F-35B PERMA for Surface Warfare

Marines in the fight at sea

by LCDR Virgil Fermin

In the era of pacing threats and competition, the Naval Services continue to face challenging problems at sea. The tyranny of distance and rapid production of long-range missile systems consistently complicate the maritime operational environment. These long-admired challenges are not exclusive to a specific geographic area or potential belligerent.[1] As the maritime domain has become increasingly complex, the state of L-class ships has remained relatively static. New construction LPDs remain a quarrelsome subject, and the current fleet of L-class ships still urgently needs to be retrofitted with offensive surface-to-surface missiles. Considering limited budgets, the Navy has primarily disregarded the advanced weaponization of L-class ships and focused reinforcement efforts elsewhere.

In particular, the Navy is flirtatiously experimenting with containerized launcher systems on littoral combat ships to increase lethality options.[2] These unfortunate certainties tend to influence the marginalization and mischaracterization of L-class ships exclusively as maritime transportation. The writing on the wall indicates that L-class ships are effectively an afterthought for combat operations in any potential future conflict. Although not explicitly declared, the Navy needs the Marine Corps to become an active participant in the fight against higher-end threats at sea. The Marine Corps is already well-positioned to implement a bold change and reinvigorate operational art by blending tenets of legacy amphibious operations with an underrated platform.

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First, the Marine Corps and Navy must set aside the fluctuating nuances of the supported and supporting command relationships. Defining which Service is in a leading role is less relevant than an effective, goal-oriented reorganization of high-end capabilities for present-day problems. The crux of the modern maritime dilemma for the Navy-Marine Corps team is that highly capable warships comparable to the People's Liberation Army Navy's Type 055 Renhai-class guided missile cruiser have rendered ship-to-shore movement an improbable course of action.[3] Prerequisite conditions demand an upgraded offensive posture and recommitment to *the Defense of the Amphibious Task Force (DATF)* beyond traditional small-caliber machinegun teams.[4] Machinegun firepower is no longer a practicable deterrent solution or sufficiently intimidating for present-day maritime problems with superior armaments.

The *38th Commandant's Planning Guidance* articulated the obligation for the FMFs' expanded integration within *composite warfare*, but the methods for achieving the objective were left open for interpretation and creativity.[5] Proposals, such as establishing a Marine Corps-led Expeditionary Warfare Commander, have attempted to solve the composite warfare integration. However, implementing the Expeditionary Warfare Commander is an unnecessary workaround to a proven mission command structure. The Naval Services are still balancing the internal challenges of transitioning from ideas into repeatable action within the boundaries of resources. In place of direct conflict, now is the appropriate time for the Naval Services to revisit *composite warfare* with an executable plan. Long-term victory at sea is contingent on the Marine Corps' willingness to selflessly leverage one of its most exquisite platforms in an expanded direct support role for the Navy. Therefore, the Navy and Marine Corps must agree upon prioritizing surface threats and optimizing F-35B Light II Strike Fighter from LHD/A ships for surface warfare (SUW).[6]

Planning and Embarkation

The Naval Services can no longer wait for a future impact point with prospective antagonists. The Marine Corps-Navy team must expand and push for greater distances over the horizon in the maritime domain. In the words of CAPT Wayne Hughes, "When new technology offers more speed without compensatory cost, we should embrace it."[7] The speed of implementation is incrementally more imposing, combined with tangible physical speed. Although potentially controversial, the concept of F-35B in an SUW role is a clash between idealism and necessity. The transition from the AV-8 Harrier to the F-35B is more complex than a one-for-one replacement of capabilities. The role once envisioned for the F-35B Light II Strike Fighter a decade ago may no longer perfectly align with the requirements needed by naval forces today. Prospective ac-

tions ashore are contingent on security en route to the objective. Instead, the combined expeditionary force should refocus planning on adversary warships that pose a significant danger to the Naval Services.

Due to its inherent operational range, the F-35B offers significant flexibility for a scheme of maneuver and the development of SUW plans.[8] Successful planning for contemporary threats requires an innovative interpretation of the *Six Functions of Marine Aviation* for SUW.[9] In contrast to legacy amphibious ready group (ARG)-based aircraft, the F-35B is equipped with superior sensor packages and data interoperability systems.[10] The F-35B provides the ARG with enhanced, complementary, flexible kill chain capabilities.[11]

The F-35B enhances the Marine-Navy team's ability to avoid prospective adversary warship threats before they enter a weapons engagement zone. The Marine Corps must be willing to divert from reserving the F-35B for a land-centric role in favor of an SUW-focused sensor and weapons package. Correspondingly, the F-35B must assume the principal role in *Air Operations in Maritime Surface Warfare* and the surface surveillance coordination, armed reconnaissance/strike coordination, and reconnaissance mission sets for the ARG.[12] The respective SUW mission sets already doctrinally support the *DATF* concept and the maritime scheme of fires. Repurposing F-35Bs for SUW dually postures the amphibious force for offensive and defensive operations.

Regarding planning, the air tasking order (ATO) already provides a proven and executable mechanism for allocating the F-35B for SUW missions.[13] The ATO's internal processes balance priorities and deconflict mission requirements. Therefore, a realistic change does not necessitate extraordinary effort. Collaboration is achievable through dedicated Marine Corps integration in the SUW planning process and codified commitment in the ATO. The ATO also fundamentally aligns with the principal concept that planning does not end. The ATO is a dynamic formal order that allocates assets in a cycle based on mission requirements. Thus, avoiding the traditional convoluted shifting C2 support relationship and potential friction.

***U.S. Joint Forces conducted coordinated multi-domain, multi-axis, long-range maritime strikes in the Hawaiian Islands during a sinking exercise on the decommissioned guided missile frigate USS* Ingraham. *The exercise synchronized joint, multi-domain, multi-axis fires with near simultaneous times on target to sink the hulk.* (Photo by Petty Officer 1st Class Daniel Kelley.)**

Evolution in F-35B formal plans also requires adjusting its corresponding embarkation. In particular, the embarkation of F-35B armament, weaponeering expertise, and MEU intelligence practitioners. The priority of physical embarkation needs to center on the current availability of prospective SUW weapons. The F-35B weapons can provide a better solution against the most dangerous threat platform. The current inventory of F-35B weapons is the baseline for innovation and a menu for applying desired effects. The advancements in offensive air employment made during Operation ENDURING FREEDOM serve as valid historical references for the Marine Corps' potential escapade into SUW with the F-35B.[14] During Operation ENDURING FREEDOM, the Joint Force effectively utilized Afghanistan as a metaphorical battle laboratory for the employment of joint direct attack munitions and laser-guided bombs.[15] The current inventory of F-35B weapons must be synchronized and prearranged for SUW effects with a similar approach. Marines must purposely load out and embark on amphibious ships to cross the threshold of their weapon limitations for SUW. It is essential to embark large-deck amphibious ships with an inventory of F-35B weapons capable of inflicting damage on various maritime platforms. Marines must avoid the allure of becoming enamored with only pursuing the most premier and high-profile targets.

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Rehearsal

There are abundant opportunities for the Marine Corps and Navy to re-

hearse F-35B SUW missions and their associated ancillary functions. The execution of the ATO and daily air plan is the primary repeatable iteration. Once airborne, F-35B will immediately be capable of rehearsing coordinated maritime air reconnaissance and developing the tactical picture.[16] An area of principal interest is the rehearsal of the machine-to-machine exchange of information from the F-35B to Navy combat systems components. Electronic warfare must also serve as a complementary task to air reconnaissance. The efficacy of Navy-Marine airborne sensor integration must mature through trial and error. Testing the effectiveness of data connections between Marine-Navy platforms is critical and must be normalized as a standard practice.

Maritime targeting is another area where the Navy and Marine Corps can increase collaboration through experimentation and replication. Execution requires Marines to pivot drastically from land-focused target structures to the maritime domain. The Marine Corps needs to increase MEU intelligence practitioners' expertise on adversary warships and intensify weaponeering for potential shipping targets. Hence, develop Marines familiar with the characteristics of prospective targets, decide on the desired effects, select the appropriate munitions, and master deliberate surface targeting with the F-35B.[17] Ultimately, when combined, these efforts enable the repeatable prosecution of dynamic targets.

The Marine Corps has two existing venues to improve its proficiency in F-35B SUW employment in *Surface Warfare Advanced Tactical Training* (SWATT) and *Composite Training Unit Exercise* (COMPTUEX).[18] Surface Warfare Advanced Tactical Training is appropriate for F-35B *SUW* experimentation and corresponding advanced tactics development.[19] Focused participation in the training exercises could imply significant changes in the Marine footprint on ships. An entire MEU or ACE may be unnecessary during a SWATT to achieve the desired performance objectives. Composite Training Unit Exercise is another equally advantageous exercise from which the Marine Corps can capitalize on integration with multiple units and staff. During COMPUTEX, units are collectively integrated and rehearse sustained combat operations at sea.[20] Marine Corps participation in SWATT and COMPTUEX requires a deviation from the standard MEU training cycle practices. Therefore, the Marine Corps must reconsider its approach and involvement in SWATT and COMPTUEX.

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Movement

The F-35B is a comprehensive platform, but it does have range limitations for SUW missions. The aircraft's movement is constrained by its fuel capacity and impacted by the weapons' weight loadouts. Conversely, the newly released *Tentative Manual for Expeditionary Advanced Base Operations* (*EABO*) *2nd Edition* leaves several questions that need resolution. The conduct of EABO and what an expeditionary advanced base (EAB) is are still being determined. Debates can be a positive endeavor, and F-35B offers a pathway for ideas to evolve into actionable concepts of operations. One apparent item from the *Tentative Manual for EABO* is the inclusion of forward arming and refueling point (FARP) operations as an *EABO* task.[21]

The FARP EAB integration is a surefire method of extending the F-35B's range hundreds of miles from a large-deck amphibious ship. The forward refueling EAB is currently achievable with prevailing capabilities while maintaining a relatively low profile. The temporary movement of F-35Bs from ship to shore for a refuel drastically changes the tactical geometry of airborne surface target pursuits. The FARP EABs enable Marines to reap the benefits of strategic geography and predefined arrangements through movement. In execution, this is a sound alternative to waiting for the perfect technological solution to arrive later. Forward refueling EABs provide additional accompanying opportunities for expanded F-35B interoperability with naval sensor networks beyond the ARG.[22] Physically moving the F-35Bs geographically transforms EABO from conceptual to palpable joint force synchronization.

Action

According to reports, the Air Force is already getting in on the action and aggressively working toward improving its organic strike maritime capabilities.[23] The U.S. Air Force Weapons School has recently introduced initiatives directly partnering with Navy commands for joint counter-maritime exercises.[24] The Air Force's increased emphasis in the maritime domain is a positive trend for the Joint Force. The problem is that the Air Force is one of many participants getting in on the action. In 2021, the US Naval Institute reported that the Chinese military had built multiple mockup targets in the Taklamakan desert in the shape of probable U.S. warships as part of a new target range compound.[25] Regardless of their intentions or envisioned victims, we can conclude that the Chinese military is not sitting idly on a maritime strike.

In the words of legendary Coach Mike Krzyzewski, "You can never anticipate everything that will happen. But you can take action yourself, and you can create a culture that routinely adjusts to a changing environment.[26] The Navy and Marine Corps struggle between protecting their Service-centric interests and adjusting to the future. The Marine Corps must take the lead and embrace its characteristic bias toward action to disrupt the existing state

of affairs. The maritime environment has changed significantly since the inception of the F-35B Light II Strike Fighter program. Significant consequences are at stake if the Naval Services remain in denial. However, the F-35B has the inherent capabilities to reform the culture of Marine-Navy interoperability. The Marine Corps can change the culture of interoperability and the immediate development of future warfighting. The alternative to change for the Naval Services is comfortable inertia and the potential consequences of being on the receiving end of an adversary's missile.

Notes

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