THE USMC WORKS ITS WAY AHEAD ON FORCE DISTRIBUTION

The Role of USMC Air

ROBBIN LAIRD

ONE

A Look at this Year's USMC Aviation Plan: Shaping a Way Ahead

March 2, 2025

In January 2025, the USMC released its latest Aviation Plan.

As was noted **in the press release** accompanying the plan:

"Headquarters Marine Corps Aviation released the 2025 Marine Corps Aviation Plan, outlining a strategic framework that balances responding to today's crises with modernizing Marine Aviation to ensure the Corps is prepared for tomorrow's fight. The plan focuses on key areas of transformation, including technological advancements, expeditionary mobility, sustainment, and total force integration. This plan is a roadmap to enhancing operational readiness and ensuring Marine Aviation remains a lethal force in support of the Marine Air-Ground Task Force (MAGTF) throughout the spectrum from competition to conflict."

There is much in the plan to discuss which I will do over a series of articles. Here I am going to step back and take my own bird's eye view of the plan.

I will publish a book later this year entitled *A Paradigm Shift in Maritime Operations*. I argue in the book that the U.S. Navy is focused on DMO or distributed maritime operations or how to make their

capital ships more lethal and survivable by shaping effective ways to distribute effectively their capital ships.

But such an effort will fall short, given the state of U.S. shipbuilding and the availability of capital ships. DMO needs to be combined with innovative ways to distribute maritime effects or DME, which can be done by combined arms operations of manned aircraft with various payload innovations, including incorporation of maritime autonomous systems.

The Marine Corps is clearly focused on both their ability to operate from capital ships to do distributed operations and an ability leveraging their unique mix of aircraft to deliver innovative new ways to do DME.

I am looking at the aviation plan from this standpoint. A key part of the plan highlights the nature of the current USMC air systems, which are unique in terms of what they can deliver to an insertion force. But the plan focuses on the new operational dynamics to which these systems are enabling and evolving and to which new systems and payloads will be added.

The plan also highlights the evolving eco-system which will enable either a DMO or DME force to operate effectively, new C2, new ISR, new training approaches and other tools which will allow for more combat flexibility and effectiveness.

I will examine the approaches suggested in the plan from this perspective.

But let me conclude with what the press release mentioned earlier highlighted as key priorities for the USMC going forward.

The 2025 plan underscores additional key priorities, including:

Aviation Readiness: Ensuring Marine Aviation remains poised to respond to any crisis at a moment's notice, with the readiness to deploy rapidly and provide immediate support when the nation calls.

Enhanced Expeditionary Mobility: Strengthening the Marine Corps' ability to operate from austere, distributed locations through the modernization of platforms like the MV-22B Osprey, CH-53K King Stallion, and KC-130J Hercules, ensuring agile mobility and support for maritime and littoral operations.

Modernizing Aviation Logistics: Modernizing sustainment practices to

ensure readiness in contested environments through the creation of Maintenance Operations Centers, streamlined supply chain reforms, and enhanced aviation logistics packages. These innovations will better support DAO and MAGTF operations while improving sustainment across the force.

Marine Air Command and Control System (MACCS) Modernization: Transforming air command and control capabilities with advanced technologies like the TPS-80 radar and Ground-Based Air Defense Systems. The integration of regional air defense concepts will support Expeditionary Advance Base Operations (EABO) and enhance digital interoperability for joint and coalition operations.

Total Force Integration: Strengthening collaboration between active-duty and reserve forces, particularly through the integration of the 4th Marine Aircraft Wing, to enhance operational flexibility, sustainment, and warfighting readiness across the total force.

TWO

The Operational Re-Set: Distributed Aviation Operations

March 4, 2025

In my interview with MajGen Benedict, shortly before his retirement from the USMC as the Commanding General of 2nd Marine Air Wing, we discussed the challenge of distributed aviation operations (DAO) as seen in a recent exercise with the Nordic militaries:

We discussed DAO and how it differed from simply being a Forward Arming and Refueling Point (FARP). The difference is profound.

While a FARP remains the most visible manifestation of DO, it is the final action and does not by itself reflect significant choices and work necessary to create that capability to re-arm air assets at remote and ever changing locations – allowing the force to disaggregate for protection and then aggregate to mass combat capability, all in a rapid manner to maintain tempo.

As MajGen Benedict put it: The difference is the backside. Where is the location? Why that location? How do we get the fuel there? How do we get ordinance there? How do we provide force protection? How do we maintain the aircraft and for how long? How long are we going to be there? When do we need to move? All of these things are what I call the backside of distributed operations.

To deal with this challenge, 2nd MAW has added a functional area inside

of its Tactical Air Command Center which is called a Distributed Operations Coordination Cell. According to Benedict: Here we plan out and initiate coordination and execution of all the aviation ground support necessary to support an ATO in a distributed environment.

In other words, the synergistic capability of the air elements of the USMC – fifth gen fast jets, the Osprey, attack helos, and heavy lift elements – need to be supported by a DAO ecosystem – C2, readiness for deployment, maintainability at remote locations, and supportability in terms of ordinance.

The USMC new aviation plan highlights the need for investments and focus on such key elements of an ecosystem that can allow the USMC with its joint and coalition partners to move across the chessboard of the battlespace.

In fact, in addition to focusing on the core aircraft the Marines already have and are modernizing and adding new capabilities in the future, a significant focus is on investing in, training for and executing DAO in support of the USMC insertion force, which can operate off of capital ships or be deployed to deliver distributed maritime effects in support of joint maritime operations.

In the aviation plan, the key line of effort is identified as follows:

Focus on the viability of two new concepts: Distributed Aviation Operations (DAO) and Decision Centric Aviation Operations (DCAO).

These concepts are meant to support Distributed Maritime Operations (DMO), Expeditionary Advanced Base Operations (EABO), Stand-in Force (SIF), and broader force modernization efforts. These concepts, which will be tested and developed via the Marine Corps' Concept Generation and Development Process, will drive aviation strategy, doctrine, and acquisitions.

I will focus on this operational driver to the modernization of aircraft and to the shaping of a realistic eco system which can leverage air modernization in support of more lethal and sustainable distributed force whether leveraging capital ships or delivering distributed maritime effects.

THREE

The Next Steps in Working Distributed Aviation Operations: 2nd MAW Works the Challenge

March 16, 2025

When I interviewed the Commanding General of 2nd Marine Air Wing last summer, he underscored the importance for the Marines to craft a way ahead with regard to distributed air operations.

His successor, Major General Swan, has continued the effort. In fact, 2nd MAW has just completed working next steps in the way ahead with regard to DAO.

This is the story written by 1st Lt. John Graham published on 14 March 2025 highlighting the effort:

MARINE CORPS AIR STATION CHERRY POINT, N.C. – Units with 2nd Marine Aircraft Wing (MAW) completed an exercise focused on distributed aviation operations (DAO) near the U.S. Navy's Atlantic Undersea Test and Evaluation Center (AUTEC) on Andros Island, Bahamas, Jan. 28 to Mar. 15.

The exercise encompassed establishing decentralized aviation ground-support operations across multiple sites. Led by Marine Wing Support Squadron (MWSS) 272 and supported by several units across 2nd MAW and 2nd Marine Logistics Group (MLG), the operations included constructing expeditionary landing zones, improving existing landing pads, improving and repairing

infrastructure, and supporting medical and dental civic action programs in support of the local Bahamian community.

"The deployment directly supported 2nd MAW's DAO warfighting concept, allowing aviation assets to operate effectively across multiple, distinct sites while maintaining command-and-control," said Lt. Col. Brandon Mokris, commanding officer, MWSS-272. "This exercise required us to work alongside several units across II Marine Expeditionary Force (MEF) and 2nd MAW to get our Marines and Sailors where they needed to be with the right equipment."

The DAO warfighting concept is 2nd MAW's method of operating within an adversary's sensing and weapons-engagement zone. The concept enables 2nd MAW to generate aviation combat power through the dispersion and coordinated employment of aviation squadrons, command-and-control agencies, aviation logistics, and aviation ground-support units while integrating closely with allies and partners across the battlespace.

In addition to employing future operating concepts, MWSS-272, alongside personnel from 2nd Medical Battalion and 2nd Dental Battalion delivered primary medical and dental care services to Andros Island residents.

"Through coordination with the Bahamian government and the U.S. Embassy, our medical and dental civic action program provided important primary care services to many Bahamians on Andros Island," said Mokris. "We are extremely appreciative of our partnership with the U.S. Navy at AUTEC, as well as the Bahamian government, for enabling us the opportunity to train there."

Participating units included MWSS-272, Marine Medium Tiltrotor Squadron (VMM) 162, Marine Wing Communications Squadron (MWCS) 28, and Marine Air Control Squadron (MACS) 2, which are subordinate units of 2nd MAW, as well as 2nd Medical Battalion and 2nd Dental Battalion, which are subordinate units of 2nd MLG. 2nd MAW and 2nd MLG are the aviation and logistics combat elements of II MEF. Additionally, the U.S. Navy's Fleet Logistics Support Squadron (VR) 62 provided support.[1]

FOUR

A Perspective on the Way Ahead for the Marine Corps Approach to Distributed Operations: LtGen (Retired) Terry Robling, Former MARFORPAC Commander and Deputy Commandant of Operations

March 19, 2025

I had the privilege of dealing with Lt General (Retired) Robling both as DCA and as the MARFORPAC commander.

Based in part on my conversations with him and my observations in both Hawaii and Australia of the joint force, this is what I wrote in 2014:

The United States is in the midst of its Pivot to the Pacific. The USMC is really at the center of the pivot to the Pacific. The USMC is not only redeploying in the region but enhancing its role as a rotational force as well.

Some of the USMC forces in Okinawa are moving to Guam and the Marines are shaping a new working relationship with the Australians in Western Australia. In fact, they are the lead force in re-shaping presence in the Pacific over the next few years.

The Marine Corps in the Pacific faces a myriad of challenges. The Marines have been directed through International Agreements, spanning two different US administrations to execute force-positioning moves. This is political, but it's not partisan.

The U.S. Secretary of Defense has mandated that at least 22,000 Marines in PACOM remain west of the international dateline in the distributed Marine Air Ground Task Force or MAGTF Laydown and he, congress, and the

American people are not interested in a non-functional concept for a USMC force.

The US Needs to Operate in Two Strategic Operational Zones: A Triangle In Support of Japan; and a Quadrangle to Support South Korea and Core Asian Allies.

And, the Obama White House has directed the USMC to make to shift as well of forces from Okinawa to Guam and to a new working relationship with the Australians.

Beyond what is directed, the Marines need to maintain a ready-force in the face of existing training area encroachments, plus they have the requirement for training areas near the new force laydown locations

Within the distributed laydown, the Marines must retain the ability rapidly to respond to crises across the range of demands, from Major Combat operation in NE Asia to low-end humanitarian assistance and disaster relief of HA/DR wherever it occurs.

Each location for the Marines is in transition as well. From Okinawa and Iwakuni, the Marines can locally train in Japan, Korea and the Philippines, as well as respond with "Fight Tonight" capabilities if necessary.

From Guam, the Marines can train locally in the Commonwealth of the Northern Mariana Islands (CNMI) to the north, the Federated States of Micronesia to the south, and Palau and the Philippines to the west. Guam and CNMI provide the Marines something we do not have anywhere else in the Pacific: A location on U.S. soil where they can train unilaterally or with partner nations

The USMC is focused on shaping a distributed operations force to meet these evolving engagement challenges. For such a force, strike is built into the force but is not the defining quality. For many, augmenting the precision strike force is the key area for investments for the US in the Pacific. But the priority ought to be on building up the capabilities for distributed operations within which precision strike is embedded.

As Lt. General Robling, MARFORCPAC has emphasized: "The key is persistent presence and scalable force. We need to be engaged in the process of reform of the various allied forces as well in the Pacific. We cannot nor should not do it all on our own. A distributed force allows for the kind of security engagement we need to do so, as well be positioned for escalation if that occurs.

"Distributed operations and disaggregation is a fact of life in the Pacific.

Rarely do we send an ARG/MEU out now, especially the 31st MEU, into the AOR, where we don't disaggregate. We distribute them to different missions and then re-aggregate to come back to a large exercise or mission.

"Combine this with new more capable equipment we are buying and you have a substantial stand in force not found anywhere else in the Joint Force. If we place an MV22 on any one of those amphibious ships or any an MLP or a TAKE, and you have just extended your shoreline north and south 300 miles each direction."

The Marines are at the forefront of con-ops innovation and have led with the Osprey creating new opportunities and potentially new strategies. The Commanding General of the 1st Marine Air Wing located at Okinawa has leveraged the capabilities of the Osprey to shape a new and more effective island operational strategy. This strategy is key to the overall PACOM strategy in the Pacific

"A good case in point would be when we wish to deploy helicopters from Futenma to the Philippines, there are a couple of places that we must land for fuel. For one leg, there is only one site, which allows us to do this. But when you have an aircraft with greater range and refueling capability you open up a wide range of other deployment possibilities.

"In a time of conflict, if an adversary wanted to deny us the ability to put in a refueling point or intermediate support base, they would have to now take into account a much greater number of islands across an extremely wide operating area. With only helicopters, an adversary could draw a 100-mile ring around a base and know where we could operate.

"Ospreys, particularly when supported by KC-130Js, would significantly complicate an adversary's attempts to predict our movements and operations."

Now the entire joint force is in the throes of working force distribution and the Marines are now again providing a leading edge to such an effort. I recently discussed with Robling his perspective 11 years later as the Marines are working force distribution efforts and doing so with a perspective of operating as an Inside Force.

Robling noted that the Marines air capabilities provided a crucial means for enabling further force distribution with the Osprey providing range and speed, the air refuelable heavy lift component, the CH-53E and its much improvised and more capable digital

aircraft replacement, along with the CH-53K and the multi-domain force enabling F-35.

He argued that with both the Navy and the Air Force focused on force distribution, they needed to enhance their capabilities for contested logistics and to network the force as the joint force crafted a broader kill web. As they do so, the Marines capability to work their own approach to force distribution is enhanced as they can reach back from the forward positions they will operate from to have Naval and Air Force support. Or put another way, the Marines by crafting innovative ways to operate as an Inside Force can enable the capabilities of the Navy and the Air Force to operate more effectively in terms of their own efforts,

The challenge is to have an effective joint and coalition concept of operations. The networking is challenging as well as operating in a contested logistics setting.

Robling highlighted that the Marines operating with smaller more agile sensor enabled ships along with flexible strike capabilities associated with the NEMESIS approach would enhance the capabilities of the Marines as a distributed force and in turn enhance the capabilities of the joint force.

We then talked about the essential need to incorporate and integrate unmanned, uncrewed or autonomous systems within the USMC. What these systems can provide if properly integrated is an enhanced capability for the USMC to deliver significant maritime effects which extends the lethality and survivability of the Navy's capital ships.

He concluded: "I think the Marine Corps has led the way for the entire joint force, the Air Force, the Navy and the Army, to think about force distribution in an entirely new way."

FIVE

Enabling the USMC Approach to Distributed Operations: The Unique Role of Marine Airpower

March 24, 2025

The Marines along with the joint force are focused on force distribution both to enhance survival but to be present where force can have a meaningful impact either from a crisis management or warfighting perspective.

Marine Corps air plays a crucial backbone role in enabling ways in which the Marines can uniquely deliver a distributed maritime effect. Marine Air is focused on being operate with the Ground Combat element from the land, from the sea, or to play an air to air role with their Navy and Air Force brethren or coalition partners.

Many years ago I wrote about what called the *Three Dimensional Warrior* emphasizing how Marine Corps air enables the Marines to insert force with the aid of their unique combination of fifth generation air capability, the Osprey, their unique lift capability – CH-53 E and now K along with the KC-130J which also tanks the fleet – and their upgraded attack helicopters.

As the Marines work new ways to distribute their force to create the distributed effects which the joint and coalition force needs, new payloads, new enabling approaches and technologies, and new capabilities, notably in terms of autonomous systems will enable the

Marines to enable this backbone force to empower a more effective distributed force.

To discuss this further and with more operational detail, I continued my earlier discussion with LtGen (Retired) Robling concerning the way ahead for the USMC. At the outset Robling highlighted the operational focus:

This is how he described the operational approach and its tactical and strategic context:

"In the context of potential conflict with China in the South China Sea, "distributed maritime effects" is just one piece of a joint warfare strategy where forces are dispersed across a wide area to enhance survivability, complicate enemy targeting, and maintain operational effectiveness. This approach contrasts with traditional methods that concentrate forces, making them more vulnerable to detection and attack.

"The South China Sea is a region of strategic importance, with overlapping territorial claims from China, the Philippines, Vietnam, Malaysia, Brunei, and Taiwan. China's activities, such as the construction of artificial islands equipped with military installations —a development referred to as the "Great Wall of Sand"—have heightened tensions and raised concerns among neighboring nations and global powers.

"In response to China's expansive claims and militarization efforts, nations like the United States have conducted Freedom of Navigation Operations (FONOPs) to assert international rights to navigate these contested waters. These operations often involve deploying naval vessels and aircraft to challenge China's assertions and demonstrate commitment to maintaining open sea lanes.

"Implementing distributed maritime operations in this context involves deploying smaller, agile naval (Combat) units across the vast expanse of the South China Sea. This dispersion makes it more challenging for adversaries to target and engage forces effectively. Such a strategy enhances the resilience of naval (and joint and coalition) operations, allowing for sustained presence and the ability to respond swiftly to emerging threats or provocations.

"This approach also aligns with countering China's "grey-zone"

tactics, which include AMONG other Forces the use of maritime militias—civilian vessels employed to assert territorial claims without direct military engagement. By dispersing forces, nations can better monitor and respond to these unconventional tactics, ensuring that no single area becomes a focal point for potential escalation."

To enable such an operational approach, the Marines are leveraging what they have – it is good always to remember that one has 80% now of the force structure which one will have a decade out – and adding new payloads, enablers, and looking to add new platforms during the transition process underway.

But frankly what seems to be lost in discussing the way ahead is the unique quality of Marine Corps Air and its ability to enable force disaggregation, dispersion and distribution and to logistical support such a force. In fact, one could argue that for the joint force in general terms sustainability is the most ignored capability for the force, and one which needs to get more sustained budgetary and strategic consideration.

And it is how the Marines practice and operate interactively among the air elements in support of the ground combat element either ashore or afloat that is a core element of how they can enable and sustain force disaggregation, dispersion and distribution.

In future articles, I will address the air elements and how they interactively provide the backbone for force distribution.

For now, let me turn to Robling's discussion of how the Marines are working new tactical ways to shape their way forward in terms of force distribution.

He highlighted the following tactical and force development approaches:

- Expeditionary Advanced Base Operations (EABO): The USMC can establish small, dispersed, and rapidly maneuverable bases on key islands and littorals within the First and Second Island Chains (e.g., the Philippines, Palau, and the Ryukyus). These bases serve as forward operating locations for missile strikes, air defense, and intelligence gathering. They will be temporary and

relocatable to evade enemy targeting by leveraging prepositioned stockpiles and austere logistics.

- Stand-In Forces (SIF): The USMC will deploy small, resilient units inside contested zones rather than operating from outside the WEZ. These units will focus on denying Chinese naval and air superiority by utilizing long-range anti-ship and anti-air missile systems, such as: NMESIS (Navy/Marine Corps Expeditionary Ship Interdiction System), High Mobility Artillery Rocket System (HIMARS) and counter-detection tactics such as signature management, electronic deception, and rapid displacement will be critical to survivability.
- Use of Littoral and Amphibious Maneuverability :Littoral regiments, such as the Marine Littoral Regiment (MLR), can operate from dispersed and mobile locations using: Small, fast craft (e.g., Mark VI patrol boats, autonomous surface vessels); Unmanned underwater vehicles (UUVs) and aerial reconnaissance assets. This allows the USMC to move unpredictably, reposition assets, and evade missile strikes.
- Integration with Allies and Partner Nations: USMC forces will work with Japan, the Philippines, and Australia to gain basing access and logistical support. Prepositioned stockpiles, fuel depots, and repair facilities will enable distributed forces to sustain operations within China's WEZ. Conducting joint intelligence sharing and operational coordination will enhance situational awareness and strengthen regional deterrence.
- Networked ISR and Targeting for Kill Chains: The Marines will integrate into a Joint All-Domain Command and Control (JADC2) network, allowing: Real-time sensor fusion from drones, satellites, and naval assets. Rapid kill chain execution for targeting Chinese ships and aircraft. Small, distributed units will act as sensor nodes within a larger battle network, relaying

target data to U.S. Navy, Air Force, and allied missile assets.

- Countering China's A2/AD with Dispersed Fires: The USMC will leverage precision fires and deception tactics to challenge China's ability to dominate contested zones: Use decoys and electronic warfare (EW) to misdirect Chinese surveillance and missile targeting; Deploy mobile HIMARS batteries to strike key naval and land-based targets; Launch loitering munitions and autonomous drones for persistent strike capability.

Each of these approaches rely upon Marine Corps air to enable their success and effectiveness. But it is Marine Corps air in transformation in association with the payload revolution and the ability to work with the broad paths opening up with regard to the development and integration of autonomous systems into the manned platforms.

SIX

The Core USMC Air Assets: 2025

March 25, 2025

The lynchpin of rapid force insertion for the USMC is clearly the Osprey. This aircraft is described in the Deputy Commandant of Aviation's January 2025 as follows:

Since the first deployment in 2007, the MV-22's revolutionary capability has been a cornerstone of the MAGTF. The MV-22 Osprey provides medium lift assault support to ground forces in multiple theaters of operation from expeditionary sites and afloat. It also provides unmatched operational flexibility due to its combination of speed, range, payload, and aerial refueling capability. MV-22Bs currently based in Djibouti, Hawaii, and Okinawa provide the ability to respond to crisis, contingencies, and humanitarian missions across large swaths of Africa, Asia, and the Indo-Pacific region.

As the backbone of Marine Corps combat assault transport capability, MV-22B squadrons have conducted a total of 109 operational deployments and flown over 588,000 flight hours since 2007. The MV-22B flies approximately twice as many flight hours per year as any other Marine Corps rotary-wing aircraft.

Moving the insertion force rapidly and at distance is crucial but being able to support that force with adequate weapons, and supplies is crucial. The heavy lift component of the USMC – the

CH-53E and its replacement the CH-53K – are the crucial enablers for a sustainable insertion or distributed force.

This aircraft is described in January 2025 report as follows:

The CH-53K King Stallion offers three times the range and payload capacity of the CH-53E Super Stallion. It can transport heavy equipment, troops, and supplies over long distances, ensuring forces remain agile and supported. Operating from both land and sea bases, including austere sites and amphibious shipping, it provides essential flexibility. The CH-53K handles both internal and external cargo loads, maintaining performance in degraded environments. This versatility allows it to execute complex missions like combat assault transport, casualty evacuation, and logistical resupply, maintaining the MAGTF's operational tempo and effectiveness.

The Marine Corp's heavy lift aircraft is refuelable unlike the Army's medium lift helicopter the Chinook. This means that the CH-53K can move the force, and move with the force and support force insertion and distribution.

But the key partner to both the Osprey and the heavy lift component is the KC-130J. This aircraft is a key player in the ability of the force to be refueled in flight and to carry assets to a fixed field location where supplies can be offloaded and carried forward by either an Osprey and Ch-53K. It also has been weaponized in the Harvest Hawk version of the aircraft, a subject to which I will return later when I discuss evolving payloads for the aircraft.

This aircraft is described in January 2025 report as follows:

The KC-130J remains a critical enabler for forward deployed MAGTF success across all the Combatant Commands. Continuously deployed since 2005, VMGR detachments are supporting Crisis Response-Africa, operations in Europe, the Middle East, and South America. Additional KC-130J capacity has been added with the activation of VMGR-153 aboard MCAS Kaneohe Bay, Hawaii in FY23. This will increase MAGTF mobility and grow logistical capacity throughout the Indo-Pacific.

The KC-130J has proven its value by operating from austere airfields in forward operating areas and providing mission support in emergency evacuation of personnel and key equipment, advanced party reconnaissance, tactical recovery of aircraft and personnel, special warfare operations, intelligence, surveillance,

reconnaissance, target acquisition, indirect and direct fires adjustment, and battlefield damage assessment.

As the sole Marine Corps tactical fixed wing lift and aerial refueling platform, demand for KC-130Js will remain high. The KC-130J and VMGR will continue to be a critical asset to the MAGTF and the Joint Force in the movement of aircraft and cargo across the globe for years to come.

The F-35 is even to this day not well understood. Whether being used by the Israelis to destroy Iranian air defenses, or enabling incredible reach to interoperable air forces through the sensor sweets and low latency communication systems, the F-35 is a foundational capable to provide an insertion force with an overhead sensor-shooter capability which is unparalleled currently. The flexibility of the F-35B in terms of its deployability enables force distribution not available to any other ground force in today's world. And the F-35C adds range with its enhanced fuel capability which can support an insertion force as well, although it requires landing fields which the F-35B simply does not need.

This aircraft is described in January 2025 report as follows:

The F-35B/C provides afloat and expeditionary 5th Generation lethality to Combatant Commanders with an advanced array of sensors, air-to-air missiles, and air-to-surface strike weapons. The F-35B/Cs survivability in the most contested environments stands ready to counter the pacing threat.

The fourth key air element is USMC attack helicopter coupled with their lift counterpart the UH-1Y.

These aircraft are described in the report as follows:

H-1's are the MAGTF's multi-tool. Marine Light Attack Helicopter Squadrons (HMLA) are manned, trained and equipped to fight from the sea into austere environments and confined littoral spaces. The AH-1Z "Viper" and UH-1Y "Venom" provide attack and utility capability, working in concert with Naval and Joint Force capabilities, to sense, shoot, survive, and sustain inside the Weapon Engagement Zone (WEZ). As a kill web enabler and effector, H-1s expand depth, range, and communication to the MAGTF, providing lethal and non-lethal options to the commander. They are essential to narrowing service gaps in low-altitude attack, strike, and utility capabilities, and are critical to enable a seamless transition to the H-1 Next in the 2040s.

But because the U.S. Army is building a new tiltrotor attack heli-

copter, the Marines could leverage this program to introduce their own variant. Tiltrotor will add a significant survivability element to attack helicopters facing new threat environment by having a flight envelope that gives them more flexibility and survivability and is being built from the ground up to work with what the Army calls launched effects systems or autonomous systems.

These four aircraft form the core of the USMC 360-degree air element for force insertion and distribution. Other capabilities are being added, notably the MQ9A Reaper which in many ways is part of the effort to incorporate uncrewed systems within the operational envelope of the MAGTF.

As the January 2025 report underscored: *Unmanned Aerial Systems (UAS) have become essential assets as a force multiplier in modern military operations, offering a tactical to strategic combat edge and versatility across the range of military operations.*

In my view, the air arm provides the backbone for the insertion force and its ability to deliver distributed maritime effects. They are evolving in part with upgrades in terms of the platforms, but more rapidly and notably in terms of the payloads they can carry and work with. This is where key enabler come in, notably in terms of distributed C2 and ISR and evolving tactics for reducing the signature of the force to enable it to move as a more survivable and lethal force.

In the follow up to this report, I will address each aircraft and examine how they are evolving and how they might evolve as payloads change under the influence of technological development.

Notes

3. The Next Steps in Working Distributed Aviation Operations: 2nd MAW Works the Challenge

1. https://www.2ndmaw.marines.mil/News/Article-View/Article/4121158/2nd-maw-units-complete-distributed-aviation-operations-exercise-in-the-bahamas/