



## **Recommendations for Improving the U.S. Marine Corps' Force Design**

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**Abstract:** The U.S. Marine Corps' *Force Design* roadmap has inspired great debate about the purpose, role, and strength of the Marine Corps in an increasingly contentious and complex world. On the surface, *Force Design* appears to be an attempt to make the Marine Corps relevant in a rapidly changing operational environment that has seen the rise of powerful nation-states opposed to a United States-led world order. Rather than debating whether *Force Design* is best for the Marine Corps, this article delves into actionable recommendations for how to improve the *Force Design* roadmap given the Marine Corps' responsibilities in both competition and warfare, which include the use of the new stand-in forces concept to foil further

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annexations of territory by major powers as well as the more traditional responsibilities of maintaining forward presence and conducting amphibious operations in war.

**Keywords:** U.S. Marine Corps, *Force Design*, strategic context, stand-in forces, SIF, amphibious assault, forward presence, China

## **Introduction**

The U.S. Marine Corps' *Force Design* (formerly *Force Design 2030*) is a plan currently being implemented to restructure the Service to meet the challenges of peer threats, especially in the Indo-Pacific.<sup>1</sup> *Force Design* creates a radically different Marine Corps to meet the challenges of peer adversaries across the range of military operations. This emphasis contrasts with the previous demand for counterinsurgency operations in the Middle East during the Global War on Terrorism (GWOT). This article offers some timely recommendations to improve the *Force Design* roadmap. To that end, the article first looks at the broad strokes of the strategic environment. Second, the article explains what stand-in forces (SIF) are and make recommendations to ensure that they are useful in the current strategic environment. Third, the article analyzes current Marine Corps amphibious assault capabilities and makes recommendations to improve current forcible entry from the sea. Finally, the article makes recommendations for U.S. Navy shipbuilding and acquisition to ensure maximum utility for the Marine Corps' forward presence. The ultimate purpose of the research presented in this article is to keep the Marine Corps as relevant as possible in the current strategic context.

## **The Present Strategic Context**

The present era is a dangerous one for U.S. national security, as the United States faces a complex set of threats. First, there has been the rise of strategic competitors in the revisionist powers of the Russian Federation and the People's Republic of China, both of whom have shown themselves to be opponents of a U.S.-led world order. Second, there is a weakening of the post-World War II international order as the world is thrust into a phase of great power rivalry and potentially another great power war. Third, there is the existence of destabilizing rogue regimes in the Islamic Republic of Iran and the Democratic People's Republic of Korea (North Korea), which are seeking an ironclad deterrent against U.S. military power. To achieve this goal, these regimes are destabilizing their regions through imperialistic policies, in the case of Iran, or a quest for nuclear-tipped intercontinental ballistic missiles that are able to destroy U.S. cities, in the case of North Korea. Fourth, there is the persistent threat of nonstate actors, many of whom are either in league with or share a similar revolutionary ideology to those groups that originated the GWOT following the 11 September 2001 terrorist attacks against the United States. Fifth, all of these national security threats to the United States and its interests are challenging the nation's military advantages across all domains, including land, sea, air, space, and cyber. Finally, the current period of rapid military technological advancement—to include the evolution of autonomous weapon systems, cyber warfare, long-range precision fires, directed-energy weaponry, and artificial intelligence and machine learning—is changing the very character of war.<sup>2</sup>

These revisionist powers, rogue regimes, and nonstate actors create a pool of potential enemies that may seek a military confrontation with the

United States and its allies to accomplish their strategic objectives. Such threats include the potential annexation of islands in the Western Pacific by China and/or a Chinese invasion of Taiwan, the potential annexation of territory in the Arctic by Russia and/or more Russian incursions into Eastern Europe, a potential breakout for a nuclear weapon by Iran and/or Iranian operations in the Persian Gulf, the ever-present threat of North Korea, and further terrorist attacks and attacks on shipping lanes by radicalized nonstate actors across the world. As a result, there are several potential theaters of action that may demand the use of U.S. military forces against major powers, rogue regimes, or nonstate actors.<sup>3</sup>

Considering these scenarios and threats, the Marine Corps could be called on to respond to any of them. This means that the Corps must be able to win against a multitude of actors that will contest all domains and use increasingly potent antiaccess/area-denial (A2/AD) weapons. In such a strategic environment, Marines must be able to succeed in a variety of operations and tactical situations against a variety of enemy militaries or irregular forces.

This article will look at three areas in which the Marine Corps can improve its capabilities to become more effective in its roles in this strategic environment. These areas of improvement include the employment of SIF, the conduct of forcible entry operations against key maritime terrain, and the ability to maintain a forward presence via U.S. Navy amphibious warships.

### **The Nature of Stand-in Forces**

According to *A Concept for Stand-in Forces*:

SIF are small but lethal, low signature, mobile, relatively simple to maintain and sustain forces designed to operate across the competition continuum within a contested area as the leading edge of a maritime defense-in-depth in order to intentionally disrupt the plans of a potential or actual adversary. Depending on the situation, stand-in forces are composed of elements from the Marine Corps, Navy, Coast Guard, special operations forces, interagency, and allies and partners.<sup>4</sup>

Additionally, according to the 2018 U.S. National Defense Strategy's Global Operating Model, the Joint Force "will be postured and employed to achieve its competition and wartime missions." The Global Operating Model will consist of four layers—contact, blunt, surge, and homeland—which are designed "to compete more effectively below the level of armed conflict (contact); delay, degrade, or deny adversary aggression (blunt); surge war-winning forces and manage conflict escalation (surge); and defend the U.S. homeland (homeland)."<sup>5</sup>

SIF will maintain a forward presence to work with allies and partners to frustrate enemy plans through a relevant and robust defense partnership. SIF will also conduct multidomain reconnaissance to give the Joint Force the information needed to identify and counter malign behavior, and, in the case of conflict, enable the Joint Force to attack first before the enemy can. When directed, SIF will "conduct sea denial operations in support of fleet operations, especially near maritime chokepoints." SIF will do this by integrating into naval and Joint capabilities to complete kill webs or by using their organic sensors and weapons to complete kill webs.<sup>6</sup> SIF also possess their own maneuver and offensive capabilities to seize key maritime terrain and support sea denial

operations from a position of advantage. SIF present a problem for an enemy that “cannot be ignored . . . as their low signature, high mobility, dispersion, and use of deception make them difficult for an enemy to find and target.”<sup>7</sup> In this era of great power competition, SIF enable a rapid and tailored response to prevent gains by an enemy seizing littoral terrain with its military forces.

A key SIF unit is the new Marine Littoral Regiment (MLR), a multidomain force optimized for the contact and blunt layers of the Global Operating Model. The MLR is designed as a naval formation that possesses the capabilities to enable maneuver operations in the maritime domain. To enhance the mobility and sustainment of the MLR, the Navy will field a new landing ship medium (LSM) that is able to transport 50 Marines and their equipment.<sup>8</sup> It will take nine LSMs to make an MLR self-deployable. However, the first LSM will not be delivered until 2029, and the Navy will not have enough LSMs to make an entire MLR self-deployable until the 2030s.<sup>9</sup>

Providing sustainment to SIF in a shooting war with a peer power is very important. However, year after year, the Marine Corps has found in wargames, exercises, and experiments that its infrastructure and logistics enterprise is “not yet organized, trained, or equipped to sustain expeditionary forces across all domains” as envisioned in *A Concept for Stand-in Forces*. To change this reality, the Corps is adapting its sustainment activities by transitioning from “a force optimized for supporting sustained operations ashore to a maritime force capable of supporting operations in austere, expeditionary, and littoral environments that are contested across all domains.”<sup>10</sup>

## **Recommendations for Improving the Employment of Stand-in Forces**

*Enshrine the Deployment of Stand-in Forces to Positions of Advantage in Doctrine, Planning, and Training as Early as Possible Given the Delicate Diplomacy of Foreign Policy Crises*

Strategically, there are a few drawbacks to the U.S. military's current force posture. First, it is defensive in nature, waiting on the initiative of a peer military such as that of Russia or China to initiate a maritime conflict over littoral territories and shipping lanes. Such a situation could prove decisive if Russia or China was to act faster than the forward-deployed SIF were able to seize positions of advantage. Second, having to wait for an opponent's aggression allows for a peer military to test the resolve of the United States and its allies to rapidly deploy expeditionary forces to counter the annexation of new territory or maintain effective deterrence. Third, there is the issue of what *A Concept for Stand-in Forces* calls "salami slicing," in which a rival confronts the Joint Force by "waging or threatening war over comparatively minor stakes," daring the United States and its allies to act in a way that could provoke a conflict over limited strategic aims, or forces the acceptance of "local encroachments, annexations, or other violations of the rules of the established international order."<sup>11</sup> This is just one strategy that could be used by rivals to annex territory piece by piece.

Beyond these strategic concerns, there are also tactical concerns for the deployment of SIF employing any type of sealift that lacks survivability against peer antiship weapons. According to a Congressional Research Service report on the Navy's LSM:

The survivability of LSMs would come from their ability to hide among islands and other sea traffic, from defensive support they would

receive from other U.S. Navy forces, and from the ability of their associated Marine Corps units to fire missiles at Chinese ships and aircraft that could attack them with their own missiles (which can be viewed as an application of the notion that the best defense is a good offense).<sup>12</sup>

There are two major problems with this proposed protection for LSMs and any transport craft that lacks protection from antiship missiles or loitering munitions. First, if Marines are to employ missiles against enemy naval assets to protect their transports, then this requires that Marine expeditionary advance bases occupy positions of advantage before the fighting begins. Second, in the case of China, hiding among sea traffic in a contested area may not be a reliable defensive measure, as the Chinese People's Liberation Army (PLA) possesses numerous corvettes and fast attack craft, persistent overhead surveillance, and a 7,000-ship maritime militia that could detect and track Marine Corps transports before such a conflict began. There is also the threat of Chinese human intelligence sources detecting Marine transports.<sup>13</sup> These two concerns underscore the need for SIF to be deployed to positions of advantage during the competition phase of a crisis, which will allow their transports to hide in friendly waters, such as those of the vast archipelago of the Philippines.

Therefore, due to these strategic and tactical concerns, the SIF concept will best work as intended if indications and warnings are acted on promptly to give enough time for the deployment of MLRs early enough to be relevant in a crisis.



*Stand Up a Marine Littoral Regiment Equipped with Maritime Strike Tomahawks  
No Later than Fiscal Year 2027*

A series of wargames conducted by the Center for Strategic and International Studies (CSIS) suggests what the most useful forces will be in a war with China over Taiwan. During the wargames, it was found that U.S. submersibles and long-range precision-guided munitions (PGM), especially those launched from strategic bombers, would be key weapons in such a fight.<sup>14</sup> A wargame conducted by the Center for a New American Security confirmed that long-range PGMs and submersibles will indeed play a key part in defending Taiwan.<sup>15</sup> The CSIS wargames also determined that U.S. Army and Marine Corps ground forces would be of little utility in comparison to other assets, such as bombers, because of China's extensive defensive zones, which either destroyed MLRs en route to positions of advantage near Taiwan or prevented resupply of MLRs that had used up their munitions.<sup>16</sup>

In addition, Naval Strike Missiles (NSM) with a limited range of 100 nautical miles that were deployed with MLRs during the wargames proved to have limited utility in a fight over Taiwan. This was due to an inability to deploy Marines close enough to Taiwan to make the NSMs effective, caused by a blockade enforced by Chinese ships, aircraft, and land-based launchers. This blockade also ruled out conducting an amphibious assault against Chinese forces that had created a beachhead on Taiwan. It was found that missiles with long ranges, such as Tomahawk cruise missiles, would be most effective when employed by Marines from distant bases in the Western Pacific. The wargames specifically noted, "If ground-launched Tomahawks have a similar range to their Vertical Launch System (VLS) counterparts, they could be

employed from peacetime bases on Okinawa without moving in the Chinese defensive zone.”<sup>17</sup>

This offers a stark reminder of the tyranny of distance found in any Indo-Pacific campaign. Already, the Marine Corps is standing up units of Tomahawk missile launchers for its MLRs.<sup>18</sup> The Corps must have the right kind and right number of antiship missiles for a conflict with China over Taiwan as soon as possible, especially since Chinese president Xi Jinping has told the PLA to be ready for an invasion of Taiwan by 2027.<sup>19</sup> A current problem is that the newly deployed Maritime Strike Tomahawk missiles are few in number and needed where they will matter most. The Navy decided in 2024 that the missiles will be deployed first on nuclear attack submarines.<sup>20</sup> However, the Marine Corps must ensure that it can stand up at least one battery of Maritime Strike Tomahawk missiles in fiscal year 2026 or 2027 so that its MLRs will be relevant in a war for Taiwan.

### **Understanding Current Amphibious Assaults**

Before exploring ways to improve Marine Corps forcible entry operations from the sea, it is necessary to first define the terminology concerning amphibious assaults, a type of Joint forcible entry operation. As defined in *Joint Forcible Entry Operations*, Joint Publication (JP) 3-18, Joint forcible entry operations “seize and hold lodgments against armed opposition.” A lodgment is “a designated area in a hostile or potentially hostile operational area (such as an airhead, a beachhead, or combination thereof) that affords continuous landing of troops and materiel while providing maneuver space for subsequent operations.”<sup>21</sup> As defined in *Amphibious Operations*, JP 3-02, an amphibious operation is “a military operation launched from the sea by an

amphibious force to conduct landing force operations within the littorals.” The littorals include “those land areas (and their adjacent sea and associated air space) that are predominantly susceptible to engagement and influence from the sea and may reach far inland.” Amphibious operations require “the unique ability to operate across air, land, and sea.”<sup>22</sup>

There are several types of amphibious operations. This analysis concentrates on the amphibious assault. An amphibious assault is a type of forcible entry operation launched from the sea by an amphibious force that is embarked in ships or crafts. The objective is to land the landing force and establish it on a hostile or potentially hostile shore. As outlined in *Amphibious Operations*, “the salient requirement of an amphibious assault is the necessity for rapid build-up of combat power ashore to full coordinated striking power as the attack progresses toward [the amphibious force’s] objectives. The organic capabilities of [amphibious forces], including air and fire support, logistics, and mobility, enable them to gain access to an area by forcible entry.”<sup>23</sup> The ultimate objective is to get the amphibious force to shore and to prevail on land, sea, and in the air.

A successful amphibious assault includes the following phases:

1. Force arrives in the operational area.
2. Preparation of the landing area by supporting arms.
3. Ship-to-shore movement of the landing force.
4. Air and surface assault landings.
5. Linkup operations between surface and air landed forces.
6. Provision of supporting arms and logistics and/or combat service support.
7. Landing of remaining required landing force elements.

## 8. Mission accomplishment.<sup>24</sup>

One analysis conducted by this author that examined the key issues facing modern amphibious assaults, especially for major combat operations against a peer power, found a host of problems facing the amphibious assault enterprise.<sup>25</sup> First, there are issues with movement to the area of operations, including limited protection for amphibious warfare ships against peer attempts at sea denial and the threat of naval mines laid in the approaches, in shallow water, and/or in the surf zone. Second, there are problems with preparation of the landing area by supporting arms, including difficulty securing air superiority and the potential for insufficient fire support for amphibious landings. Third, there are problems with ship-to-shore movement of the landing force, which include having too few amphibious warfare ships to rapidly land a Marine Corps landing force with the requisite training for such an operation, a lack of protection for surface connectors against threats while in transit to the landing area, and the possibility that surface connectors will face attrition during an amphibious assault that denies the rapid buildup of forces ashore. Fourth, there are difficulties with air and surface assault landings, including the threat of enemy forces in the amphibious objective area, the threat of enemy fires massed against the landing force, and the lack of a surface connector capable of forcible entry from over-the-horizon. Finally, there are problems with sustainment and the introduction of follow-on forces due to a lack of protection for Maritime Prepositioning Force ships and connectors against enemy attempts at sea denial.<sup>26</sup>

The conclusions drawn from this study on amphibious assaults paints a picture of the capabilities needed to prevail. Successful amphibious assaults will require the suppression of coastal air and surface defenses in the amphibious objective area, the gaining of sea control around the amphibious objective area, the conduct of mine countermeasures breaching operations against naval mines during an extended time, the gaining of air superiority over the amphibious objective area for an extended time, and the elimination of an enemy's use of long-range antiship weapons that can target the amphibious force. Otherwise, the amphibious assault may carry great risk due to a chance of high casualties. It therefore becomes imperative to engage enemy forces in what may be a series of battles to prepare for an amphibious assault. U.S. forces will need to punch a hole in the enemy's A2/AD defenses, possibly during a prolonged period, in preparation to maneuver from the sea for the amphibious assault.<sup>27</sup>

Consequently, U.S. amphibious forces will need to mitigate the threat of enemy weapons systems through the use of superior protection, including active defenses; dispersion; higher lethality at longer ranges; better training; reduced signatures; information dominance; adaptation, especially when technology fails due to enemy action; suppression or destruction of enemy defensive capabilities, including the destruction of the most dangerous enemy assets before they are employed; and effective military deception. Another consequence of increasing enemy lethality is that amphibious task forces will rely on naval escorts, including carrier strike groups (CSG), for most of their antisubmarine warfare, mine countermeasures, antisurface warfare, and antiair warfare capabilities.<sup>28</sup>

Another consideration in improving the Marine Corps' amphibious assault capabilities is that while seizing littoral regions occupied by a peer military using long-range precision fires in the defense may be technologically feasible, it may not be affordable, especially in the current budgetary environment. The current reality is that the Corps' amphibious operations capability may best be used for military operations other than war, as a raiding force, for deploying SIF, for conducting special operations, and as a threat to land on lightly defended enemy-occupied territory, which will force an enemy to allocate their finite resources to prevent such a landing. That said, this is a worst-case scenario that assumes the resources to improve amphibious assault capabilities are not allocated.

## **Recommendations for Improving the Employment of Forcible Entry Operations**

### *Develop a Clear Roadmap for Enabling Marine Corps Forcible Entry Operations*

Because U.S. policy makers must continue to have the choice of executing forcible entry operations from the sea against occupied maritime terrain, the Marine Corps must develop a clear outline of how it will make amphibious assaults effective against strategic maritime terrain held by a peer power. Such a blueprint is badly needed given the formidable forcible entry capabilities possessed by peer powers such as China and Russia, which can contest key maritime objectives, as well as technological and tactical advances that have placed the amphibious assault enterprise in peril.<sup>29</sup> A document, with a version able to be read by all stakeholders in enabling amphibious assaults, should outline how the Marine Corps will contest the occupation of key maritime terrain by a peer power.

*Pursue a High-Water-Speed Solution for Getting Marines and Their Equipment to Shore in the First Wave of an Opposed Landing as Soon as Possible*

In the current threat environment, surface connectors face increasing threats as high-value targets.<sup>30</sup> They are also being forced to deploy far from shore, sometimes even up to 100 nautical miles.<sup>31</sup> While the Marine Corps' new amphibious combat vehicle (ACV) will not have the capabilities needed to swim to shore from long range, it is nevertheless a vital replacement for the assault amphibious vehicle (AAV) until a high-water-speed surface connector materializes.<sup>32</sup> Therefore, survivable surface connectors that can rapidly traverse distances of 100 nautical miles or more present a needed capability in the current environment.

Survivable surface connectors with high water speed that are able to transport a combined arms force of mobile protected infantry and mobile protected firepower are key to future Marine Corps forcible entry operations. Effective fire support and combined arms maneuver units do not matter if Marines cannot get to shore. The Corps already states how important it is to have high water speed to rapidly build combat power ashore and lists possible solutions as enhancements to legacy platforms for high water speed, new high-water-speed amphibians, or platforms to transport low-water-speed-platforms at high water speed. The Corps also states that a decision on how to achieve these ends is coming no later than 2025.<sup>33</sup>

The Marine Corps needs to ensure for U.S. policy makers that forcible entry from the sea is an option in a conflict with a major power. The alternative is to leave those policy makers without the means to seize strategic maritime terrain from the enemy, which could leave as the only

remaining option the use of limited theater-level fires munitions—potentially large amounts of them—to degrade the capabilities of enemy units occupying strategic maritime terrain. As a result, the Corps must keep its current timeline for a decision by 2025. This is vital given that it may be years before a chosen technological solution for high water speed gets deployed with Marines. Additionally, given the rapid evolution of technologies that are able to provide high water speed to shore, the Corps may need to invest in an interim solution for the problem of high-water-speed forcible entry operations as it continues to monitor future technological developments.

*Issue a Request for Information from Industry to Gauge whether Revolutionary Vertical Heavy-Lift Aircraft Can Currently Be Pursued*

The Future Vertical Lift program offers the Marine Corps an opportunity to revolutionize its vertical aviation beyond what the Bell Boeing V-22 Osprey medium-lift tiltrotor aircraft and Sikorsky CH-53K King Stallion heavy-lift transport helicopter can deliver. Specifically, what is labeled the Future Vertical Lift Capability Set 4 aircraft could revolutionize amphibious air assaults if it can deliver CH-53K lift at tiltrotor ranges. Future Vertical Lift Capability Set 5 aircraft may allow for an even bigger revolution by providing a vertical aircraft with the payload of a Lockheed C-130 Hercules transport aircraft or possibly an even larger aircraft, while also being compatible with current amphibious warfare ships.<sup>34</sup> Future Vertical Lift Capability Set 5 aircraft may be able to transport military equipment and vehicles as heavy as light armored vehicles or the M142 High Mobility Artillery Rocket System (HIMARS). If these concepts are feasible, then the aircraft, once fielded, will



allow Marines to conduct air assaults against targets hundreds of nautical miles away from amphibious warships or installations.

To test this notion of a possible heavy-lift air assault revolution, it is prudent to issue a request for information from industry to see if the Marine Corps should begin investing in the development of next-generation aircraft that will succeed the CH-53K before all CH-53Ks are fully delivered. The reason for such speed to replace the newly produced CH-53Ks is to revolutionize Marine air assaults in a dangerous threat environment to amphibious warships. However, if these notional revolutionary aircraft are not yet feasible, then the Corps is best served by not racing to replace its brand-new CH-53Ks. It is also prudent to work with the U.S. Army to develop this request for information from industry since the Army must choose an option to keep its heavy-lift rotorcraft relevant past 2050.

The Army and Marine Corps should also ask industry if it recommends a heavy-lift demonstrator program for both Future Vertical Lift Capability Set 4 and Set 5 aircraft. The purpose of a hypothetical demonstrator program will be to prove heavy-lift concepts before sinking what are likely to be considerable procurement costs into new aircraft programs that could potentially fail to produce new aircraft or produce them at a prohibitive unit cost.

*Investigate the Utility of Employing Littoral Combat Ships to Extend the Range of Amphibious Landings from Shore by Serving as an Aviation Lily Pad, Surface Connector Refueler, and Surface Connector Escort*

Surface connectors such as the landing craft, air cushion (LCAC) and the new ship-to-shore connector (SSC) lack the firepower to defend themselves

against fast attack craft, aircraft, and small submersibles, especially in over-the-horizon amphibious operations. One solution to this problem is to develop a high-water-speed ship that is designed to escort, protect, and serve as a surface connector refueler for LCACs and SSCs and that is more risk-worthy to employ during an amphibious landing compared to bringing large amphibious warships close to shore. Research and development should be initiated for a new littoral combat ship (LCS) configuration that is optimized to support amphibious operations in the current operational environment. These vessels could complement larger and less risk-worthy ships seeking range from enemy long-range precision fires.

The crux of this recommendation is a ship that can serve as an aviation “lily pad” for large aircraft, such as the V-22 Osprey and CH-53K King Stallion, which requires a flight deck that is large enough to accommodate these aircraft. The ship will also ideally possess a way for armored vehicles and cargo pallets to access the flight deck for aerial transportation by aircraft. These LCSs could operate up to 100 nautical miles from shore, acting as a bridge between amphibious warships and their aircraft and surface connectors, which would allow landings from aircraft and high-water-speed surface connectors deployed from amphibious warships at a range of 200 or more nautical miles from shore, leaving vulnerable amphibious warfare ships further from shore and enemy defenses. This recommendation serves as an extension of the work that has already been done to extend the range of the Bell UH-1Y Venom and AH-1Z Viper helicopters by using the LCS as an aviation lily pad to increase flight range and provide greater protection for the aircraft’s amphibious ships.<sup>35</sup>

With its 57-millimeter naval gun, ability to support a helicopter, high water speed, and surface warfare and mine countermeasures capabilities, the LCS could serve as an escort for hovercraft and other high-water-speed surface connectors. However, the LCS must have its helipad structurally reinforced to support a V-22 Osprey.<sup>36</sup> The LCS will also need the capacity to install temporary fuel tanks and ammunition storage for aircraft and the hardware to refuel surface connectors at sea.<sup>37</sup>

This proposal leaves out the option for the development and construction of a new class of vessels due to a lack of shipbuilding dollars and because a new ship design would be very similar to the LCS. That said, if the LCS is incapable of performing the roles suggested here, then it may be worth investing in research and development to see if a new purpose-built ship design could be affordable in enabling Marine Corps amphibious operations that initiate further from shore.

### **The Current Amphibious Warfare Ship Battle Force**

A U.S. Navy amphibious ready group (ARG) consists of at least three amphibious warfare ships—an amphibious assault ship, an amphibious transport dock, and a dock landing ship—and a Marine Expeditionary Unit (MEU) landing force, creating a flexible and capable force that is able to accomplish a variety of amphibious operations.<sup>38</sup> Amphibious assault ships are effectively small aircraft carriers, often with well deck capability for the deployment of surface connectors. Amphibious transport docks are another hybrid-style vessel with a well deck for surface connectors and a much smaller flight deck that supports vertical-lift aircraft only. Dock landing ships have extensive well deck space for more surface connectors or more room for

cargo. The tradeoff for using a dock landing ship versus an amphibious transport dock is the loss of a hangar for aircraft maintenance, which reduces the ARG's ability to support aircraft.

The Navy currently has two types of amphibious assault ships in service: the older *Wasp*-class landing helicopter dock (LHD) and the newer *America*-class landing helicopter assault (LHA). Other active amphibious warfare ships include the newer *San Antonio*-class landing platform dock (LPD, an amphibious transport dock) and the older *Whidbey Island*-class and *Harpers Ferry*-class dock landing ships (LSD).

The forward deployment of these ships and the Marines they carry allows the United States to respond to a variety of crises and contingencies such as disaster relief and noncombatant evacuations all over the world.<sup>39</sup> This provides elected officials and combatant commanders options when crises arise. ARGs also aid security cooperation, military engagement, and deterrence as a forward armed presence to deter aggression by malign actors against the United States, its troops, its allies, and its interests. The amphibious assault ships that make up the Navy's ARGs can serve as small aircraft carriers, including for Lockheed Martin F-35B Lightning II Joint Strike Fighter aircraft, and as intertheater transport ship for Marines and their equipment.

Amphibious warfare ships do not currently possess the ability to integrate with multimission ships such as cruisers or destroyers. This capability is in development with the up-gunned Expeditionary Strike Group (ESG) concept, which aims to defend against adversarial threats in the undersea, surface, and air domains as well as add the offensive firepower to

strike from the sea to a traditional ARG. This is accomplished by adding surface combatants to the ESG and incorporating the F-35B.<sup>40</sup>

Currently, the Marines Corps places the minimum total number of amphibious warfare ships needed for global rapid response and forward presence at 31 large amphibious warships.<sup>41</sup> However, even with 31 large amphibious warfare ships in service, there can still be a lack of forward forces necessary for disaster response and noncombatant evacuations, as seen with the Türkiye-Syria earthquakes and the start of a Sudanese civil war in 2023. In both situations, the United States was unable to respond with an ARG/MEU due to a lack of ready ships.<sup>42</sup> That said, the Navy has balked at spending nearly \$2 billion for each *San Antonio*-class LPD in the current fiscal environment.<sup>43</sup>

## **Recommendations for Improving the Employment of Amphibious Warships**

*Develop a Clear Roadmap for the Future of Marine Corps Amphibious Operations to then Develop a Replacement or Replacements for Current San Antonio-class LPDs*

One reason for the Navy's reluctance to invest in amphibious transport docks is that they may not be a cost-effective design in a major power war, given their inability to fulfill their original role of conducting amphibious operations close to shore due to peer A2/AD capabilities.<sup>44</sup> These ships also have a similar unit price of a large surface combatant despite adding less to broader naval operations such as antisubmarine warfare, antisurface warfare, and land attack. *San Antonio*-class LPDs are also large and exquisite without being risk-worthy in a conflict. Forward presence, security cooperation, response to

crises and contingencies, and intertheater transport of Marines may be insufficient reasons for building ships with a unit cost of nearly \$2 billion.

However, no clear alternative to the *San Antonio*-class LPD has yet materialized. There are two reasons for this. First, the *San Antonio*-class Flight II ships were designed with reduced capabilities compared to the Flight I ships in an effort to cut costs where it was deemed that necessary requirements would not be sacrificed.<sup>45</sup> This means that a new vessel is unlikely to cut costs while retaining the capabilities the Marine Corps deems necessary. Second, no clear technological solution has been decided on that can bring Marines and their equipment to shore during an amphibious operation against a peer opponent. Further, Marines must know how to get to shore in a rapidly changing tactical environment before effective amphibious warfare hulls can be designed to deploy that equipment. As a result, it is unlikely that a new design will be decided on until Marines have a better idea of how amphibious operations will function in an A2/AD environment.

This means that the Marine Corps must determine the future of amphibious operations and find a way for Marines to get to shore in an A2/AD environment. The way forward in deciding the future of large amphibious warfare ships will be paved by new tactics developed by the Corps that will translate to hulls optimized for new tactics.

Alternatively, why should the Navy operate amphibious warfare ships if what the Marine Corps needs is amphibious capabilities for operations other than war? Instead of ships designed for amphibious warfare close to shore, the Navy may want to build a roll-on/roll-off transport with command and control, surface connector, and aircraft capabilities. This would look not unlike expeditionary sea bases and expeditionary transfer docks—ships

meant for enduring forward presence but not high-intensity warfare. That said, the current shipbuilding reality could also give impetus to the Marine Corps to implement the recommendations of this analysis to determine the future of the amphibious warfare ship battle force.

*Integrate JASSM-ER and LRASM Missiles with F-35B Aircraft and Support Amphibious Assault Ships with Carrier Strike Group Aircraft*

Due to current air and missile threats, there is a need for the Navy to conduct long-range sorties against targets with its CSGs, with carrier aircraft striking targets 1,000–1,200 nautical miles distant.<sup>46</sup> Achieving a striking range of 1,000 nautical miles should be possible with Boeing MQ-25 Stingray drone refuelers, F-35C aircraft, and AGM-158 JASSM (Joint Air-to-Surface Standoff Missile) missiles. If the Navy deploys JASSM-ER (Extended Range) missiles on its Boeing F/A-18E/F Super Hornet fighter aircraft, then it could extend its striking range even more to more than 1,200 nautical miles.<sup>47</sup>

Amphibious assault ships operating as “Lightning carriers” supporting F-35B aircraft could achieve a striking range of 1,000 nautical miles from their targets. Should the F-35Bs employ JASSM-ER standoff munitions and have support from Stingray aerial refuelers, these tactics would give amphibious assault ships the capability to seek range from enemy defenses while conducting sorties in the early stages of a conflict with a peer competitor. However, due to a lack of Marine Corps airborne early warning systems, electronic warfare capabilities, and airborne refueling aircraft able to operate from amphibious assault ships, the Corps will need to depend on CSGs to supply these capabilities. The Corps will also need to integrate AGM-158C LRASM (Long Range Anti-Ship Missile) and JASSM-ER missiles on the F-35B,

which has so far not been announced. Lockheed Martin has stated that all versions of the F-35 are able to be integrated with these missiles.<sup>48</sup>

## **Conclusion**

This article has provided recommendations to improve the U.S. Marine Corps' *Force Design*. In reference to SIF, it has advocated for a stated policy of rapid deployment of SIF in the competition phase of a crisis to best deter aggression and recommended that the Corps stand up Maritime Strike Tomahawk missiles for land units in the Indo-Pacific by fiscal year 2027. In reference to amphibious assault capabilities, it has recommended that the Corps publish a roadmap for enhancing amphibious assaults to maintain the relevance of forcible entry from the sea; that the Corps expedite acquiring a high-water-speed surface connector for use against defended shoreline; that the Corps work with the U.S. Army to issue a request for information to industry to gauge if a radical revolution in vertical heavy-lift aircraft is feasible; and that the U.S. Navy adapt the LCS to act as an armed escort and refueler for aircraft and surface connectors. In reference to the United States' amphibious warfare ship battle force, it has advocated that the Corps define the future of amphibious operations in an A2/AD environment to determine the requirements for large amphibious warfare ships that can replace the *San Antonio*-class LPD and has recommended that the Corps integrate JASSM-ER and LRASM missiles with F-35B aircraft to rapidly achieve initial operating capability in support of the Lightning Carrier concept.

In a strategic environment with a variety of threats from peer powers, rogue nation-states, and increasingly well-equipped nonstate actors, Marines must be prepared for a variety of contingencies with the aim of prevailing against



the enemies of the United States. Ultimately, this analysis aims to give U.S. policy makers the options they need in the current strategic environment and to help improve aspects of *Force Design*, both to strengthen deterrence and to ensure that Marines have the fight in their favor in the event of armed conflict.

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<sup>1</sup> "Force Design," Marines.mil, accessed 26 June 2024.

<sup>2</sup> *Summary of the 2018 National Defense Strategy of the United States of America: Sharpening the American Military's Competitive Edge* (Washington, DC: Department of Defense, 2018), 2–4.

<sup>3</sup> Steven A. Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," *Journal of Advanced Military Studies* 11, no. 2 (Fall 2020): 142–43, <https://doi.org/10.21140/mcu.20201102008>.

<sup>4</sup> *A Concept for Stand-in Forces* (Washington, DC: Headquarters Marine Corps, 2021), 4.

<sup>5</sup> *Summary of the 2018 National Defense Strategy of the United States of America*, 7.

<sup>6</sup> *A Concept for Stand-in Forces*, 4. A *kill web* refers to "a dynamic network that seamlessly integrates intelligence and warfare capabilities across various domains, including land, sea, air, space, and cyberspace." 1stLt Tiana Jackson, "Revealing the Hidden: The Role of Sensing in Completing the Kill Web," Defense Visual Information Distribution Service, 1 April 2024.

<sup>7</sup> *A Concept for Stand-in Forces*, 4.

<sup>8</sup> "Marine Littoral Regiment (MLR)," Marines.mil, accessed 26 June 2024; and Ronald O'Rourke, *Navy Medium Landing Ship (LSM) (Previously Light Amphibious Warship [LAW]) Program: Background and Issues for Congress* (Washington, DC: Congressional Research Service, 2024), 3, 6.

<sup>9</sup> O'Rourke, *Navy Medium Landing Ship*, 3.

<sup>10</sup> *Installations and Logistics 2030* (Washington, DC: Headquarters Marine Corps, 2023), 2–3.

<sup>11</sup> *A Concept for Stand-in Forces*, 3.

<sup>12</sup> O'Rourke, *Navy Medium Landing Ship*, 6.

<sup>13</sup> Harry W. Jenkins, "The Ugly Truth: Can the Light Amphibious Warship Survive War with China?," *Hill*, 2 November 2022.

<sup>14</sup> Mark F. Cancian, Matthew Cancian, and Eric Heginbotham, *The First Battle of the Next War: Wargaming a Chinese Invasion of Taiwan* (Washington, DC: Center for Strategic and International Studies, 2023), 131–41.

<sup>15</sup> Stacie Pettyjohn, Becca Wasser, and Chris Dougherty, *Dangerous Straits: Wargaming a Future Conflict over Taiwan* (Washington, DC: Center for a New American Security, 2022).

<sup>16</sup> Cancian, Cancian, and Heginbotham, *The First Battle of the Next War*, 131–41.

<sup>17</sup> Cancian, Cancian, and Heginbotham, *The First Battle of the Next War*, 131.

<sup>18</sup> Joseph Trevithick, "Marines' Tomahawk Missile Launching Drone Truck Breaks Cover," *War Zone*, 25 July 2023.

<sup>19</sup> Hope Yen, "CIA Chief: China Has Some Doubt on Ability to Invade Taiwan," Associated Press, 26 February 2023.

<sup>20</sup> Anthony Capaccio, "U.S. to Deploy Anti-Ship Missiles on Subs in 2024 to Counter China," *Bloomberg*, 4 December 2023.

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- <sup>21</sup> *Joint Forcible Entry Operations*, Joint Publication 3-18 (Washington, DC: Joint Chiefs of Staff, 2018), I-1.
- <sup>22</sup> *Amphibious Operations*, Joint Publication 3-02 (Washington, DC: Joint Chiefs of Staff, 2019), I-1.
- <sup>23</sup> *Amphibious Operations*, I-4.
- <sup>24</sup> *Amphibious Operations*, II-10.
- <sup>25</sup> See Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," 141–73.
- <sup>26</sup> Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," 165–66.
- <sup>27</sup> Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," 168.
- <sup>28</sup> Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," 166–67.
- <sup>29</sup> This is the central theme of Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults."
- <sup>30</sup> Colin D. Smith and Stephen Webber, *Connector Survivability in the Current Operating Environment* (Santa Monica, CA: Rand, 2023), 11, <https://doi.org/10.7249/RRA1922-1>.
- <sup>31</sup> "ACV Context," Marines.mil, accessed 22 January 2025.
- <sup>32</sup> Capt Jay T. Snelling, "The Amphibious Combat Vehicle Delusion," U.S. Naval Institute *Proceedings* 145, no. 6 (June 2019); and Maj Justin D. Davis and Maj Neal T. Jones, "The Wisdom of the Amphibious Combat Vehicle," U.S. Naval Institute *Proceedings* 145, no. 10 (October 2019).
- <sup>33</sup> "The Pursuit of High Water Speed," Marines.mil, accessed 28 June 2024; and Andrew Feickert, *Marine Corps Amphibious Combat Vehicle (ACV): Background and Issues for Congress* (Washington, DC: Congressional Research Service, 2020), 11.
- <sup>34</sup> Jeffrey A. Drezner, Parisa Roshan, and Thomas Whitmore, *Enhancing Management of the Joint Future Vertical Lift Initiative* (Santa Monica, CA: Rand, 2017), 23, <https://doi.org/10.7249/RR2010>.
- <sup>35</sup> "Littoral Combat Ship Integrates with Marine and Unmanned Steel Knight 23 Assets," Navy.mil, 14 December 2022.
- <sup>36</sup> Capt Dan Straub, USN, and Hunter Stires, "Littoral Combat Ships for Maritime COIN," U.S. Naval Institute *Proceedings* 147, no. 1 (January 2021).
- <sup>37</sup> Mallory Shelbourne, "Moving Marines across the Pacific Could Be Littoral Combat Ship's Next Mission," U.S. Naval Institute *News*, 29 September 2021. Littoral combat ships could also serve as escorts for LSMs.
- <sup>38</sup> *Amphibious Ready Group and Marine Expeditionary Unit Overview* (Washington, DC: Headquarters Marine Corps, 2014), 6.
- <sup>39</sup> *Marine Corps Operations*, Marine Corps Doctrinal Publication 1-0 (Washington, DC: Headquarters Marine Corps, 2019), 2-12.
- <sup>40</sup> Richard L. J. Gourley, "USS Sterett Supports 'Up-Gunned' ESG," U.S. Navy, 11 May 2018.
- <sup>41</sup> Megan Eckstein, "Marines Want 31 Amphibious Ships. The Pentagon Disagrees. Now What?," *Defense News*, 2 May 2023.
- <sup>42</sup> Justin Katz, "Short on Amphibs for Turkey, Sudan, the Marines Grapple with Crisis Response Ethos," *Breaking Defense*, 1 May 2023.
- <sup>43</sup> Eckstein, "Marines Want 31 Amphibious Ships."
- <sup>44</sup> Yeadon, "The Problems Facing United States Marine Corps Amphibious Assaults," 143–47.
- <sup>45</sup> Ronald O'Rourke, *Navy LPD-17 Flight II and LHA Amphibious Ship Programs: Background and Issues for Congress* (Washington, DC: Congressional Research Service, 2024), 5.

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<sup>46</sup> Bryan Clark, Timothy A. Walton, and Seth Cropsey, *American Sea Power at a Crossroads: A Plan to Restore the U.S. Navy's Maritime Advantage* (Washington, DC: Hudson Institute, 2020), 31. A statute mile is the definitive measure used in the United Kingdom and the United States and refers to miles on roads signs or maps. The U.S. statute mile measures 1609.3472 meters, a difference of 3.2 millimeters (one-eighth inch) per mile due to using the equation of a survey foot equaling 1,200/3,937 meters rather than 30.48 centimeters. Nautical miles are measured different than miles due to the nature of sea travel. They are measured using the arc of the Earth and are 1 percent of 1 degree of the Earth's curve. Because that curve is not completely even and spherical, in some areas, a nautical mile is larger than in others. In 1954, America agreed that the international nautical mile of 1,852 meters would be adopted.

<sup>47</sup> Richard R. Burgess, "Navy Plans to Arm F/A-18E/F, F-35C with Air Force's JASSM-ER Cruise Missile," *Seapower*, 15 June 2021.

<sup>48</sup> "F-35 Lightning II," Lockheed Martin, accessed 27 June 2024.