agency determined, was not some rogue operation, but the result of a decision by Iranian policymakers to develop and deploy chemical agents, in large part to retaliate for Iraqi chemical attacks.²¹

In a 2001 report to Congress from the Director of Central Intelligence, the DCI reported that the CIA’s Weapons Intelligence, Nonproliferation, and Arms Control Center (WINPAC) determined that Iran was “vigorously pursuing” programs to produce indigenous Weapons of Mass Destruction, including chemical weapons.²² Though party to the CWC, Iran “continued to seek chemicals, production technology, training, and expertise from

entities in Russia and China that could further efforts at achieving an indigenous capability to produce nerve agents” and “probably also made some nerve agents.”²³

The event that would trigger Iran’s interest in more vigorously pursuing a program to specifically weaponize dual-use pharmaceuticals as incapacitating agents would come the following year. In 2002, Russian special forces pumped a pharmaceutical-based chemical gas into a Moscow theater where Chechen terrorists held hundreds of hostages.²⁴ The Russians overtook the terrorists and gained control of the theater, but some 120 hostages died in the operation along with the attackers—many from inhaling the gas, believed to have been some kind of fentanyl derivative.²⁵ According to the 2023 Annual Report by the U.S. State Department, published Iranian papers cited the “potential weapons applications of the PBAs; one specifically referenced the use of fentanyl during the 2002 Dubrovka theater hostage crisis.”²⁶

In the wake of the Moscow theater attack, Israeli and American officials say, Iran’s Islamic Revolutionary Guard Corps (IRGC) and Ministry of Defense worked to develop chemical weapons and ammunition to serve as delivery systems—primarily grenades and mortars—to be used tactically on the battlefield.²⁷ From the outset, these experts contend, the idea was to provide partners such as the Syrian regime and proxy groups such as Iraqi Shi’a militias and Lebanese Hezbollah with weaponized PBAs to incapacitate their adversaries. Once inhaled, these agents cause victims to lose full consciousness and enable the forces deploying them to advance quickly and quietly and/or take captive the unconscious victims. Moreover, deploying weapons produced with dual-use items, and then providing said weapons to proxies, provides Iran with multiple layers of cover and reasonable deniability for having done so at all.

Provision of Weaponized PBAs to Proxies

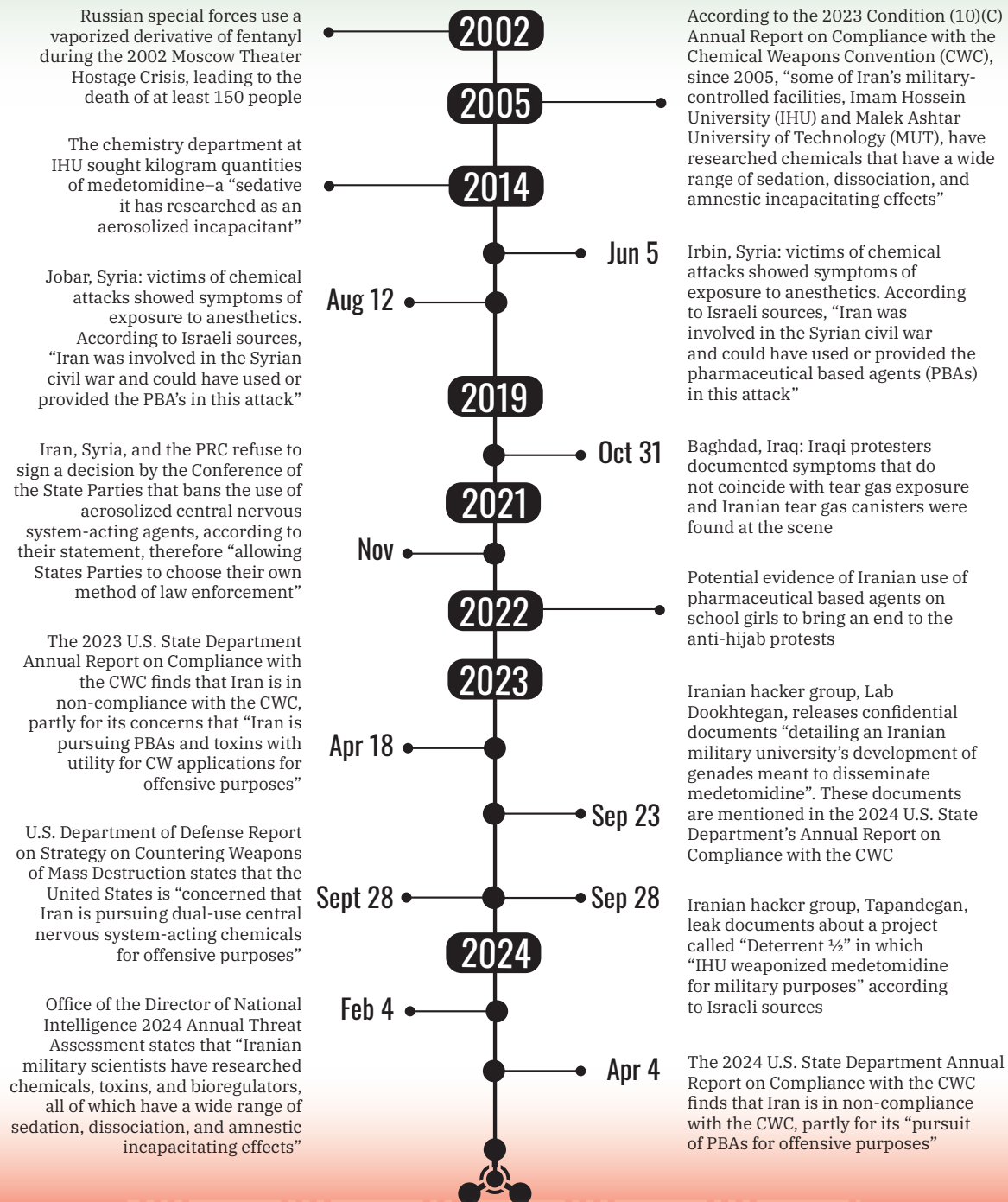
As early as 1988, U.S. intelligence analysts noted with concern that “CW tactical delivery methods have improved with experience,” adding that “CW can contribute to tactical successes as one component of an integrated fireplan.”²⁸ Fast forward to 2024, and Israeli officials report “with high confidence” that Iran has provided chemical incapacitating agents to proxies in Iraq and Syria.²⁹

Israeli authorities point to several cases in recent years in which chemical agents were used and victims displayed symptoms of exposure to anesthetics.³⁰

- On June 5, 2014, victims of a chemical attack in Irbin, Syria, showed symptoms beyond just difficulty breathing, nausea, and reddening of the eyes to also include loss of consciousness and a total loss of feeling.
- On August 12, 2014, victims of a chemical attack in Jobar, Syria, experienced reduced consciousness, along with other symptoms.
- On October 31, 2019, pro-Iranian Iraqi militias helped Iraqi law enforcement with riot control after a wave of civil protests in Baghdad, Iraq. Some protestors experienced symptoms inconsistent with tear gas, including loss consciousness and unresponsiveness to stimuli. In this case, Iranian tear gas grenades were found at the scene.³¹

Whether or not these cases involved the use of weaponized PBAs or some other kind of chemical agent, Israeli officials point to these cases as reasons to be concerned that Iran could—or perhaps already has—provided weaponized PBAs to partners like the Syrian regime or proxies like Shi’a militias in Iraq or Lebanese Hezbollah. “The

IRAN'S WEAPONIZATION OF PHARMACEUTICAL BASED CHEMICAL AGENTS



*A timeline of Iran's weaponization of pharmaceutical-based chemical agents
(Maria Radacsi for The Washington Institute for Near East Policy)*

most concerning part of all this for the Israel Defense Forces,” an IDF official explained, “is Hezbollah getting this kind of material.”³² Hezbollah already has battlefield tear gas dispersal systems such as grenades and mortars, and could use these as delivery systems for grenades filled with PBAs. Indeed, the IDF is already acting on the assumption that Hezbollah has such systems and has already forward deployed them to the field for use in operations to kidnap Israeli soldiers deployed along the border or as part of a plan to infiltrate into Israel to attack civilian communities in an October 7-style attack.³³

Calling Out Iran’s Weaponized PBA Program

The incidents outlined above piqued the concerns of intelligence and counterproliferation officials about the potential implications of Iran’s weaponized PBA program, which has started getting public mentions in government documents and reports. In 2018, the State Department assessed in an annual report that Iran was in non-compliance with the CWC for failure to declare its chemical weapons production facility, its transfer of chemical weapons, and its retention of an undeclared stockpile of chemical weapons.³⁴ Then, in the 2019 edition of that annual report, the State Department specifically noted its concerns about Iran’s failure to declare its complete holdings of Riot Control Agents (RCAs), and its “serious concerns that Iran is pursuing PBAs for offensive purposes.”³⁵ The G7 expressed its concerns about Iran’s CWC non-compliance in an April 2019 report on non-proliferation and disarmament.³⁶

By the end of 2020, the U.S. government was ready to take public action targeting persons and entities tied to Iran’s weaponized PBA program. That December, the U.S. Department of the Treasury designated the Shahid Meisami Group for “testing and producing chemical agents and optimizing them for effectiveness and toxicity for use as incapacitating agents.”³⁷ The designation press release positioned Shahid Meisami Group as “an organization subordinate to” the Iranian Organization of Defensive Innovation and Research (also known as SPND), and which is responsible for several SPND projects “to include testing and producing chemical agents and optimizing them for effectiveness and toxicity for use as incapacitating agents.”³⁸ Sanctioned by the State Department in 2014, SPND was founded in 2011 by the late United Nations-sanctioned Iranian nuclear weapons developer Mohsen Fakhrizadeh, who was killed by a remote-controlled weapon (reportedly deployed by Israeli agents) in November 2020.³⁹ “In the field of nuclear and nanotechnology and biochemical war, Mr. Fakhrizadeh was a character on par with Qassim Soleimani but in a totally covert way,” an advisor to Iran’s foreign ministry later explained to *The New York Times*.⁴⁰

Also designated in December 2020 was the head of Shahid Meisami Group, Mehran Babri, who had previously worked at Iran’s Defense Chemical Research Lab. Shahid Meisami Group, the State Department would later report, also maintained close ties to Iranian military entities.⁴¹ For example, it participated in Iranian defense expos where it provided fact sheets on its products, including the “Ashkan” irritant hand grenade that creates smoke containing the chemical riot control agent dibenzoxazepine (CR), and a “Fog Maker System” capable of producing high volumes of smoke and fog in a short period of time. “This is noteworthy,” the State Department reported, “because it can disseminate debilitating chemicals, like CR, over a large area quickly.”⁴²

It took some time for U.S. and other officials to make it happen,

but a year later, in December 2021, the Conference of States Parties of the [CWC] Convention adopted a decision—opposed only by Iran, Syria, and Russia—reaffirming the ground rules for the use of central nervous system (CNS)-acting chemicals for law enforcement purposes.⁴³ The decision made a distinction between riot control agents, which can legitimately be used by law enforcement, and CNS-acting chemicals, which cannot. While the decision committed parties “not to use riot control agents as a method of warfare,” Iran did not sign on.⁴⁴ Moreover, the decision included a loophole in that it banned aerosolized use of CNS-acting agents, without explicitly banning their production, research, development, or transfer.

For the United States and its allies, the bottom line was clear, loopholes notwithstanding. In September 2023, the U.S. Department of Defense categorized Iran’s as a “persistent threat” when it comes to WMD challenges, noting not only Iran’s nuclear program but also its CWC non-compliance.⁴⁵ The department’s annual report on its strategy for countering weapons of mass destruction made Washington’s position on Iran’s weaponized PBA program crystal clear: “The United States is also concerned that Iran is pursuing dual-use central nervous system-acting chemicals for offensive purposes.”⁴⁶

That concern led to the State Department’s decision to list the fact that Iran specifically develops PBAs as part of its chemical weapons program as an additional CWC violation in its April 2024 report on CWC compliance.⁴⁷

Interestingly, one source the State Department cited in that 2024 report was Lab Dookhtegan, which says it is a hacker organization working against Iranian state-sponsored cyber actors. The State Department report points to a September 23, 2023, Lab Dookhtegan social media post showing allegedly confidential documents “detailing an Iranian military university’s development of grenades meant to disseminate medetomidine, an anesthetic that is a central nervous system-acting chemical.” According to these leaked documents, in which the U.S. government has sufficient confidence to cite them in an official government report, “this development included information on the production and testing of prototype weapons” to disseminate these nerve agents.⁴⁸ Speaking at the March 2024 Executive Council meeting of the OPCW, the U.S. representative to the OPCW was clearer still:

*The United States assesses that Iran maintains a CW program and did not declare all of its chemical weapons related activities and facilities as required when it ratified the CWC. The United States also assesses that since acceding to the CWC, Iran has developed and filled weapons with pharmaceutical-based agents in violation of its obligations to the Convention.*⁴⁹

Shortly thereafter, in July 2024, the State Department imposed sanctions against the Hakiman Shargh Research Company on the basis of the organization’s proliferation of weapons of mass destruction, specifically chemical weapons. A close read of the press statement announcing the designation reveals it was focused on the company’s role in developing and transferring weaponized PBAs.⁵⁰ After noting that the United States first assessed Iran was in non-compliance with its CWC obligations in 2018, the State Department spokesman added that Iran further “violated the CWC due to its development of pharmaceutical-based agents as part of a chemical weapons program.” Then, for the first time, a U.S. government official came out publicly with the underlying security concern at hand: “The United States will continue to counter any efforts by

the Iranian regime to develop chemical weapons, including those that may be used by its proxies and partners to support Iran's destabilizing agenda of inciting and prolonging conflict around the world."

Hezbollah's "Plan to Conquer the Galilee"

October 7 ushered in a wave of Iranian-inspired and supported proxy warfare against Israel unlike anything the country had previously experienced. Since then, Israelis across the political spectrum have been traumatized and fear terrorist groups will attempt further cross-border raids into Israel. For years, Israeli intelligence knew of a notional Hamas plan to storm across the border into Israel to kill and capture civilians, but they dismissed Hamas' ability to execute such a plan and put more trust than they should have in high-tech defense systems to protect them.⁵¹ Years earlier, Israeli officials exposed Hezbollah tunnels dug into Israel under the border with Lebanon which was intended to be used as part of a plot to storm across the border from Lebanon.⁵² Indeed, Hamas' October 7 operation came straight out of Hezbollah's playbook.⁵³

Hezbollah's plan to storm into the northern Galilee, overrun Israeli communities, kill and kidnap civilians, and lay roadside bombs to attack first responders remains a present threat for Israel. The Alma Research and Education Center, an Israeli think-tank based in northern Israel and focused on that border, assessed that Hezbollah's Radwan special forces unit "reached operational capacity to fulfill its mission to invade the Galilee" in 2022.⁵⁴ This remains a pressing operational threat today, and is one of the reasons the over 60,000 Israelis displaced from their homes in northern Israel remain wary of returning home.⁵⁵ Indeed, Israeli authorities contend the targeted killing of Hezbollah commander Ibrahim Aqil and several other Radwan special forces leaders in an airstrike on September 20, 2024, prevented just such a ground invasion, dubbed Hezbollah's "Plan to Conquer the Galilee."⁵⁶

Israeli intelligence officials assess that Iran develops incapacitating chemical agents not only for the use of its own law enforcement and military personnel, but also for members of its proxy network.⁵⁷ With this in mind, it is clear why Israeli authorities are so concerned about the potential transfer of weaponized PBAs to Iranian proxies, especially when groups such as Hezbollah already have the delivery systems necessary to deploy such chemicals, including grenade launchers and mortars.

Conclusion

Back in 1998, the CIA assessed that the successful deployment of chemical weapons, combined with "the lack of meaningful international sanctions or condemnations" was the reason why Iran and other states believed they could acquire chemical weapons as a deterrent capability or force multiplier "without fear of repercussions."⁵⁸ Moreover, the CIA warned at the time, once a country acquires a chemical weapons capability, it is unlikely to willingly relinquish such a military tool, "especially in areas of frequent conflict such as the Middle East and Asia."⁵⁹

Fast forward 26 years and the same findings apply. In its 2024 annual threat assessment, the Office of the Director of National Intelligence warned that "Iranian military scientists have researched chemicals, toxins, and bioregulators, all of which have a wide range of sedation, dissociation, and amnestic incapacitating effects."⁶⁰ That research and development, the DNI added, is likely to continue and is intended "for offensive purposes."⁶¹ All of which means that further coordinated multilateral and national-level actions will be necessary to counter Iran's weaponized PBA program and disrupt the transfer of this dangerous category of weapons to Iran's proxies and partners around the world.

And there are a variety of multinational fora for such engagement. For example, in late September 2024, on the sidelines of the United Nations General Assembly, senior government officials convened for the Summit of the Global Coalition to Address Synthetic Drug Threats. In his remarks, U.S. Secretary of State Antony Blinken noted the threats posed by methamphetamines in Asia, Captagon in the Middle East, tramadol in Africa, and fentanyl in the United States.⁶² To this, the coalition should add the challenge of pharmaceutical-based agents, including but not limited to fentanyl-based chemicals, which presents more of a threat to international security than to public health. Against the backdrop of the targeted killing of Hezbollah leader Hassan Nasrallah, the Israeli incursion into southern Lebanon to dismantle infrastructure intended to be used in an October 7-style cross border raid, and the Iranian ballistic missile attack against Israel on October 1, addressing Iranian support to its proxies is a priority concern. At a time of growing regional instability in the Middle East, largely the result of the militancy of Iranian proxies, the threats posed by Iran's weaponized PBA program can no longer be overlooked. **CTC**

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