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Introduction

In an era of rapid technological innovation and shifting geopolitics, maritime warfare is undergoing a profound transformation. Large manned aircraft carriers historically epitomise global naval power but emerging threats like hypersonic missiles and drone swarms expose critical vulnerabilities in these platforms. Recent conflicts, especially in Ukraine, underscore the rising importance of unmanned systems in contested environments prompting navies to explore alternative power-projection concepts. Against this backdrop, Türkiye's TCG Anadolu offers a compelling case study of a carrier reimagined around drone operations. Once an amphibious assault ship, TCG Anadolu now integrates advanced unmanned aerial vehicles (UAVs) to expand maritime sovereignty and operational reach. This pivot challenges conventional naval carrier design and raises the question of whether TCG Anadolu's drone-centric configuration represents an evolutionary adaptation or a revolutionary shift in naval strategy

This paper addresses that gap by evaluating TCG Anadolu's capabilities, comparing global drone carrier developments, and assessing the broader strategic implications of adopting these platforms. It further examines how drone carriers can offer increased flexibility and cost-effectiveness in lower intensity missions, while facing limitations in high-intensity warfare. The discussion begins with TCG Anadolu's evolution and its drivers, followed by a discussion of the carrier´s strengths and vulnerabilities relative to traditional carriers. An exploration of global trends and strategic responses in drone-centric naval developments follows, concluding by reflecting on the future of unmanned naval warfare in an increasingly contested maritime domain.

1. TCG Anadolu: Genesis and Strategic Foundations

Evolution from Amphibious Vessel to Drone-Centric

Originally designed for helicopter operations, TCG Anadolu is an LHD-class amphibious assault ship measuring 231 meters in length, 32 meters in beam, and displacing 27,436 tons. Capable of traveling 9,000 nautical miles at speeds up to 21 knots and operating for 50 days at sea, it was initially modeled after Spain's Juan Carlos I, without a ski-jump ramp (Tiwari, 2024). However, evolving political imperatives and emerging technological successes led to two major redesigns. First, the Turkish Navy incorporated a ski-jump ramp and flight deck to accommodate Lockheed Martin's F-35B fighter jets, the short take-off/vertical landing (STOVL) variant optimised for LHDs (Kasapoğlu, 2023). The second redesign followed Türkiye's expulsion from the F-35 consortium over potential sensitive technology compromise due to their acquisition of the Russian S-400 Triumf air defence system (Tiwari,

2024; Felstead, 2023).

In response, Turkish planners reimagined TCG Anadolu as a drone-centric vessel, leveraging the country's growing UAV industry, encouraged by the combat-proven Bayraktar TB2—Baykar's most widely fielded drone (Kasapoğlu, 2023). Consequently, TCG Anadolu evolved into the world's first purpose-built drone carrier, intended for future uncrewed fighter jets, unmanned combat aerial vehicles (UCAVs), and UAVs, while still retaining helicopter capabilities (Tiwari, 2024). This development ignited broader debates on the future of naval air power and strategy.

Signalling a broader shift in maritime power projection, TCG Anadolu's drone-centric approach illustrates how unmanned systems increasingly fill roles once reserved for conventional manned aircraft carriers. Central to this transformation is the Bayraktar TB3, a carrier-adapted evolution of the TB2. Foldable wings, short-runway optimisation and fully autonomous take-off and landing, make it the world's first combat drone designed to launch and land on a flat-deck carrier (Türkiye Today, 2024). With a 1,000-mile range and 24-hour endurance for intelligence, reconnaissance, surveillance, and precision strikes, the TB3 extends Türkiye's operational reach and reduces reliance on manned assets (Tiwari, 2024; Kasapoğlu, 2023).

Further enhancing TCG Anadolu's capabilities is Baykar's Kizilelma unmanned fighter jet, featuring a jet engine and stealth-inspired design (Daily Sabah, 2023). Capable of operating alongside piloted aircraft and to engage in air-to-air combat, Kizilelma broadens TCG Anadolu's combat role. Together, the integration of the TB3 and Kizilelma with TCG Anadolu represents a breakthrough in naval aviation, enhancing surveillance, tactical flexibility, and cost-effectiveness, effectively redefining maritime power projection through a primarily unmanned lens (Kesteloo, 2024a).

The Mavi Vatan Doctrine and Naval Modernisation

Introduced in 2019, Türkiye's Mavi Vatan (Blue Homeland) doctrine shifted the country's focus from land-based defence to a maritime-oriented posture, prioritising sovereignty and expansive claims in the Eastern Mediterranean (Yaylali, 2025). Driven by longstanding security concerns, the rivalry with Greece and the threat of Greek-Cypriot unification (Enosis) potentially encircling Anatolia with a continuous maritime zone, the doctrine advances Turkey's ambition of maritime power and challenges international legal constraints like UNCLOS/Montego Bay (Denizeau, 2021). The naval ambitions that gives the doctrine the name 'Blue Homeland' circumscribe a vastly expanded Exclusive Economic Zone of up to 462,000 km², extending Turkish jurisdiction across the Eastern Mediterranean, Black Sea,

and parts of the Aegean (Denizeau, 2021). Illustrating these strategic ambitions, Türkiye conducts the annual Mavi Vatan exercise. This large-scale, joint operation involves 77 surface ships, 7 submarines, 31 aircraft, 17 helicopters, 28 drones, and 7 unmanned surface vessels supported by the Army, Air Force, and Coast Guard (Yaylali, 2025).

Complementing this doctrine is a two-stage naval modernisation program. The first stage involves procuring foreign-built vessels like American frigates to maintain fleet consistency. The second stage aims for strategic autonomy through the nationalisation of military production via indigenous programs like MİLGEM (National Ship Program) and modern submarines development (Denizeau, 2021). At the forefront of this modernisation stands TCG Anadolu, heralded as the world's first UCAV ship. With a reported 70 per cent localisation rate, TCG Anadolu signifies a breakthrough in naval aviation, serving as a significant diplomatic tool of defence diplomacy amid heightened tensions (Kasapoğlu, 2023). Türkiye is also constructing 31 additional warships —including indigenous aircraft carriers, guided-missile destroyers, multirole frigates, and attack submarines—further underscoring Ankara's ambition to field a high-seafaring, technologically advanced and self-reliant navy.

2. Vulnerabilities of Traditional Air Carriers: Hypersonic Missile and Drone Threats

While aircraft carriers have long epitomised naval strength, emerging technological threats such as hypersonic missiles and coordinated drone swarms are exposing critical vulnerabilities in these platforms, potentially prompting to the developing of drone-centric naval platforms as a resilient and cost-effective alternative. Through an examination of hypersonic missiles, this section highlights the strategic potential of drone carriers in naval contexts.

Hypersonic missiles, defined as those traveling above Mach 5 (6,125 km/h), can bypass conventional defences due to their extreme speed, unpredictable manoeuvrability, and evasive flight paths, leaving little reaction time for interceptors (Harper, 2019). Consequently, carrier strike groups, once considered safe at long distances, now risk exposure even when operating up to 1,000 nautical miles from enemy launch sites (Harper, 2019). China's DF-21D and DF-26 missiles can engage moving ships at ranges of 900 to 1,800 nautical miles (Mizokami, 2025). Russia's Kinzhal and upcoming Zircon flying at Mach 6 to 8 (7,400 to 9,800 km/h), further raise the threat to carriers (LaGrone, 2021). Even a single precision strike can severely damage a carrier's flight deck or key systems, illustrating how these developments can reduce the strategic freedom that large carriers once enjoyed (Mizokami, 2025). Concurrently, small inexpensive drones deployed in coordinated swarms can overwhelm defensive systems by saturating interceptors and depleting ammunition, posing a new type

of threat to carrier defences (Rogoway, 2024). These autonomous drones leveraging artificial intelligence for real-time tactical adjustments can target and disable radar arrays, communication links, and flight decks without necessarily sinking the vessel (Rogoway, 2024).

In an era where large manned carriers are increasingly expensive to build and protect, these dual threats may prompt navies to explore alternatives. As these threats evolve, they highlight why traditional carriers may face increasing risks of severe degradation. By distributing an expendable air wing across drone-centric platforms—capable of operating at lower cost and tolerating higher attrition—states may find a more resilient path to maritime power projection. This reality may reinforce the strategic rationale for drone carriers, potentially enabling navies to adapt effectively to rapidly evolving threats.

3. Reaction in Drone Carriers: Different Approaches

In light of TCG Anadolu's drone-centric design and the threats shaping naval strategy it is instructive to see how other navies are responding to the same technological and strategic pressures. Some pursue dedicated drone carriers while others favour a hybrid model integrating unmanned aircraft into existing platforms. Each approach reflects a balance between cost-effectiveness, survivability, and flexibility amid emerging threats.

Dedicated Drone Carriers

China's move toward a dedicated drone carrier garnered global attention, potentially marking a turning point in naval innovation. Reports indicate that Type 076 Sichuan is the world's first vessel designed exclusively for fixed-wing UAVs (Spirlet, 2024; Thomas, 2024). The carrier integrates advanced technologies such as electromagnetic catapults and arresting gear for rapid drone launch and recovery, similar to those on larger carriers (Spirlet, 2024; Thomas, 2024). The vessel extends China's A2/AD reach, especially in contested waters like the South China Sea. In a conflict over Taiwan, the carrier could deploy coordinated drone swarms to overwhelm air defences, thus reducing reliance on costly manned aircraft, and compelling neighbours to re-evaluate their naval strategies, potentially altering regional security dynamics (Honrada, 2024; Arteaga, 2025).

This development and strategic consideration goes beyond superpowers. Smaller powers are also embracing the drone carrier model demonstrating its growing strategic appeal. Among others, two notable examples are Iran's already operational Shahid Bagheri drone carrier, and Italy's Sciamano Drone Carrier currently in development (Lob & Riehle, 2023; Ares Difesa, 2024). Their emergence underscores the expanding role of drone carriers in future naval warfare. States seek cost-effective alternatives to traditional aircraft carriers

while enhancing their power projection capabilities. Dedicated drone carriers present one way of how this can be feasible.

The Hybrid Approach

The U.S. Navy's hybrid strategy, that integrates UAVs into existing platforms rather than building separate ones, reflects an alternative option of naval drone-centric strategy. This approach disperses critical functions such as aerial refueling, ISR, and precision strikes across both manned and unmanned assets. Thus, coordinated, networked operations with greater firepower and survivability are created (Honrada, 2024). A notable milestone is the dedicated drone command center on the USS George H.W. Bush marking the Navy's first formal step toward fully integrating unmanned systems into carrier air wings (Kesteloo, 2024b). Central to these efforts is the $136 million MQ-25A Stingray unmanned tanker slated for Nimitz- and Ford-class carriers, supported by an upgraded Unmanned Air Warfare Center for direct drone operations (Suciu, 2024). Current doctrine envisions unmanned aircraft making up 40 percent or more of the carrier air wing by 2040, complementing rather than replacing manned aviation (Department of the Navy, 2021).

Comparing these two paths reveals how navies seek cost-effectiveness and flexibility against the persistent need for traditional capabilities. Whether states opt for a specialised drone platform or fold UAVs into existing fleets depends on factors such as threat environment, defence budgets, and the maturity of unmanned technologies. Ultimately, each model recognises the growing centrality of unmanned systems in maritime power projection and naval doctrine.

4. Strategic Implications

Having examined TCG Anadolu's drone-centric configuration and broader trends in drone carriers this section outlines their effect on long-range power projection and deterrence. While recent conflicts have demonstrated that unmanned systems currently lack the offensive and defensive capabilities of advanced manned aircraft, the following section highlights how they can reshape maritime power in lower to mid-intensity environments (Gale, 2023; Iddon, 2024).

Geopolitics, Power Projections and Deterrence

Drone carriers can enhance a nation's ability to project power over long distances by launching UAVs far from home shores, mirroring the core function of traditional aircraft carriers (Gale, 2023; Daily Sabah, 2023). For middle-income nations unable to invest in

expensive large-scale carriers, drone carriers offer a cost-effective alternative for extending airpower beyond national borders (Iddon, 2024). TCG Anadolu demonstrates how UAV-centric vessels support surveillance, precision strikes, and drone swarms without the logistical constraints of land bases (Daily Sabah, 2023; Suorsa & Cannon, 2022). Beyond power projection drone carriers serve as instruments of deterrence. In regions like the Eastern Mediterranean, the mere presence of a vessel such as the TCG Anadolu sends a clear message that Türkiye can monitor and strike targets in contested maritime zones, complicating adversaries' strategic calculations (Suorsa & Cannon, 2022). Similarly, Iran's Shahid Bagheri extends Tehran's reach in the Persian Gulf and Arabian Sea. This reinforces Tehran´s ability to deter or disrupt adversaries while forcing major powers to contend with unconventional threats (Lob & Riehle, 2023; Helou, 2025; Honrada, 2024b). The persistent presence of drone carriers in grey-zone scenarios or against irregular forces can therefore shift regional power dynamics and compel larger adversaries to account for unconventional, unmanned threats (Yap, 2025; Iddon, 2024).

In a broader geopolitical context these platforms are democratising naval air power and broaden the scope of naval diplomacy by enabling a wider range of nations to wield capabilities previously exclusive to superpowers (Iddon, 2024). For instance, by operating carriers with fixed-wing air assets Türkiye's TCG Anadolu has elevated the country's status within NATO and the Mediterranean region, boosting its leverage in regional affairs in the Eastern Mediterranean, the Middle East and North Africa (Iddon, 2024). Iran's development of the Shahid Bagheri showcases similarly how these platforms elevate even the position of resource-constrained states in power struggles on critical waterways like the Strait of Hormuz (Helou, 2025). Drone carriers therefore carry a considerable geopolitical effect extending military reach by enabling independent operations, furthering deterrence and equally demonstrating military resolve and soft power through high-visibility deployments (Kenez, 2023).

Despite functioning best as complementary to traditional carriers, drone carriers through exerting conventional and asymmetric deterrence are poised to continuously reshape the strategic balance of naval powers. Consequently, traditional carriers are likely to maintain supremacy in high-intensity, contested scenarios in the short- to medium-term. Over time, improvements in UAV offensive/defensive capabilities may narrow the performance gap, but for now, drone carriers are best viewed as evolutionary complementary platforms that reinforce, rather than replace, conventional carrier fleets.

5. Challenges and Limitations: Emerging Counter-Drone Technologies

While drone carriers demonstrate strategic and operational potential, two critical sets of

emerging counter-drone technologies pose significant challenges to this development. Electronic warfare (EW) and cyber vulnerabilities and directed-energy weapons (DEWs) can inhibit drone carrier usage.

Electronic Warfare and Cyber Vulnerabilities

A major obstacle to integrating UAVs into naval operations lies in electronic warfare (EW) and cybersecurity vulnerabilities. EW uses electromagnetic energy to jam or spoof a drone's systems, potentially compromising its mission (Pomerleau, 2024; Total Military Insight, 2024). Every drone component is vulnerable. Communication links can be jammed or intercepted, GPS signals can be disrupted or spoofed, and sensor arrays such as LiDAR or optical cameras can be fed manipulated data, thus eroding situational awareness (Haider, 2024).

The heavy reliance of drones on software and networked systems equally renders them susceptible to cyberattacks, which can result in data theft, loss of control, or hijacking the UAV to turn it against friendly forces (Kallenborn, 2022). Although some experts question the feasibility of executing complex cyberattacks during active conflict, given the complexity of exploiting well-guarded weapons software, outdated or unpatched firmware remains a vulnerability (Haider, 2024; Kallenborn, 2022). However, a RAND study underscores that cybersecurity risks associated with UAV use remain insufficiently understood (Best et al., 2020). Nevertheless, these vulnerabilities become even more consequential in the context of drone carriers. As centralized hubs for multiple UAVs, carriers present prime targets for EW and cyberattacks. By degrading a drone carrier's capacity to launch, control, or recover unmanned systems, adversaries may undermine its operational effectiveness and erode its deterrent effect. This compromises the strategic benefits that drone carriers bring to naval power projection.

Directed-Energy Weapons

Alongside EW and cyber threats, directed-energy weapons (DEWs) pose a formidable challenge to drone carriers. High-energy lasers (HEL) and high-power microwaves (HPM) can neutralize UAVs at near–speed-of-light engagement with minimal collateral damage, making them increasingly effective countermeasures (U.S. Government Accountability Office, 2023; Kallenborn & Plichta, 2024). They also offer rapid firing rates, reduced per-shot costs, and reduced logistical burdens, relying on electricity rather than conventional munitions (Sayler et al., 2024). However, DEWs face notable limitations, including substantial energy requirements, range limitations, and vulnerability to adverse weather (MacDonald, 2024). RAND analysts warn that DEWs must be integrated properly into layered defences alongside kinetic interceptors rather than replace them (Black, 2024). For drone carriers, DEWs could

prompt a major recalibration of their utility. As UAVs become more vulnerable to directed-energy attacks, the viability of drone swarms and autonomous operations may decline (Obering, 2020). Historically, each offensive innovation prompted a corresponding defensive response. As a consequence, drone carriers must adapt or risk ceding their edge, especially in light of DEWs gaining traction. Illustrating the key role of technological progress for the future of drone-centric warfare, the viability of drone carriers depends heavily on parallel advancements in unmanned mitigating DEW vulnerabilities.

Conclusion

This paper set out to determine whether Türkiye's TCG Anadolu and the broader concept of drone carriers represent a revolutionary leap in naval strategy or an evolutionary complement to traditional aircraft carriers. The analysis confirms that while drone carriers introduce notable efficiencies and capabilities in low- to mid-intensity missions, they do not fully supplant the role of conventional carriers in high-end conflict scenarios.

Drone carriers excel in persistent intelligence, surveillance, and reconnaissance (ISR), precision strikes, and maritime patrol, often operating more cost-effectively and flexibly in hazardous or politically sensitive environments (Türkiye Today, 2024; Yap, 2025). Yet their utility is constrained by vulnerabilities such as limited defensive systems and susceptibility to advanced air defences (Savitz & Perez, 2025; Andersson & Simon, 2024). Consequently, navies like the U.S. Navy and the UK Royal Navy appear to favour hybrid approaches, blending manned and unmanned platforms to maximise sortie generation to adapt flexibly to rapid technological shifts and operational reach.

These findings underscore that drone carriers, while transformative, function best alongside traditional carriers, particularly for missions requiring large-scale air superiority or rapid, heavy strikes. Their ultimate value will hinge on ongoing technological developments, from improved countermeasures to more advanced unmanned offensive and defensive capabilities. As global security challenges evolve, navies are likely to continue experimenting with drone carriers and hybrid fleets. Future breakthroughs in unmanned and counter-unmanned technology, and survivability could further expand the strategic role of drone carriers, potentially reshaping maritime power projection in ways just emerging.

Bibliography

Andersson, J. J., & Simon, S. (2024, October 11). Minding the drone gap: Drone warfare and the EU. EU Institute for Security Studies
https://www.iss.europa.eu/publications/briefs/minding-drone-gap-drone-warfare-and-eu

Ares Difesa. (2024, October 20). Il progetto “Sciamano drone carrier” della Marina Militare. Ares Difesa.
https://aresdifesa.it/il-progetto-sciamano-drone-carrier-della-marina-militare/

Arteaga, R. (2025, January 26). China strengthens its naval fleet with the Type 076 Shandong, the giant drone carrier. Inspenet.
https://inspenet.com/en/noticias/china-strengthens-its-naval-fleet-with-the-type-076-shandong-the-giant-drone-carrier/

Best, K. L., Schmid, J., Tierney, S., Awan, J., Beyene, N. M., Holliday, M. A., Khan, R., & Lee, K. (2020). How to analyze the cyber threat from drones: Background, analysis frameworks, and analysis tools [Report]. RAND Corporation.
https://www.rand.org/pubs/research_reports/RR2972.html

Black, J. (2024, January 25). Directed energy: The focus on laser weapons intensifies. RAND Corporation.
https://www.rand.org/pubs/commentary/2024/01/directed-energy-the-focus-on-laser-weapons-intensifies.html

Daily Sabah. (2023, April 10). Türkiye commissions its largest warship, world’s 1st drone carrier. Daily Sabah.
https://www.dailysabah.com/business/defense/turkiye-commissions-its-largest-warship-worlds-1st-drone-carrier

Denizeau, A. (2021). Mavi Vatan, the "Blue Homeland": The origins, influences and limits of an ambitious doctrine for Turkey [Analysis]. Institut français des relations internationales (Ifri).
https://www.ifri.org/en/studies/mavi-vatan-blue-homeland-origins-influences-and-limits-ambitious-doctrine-turkey

Department of the Navy. (2021, March 16). Unmanned campaign framework [Campaign Plan]. United States Navy.
https://www.navy.mil/Portals/1/Strategic/20210315%20Unmanned%20Campaign_Final_LowRes.pdf

Felstead, P. (2023, April 11). Turkey commissions TCG Anadolu as world's first 'UAV carrier'. European Security & Defence.
https://euro-sd.com/2023/04/news/30977/turkey-commissions-tcg-anadolu-as-worlds-first-uav-carrier/

Gale, A. (2023, October 20). Drone carriers and the future of naval aviation. UK Defence Journal.
https://ukdefencejournal.org.uk/drone-carriers-and-the-future-of-naval-aviation/

Haider, A. (2024). The vulnerabilities of unmanned aircraft system components. In Joint Air Power Competence Centre (Ed.), A comprehensive approach to countering unmanned aircraft systems. JAPCC.
https://www.japcc.org/chapters/c-uas-the-vulnerabilities-of-unmanned-aircraft-system-components/

Harper, J. (2019, March 22). Incoming: Can aircraft carriers survive hypersonic weapons?. National Defense Magazine.
https://www.nationaldefensemagazine.org/articles/2019/3/22/incoming-can-aircraft-carriers-survive-hypersonic-weapons/

Helou, A. (2025, February 7). Days after showing off 'Gaza' drone, Iran unveils its first drone carrier. Breaking Defense.
https://breakingdefense.com/2025/02/days-after-showing-off-gaza-drone-iran-unveils-its-first-drone-carrier/

Honrada, G. (2024, May 16). China floats world's first drone aircraft carrier. Asia Times.
https://asiatimes.com/2024/05/china-floats-worlds-first-drone-aircraft-carrier/

Honrada, G. (2024, November 25). Drones alone won't solve US Navy's China problem. Asia Times.
https://asiatimes.com/2024/11/drones-alone-wont-solve-us-navys-china-problem/

Iddon, P. (2024, September 7). Iran and Turkey are betting on drone aircraft carriers to project power. Business Insider.
https://www.businessinsider.com/iran-turkey-drone-carrier-ships-project-power-2024-9

Kallenborn, Z. (2022, August 30). Airpower after Ukraine: Taking today's lessons to tomorrow's war. Atlantic Council. https://www.atlanticcouncil.org/content-series/airpower-after-ukraine/airpower-after-ukraine-taking-todays-lessons-to-tomorrows-war/

Kallenborn, Z., & Plichta, M. (2024, July 15). Breaking the shield: Countering drone defenses. Joint Force Quarterly, (113), 26-35 https://ndupress.ndu.edu/Media/News/News-Article-View/Article/3838997/breaking-the-shield-countering-drone-defenses/

Kasapoğlu, C. (2023, April 10). 3 questions - Türkiye's 1st unmanned combat aerial vehicle ship: TCG Anadolu. Anadolu Agency. https://www.aa.com.tr/en/analysis/3-questions-turkiyes-1st-unmanned-combat-aerial-vehicle-ship-tcg-anadolu/2868610

Kesteloo, H. (2024, August 21). US Navy installs first drone command centre on aircraft carrier. DroneXL. https://dronexl.co/2024/08/21/us-navy-drone-command-centre-aircraft-carrier/

Kesteloo, H. (2024, November 19). Historic first: Bayraktar TB3 drone successfully operates from TCG Anadolu ship. DroneXL. https://dronexl.co/2024/11/19/bayraktar-tb3-drone-tcg-anadolu-ship/

Kenez, L. (2023, November 17). Erdogan announces agreement with Spain on aircraft carrier construction. Nordic Monitor. https://nordicmonitor.com/2023/11/erdogan-claims-agreement-with-spain-on-aircraft-carrier-construction/

LaGrone, S. (2021, June 14). MDA: U.S. aircraft carriers now at risk from hypersonic missiles. U.S. Naval Institute. https://news.usni.org/2021/06/14/mda-u-s-aircraft-carriers-now-at-risk-from-hypersonic-missiles/

Lob, E., & Riehle, E. (2023, March 7). Assessing the threat of Iran's drone carriers. Middle East Institute. https://mei.edu/publications/assessing-threat-irans-drone-carriers

MacDonald, A. (2024, October 14). Why lasers could be kryptonite for drones: After decades of problematic development, the U.S. and others say they have harnessed the technology for military use. The Wall Street Journal. https://www.wsj.com/business/why-lasers-could-be-kryptonite-for-drones-88e4cd4e

Mizokami, K. (2025, February 25). China has developed 'powerful weapons' to destroy U.S. aircraft carriers. The effects could be devastating. Popular Mechanics. https://www.popularmechanics.com/military/navy-ships/a63917095/us-navy-aircraft-carrier-threats/

Obering, H. T. III. (2020, January 9). Directed energy weapons are real . . . and disruptive. PRISM, 8(3), 37-46. https://ndupress.ndu.edu/Media/News/News-Article-View/Article/2053280/directed-energy-weapons-are-real-and-disruptive/

Pomerleau, M. (2024, May 10). Army's growing arsenal of EW weapons seen as contributor to future counter-drone fights. DefenseScoop. https://defensescoop.com/2024/05/10/army-growing-arsenal-ew-weapons-counter-drone-fights/

Rogoway, T. (2024, April 4). The compelling case for arming U.S. Navy warships with drone swarms. The War Zone. https://www.twz.com/sea/the-compelling-case-for-arming-u-s-navy-warships-with-drone-swarms

Savitz, S., & Perez, A. (2025). Could the U.S. Navy fleet of the mid-21st century include large uncrewed vehicles? [Expert Insight]. RAND Corporation. https://www.rand.org/content/dam/rand/pubs/perspectives/PEA2800/PEA2854-1/RAND_PEA2854-1.pdf

Sayler, K. M., DiMascio, J., & Feickert, A. (2024). Department of Defense directed energy weapons: Background and issues for Congress (Report No. R46925). Congressional Research Service. https://sgp.fas.org/crs/weapons/R46925.pdf

Spirlet, T. (2024, May 15). China navy secretly built what could be world's first drone aircraft carrier: Report. Business Insider. https://www.businessinsider.com/china-navy-likely-built-world-first-drone-carrier-report-taiwan-2024-5

Suorsa, O. P., & Cannon, B. J. (2022, November 30). Turkey's future drone carriers. War on the Rocks. https://warontherocks.com/2022/11/turkeys-future-drone-carriers/

Suciu, P. (2024, August 20). The U.S. Navy now has a 'drone' aircraft carrier. The National Interest.
https://nationalinterest.org/blog/buzz/us-navy-now-has-drone-aircraft-carrier-212380

Thomas, R. (2024, May 28). GlobalData: China's drone carrier will aid South China Sea A2/AD bubble. Naval Technology.
https://www.naval-technology.com/news/globaldata-chinas-drone-carrier-will-aid-south-china-sea-a2-ad-bubble/

Tiwari, S. (2024, November 21). Bayraktar drone 'replaces' F-35 for TCG Anadolu ops! Turkey operates TB3 UCAV from amphibious warship. EurAsian Times.
https://www.eurasiantimes.com/turkish-revenge-for-f-35-humiliation/

Türkiye Today. (2024, November 21). Analysis: What does Bayraktar TB3's success on TCG Anadolu mean for naval aviation's future? Türkiye Today.
https://www.turkiyetoday.com/turkiye/analysis-what-does-bayraktar-tb3s-success-on-tcg-anadolu-mean-for-naval-aviations-future-81647

U.S. Government Accountability Office. (2023). Science & Tech spotlight: Directed energy weapons [Report No. GAO-23-106717].
https://www.gao.gov/assets/830/825926.pdf

Yaylali, C. D. (2025, January 16). Turkish navy touts strategic ambitions with Mavi Vatan 2025 drill. Defense News.
https://www.defensenews.com/naval/2025/01/16/turkish-navy-touts-strategic-ambitions-with-mavi-vatan-2025-drill/

Yap, S. (2025, March 3). Light carriers, heavy impact: India's naval evolution in the Indo-Pacific. Modern Diplomacy.
https://moderndiplomacy.eu/2025/03/03/light-carriers-heavy-impact-indias-naval-evolution-in-the-indo-pacific/