STRATEGY FOR THE LONG HAUL

CSBA

The US Marine Corps

Fleet Marine Forces for the 21st Century

BY DAKOTA L. WOOD

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About the Author

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THE US MARINE CORPS:
FLEET MARINE FORCES FOR THE 21ST CENTURY

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ABOUT THE **STRATEGY FOR THE LONG HAUL** SERIES

This report is one in a series comprising CSBA's Strategy for the Long Haul intended to inform and shape the next administration's defense strategy review.

THE CHALLENGES TO US NATIONAL SECURITY. Translates the principal challenges to US security into a representative set of contingencies in order to determine what resources will be required, and how they should be apportioned among forces and capabilities.

US MILITARY POWER AND CONCEPTS OF OPERATION. Provides the connective tissue between the threats to US security and the capabilities and force elements needed to address the new challenges confronting the nation.

THE DEFENSE BUDGET. Overviews the budget environment and explores a range of options to make the Services' plans more affordable.

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MANPOWER. Examines recruitment and retention of quality people in sufficient numbers at an acceptable cost.

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RESTRUCTURING THE US ALLIANCE PORTFOLIO. Considers the nature and type of alliances the United States needs in order to meet existing and emerging security challenges.

GROUND FORCES. Explores how the US Army and Marine Corps might best be organized, structured, modernized, and postured to meet existing and emerging challenges to US security.

SPECIAL OPERATIONS FORCES. Addresses the expansion and growing role of US Special Operations Forces.

MARITIME FORCES. Addresses how US maritime forces might best be organized, structured, modernized, and postured to meet existing and emerging challenges to US Security.

AIR AND SPACE FORCES. Explores how Air and Space Forces might best be organized, structured, modernized, and postured to meet existing and emerging challenges to US Security.

STRATEGIC FORCES. Examines the circumstances under which nuclear strategy and force posture decisions must be made today.

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ORGANIZING FOR NATIONAL SECURITY. Assesses how the United States Government can best organize itself to ensure effective strategic planning and execution of strategy.

A GRAND STRATEGY FOR THE UNITED STATES. Synthesizes the findings and insights of the study series.

CONTENTS

PREFACE

CHALLENGES TO US NATIONAL SECURITY

The United States faces three primary existing and emerging strategic challenges that are most likely to preoccupy senior decision-makers in the coming years:[1]

- Defeating both the Sunni Salifi-Takfiri and Shia Khomeinist brands of violent Islamist radicalism;
- Hedging against the rise of a hostile or more openly confrontational China and the potential challenge posed by authoritarian capitalist states; and
- Preparing for a world in which there are more nuclear-armed regional powers.

Addressing these specific challenges should be at the forefront of the incoming administration's strategic calculations, particularly during the 2009 Quadrennial Defense Review (QDR), which will help shape US defense strategy, planning, and force structure over the next twenty years.

Although none of these strategic challenges, individually, rivals the danger posed by the Soviet Union during the Cold War, they are certainly graver than the types of threats that prevailed immediately after the Cold War, during the period referred to by some as the "unipolar moment," when the power of the United States was at its peak and its dominance had not yet been put to the test. They are also quite different from the threats the United States confronted throughout the twentieth century (Imperial Germany, Nazi Germany, Imperial Japan, and the Soviet Union), all of which possessed militaries that, by and large, were very similar to the US military both in terms

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[1] For an overview of these strategic challenges, see Andrew Krepinevich, Robert Martinage, and Robert Work, *The Challenges to US National Security*, the first monograph of the Center for Strategic and Budgetary Assessments' series that presents a "Strategy for the Long Haul."

of their structure and their modi operandi. For example, both the German and Soviet armies focused primarily on conducting combined arms mechanized land operations, as did the US Army. That is not the case with respect to today's threats and potential rivals, who instead focus their principal efforts on exploiting asymmetries to gain an advantage.

Radical Islamist movements, for example, use terror and subversion, engage in modern forms of irregular and insurgency warfare, and pursue weapons of mass destruction (WMD) to inflict catastrophic damage on the United States and its allies. China, who, of the three challenges, presents the military forces most similar to the US military, is emphasizing conventionally armed ballistic missiles, information warfare capabilities, anti-satellite weaponry, submarines, high-speed cruise missiles and other capabilities that could threaten the United States' access to the "global commons" of space, cyberspace, the air, the seas and the undersea, and possibly to US ally and partner nations in Japan, South Korea and Taiwan. Hostile and potentially unstable countries like North Korea and Iran have developed or may soon develop nuclear arsenals with which they could intimidate America's allies and challenge the US military's ability to protect vital national interests. Moreover, if these countries succeed in developing nuclear arsenals, they could spur others to follow suit.

THE KEY ROLE OF MILITARY POWER

Military power is central to the United States' ability to meet these strategic challenges successfully, whether in support of diplomatic and other elements of US security policy, or used in actual conflict. It follows, therefore, that the military means must be compatible and commensurate with the nation's security ends.

Given the long expected service life of most of its major assets, the US military force structure, which underlies the concepts of operation that drive the US "way of war," is still based primarily on the premises and experience of the Cold War and its immediate aftermath. Arguably, much of the current Program of Record (the forces the Department of Defense seeks to acquire in coming years) remains similarly reflective of that period. Yet the looming strategic challenges look to be significantly different. Thus there is a danger that many of the forces that the Defense Department plans to acquire may prove to be unsuitable for dealing with future threats.

This monograph, and several others in the series comprising the *Strategy for the Long Haul* project, examines the readiness of the four Services, the Special Operations Forces, and the strategic forces to do their parts in meeting the emerging security challenges. Each monograph:

- Describes the current state of a Service or force;
- Discusses what that Service or force must be able to do to help meet the emerging strategic challenges successfully; and

> Assesses problematic areas and issues in the Service's or force's Program of Record and recommends measures to address them.

While these monographs address particular Services or forces, it must be kept in mind that the US military fights as a *joint force*. Accordingly, each Service or force must ensure that the forces it acquires and the operational concepts it employs are interoperable with those of the others, and, equally important, that there is not a major mismatch between the support one Service assumes that it can expect from another, and what is actually the case. These concerns have historically been problematic for the US military, and thus merit particularly close attention.

EXECUTIVE SUMMARY

A HYBRID SERVICE...

During the 1920s and 1930s, even as it was engaged in a series of "small wars," the Marine Corps dedicated itself to solving the "Gallipoli problem": how to conduct amphibious assaults against a heavily defended shore. To do so, the Corps had to develop new concepts of operation, tactics and techniques, equipment, and organizations that enabled it to apply combat power against the enemy more effectively. The most daunting tactical challenge for the Corps was gaining a foothold on an enemy shore and steadily building combat power while under constant attack. The Navy and Marines thus developed an operational concept that included extensive shore bombardment from Navy ships and naval aircraft, amphibious landing craft by which the Marines could get to the beach, and various techniques for methodically breaking through and reducing enemy defensive positions. The fruits of the Corps' labor were seen in the many amphibious successes of the United States military in World War II, in both the Pacific and European theaters.

Since the end of the Second World War, the Corps has always had to balance its "organize, train, and equip" efforts to account for its new hybrid nature. It became a ground Service that deploys to sea then projects combat power back onto land. Usually operating far from fixed physical infrastructure, but needing to employ the full range of military capabilities available, it has developed its own air force able to operate from ships and from austere sites ashore, ground equipment able to transit from sea to shore and emerge ready to engage in conventional combat operations, and combat formations specifically organized for maximum effectiveness in combined-arms warfare. At the same time, the Corps also retained its ability to fight "small wars" against insurgencies and non-state actors, and to mount stability and security operations of various types, requiring a focus on small unit tactics and equipment for the individual Marine. While the Corps has enjoyed success with this approach to equipping and employing its forces in a broad range of missions, it is not a foregone

conclusion that it will prove effective in light of emerging challenges confronting the United States.

...FACING NEW CHALLENGES

The Marine Corps faces three new operational challenges: violent Islamist radicalism, authoritarian capitalist states (of which a potentially hostile or more openly confrontational China is a prime example), and nuclear proliferation. These challenges are worrisome when taken individually; worse yet, they are evolving in ways that indicate they will increasingly be linked, creating a complex and dangerous threat environment. The Corps, in particular, will have the rather daunting task of dealing with such challenges in the world's littorals, where it will be expected to make use of its special capabilities as a sea-based force able to project power ashore.

With regard to violent Islamist radicals, US forces must be able to strike from significant range, in order to exploit the element of surprise and to account for the improved capabilities of the anti-air, anti-armor, and anti-ship weapons currently being acquired by the enemy. While basing US forces on territory proximate to the target area may be possible, having the ability to conduct such raids from the sea, free of sovereignty and territorial impediments, could prove invaluable. To be sure, US forces must be able to penetrate enemy-held areas to conduct counter-terrorism operations against non-state entities posing a threat to the United States, and to engage in sustained counter-insurgency operations or other forms of "irregular warfare." This will require them to establish a sizable physical presence on land. But US military operations across the board will be substantially aided by preserving the ability to operate and strike from the sea when necessary.

Ideally, of course, the United States would prefer to prevent radicals from ever obtaining an operational sanctuary in which they are able to plan, organize, and train their forces and from which they can launch and support attacks. Efforts to deprive them of such sanctuaries or to conduct counter-sanctuary operations against them will involve the Marines working with threatened countries to build their indigenous capacity to root out and defeat such elements. Marine Corps forces should, on a region-by-region basis, develop the detailed knowledge and local relationships necessary to accomplish this mission.

On the other end of the spectrum, a large, militarily-advanced state such as China presents challenges to the United States in both scale and form. While China is not an enemy of the United States, it is currently engaged in a military buildup designed to deny US forces access to East Asia and to threaten American access to the global commons—space, cyberspace, the seas and the undersea. While the Chinese leadership's intentions may be benign, intentions can change quickly. China is rapidly improving its ability to target large concentrations of forces (e.g., at major forward bases) extending thousands of miles from its shores. To dissuade China from pursuing a path

of aggression or coercion to achieve its foreign policy objectives, the United States must be prepared to conduct military operations directly against Chinese forces at extreme ranges and exploit operations on China's periphery as a subset of a larger global campaign. Should China's intentions change, Marine Corps forces, working with the Navy, need to be prepared to conduct a *peripheral naval campaign* carried out in the coastal waters, shipping channels, and maritime choke points of the world, to constrain China's military and economic options, mitigate the efforts of proxy forces working in league with China, and deprive it of essential raw materials such as oil.

In addition, given current trends, the Marine Corps must be prepared to operate in a world with many more nuclear powers. A world of numerous, small, nuclear-armed states may require US forces to conduct offensive operations aimed at neutralizing, destroying, or capturing limited inventories of weapons, or removing regimes threatening nuclear weapons use, or actually employing these weapons. Given that potential nuclear powers are distant geographically from the United States, the US military will likely need to project forces at significant ranges and sustain such operations without the luxury of building a substantial ground presence over time and without concentrating forces that would present lucrative targets for a nuclear strike. Further, even a minor nuclear-armed power will likely possess a credible inventory of various advanced, anti-access/area-denial weaponry, such as anti-ship cruise missiles, surface-to-air missiles, and advanced naval mines. The Navy and Marine Corps, operating together as a mobile, maritime power-projection team, can provide the US military with key advantages owing to their unique methods of deployment, disposition of forces, and employment concepts.

Major state powers with global reach and smaller, but nuclear-armed, regional powers may have incentive to challenge US interests by leveraging small, highly dispersed irregular forces in proxy wars, equipping them with advanced weaponry and state-of-the-art commercial and military technologies. In this environment, the Marines must be prepared to engage well-armed opponents operating in the complex terrain of the world's densely urbanized littorals.

MAKING COURSE ADJUSTMENTS

While the Marine Corps is taking action to address these new challenges, more must be done. Over the past two years, the Corps has published several documents to describe its core competencies, its view of the security environment, and its approach to addressing the new security challenges confronting the nation. It has undertaken extensive efforts to adjust its education, training, and equipping initiatives to meet the *current* challenges of ongoing operations, and it has expressed concern that its skills in amphibious warfare (projecting combat power from the sea) are atrophying. What the Marine Corps has yet to do is make a compelling case for how its current operational doctrine, its planned acquisition of major equipment, and current

organizational construct will be relevant against the challenges described above. In particular, its arguments have not accounted for the proliferation of advanced conventional weapons and related capabilities to a widening circle of state and non-state entities, and the evolution of enemy tactics, operational approaches, and strategies over the past decade.

To this end, the Corps must improve its ability to operate with smaller and more independent units, often in a highly distributed manner, against enemy forces increasingly able to employ a variety of guided weapons at increasing ranges, or perhaps even nuclear weapons. The growth of anti-access/area-denial capabilities must be accounted for in the Corps' air operations, concepts of ship-to-shore movement, and in sustaining those forces once engaged.

Given these circumstances, some of the Marine Corps' primary acquisition efforts need to be re-examined. Three key programs—the Expeditionary Fighting Vehicle, the Marine Corps version of the F-35 Lightning II multirole fighter, and the MV-22 tilt-rotor aircraft—have been overtaken by technological advances in anti-armor, anti-air, and anti-ship weaponry or by new operational demands. The threat environment for which these platforms were designed over a decade ago has evolved more rapidly than anticipated and the pace of change is likely to accelerate over the next several years.

Accordingly, the Marine Corps should:

- DEVELOP AND ARTICULATE A REVISED STRATEGIC CONCEPT appropriate to the evolving security environment, one that describes in detail *how* the Corps will employ its forces from Navy platforms against the various threats it expects to confront. The concept should account for advances in guided and precision weapons, with specific emphasis on maritime anti-access/area-denial networks that incorporate anti-ship ballistic and cruise missiles, as well as advanced mines and unmanned undersea vehicles; man-portable anti-armor and anti-air weapons; and easy-to-use precision-guided artillery, rockets, and mortars. It should also address the potential proliferation of nuclear weapons and other weapons of mass destruction, the consequent requirement to operate from extended ranges, the likely necessity for distributed operations driven by the increased presence of nuclear weapons, and the advantages that come from leveraging the ocean as an operational base. This will benefit the Service by adding clarity and focus to its "organize, train, and equip" initiatives, and its efforts to evolve its operational concepts, while also improving its ability to link (and justify) its resourcing requirements.

- DEVELOP DISTRIBUTED OPERATIONS CONCEPTS for operations against small, non-state terrorist organizations, to include teaming with the Navy in regionally distributed operations; fielding small teams for conducting train-and-advise, counter-terrorism, counter-proliferation, counter-piracy, and low-signature raid missions; executing peripheral naval campaigns; and conducting raids and other short-duration operations against a small, nuclear-armed opponent.

- CANCEL THE EXPEDITIONARY FIGHTING VEHICLE (EFV) IN FAVOR OF AN ARMORED COMBAT VEHICLE OPTIMIZED FOR MODERN LAND WARFARE (with some modest ability to traverse water obstacles), and combine it with a high-speed, shallow-draft, ship-to-shore "connector" (e.g., high-speed lighterage, air cushioned landing craft, etc). This approach would better address the evolving anti-armor and precision-guided weapons regimes that will threaten naval forces at increasing distances at sea, and Marine Corps ground forces ashore. By optimizing both platforms for their primary operating environments, each platform would provide maximum capability to address its particular missions and threats.
- ADOPT A MIXED FLEET OF F-35 LIGHTNING II MULTIROLE FIGHTERS, ACQUIRING BOTH THE F-35B SHORT TAKE-OFF VERTICAL LANDING (STOVL) AND F-35C CARRIER VARIANTS, AND JOIN WITH THE NAVY IN DEVELOPING THE NAVY-UNMANNED COMBAT AIR SYSTEM (N-UCAS), a carrier-compatible, UCAS platform that would greatly extend the range and coverage of air operations for Marine Corps forces ashore. This would provide the Corps with an air arm much better suited to the various types of missions the Corps can expect to fly from austere airfields, large-deck amphibious assault ships, and nuclear-powered aircraft carriers.
- REVISIT THEIR DECISION TO FULLY REPLACE THEIR FLEET OF CH-46E SEA KNIGHT HELICOPTERS WITH THE MV-22 OSPREY. Changes in the operational and threat environments, increasing budgetary pressures, and the potential implications of distributed operations, experimentation and additional analysis of operational concepts suggest that a mix of MV-22 Ospreys and a new helicopter replacement for the CH-46E would provide greater options and increased flexibility at less cost for the Service.
- CONSIDER A LITTORAL OPERATIONS MAGTF DEPLOYED ABOARD A LITTORAL OPERATIONS SQUADRON. The Littoral Operations MAGTF would comprise a reinforced infantry company, and helicopters or MV-22 Osprey tilt-rotor aircraft. It would be embarked aboard a Littoral Operations Squadron consisting of an LPD-17 and two or three Littoral Combat Ships. This force mix would be well suited to conduct the types of operations implied by the strategic challenges and the emerging operational concepts of the Naval Services.

These modifications would position the Corps to maximize its utility and value in an increasingly complex and dangerous world.

INTRODUCTION

Marines are sometimes referred to as "soldiers of the sea" and indeed they are. While the phrase is an apt and remarkably succinct description, it also provides a glimpse into some of the confusion that can accompany any discussion about the United States Marine Corps (hereafter referred to as the Marine Corps, the Corps, or simply "the Marines.") Although the Corps is inherently "infantry" in its operational focus and in its cultivated identity—"every Marine is a rifleman"—it maintains its own air force of helicopters, transport aircraft, and high-performance, multirole jet aircraft. Like the US Army, it prides itself on its proficiency in skillfully conducting "combined arms operations"[2] to "locate, close with, and destroy the enemy by fire and maneuver or to repel the enemy's assault by fire and close combat."[3] It embarks its troops and units on US Navy ships and sails aboard them for months at a time; but it exploits the oceans of the world in order to gain positional and temporal advantages over an enemy. When called to do so, Marines rapidly project the combat power they have maintained aboard ships against enemy forces, then settle into sustained land combat operations, drawing support and supplies from their naval counterparts, establishing more conventional support capabilities as conditions permit ashore, or tie into the larger capabilities of the US Army (once established). The Corps can base its helicopters, fighters, and support aircraft at airfields ashore, aboard the amphibious ships that brought them to the fight, and even aboard large nuclear-powered aircraft carriers steaming at greater distances offshore.

Marines, as "soldiers of the sea," rapidly project the combat power they have maintained aboard ships against enemy forces, then settle into sustained land combat operations.

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[2] "Combined arms" refers to the integration of all the various tools available to a battlefield commander: tanks, artillery, mortar fire, heavy machine guns, aerial delivered bomb, rocket, and missile fires, short and medium range tactical missiles, etc. The idea is to leverage all of these capabilities in a way that enables you to defeat any defense your opponent might try to erect, as opposed to simply engaging your opponent with a more homogenous force roughly similar to his own; for example sending an infantry unit to engage an opposing infantry unit.

[3] The "mission of the Marine Corps rifle squad" learned by every Marine upon joining the Corps.

The Service has a lengthy history dealing with "small wars"[4] (mostly of the late nineteenth and early twentieth centuries). These operations were similar to those it expects it will conduct more of in the coming years. Yet the Marine Corps worries that its skills in amphibious and large-scale offensive combat operations are atrophying. It touts its success in the major combat operations of Desert Storm, Iraqi Freedom, and the sustained counterinsurgency operations of the past several years in both Iraq and Afghanistan, but it also looks to conduct more frequent missions to train the forces of potential allies in smaller countries around the world, much as US Special Operations Forces do.

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This assortment of capabilities and missions for a single Service has caused some observers to question whether the Corps is redundant to the other US military services. Indeed, comparing various functional areas of the Marine Corps with some of the primary areas of operational focus of the other Services does reveal areas of overlap. For example, the Air Force specializes in air operations, fielding bombers, fighters, and ground attack aircraft able to deploy anywhere in the world. The Navy likewise can project substantial air power from its dozen nuclear-powered aircraft carriers as well as the ballistic and cruise missiles it can use to strike targets hundreds and thousands of miles away. The Army's primary mission is sustained land warfare; it can currently field forty-two combat brigades in its Active Component (and is planning to expand to forty-eight over the next few years), composed of various types of infantry (light, motorized and mechanized, airborne, and air assault), heavy armor (tank) formations, and heavy artillery, and is structured to sustain operations indefinitely, if needed. The Special Forces community, already substantial in size, has also undertaken to expand its ranks to meet the growing demand for training and advising of security forces of partner countries and for conducting discreet missions in sensitive or denied areas of the world. Each of these Services specializes in military functions and capabilities in which the Marines also maintain capabilities.

Even though the Marine Corps duplicates many of the functions and capabilities found across the "Joint Force," it goes about training and equipping itself differently than any of the other Services. Although it deploys with the Navy, conducts missions alongside the Army, and employs air power not unlike the Air Force (long-range bombers aside), it does not purchase the same aircraft as the Navy or Air Force nor the same ground equipment as the Army. It contributes units to the Special Operations Command, but refuses to identify those Marines as "special forces."

What accounts for the eclectic nature of this Service, and is it justified? How should one assess a Service that is a component of the Department of the Navy, but once ashore conducts operations for which we have an Army and a separate Special

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[4] These were conflicts that took place largely in Central America and the Caribbean, but also in more distant places in Asia, such as the Philippines and China. Though these missions could stretch many years, they typically pitted small Marine units against irregular forces indigenous to the local area, in stark contrast to the large-scale conventional combat of the two World Wars, Korea, and the First Gulf War.

Operations Command; that operates its air component in jointly managed airspace but famously resists placing its air assets under the full control of a joint air manager? What is the unique value of the Corps relative to the function it performs as a component of the Joint Force? Is there something about its hybrid nature that can be leveraged in confronting the major strategic security challenges of the next two to three decades? If, indeed, there is something special to be exploited, is the Corps positioning itself appropriately to best utilize its unique advantages and characteristics?

The Corps' unique status results from the demands placed upon it to operate across the "boundaries" that typically define the other Services. The Army, Navy, and Air Force are optimized for the physical domains within which each primarily operates. Their equipment and operating concepts are influenced by the limitations and opportunities associated with these domains, the scale of operations each is structured for, and the culture that shapes and informs each Service's approach to its assigned missions.

The Corps' unique status results from the demands placed upon it to operate across the "boundaries" that typically define the other Services.

For example, throughout the four decades of the Cold War, the Army maintained substantial forces in Europe prepared to engage the massed Soviet Army in large-scale conventional (and perhaps nuclear) combat. Likewise, the Air Force and Navy stationed or maintained very large forces at locations and within regions where they planned to actually fight. There was no real need to "deploy" forces in response to an emergent crisis; they were already in-place and ready for battle.[5] Consequently, the operating characteristics of the equipment used by each Service and the tactics they employed reflected the operational environment in which they would be used. The Army fielded very large, armor-heavy formations able to rely on relatively near-at-hand support sustained by an extensive system of bases and stockpiled supplies. The Air Force fielded tactical fighters with sufficient range to handle aerial combat over Europe, again able to rely on a network of bases to sustain protracted operations. In contrast, since World War II, the Marines have had to deal with the limitations imposed by having to embark their forces aboard ships and to conduct operations far from large, permanent, supporting installations (exceptions being made, of course, for the protracted land operations of the Vietnam War, the First Gulf War, and ongoing operations in Afghanistan and in Iraq following the Second Gulf War). The Service's primary focus on conducting operations from the sea framed the types of equipment and the operational concepts it used. This has driven the Service to

[5] This is not to discount the Cold War requirement to surge massive quantities of forces and sustainment to the European theater in the event of war with the Soviet Union. Substantial effort was made by all of the Services and Joint Force planners to figure out what they would need and how they would get it there to reinforce and sustain US and NATO forces maintained in forward positions throughout West Germany and in other NATO countries. The same basic conditions also existed in South Korea, where US forces were maintained in a ready-to-fight condition on the peninsula, with plans in place to quickly surge additional forces if war actually occurred. Rather, the point being made is that the US maintained substantial numbers of Army and Air Force forces within the actual theater they were to be used, in close physical proximity to the battlefields they would fight upon. In contrast, the Marine Corps' norm has been constant mobility, sailing with the Navy to various contingencies as they arose.

develop and maintain organic capabilities for both land and air—as have the Army and Air Force—but suited for staging at sea and sustained use independent of a fixed infrastructure (airfields, ports, and support bases), like the Navy.

For the Army to go anywhere it is not already based, its equipment must be transported by the large, sealift ships operated by the Military Sealift Command and the huge cargo airplanes of the Air Force into secure ports and airfields proximate to the scene of the expected conflict. Its personnel must be transported by commercial and military aircraft and maritime transports. Once in theater, the equipment and soldiers must be assembled for battle. Once this is done, the Army is able to conduct ground operations on a scale and proficiency currently unmatched by any other force. A similar argument holds for the Air Force; though the Air Force can fly aircraft anywhere in the world, only its fleet of bombers can make round-trip flights from bases in the continental United States to target areas and back. Its tactical fighter planes have relatively short "legs" and must be based in close proximity to the area they will be employed. Consequently, they, too, need access to airfields with all the supplies and support activities necessary to sustain operations over time. Once established, however, the Air Force, like the Army, can generate unparalleled combat power.

Marine Corps units are equipped and configured to launch military operations from the Navy's amphibious warships. While the Army and Air Force anchor and project their power from bases on land, the Marines can do so from bases on the sea from the very outset of a contingency.

The Navy differs from the Army and Air Force in that the very nature of the medium it operates within and the platforms it employs reduce the extent to which it must anchor its operations on fixed facilities. In this respect, the Navy and Marine Corps are quite similar. They are comparable, too, in their use of air power. The Navy, obviously, has perfected the ability to operate an air force at sea. Like the Navy, the Marine Corps can operate multi-role aircraft from carrier decks, but it also specializes in operating its aircraft from austere airfields ashore.

As noted, the Marines have made operating in and from the maritime environment their specialty. Though the Army needs ships to take its heavy equipment from one place to another, the force itself is not designed to be employed "from the sea." Consequently, it requires secure ports and airfields through which its forces can flow, in order to then assemble and prepare for operations. The Air Force can quickly gain control of the relevant airspace, thus enabling US forces to use it at-will in support of all other operations, but it must first gain access to the area and establish a sustainable presence to do so. This has meant establishing relatively secure operating sites ashore from which supporting air operations can be conducted. Marine Corps units are equipped and configured to launch military operations from the Navy's amphibious warships. While the Army and Air Force anchor and project their power from bases on land, the Marines can do so from bases on the sea from the very outset of a contingency.

Other significant differences between the Army/Air Force and the Marine Corps include the matters of time, scale, and technique when undertaking operations. When aboard amphibious ships, Marine units are able to execute operations as soon as they are within striking distance of their objective and without a requirement to first establish an operational capability ashore. They are also different in the scale

of operations that can be conducted, with the other Services able to conduct much larger-scale operations, once established. Further, differences also exist in the techniques employed by the Services to execute their respective operations, and in their equipment and training.

With the mobility and basing capabilities provided by the US Navy, the Marine Corps can bring military power to bear in areas not immediately accessible by the other Services. A naval force can also loiter in an area of potential trouble for weeks or months without having to establish arrangements for basing and access.

It is because each of the Services specializes in its respective domain that, together, they provide the United States with a wealth of options unmatched by any other nation. The Marine Corps is a unique component of that mix and, like the other Services, is at its best when it is properly aligned with its operating environment—in its focus, its operational concepts, its training, and its suite of equipment. But is the Corps appropriately aligning itself with its expected operating environment? If not, what changes should it make to do so? These two questions, and the various factors that influence their answers, are the focus of this paper.

Before proceeding further, however, it is necessary to briefly discuss two items that are fundamental to every issue affecting the Marine Corps and that shape its perspective when trying to adjust to its environment: its view of "amphibious operations" and seabasing—that is, projecting sea-based Marine Corps combat forces against enemy forces and operational objectives ashore—and the organizing principle that shapes its thinking about organizational, conceptual, and employment matters: the Marine Air-Ground Task Force (MAGTF).

With the mobility and basing capabilities provided by the US Navy, the Marine Corps can bring military power to bear in areas not immediately accessible by the other Services. A naval force can also loiter in an area of potential trouble for weeks or months without having to establish arrangements for basing and access.

AMPHIBIOUS OPERATIONS AND SEABASING

When people think about "amphibious landings" the image that most quickly comes to mind is that of the classic defended-beach assault typified by the large and often bloody operations of World War II. In the European theater, the Army conducted several amphibious landings as it sought to engage German and Italian forces, first in North Africa and later on European coastlines. The most famous of these was the massive cross-Channel Allied invasion of Normandy, though others were conducted in Sicily, Italy, and Southern France. In the Pacific theater, the Marine Corps' legacy was secured during its island-hopping campaign as it seized a series of heavily-defended islands that included Guadalcanal, Tarawa, Tinian, Saipan, Iwo Jima, Peleliu, and Okinawa.

Following World War II, the Corps continued to refine its doctrine and capabilities so that it could apply to amphibious warfare the same principles of maneuver used in conventional land combat. If at all possible, military forces would much rather flank an enemy-held position (go around it to attack it from behind or from an unexpected direction or to attack a particularly vulnerable portion of its position) than attack it

head-on. The opening set of moves in any engagement consists of various maneuvers designed to gain a positional advantage over one's opponent. The same holds true for amphibious operations. Marine Corps doctrine (and supporting operational concepts) seeks to avoid heavy concentrations of enemy forces, if possible, so that Marines can attack from unexpected directions, exploit surprise, maximize the impact of their combat power, and minimize the direct threat to their own force. This thinking and related technical capabilities continued to evolve over the decades, enabled by advances in helicopter technologies, naval landing craft, amphibious assault vehicles, fire support, and communications.

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Beginning in the early 1990s, the Corps' thinking about amphibious operations evolved still further as modern technologies enabled it to do more with a sea-based force. In 1996, the Marine Corps published "Operational Maneuver From The Sea (OMFTS)"[6] which presented a view of amphibious operations that integrated the idea of "operational maneuver" (maneuvering forces directly against higher-order military objectives instead of sequentially building a series of lower-level, tactical wins normally needed to obtain an operational-level military objective) with the ability to use the sea as a broad expanse of space from which to launch such operations. Ideally, a naval force could keep the enemy guessing as to its intentions and insert forces anywhere along a wide expanse of coastline, thus forcing the enemy to spread out (and therefore dilute) his defensive capabilities, and increasing one's own chances of successfully penetrating into his territory.

In fact, the entire concept of "seabasing" rests on the principle that the ocean can be used to assemble, move, project, support and sustain forces as is done on land, but with several added advantages: maneuvering without concern for the normal impediments of terrain features; operating with greater protection from the enemy and with less chance of being observed; positioning a force and sustaining its presence without having to worry about issues of sovereignty or access to foreign ports or airfields; and quickly withdrawing, if necessary, without having to undergo the lengthy and transportation-intense evolution of back-loading equipment, materials, and personnel. As currently manifested, the ability of US naval forces to operate at sea in

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[6] Charles C. Krulak, *Operational Maneuver From The Sea*, Headquarters United States Marine Corps (Washington, DC: January 4, 1996). Accessible at: http://www.usmc.mil/news/publications/Documents/MCCP%201%20Operational%20Maneuver%20from%20the%20Sea.pdf. See, also, Carter A. Malkasian, "Charting the Pathway to OMFTS: A Historical Assessment of Amphibious Operations From 1941 to the Present," The Center for Naval Analyses (Alexandria, VA: July 2002), for a very brief historical overview of amphibious operations since WWII and a critique of OMFTS from this perspective; available at: http://www.cna.org/documents/d0006297.a2.pdf. Following publication of OMFTS, the Corps' thinking continued to evolve, resulting in a family of concepts that include *Ship-to-Objective Maneuver, Seabasing, Enhanced Networked Seabasing, Expeditionary Maneuver Warfare*, and others, which all attempt to build on the ideas that the sea can be used as both a basing and maneuver area, and that amphibious forces can exploit this situation to project force ashore in support of US military objectives. Additional materials covering all of these concepts can be found at the Marine Corps' Strategic Vision Group website: http://www.quantico.usmc.mil/activities/?Section=SVG and the website for the Corps' consolidated "Seabasing" effort: http://www.quantico.usmc.mil//seabasing/index.htm.

such a way confers strategic, operational, and tactical advantages not possessed by any other country.[7]

The Marines continue to search for ways to use the sea as an operational sanctuary from which they can stage, deploy, and support combat forces against an enemy ashore or use the sea as a base from which to sustain operations in support of national security interests. Their current internal debates and their external efforts to acquire the platforms and support thought necessary to undertake the types of operations they envision revolve around their efforts to fully leverage their unique ability to field amphibious forces able to mount a variety of operations from the sea.

THE MARINE AIR-GROUND TASK FORCE

For those outside the Corps, it can be more than a little frustrating to discuss force employment, packaging, and planning models with a Marine. While the Army speaks in terms of brigades (a 3–4,000-soldier combat unit generally understood by nearly any student of military affairs), Marines always speak in terms of MAGTFs: the Marine Air-Ground Task Force. A principle underlying all Marine Corps doctrine is that Marine units will always be deployed as complete packages composed of ground, air, and logistics capabilities, bound together by a common command element (see Figure 1). This approach ensures that no deployed Marine unit will find itself without organic access to all of the tools needed to plan, execute and sustain a wide range of missions.

Theoretically, a MAGTF can have as its nucleus any of the three operational elements depending on the primary focus of the mission for which the MAGTF is organized and

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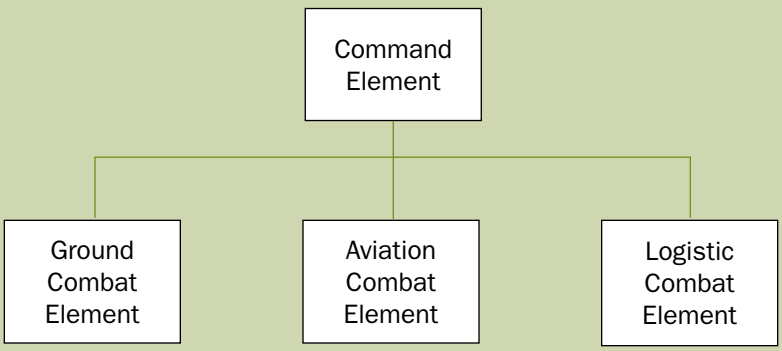
[7] For additional information on "seabasing," see *MCWP 3-31.7 Seabasing,* Quantico, VA, August, 2006, http://www.quantico.usmc.mil//seabasing/docs/NWP3-62_MCWP3-31_Seabasing.pdf and *Seabasing Joint Integrating Concept*, Department of Defense, Washington, DC, August 1, 2005, http://www.quantico.usmc.mil//seabasing/docs/Seabasing_JIC_v1.pdf.

FIGURE 1. **MARINE AIR-GROUND TASK FORCE**



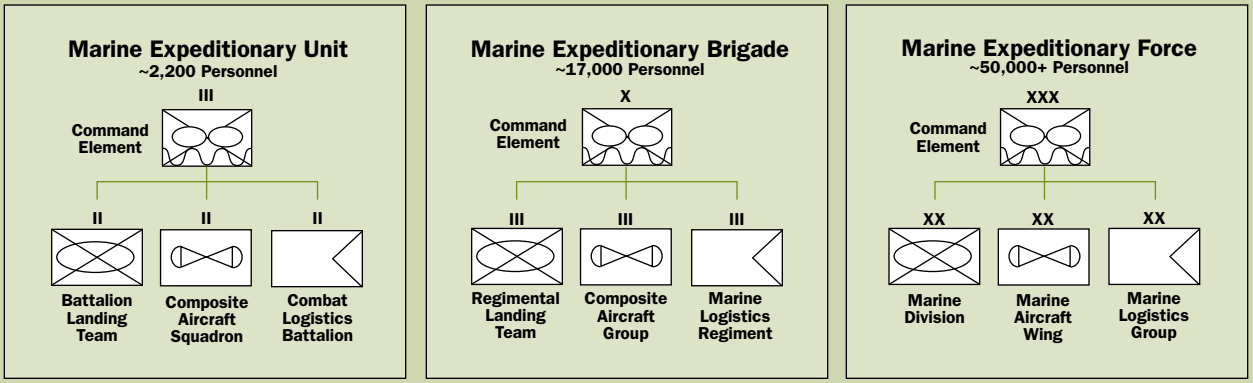
The MAGTF construct holds true regardless of the size of the unit to be deployed.

deployed. For example, a MAGTF deployed for combat operations would be organized around a combined-arms ground combat element supported by an air element and a robust logistics support element. In like manner, a MAGTF deployed in support of humanitarian assistance/disaster relief efforts may have a robust engineering/logistics support element at its core, but will still be equipped with an air component and a ground combat element sufficient to ensure that mobility and security considerations are addressed and giving it enough capability to handle a potential combat tasking (albeit at reduced capability). In practice, however, MAGTFs are rarely formed with anything other than a ground combat unit most prominently at the fore.

The MAGTF construct holds true regardless of the size of the unit to be deployed—from a reinforced infantry-battalion-centered Marine Expeditionary Unit (MEU), with a supporting composite squadron and associated combat logistics element, up to a division-level Marine Expeditionary Force (MEF) replete with a full Marine Air Wing and a similarly-sized combat logistics element.[8] When asked by an external audience or the planning staff of a regional combatant command what a MAGTF is and what it can do, however, the Corps typically responds, "It can be whatever you want it to be and effectively respond to any task you might need to have accomplished!" While true, this is hardly helpful in contingency planning exercises.

[8] MAGTFs come in three main sizes, with variations depending on the mission to be accomplished. A Marine Expeditionary Unit (MEU) is normally composed of a battalion landing team (an infantry battalion reinforced with amphibious assault vehicles, combat engineers, perhaps a section of tanks, and other resources drawn from the division), a composite squadron (usually a twelve-plane CH-46E squadron with additional CH-53E heavy-lift and AH-1W attack helicopters, plus a section of AV-8B Harriers), and a combat logistics battalion. A MEU is the typical MAGTF embarked and deployed aboard a three- to four-ship amphibious ready group. A Marine Expeditionary Brigade (MEB) is similar in construct to a MEU, but at the next echelon of combat forces, composed of a regimental landing team, composite air group, and combat logistics regiment. A Marine Expeditionary Force (MEF) continues this trend, with combat elements at the division, wing, and logistics group levels (see Figure 2).

FIGURE 2. **MARINE AIR-GROUND TASK FORCE, PRIMARY VARIATIONS**



Frustrating though it may be for Joint planners, the Corps' MAGTFs actually reflect the Joint Force's preference for responding to contingencies with Joint Task Forces (JTF). When a JTF is fielded, all of the capabilities one might need to respond to a crisis are assembled from across the Services: ground combat/security forces, air combat and transport capabilities, naval assets relevant to the mission, and appropriate logistical and engineering support units. The Marine Corps feels that its MAGTFs inherently represent this approach to force packaging and that they can be more quickly deployed and will be more effective on arrival since all of the "joint task force elements" come from one Service culture and operational perspective, have a common doctrine, education, and training base from which to refer, and are commanded by someone who has spent a career working with such arrangements. Consequently, a MAGTF is organizationally and operationally free of the "seams" or coordination frictions inherent in the generation, deployment, and employment of a multi-Service JTF. Indeed, in execution, the MAGTF construct can be viewed as combined-arms fighting in its most tightly integrated form.

A PROBLEM WITH FORCE SIZING AND SHAPING

While the Corps is quick to argue that a MAGTF can be of any size, it is conflicted internally with regard to a "*force sizing*" construct that would be useful—indeed, is becoming increasingly critical—in determining how best to organize, train, and equip the Corps to prepare it for the primary strategic challenges facing the nation in the coming decades. At risk of oversimplifying the discussion, the debate splits between those who believe the Corps should focus on major combat operations (with the division-based Marine Expeditionary Force (MEF) as the organizational reference point and all other missions considered lesser-included-cases) and those who believe the Corps should return to its "small wars" roots, with a focus on small unit operations, trusting that the Corps can "aggregate up," as needed, far more readily that it can "disaggregate down" to handle irregular warfare challenges. Resolution of this debate would help the Service rationalize an appropriate force-sizing mechanism. Indeed, for all its appealing attributes, the Corps' bias toward the "it can be anything" MAGTF construct and its inability to reconcile this long-running debate on whether it is primarily a "small wars" or "major combat operations (MCO)" Service, is impeding its ability to analyze the organizational, operational, and investment implications of the future security environment it has assessed as most likely to exist in the coming years. It also prevents the Marines from making a compelling and justifiable case for relevant support from its sister Service, the Navy, whether that support is in hardware (amphibious ships, landing craft, or naval surface fire support) or development of *and experimentation with* new operational concepts.

While the Corps is quick to argue that a MAGTF can be of any size, it is conflicted internally with regard to a *"force sizing"* construct.

This issue is far from being a mere academic exercise. As will be discussed in greater detail in the last chapter of this monograph, the debate is central to the Corps' self-definition and to how it really intends to employ its forces: whether independently

or in concert with the Navy; whether as small pseudo-independent elements operating against non-state actors (as envisioned in its Security Cooperation MAGTF and Marine Corps Training and Advisory Group approaches to regional engagement), or as large-scale forces deployed to fight major combat operations against an enemy waging traditional warfare. "Small and independent" implies many units that are individually capable of taking care of themselves in isolated circumstances for whatever period of time is required to accomplish an assigned task. "Small and independent" also has implications for the types and quantities of equipment the Corps would need to purchase and the command and control networks it would need to establish to sustain such operations across an extended battlespace. Conversely, with "large and concentrated" forces, the Corps can consolidate support functions; the types of operations it would undertake would necessarily differ in scope and focus as would the types of enemy forces it would attempt to engage; and the manner of deploying and employing the force would stand in stark contrast to the smaller and more distributed construct.

EMFTS makes the argument that the Marine rifle *company* is the "most likely operational sweet spot," serving as both the nucleus for distributed operations and as the "key building block for larger formations."

One example of the potential implications of this debate can be found in one of the Corps' most recently published documents, "Expeditionary Maneuver From the Sea (EMFTS)." Subtitled "The Capstone Operational Concept," EMFTS makes the argument that the Marine rifle *company* is the "most likely operational sweet spot," serving as both the nucleus for distributed operations and as the "key building block for larger formations."[9] Most interestingly, EMFTS goes on to say that a focus on "enhancing the ability of the rifle company to conduct the full range of missions…will have a ripple effect throughout the [MAGTF]" and that "[such] a capability will significantly impact both force development and force generation throughout the MAGTF."[10] Further, the rifle company "together with the essential supporting elements of the combined arms team…provides a focal point for developing the capability necessary to prevent crisis and prevail across the range of military operations."[11] Taken to its logical conclusion, this argument implies that the Corps should be focusing its doctrine, employment, equipping, command and control architecture, logistical support plans, transport, fire support, and all other employment and support concepts on how best to empower and leverage the rifle company as its primary unit of employment. While this does not mean that an infantry company will win a war, it does imply that the Corps would reference this level of organization when determining "what" and "how much" to buy, just as it would develop tactics, operational concepts, and a supporting infrastructure able to deal with many company-size elements. Though EMFTS places such emphasis

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9 James F. Amos, *Expeditionary Maneuver From the Sea*, (Quantico, VA: June 25, 2008). The basis for this argument comes from the view that the rifle company is currently the smallest military unit possessing sufficient capacity in manpower, firepower, and command and control capabilities to accomplish militarily significant tasks. The Marine Corps has previously viewed the infantry battalion in this way, but advances in supporting technologies are opening up new possibilities for use of individual companies.

10 Ibid.

11 Ibid.

on the company, however, there is scant current evidence that the Corps' other conceptual, organizational, or programmatic efforts are aligned on this point.

If the debates over a "force-sizing" reference point (i.e. company, battalion, regiment, etc.) and the primary focus of force shaping (big conventional wars or small, irregular wars) are ever resolved, they *should* have a direct impact on force design and equipage, the manner in which the Corps employs its capabilities, and the focus of its supporting education and training efforts. Between the extremes of big or small, conventional or irregular, it could very well be that the answer lies somewhere in the middle, an answer that would actually well reflect the demands of "hybrid warfare," operations against non-state actors increasingly enabled with advanced technologies, and the application of naval forces against regional opponents who will pose substantial anti-access/area-denial threats.

The inability to settle on a force-sizing and shaping construct aside, the Corps remains convinced that the MAGTF organizational construct remains valid across the range of military operations. However, as will be discussed in this report, its apparent inability to determine at what level it should reference all of its supporting initiatives, ranging from operational concepts to decisions about investments in platforms and equipment, effectively prevents it from considering alternate organizational models. To help frame this discussion, this paper is organized into three main Chapters.

Chapter 1 provides an overview of the current status of the Marine Corps. It discusses the general structure of the Service; the extent of its involvement in current operations abroad and the impact those operations are having on it; its major acquisition programs; and a bit of discussion about the Corps' effort to define the nature of the future security environment, its role as a naval service in support of national security objectives, and how it envisions it will work with the Navy to employ Marine Corps capabilities.

Chapter 2 provides a review of the primary strategic challenges likely to confront the United States over the next two decades. This chapter will look at the nature of these challenges and their implications for the Joint Force capabilities the United States will need to field to overcome them. Applying this analysis to the Corps, the paper will discuss how the Marines might best be used as a component of the Joint Force and the implications for operational capabilities unique to the Service that logically extend from the types of threats to be encountered, the characteristics of the operating environment, and missions for which the Corps should be well-situated to execute.

Chapter 3 assesses whether the Corps' current and planned efforts to prepare itself for the future are well-considered given all of the above and concludes with a few recommendations the Marines should consider as they push forward with a number of major initiatives, both in procurement and in developing new concepts for the operational employment of the Corps.

A FORCE-IN-READINESS

Though US law dictates the basic composition and primary missions of today's Corps, the origin of that law lies in the opening crisis of the Korean War, nearly sixty years ago. The United States had demobilized following World War II (WWII) and found itself ill-prepared to respond to North Korea's invasion of its southern neighbor. To avoid being found flat-footed again, Congress legislated that the Marine Corps would serve as a "force in readiness,"[12] leading the Corps to develop its Service call-to-battle, "Most ready when the Nation is least ready." But 2008 is a long way from 1950.

Indeed, the entire US military can be considered a "force-in-readiness" with a military posture and ability to deploy combat power that are dramatically improved when compared to its situation in the late 1940s, thus providing the United States the ability to rapidly deploy combat power of previously unimaginable capability—even taking into account the demands of current operations in Iraq and Afghanistan. As conditions change and national security challenges evolve, however, the US military must also continue to change in ways that best meet those challenges regardless of the parochial interests of any one of the Services. So, although Congress identified a need to have a force-in-readiness and assigned that role to the Marine Corps over a half-century ago, the Corps should acknowledge that times and conditions change. In today's environment, the Corps can *best* serve the Nation—answering the call to be "most ready when the Nation is least ready"—by embracing the implications of the evolving twenty-first century security environment and adjusting to meet its challenges irrespective of past missions and conditions. And in this regard, as today's global security environment is qualitatively different from what it was in the past, being "most ready" likely entails a different set of attributes as well. The Corps needs

The Corps can *best* serve the Nation by embracing the implications of the evolving twenty-first century security environment.

[12] 10 USC Sec. 5063, United States Marine Corps: composition; functions, as of Jan 3, 2007. Accessed at: http://uscode.house.gov/download/pls/10C507.txt.

to spend some time evaluating the implications of its likely operating environment. The outcome of such an exercise may well be decisions on force design and equipment that differ from what the Corps has committed to at present.

THE CORPS' CURRENT POSTURE

The Marine Corps is currently composed of approximately 199,000 Marines on active duty[13] and a reserve force of 39,600[14] (approximately one quarter of whom are mobilized and serving on active duty). Congress has authorized the Corps to expand to a permanent active-duty end-strength of 202,000,[15] which they are steadily (and successfully) working toward and plan to achieve by FY 2011.[16]

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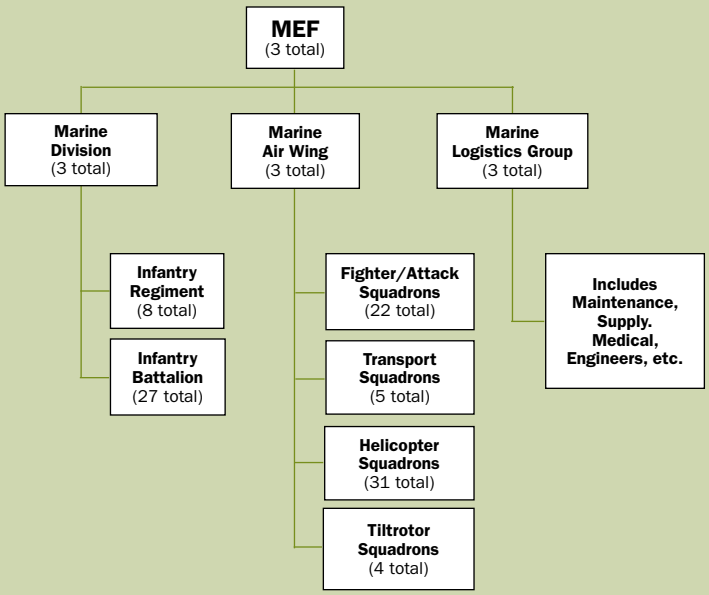
[13] "Armed Forces Strength Figures" compiled by the Department of Defense show 194, 912 Marines on Active Duty as of July 31, 2008. Accessed at: http://siadapp.dmdc.osd.mil/personnel/MILITARY/ms0.pdf on Sept 22, 2008. The actual number continues to grow on a near-daily basis; as of late September it was closer to 199,000 (figure obtained via telephone conversation with Marine Corps officials at Quantico and Headquarters Marine Corps).

[14] "The Posture of the United States Marine Corps," p. 4.

[15] James T. Conway, "Marine Corps End Strength Increase," ALMAR 008/07, Washington, DC, February 6, 2007. Accessed at: http://www.marines.mil/news/messages/Pages/2007/MARINE%20CORPS%20END%20STRENGTH%20INCREASE.aspx

[16] "CMC Approved 202K Plan," PowerPoint briefing presented on August 12, 2008. Again, see note 15.

FIGURE 3. **MARINE CORPS OPERATING FORCES, BY THE NUMBERS**



The Service is organized into three Marine Expeditionary Forces, each consisting of a Marine Division, Marine Air Wing, and a supporting Marine Logistics Group (see Figure 3).[17] The divisions are combined-arms organizations fully centered on infantry units, but also possessing armor, artillery, combat engineers, and other combat support enablers. There are eight infantry regiments that provide a pool of twenty-seven infantry battalions.[18] The Corps cycles its units through duties in Iraq, Afghanistan, its normal rotation of Marine units embarked aboard Navy amphibious ships, and standard half-year deployments to Okinawa, Japan.[19] The Service has held steady in its deployment mix with seven-month tours in Iraq. Given the base of units involved, this has required a sustained one-to-one rotation policy, with units spending seven months at home before returning to the theater for a seven-month tour. The Corps has determined that its expansion to 202,000 Marines, combined with an anticipated reduction in deployed force levels abroad over the next year or two, will enable it to reduce its operational tempo to a 2:1 ratio, fourteen months back for every seven months abroad. For example, part of the additional 27,000 Marines has been used to stand up three more infantry battalions. Along with this growth in available units, the Marines are benefitting from the recent improvements in the Iraqi security situation. Al Anbar province, once the most violent region in Iraq, has been handed over to Iraqi

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[17] The Marine Corps organizes its Selected Marine Corps Reserve structure to roughly mirror the active component (Division, Wing, Logistics). For the sake of brevity, this paper will focus on the active component, while noting that the Corps' efforts to reorient for future threats are largely focused on its active component with some trickle-down implications for the skills and capabilities of its reserve component.

[18] To place the size of the Marine Corps in perspective, the Army is currently expanding from forty-two to forty-eight combat brigades, with an Army brigade notionally equivalent to a Marine regiment in terms of conventional "Joint Force" military planning. Seen in this context, the Army fields six times the number of combat-configured units as the Marine Corps. It must be remembered that even though the Corps is more than a third the size of the Army–194,000 vs. 530,000–only a third of the Corps is dedicated to its combat ground force structure while another third is contained in its aviation arm. The remaining third accounts for its logistics and support establishment organizations. Another reference point can be found in the number of main battle tanks each Service brings to the fight: approximately 400 for the Marine Corps, while the Army can field over 5,000.

[19] The Marine Corps maintains a steady-state deployed presence in key regions around the world with three Marine Expeditionary Units (MEU) embarked aboard US Navy amphibious ships. As explained in the Introduction to this paper, in the section titled "The Marine Air Ground Task Force," a MEU is composed of a reinforced infantry battalion, a composite squadron of aircraft (mostly helicopters), and a supporting logistics element, all commanded by a common command element. Under normal conditions, three MEUs are maintained abroad, one each in the Mediterranean Sea, the Indian Ocean, and the Southeast Asia region. To maintain this three-forward posture, it takes a total of nine MEU equivalents of battalions, squadrons, and logistics elements—three actually deployed forward, three just returning from deployment, and three preparing to deploy. The Marine Corps' presence on Okinawa is sustained with a similar rotation base of nine infantry battalions; a total of three battalions on the island serving six-month tours (one each from home bases in North Carolina, California, and Hawaii), three getting ready for deployment, and three having just returned and preparing for other duties. The Okinawa and MEU deployment cycles account for eighteen of the Corps' twenty-seven infantry battalions, leaving nine for other duties such as Iraq, Afghanistan, or other contingencies. Based on the operational demands of either theater of war, a MEU or a battalion in Okinawa can certainly be assigned duty in Iraq or Afghanistan, and such assignments have occurred since 2001.

control, thus freeing Marine battalions for use elsewhere. These two events — reduced demand for units in Iraq and formation of new units in the Corps — have combined to lessen the deployment demands placed on Marine units.

The Air Wings are split between fixed wing aircraft (currently consisting of models of the F/A-18 Hornet, AV-8B Harrier, the KC-130 cargo plane, and a relatively small number of EA-6B Prowler electronic warfare jets) and helicopters (CH-53E heavy lift, CH-46 medium lift, UH-1N C2, and AH-1W attack platforms), though the recent introduction of the hybrid MV-22 Osprey blurs the distinction between fixed and rotary wing aircraft. The Marine Corps maintains an inventory of 180 F/A-18s (of various types) in fifteen squadrons (thirteen Active, two Reserve), 98 AV-8B Harriers (in seven squadrons), 36 KC-130s (used for both cargo/personnel transport and aerial refueler missions) and four squadrons of EA-6Bs. In helicopters, the Corps can deploy eleven heavy-lift squadrons, twelve medium-lift squadrons, eight attack squadrons, and four squadrons of the new MV-22 Osprey (see Table 1).[20]

[20] All figures (with the exception of MV-22 squadron/aircraft counts) are taken from the May 2008 version of the *Marine Aviation Plans and Programs Reference Guide*, produced by the Department of Aviation, Headquarters Marine Corps. Available at: http://hqinet001.hqmc.usmc.mil/AVN/APP/Documents/08%20Brainbook%20Final.pdf There are four MV-22 squadrons currently in the active-duty Marine Corps air wings: VMM-162, VMM-261, VMM-263, VMM-266. VMM-261 is the latest squadron to transition from the CH-46E to the MV-22, thus reducing the number of CH-46 squadrons reflected in the Reference Guide from thirteen to twelve and increasing the MV-22 squadrons from three to four. The numbers of aircraft listed in the table do not include those reserved for training squadrons.

TABLE 1. **MARINE CORPS AVIATION ASSETS**

	PAA*	Sqdns	Total
F/A-18	12	15	180
AV-8B	14	7	98
EA-6B	5	4	20
KC-130	12	5	60
CH-53D/E	10/16	3/8	30/118
CH-46	12	12	144
AH-1	18	8	144
UH-1	9		72
MV-22	12	4	39~

* Primary Authorized Aircraft (per squadron)

THE CORPS UNDER PRESSURE

The Corps is undertaking numerous efforts to ensure it remains relevant and effective with respect to the types of missions it is currently performing and believes it will perform in the near future. To be addressed later in this paper is whether the Corps' expectations and current efforts are well-matched to the missions and operating environments associated with emerging strategic challenges. There is no doubt the Corps is fully engaged, globally, in carrying out its currently-assigned tasks: it has embraced the emerging concept of "hybrid warfare;"[21] it has committed itself (at least on paper) to focusing on geographic regions in order to better understand the cultural and social dimensions of potential problem areas; it has declared its intent to re-establish a more routine presence aboard Navy ships; and it is re-exploring how best to utilize its capabilities as a component of naval power.

The Corps has approximately 26,000 Marines deployed to Iraq, 3,800 in Afghanistan, 2,700 engaged in other parts of the Central Command area of operations, and approximately 4,500 deployed in various operations in other regions. This equates to roughly 37,000 Marines, or one out of five, forward-deployed in an operational posture performing a range of missions that include civil affairs, security detachments, humanitarian assistance, military-to-military exchanges, training the forces of friends and allies, and conducting combat operations.[22]

The Marine Corps of 2008 has accumulated a wealth of combat experience across a broad range of military operations. But this experience has come at a cost in human lives (867 killed in action and 8,721 wounded in action as of August 2, 2008),[23] on the families of the Marines involved, in wear-and-tear on equipment, increased consumption rates of resources (ammunition, spare parts, operational reserves of equipment and supplies), and the time not available to train for a range of missions beyond those being performed in Iraq and Afghanistan. Consider that:

> One quarter of all Marine Corps ground equipment is engaged overseas, retained in combat theaters and "used on a near-continuous basis at a pace that far exceeds normal peacetime usage."[24]

The Marine Corps of 2008 has accumulated a wealth of combat experience across a broad range of military operations; but this experience has come at a cost.

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[21] See Note 58, F. G. Hoffman, *Conflict in the 21st Century: The Rise of Hybrid Wars*, and accompanying discussion in the text.

[22] Plans Policies and Operations, HQMC, Powerpoint slide on "Global Force Disposition," dated April 21, 2008.

[23] "Global War on Terrorism, Casualties by Military Service Component, October 7, 2001 through August 2, 2008," Defense Manpower Data Center. Accessed at: http://siadapp.dmdc.osd.mil/personnel/CASUALTY/gwot_component.pdf

[24] James T. Conway, General, Commandant of the Marine Corps, "The Posture of the United States Marine Corps," February 28, 2008, p. 7. Accessed at: http://www.marines.mil/units/hqmc/cmc/Documents/CMCTestimonies20080228SenArmServComm.pdf

- The Corps' tactical vehicle fleet is operating at "five to six times the programmed rates."[25]
- "To maintain sufficient numbers of aircraft in deployed squadrons . . . non-deployed squadrons have taken significant cuts in available aircraft and parts . . . resulting in a 30 percent decrease in the number of non-deployed units reporting 'deployment capable' over the last five years."[26]
- The three Maritime Prepositioning Ship Squadrons (MPSRONs) used to forward-position USMC equipment in various theaters have been used to equip units standing up as part of the Corps' expansion to 202,000 Marines and to outfit various units deployed in support of Operation Iraqi Freedom (though plans are in place to bring MPSRONs 2 and 3 back to full mission capability over the next year).[27]

There has been a growing chorus of concern within the Corps about its eroding ability to conduct conventional combined arms operations and its deepening lack of experience with shipboard operations.

The Marines have estimated their current "reset"[28] bill to be $15.6 billion, of which $10.9 billion have been appropriated,[29] but they have also clearly stated they expect these costs to increase once Marine Corps units are largely withdrawn from Iraq and the Service gets a better handle on the costs to repair or replace its equipment.

Over the past year or more, there has been a growing chorus of concern within the Corps (echoed in the Army) about its eroding ability to conduct conventional combined arms operations and its deepening lack of experience with shipboard operations.[30] Prior to its heavy, sustained involvement in security operations in Iraq, the Marine Corps iteratively deployed its units through combined arms training packages at its combat training center aboard Marine Corps Base Twentynine Palms, in California. Training at Twentynine Palms has increasingly focused on operations in Iraq and, to a lesser extent, Afghanistan. The Corps continues to deploy units aboard ships, but the focus of training for the vast majority of Marines remains firmly on land-centric counterinsurgency and counter-terrorism operations in the Middle East, rather than on combined arms operations above the battalion level, amphibious exercises, or basic shipboard familiarization.

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[25] Ibid., p. 8.

[26] Ibid., p. 8.

[27] Ibid., p. 9.

[28] The Marines refer to "reset" costs as those associated with repair or replacement of existing equipment, as opposed to "reconstitution" which they use to refer to efforts intended to reintegrate forces that have been used for an operation, get them back into "fighting form" and oriented on the next set of anticipated missions.

[29] "The Posture of the United States Marine Corps," p. 7.

[30] For just one of many reports reflecting this concern, see Zachary M. Peterson, "Conway: Marines Lack 'Cadre' of Amphibious Warfare Trainers," Inside the Navy, March 17, 2008, accessed at: http://insidedefense.com/secure/defense_docnum.asp?f=defense_2002.ask&docnum=NAVY-21-11-8

The Corps' greatest fear is that it will be unprepared to respond to a large-scale conventional crisis as its proficiency in such skills atrophies, that the "first battle" might *not* be won, and that Marines and national security interests will suffer as a result.

CURRENT INITIATIVES — EQUIPMENT AND ORGANIZATIONS

Across both the ground and air communities, the Corps has felt the impact of current, sustained operations in terms of wear-and-tear on its equipment and prolonged periods of deployment. Like the other Services, it, too, is attempting to manage the demands of current operations and the consequent requirement to fix or replace items that are destroyed, damaged, or simply worn-out while also pursuing the introduction of new equipment. In his February 2008 testimony to Congress, General Conway spoke to this issue, stating that the Corps "[continues to make tough choices on how best to apply the resources we are provided — either to replace our rapidly aging equipment with similar programs or to modernize with next generation equipment."[31] A review of the Corps' various programs indicates that a great deal of investment is being made toward modernizing the Corps, vice simply resetting it to its pre-Operation Iraqi Freedom (OIF) condition. It is in the process of acquiring a number of new ground and aviation capabilities.

With regard to ground capabilities, the Marines are pursuing a new amphibious fighting vehicle called the Expeditionary Fighting Vehicle, or EFV; a new armored Marine Personnel Carrier (MPC); a new Joint Light Tactical Vehicle (JLTV)[32] with increased protection against improvised explosive devices and mines; and a host of improvements in fire support systems and individual support systems. The JLTV will merit particular attention, given its high-profile status as the multi-Service program intended to produce a successor to, though not a complete replacement for, the venerable High Mobility Multipurpose Wheeled Vehicle (HMMWV or "Hummer"). The JLTV is double the HMMWV's weight and is a significantly larger vehicle overall, presenting the Corps some concerns about how well it will fit into its "expeditionary" packaging for deployments, especially aboard ship. Each of these vehicle programs and the planned improvements for vehicle protection are of special interest to the Corps given the proliferation of increasingly effective anti-armor threats on the battlefield, whether from improvised devices or finished weapons. The Services are aggressively incorporating new design characteristics into their vehicles, to include vehicle geometries that deflect blast and shrapnel and removable armor panels that allow scaled use of increased protection against anti-armor projectiles.

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[31] "The Posture of the United States Marine Corps," p. 7.

[32] Joint Light Tactical Vehicle program, managed by the US Army Tank & Automotive Command's (TACOM) Procurement Network (PROCNET) Office, at: http://contracting.tacom.army.mil/MAJORSYS/JLTV/jltv.htm.

The Corps is making such investments in upgrades to its fleet of logistics support vehicles as well.[33]

In addition, the Marines are modernizing their entire aviation fleet. They are replacing their F/A-18 Hornets, AV-8B Harriers, and (possibly) EA-6B Prowlers with versions of the F-35 Lightning II multirole fighter; older models of the KC-130 Hercules with the newer, more capable KC-130J Super Hercules (a tactical refueler and transport airplane); CH-46 Sea Knight helicopters with the MV-22 Osprey Tiltrotor Aircraft;[34] and their heavy and light helicopters with the CH-53K Super Stallion, UH-1Y Huey, and AH-1Z Super Cobra (heavy-lift, utility, and attack helicopters, respectively). The MV-22 Osprey, in particular, has drawn much attention during its twenty-five year development because of widely reported engineering and safety challenges. The Corps plans to acquire a total of 345 Ospreys at a projected cost of $42 billion ($119 million each).[35] The Osprey's speed and range, easily twice that of the helicopter it is replacing, promises to give the Marines an ability to project forces ashore at much greater ranges than previously possible. The replacement helicopters, on the other hand, while not radically new platforms like the MV-22 tiltrotor, will nonetheless significantly modernize the Service's helicopter inventory.

The Osprey's speed and range promises to give the Marines an ability to project forces ashore at much greater ranges than previously possible.

In addition to these equipment improvements, the Corps is also pursuing a number of organizational initiatives. For example, the Corps has also built on its new relationship with the US Special Operations Command (USSOCOM or "SOCOM") by fully committing to a 2,600-man Marine Special Operations Command (MARSOC).[36] Established in February 2006, MARSOC serves as the USMC Service Component for SOCOM. MARSOC is composed of four main operational units—a Marine Special Operations Advisor Group (MSOAG), two Marine Special Operations Battalions (MSOB), and a Marine Special Operations Support Group (MSOSG)—and a school that screens Marines joining MARSOC and ensures the organization's training and

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[33] The Corps' interest in and approach to its vehicle requirements are addressed in numerous supporting documents, to include Gen Conway's February 2008 "Posture" statement to the Senate and the recently submitted "Army and Marine Corps Tactical Wheeled Vehicle Strategy" PowerPoint presentation to the Office of Management and Budget, July 2008. See also the "Statement of General Robert Magnus, Assistant Commandant of the Marine Corps, Before the House Armed Services Committee," given April 9, 2008, p. 30–32; available at: http://armedservices.house.gov/pdfs/FFC040908/Magnus_Testimony040908.pdf.

[34] The MV-22 is an airplane with specially designed wings that allow then to be tilted vertically so that its massive propellers can lift the plane like a helicopter, then rotate back to a horizontal position for normal forward flight like any conventional propeller-driven aircraft. The "V" indicates the airplane is capable of vertical take-off and landing, while the "M" that precedes it indicates it is a variant produced specifically for the Marine Corps.

[35] GAO-08-467SP Assessments of Major Weapon Programs (Washington, DC: US Government Accountability Office, March 2008), p. 167. The $42B figure does not include R&D costs; like all other naval aircraft, it is actually purchased by the Navy.

[36] United States Marine Corps Forces Special Operations Command, at: http://www.marsoc.usmc.mil/.

education efforts are appropriate to its mission.[37] The slight majority of MARSOC's efforts are focused on the "advisor" (MSOAG) mission, to:

> [provide] tailored military combat-skills training and advisor support for identified foreign forces in order to enhance their tactical capabilities and to prepare the environment as directed by USSOCOM…Marines and Sailors of the MSOAG train, advise and assist friendly host-nation forces—including naval and maritime military and paramilitary forces—to enable them to support their governments' internal security and stability, to counter subversion and to reduce the risk of violence from internal and external threats. MSOAG deployments are coordinated by MARSOC, through SOCOM, in accordance with engagement priorities within the Global War on Terrorism.[38]

The Corps is also pushing ahead with the development of a Security Cooperation MAGTF (SCMAGTF)[39] and the expansion of a nascent Marine Corps Training and Advisory Group (MCTAG), focused on establishing enduring relations with selected partner nations.[40] The MCTAG is currently at fewer than fifty Marines but is building up to over six hundred by FY 2011. These two initiatives are complementary and intended to support three main objectives: (1) support a regional Combatant Command's (COCOM) theater engagement strategy for regional stabilization; (2) build partner capacity through training events with other countries and aiding the development of indigenous security forces; and (3) conduct "operational preparation of the environment"[41] for potential future missions.

The Corps is also pushing ahead with the development of a Security Cooperation MAGTF and the expansion of a nascent Marine Corps Training and Advisory Group, focused on establishing enduring relations with selected partner nations.

As currently envisioned, the Security Cooperation MAGTF will habitually deploy to an assigned theater to carry out an array of concurrent training missions with designated countries. Though the (normally) battalion-centered MAGTF, with supporting air and logistics elements, would deploy as a single unit, it would conduct its concurrent training missions in company-sized (and perhaps smaller) formations. Meanwhile, Marines from the Marine Corps Training and Advisory Group (MCTAG) will be used to establish long-term relationships with key personnel and institutions in countries of interest, thereby establishing a foundation of relationships and baseline understanding of local conditions to be built upon (and leveraged) through the

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37 For a more detailed discussion of MARSOC, see Robert M. Martinage's paper *Special Operations Forces: Future Challenges and Opportunities in the Strategy for the Long Haul* series of monographs.

38 MARSOC, Marine Special Operations Advisor Group, see: http://www.marsoc.usmc.mil/msoag.html.

39 For a good overview of the SCMAGTF and some of the issues surrounding it, see Major Edward W. Novack, "The Security Cooperation MAGTF" (Quantico, VA: Marine Corps Gazette, August, 2008), p. 10–16.

40 "CMC Approved 202K Plan," August 12, 2008. There is some discussion within the Marine Corps about limiting the planned expansion of MCTAG to a number closer to 300+ Marines, vice the 600+ shown in the "CMC Approved" 202K briefing slide.

41 For an interesting discussion on the value of "operational preparation of the environment" (OPE), see Major Michael T. Kenny, "Leveraging Operational Preparation of the Environment in the GWOT" (Ft. Leavenworth, KS: School of Advanced Military Studies, US Army Command and General Staff College, May 25, 2006). Available at: http://stinet.dtic.mil/cgi-bin/GetTRDoc?AD=ADA450588&Location=U2&doc=GetTRDoc.pdf.

efforts of the SCMAGTF. Further, the MCTAG will be positioned to quickly bring deploying units up-to-speed on emerging crises and serve as a linkage between the responding force and the supporting security forces of the partner country. (The value of MARSOC, SCMAGTF and MCTAG efforts relative to the strategic challenges emphasized in this monograph will also be addressed in the next chapter.)

Finally, the Corps has made strides in capturing its lessons in an array of doctrinal, educational, and training initiatives.

Finally, with regard to incorporating its battlefield experiences of the last half-dozen years, the Corps has made strides in capturing its lessons in an array of doctrinal, educational, and training initiatives. It has co-authored a new manual on counterinsurgency operations with the Army,[42] published a manual on irregular warfare co-written with the Special Operations Command (SOCOM),[43] and produced its own manual on countering irregular threats.[44] Recognizing the characteristics of the irregular warfare environment and the demands that current operations have made on its forces, the Corps has also initiated several programs to improve Marines' understanding of their operating environment so that units can more effectively accomplish assigned tasks. To this end, the Corps has established the Center for Irregular Warfare (CIW), the Center for Advanced Operational Culture Learning (CAOCL), the Security Cooperation Education and Training Center (SCETC), the Marine Corps Tactics and Operations Group (MCTOG) and the Marine Corps Advisor Training Group (ATG),[45] and a range of training and education programs implemented across the Corps' formal education and training effort.

CURRENT CONCEPTUAL EFFORTS

A further indicator of its appreciation that "the times they are a-changin'"[46] can be found in the deluge of vision, strategy, and concept documents that have been generated by the Marine Corps, some in collaboration with the Navy, over the past several years. On the whole, these documents indicate the Marines (and the Navy) recognize

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42 *FM 3-24/MCWP 3-33.5, Counterinsurgency* (Washington, DC: Headquarters Department of the Army, December 2006)

43 *Multi-Service Concept for Irregular Warfare* (Quantico, VA: Marine Corps Combat Development Command, August, 2006)

44 *A Tentative Manual for Countering Irregular Threats* (Quantico, VA: Marine Corps Combat Development Command, June 7, 2006)

45 The Corps' ATG is particularly interesting given its mission to "train Marine Corps Advisor Teams to advise, mentor, and train foreign military, police, and border units in operational techniques and procedures to combat terrorism and counterinsurgency." It employs "full immersion" training in various scenarios and enhances cultural learning, counterinsurgency, and other tactical skills obtained in other training venues. See "Advisor Training Group Command Brief," MAGTF Training Command, at: http://www.29Palms.usmc.mil/base/atg/default.asp.

46 Though Bob Dylan's famous lyric was penned to address the social upheaval of his day, the message seems quite applicable to the context and challenges facing America's military Services. Lyrics can be accessed at: http://www.bobdylan.com/#/songs/times-they-are-changin.

that the global security environment is changing and that there are new, evolving security and operational challenges arising that have implications for the Corps.

Naval Efforts

Among the most recent joint initiatives are the *Naval Operations Concept (NOC) 2006*;[47] the much-advertised (and hotly debated) *A Cooperative Strategy for 21st Century Seapower,* released in October 2007;[48] and the Global Fleet Stations Concept.[49] Taken together, they attempt to describe the operational environment as it pertains to the Sea Services, present suggestions for potential operational concepts, and discuss the consequent implications on force design and desired capabilities. The Sea Services conclude that US naval forces will likely be heavily engaged in a much more "forward-deployed" and distributed posture in the coming years, routinely interacting with a host of partners to enhance the nation's security posture. In general terms, this will be accomplished by:

The Sea Services conclude that US naval forces will likely be heavily engaged in a much more "forward-deployed" and distributed posture in the coming years.

- Working with other nations to improve their ability to handle local security problems so that they do not grow into larger regional problems that the United States must address;
- Routinely placing US forces where they can monitor the activities of actors who pose potential threats to US interests, and dissuade or deter them from embarking on threatening courses of action;[50] and
- Better positioning US forces so that offensive action can be taken independently, and on short notice, should the need arise to strike a time-sensitive or high-value target (or a wide range of targets in a protracted campaign).

Unfortunately, although these approaches appear both logical and complementary, they are not particularly correlated to the investment decisions being made by the Services. Most notable is the level of attention paid to working with the military

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47 *Naval Operations Concept 2006*, Washington DC, 2006. Available at: http://www.quantico.usmc.mil//seabasing/docs/Naval_Operations_Concept_2006.pdf . This concept is currently being updated and revised.

48 *A Cooperative Strategy for 21st Century Seapower*, Washington DC, October, 2007. Available at: http://www.quantico.usmc.mil//seabasing/docs/A_Cooperative_Strategy_for_21st_Century_Seapower.pdf. For an insightful critique of this document, see Robert O. Work and Jan van Tol, "A Cooperative Strategy for 21st Century Seapower: An Assessment" (Washington, DC: Center for Strategic and Budgetary Assessments, March 26, 2008), at: http://www.csbaonline.org/4Publications/PubLibrary/B.20080326.A_Cooperative_Stra/B.20080326.A_Cooperative_Stra.pdf

49 *Global Fleet Stations Concept*, July 30, 2007. Available at: http://www.quantico.usmc.mil//seabasing/docs/Global_Fleet_Station_Concept.pdf

50 For all that has been written about "deterrence," it still remains a much-debated term. Even less well understood is the issue of "dissuasion." For an insightful discussion of this, see Andrew F. Krepinevich and Robert C. Martinage, *Dissuasion Strategy* (Washington, DC: Center for Strategic and Budgetary Assessments, 2008).

forces of other nations and the oft-stated imperative to stay persistently engaged in many places at once. As will be discussed, this assessed need to conduct operations in many places at the same time, globally, beyond current levels of deployed activity would imply that *numbers of platforms and units fielded by the Sea Services really do matter* since any given ship or unit cannot be in multiple places simultaneously. Yet there is almost no discussion of this aside from a general premise that the Navy's programmed force of 313 ships and the Corps' three Marine Expeditionary Forces will be heavily engaged "forward" in working with allies, preventing wars, patrolling the seas, and standing ready to win a major conflict should one arise.

General James T. Conway, Commandant of the Marine Corps, states that the Corps' obligation is to "prepare for tomorrow's challenges today."

Marine Corps Efforts

The same can generally be said about Marine Corps-specific visions and concepts generated in concert with the aforementioned naval documents. Over the past several years, the Marines have published a Marine Corps Warfighting Publication on Seabasing;[51] a new capstone operational concept entitled *Expeditionary Maneuver From the Sea* (EMFTS);[52] and *Marine Corps Operating Concepts for a Changing Security Environment*.[53] All of these documents culminated in the recently published *Marine Corps Vision and Strategy 2025* (hereafter *VS 2025*), a document meant to capture how the Corps views the evolving security challenges facing the United States, the implications of that changing environment for the Service, and how the Corps plans to position itself for future tasks.[54] In his Forward, General James T. Conway, Commandant of the Marine Corps, states that the Corps' obligation is to "prepare for tomorrow's challenges today" and to ensure that its "legislated role as the Nation's 'force in readiness'" is duly attended to.[55] He goes on to say that the document's stated purpose is: "to inform all Marines where we intend to take our Corps, to give combatant commanders a concept of how we might best be employed, and to

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[51] *MCWP 3-31.7 Seabasing*, Quantico, VA, August, 2006. Available at: http://www.quantico.usmc.mil//seabasing/docs/NWP3-62_MCWP3-31_Seabasing.pdf. See also *Seabasing Joint Integrating Concept*, Department of Defense, Washington, DC, August 1, 2005; available at: http://www.quantico.usmc.mil//seabasing/docs/Seabasing_JIC_v1.pdf.

[52] EMFTS. From the document: *The Marine Operating Concept for a Changing Security Environment (MOC), 3d Edition* will be published by the Deputy Commandant for Combat Development & Integration (DC CD&I) in January 2009. This product contains the forthcoming MOC's foreword and the first chapter, *Expeditionary Maneuver from the Sea: The Capstone* Operational Concept. These documents are being released in advance of the MOC's publication now, to inspire discussion, debate, and innovation to guide capability development." Available at: http://www.quantico.usmc.mil//seabasing/docs/Expeditionary%20Maneuver%20from%20the%20Sea_HTML.pdf

[53] *Marine Corps Operating Concepts for a Changing Security Environment, 2d Edition*, June 2007. Available at: http://www.quantico.usmc.mil/seabasing/docs/Marine_Corps_Operating_Concepts_2ndEd.pdf

[54] James T. Conway, "Marine Corps Vision & Strategy 2025," Washington, DC, June 18, 2008. Available at: http://www.quantico.usmc.mil/download.aspx?Path=./Uploads/Files/SVG_MCVS%2015%20Aug.pdf

[55] Ibid., p. 2.

provide our civilian leadership with a reference point as to how we see Marine Corps contributions to national defense in the coming years and decades."[56]

The Service is currently engaged in an effort to turn the *VS 2025* into actionable steps, with the relevant functional components within the Marine Corps (manpower, aviation, logistics, training establishment, etc.) working on the details of how to achieve a number of specific objectives,[57] such as:

The Service is currently engaged in an effort to turn the *VS 2025* into actionable steps, with the relevant functional components within the Marine Corps working on the details of how to achieve a number of specific objectives.

1. EXPANDING PERSISTENT FORWARD PRESENCE AND ENGAGEMENT. By this, the Corps means to increase the frequency and duration, and deepen the focus, of its deployments to various regions. With the Navy, it plans to establish a more enduring presence in key regions and countries, regularly engaging with select partner nations to help them shape their security environment in directions favorable to US interests.

2. POSTURING FOR HYBRID THREATS IN COMPLEX ENVIRONMENTS.[58] The Marines' view of the threat environment is that various types of threats and actors are merging and blending into a "hybrid" mix of conventional and irregular challenges. In very general terms, threats used to be roughly categorized as either state-like conventional threats (characterized by organized armies and militias employing standard military formations and weapon systems) or as "non-state" irregular forces (such as insurgents, guerillas, and terrorists who typically rely on ambushes, improvised bombings, terror tactics and the use of small-unit supporting arms such as light mortars and small-caliber firearms such as rifles, pistols, and light machine guns).[59] Observation of recent conflicts indicates that non-state actors are improving their effectiveness, training, and discipline while fielding increasingly modern and sophisticated weapons. Further, irregular forces can opt to operate within heavily urbanized, densely populated environments where their activities can be easily masked, where the military advantages normally enjoyed by large state forces are mitigated, and where counter-attacks are difficult to mount.

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[56] Ibid., p. 4.

[57] Ibid., p. 14–18.

[58] Frank G. Hoffman has written extensively on "hybrid war," "complex irregular warfare," and more specifically on their implications for the US Marine Corps. See: *Conflict in the 21st Century: The Rise of Hybrid Wars* (Arlington, VA: Potomac Institute for Policy Studies, December, 2007); "Complex Irregular Warfare: The Next Revolution in Military Affairs" (Orbis, Summer 2006), p. 395-411; and "How the Marines are preparing for hybrid wars" (Armed Forces Journal), available at: http://www.armedforcesjournal.com/2006/03/1813952

[59] While it is true that warfare of any type seldom has such clean distinctions between combatants and the tools and techniques they use, the general premise is that large-scale conventional warfare waged by state forces usually includes more sophisticated weapons and more formalized military formations, whereas irregular, guerrilla, and insurgent warfare (themselves subject to great debate in efforts to accurately define them) are typically characterized by less formalized structures and a decided lack of state-level military capabilities and weapon systems. Nearly every instance of war, however, has seen the use of both regular and irregular forces employing conventional tactics and guerrilla-type tactics depending on which were judged to be more effective in the particular situation.

Insurgents can seek refuge in rugged, remote, and difficult-to-access areas that favor light infantry over modern mechanized operations, thus nullifying the advantages in heavy armor and mechanization usually employed to great effect by "regular" military forces. Interestingly, there are also indications that some states are reorganizing their conventional units to exploit some of the advantages leveraged by irregular forces, for example disbanding heavy-armor units to create small anti-armor hunter-killer teams, or adopting ambush and "hit and run" tactics. This approach could become increasingly attractive in light of the success achieved by Hezbollah in its clash with Israeli ground forces in 2006.[60]

3. REINFORCING NAVAL RELATIONSHIPS. The Corps is increasingly concerned that the demands of current operations in Iraq and Afghanistan, in terms of the time needed to train for such operations and the constant rotation required to maintain current force levels, are resulting in a loss of experience in naval operations. An entire generation of Marines has seen repeated tours to the Middle East for protracted land operations, but relatively few Marines have served aboard ships. This is a problem for the Corps because of its unique role in the US military as an amphibious force. Just as combined arms ground operations and joint/combined air operations[61] are complex evolutions that demand routine practice to master, so, too, are amphibious operations mounted from naval vessels. To the extent an ever-increasing portion of the Marine Corps lacks such experience, the Service is losing its proficiency in the very area that is supposed to distinguish it from the other Services. The Marine Corps intends to reverse this trend and get Marines back aboard Navy warships.

4. ENSURING AMPHIBIOUS FORCE LEVELS MEET STRATEGIC REQUIREMENTS. Among the more contentious debates between the two Sea Services has been the number of amphibious ships the Navy should maintain in its fleet. The Marine Corps would prefer to have enough "amphibs" to support three brigades' worth of deployed, amphibious-assault forces, but has had to settle, over the years, for a "fiscally constrained" quantity of thirty-three amphibious ships which can only support the simultaneous deployment of two and a half expeditionary brigades.

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[60] Please see note 68 in Chapter 2 for an expanded comment on this conflict and the impact it continues to have analysis of the evolving threat environment.

[61] The term "combined" can have different meanings when used to describe military operations. See Note 2 for an explanation of the phrase "combined arms." When used in "combined air" or "combined operations," or as a descriptor for a military headquarters command, it refers to operations involving the militaries of two or more countries working together in some formalize arrangement. In like manner, the term "joint" pertains to operations or commands involving two or more military Services where the association crosses Departmental boundaries; so a Marine Corps-Navy association is not "joint" since both Services reside in the same Department (the Department of the Navy), while a Marine Corps-Army operation *is* "joint". See Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms*, April 12, 2001 (as amended through May 30, 2008). "Combined," p. 101; "Joint," p. 283.

Central to this debate has been trying to quantify the "demand signal:" how much amphibious capability the regional commanders need in order to support their peacetime regional engagement strategies and the war plans for their respective theaters. The Marines intend to get a better handle on this and work with the Navy to ensure the Corps can meet its operational commitments.[62]

5. CREATING JOINT SEABASING CAPABILITIES. The Navy and Marine Corps argue that the oceans are an ideal environment for staging, projecting, and sustaining US military power. Unconstrained by issues of local sovereignty, access permissions, or the tensions created by maintaining large numbers of US military personnel in foreign lands, the seas afford the flexibility to sortie forces when and where needed, to maintain them nearly indefinitely in an area of potential conflict, and move them as needed to adjust to changing security conditions. The Marine Corps and Navy intend to determine just what they can do to support the other Services and the Special Operations community via sea-basing options and capabilities.

A startling gap exists between the institutional rhetoric of the Marine Corps and the programmatic, operational, and threat realities it will face in the coming years.

One would expect that these objectives would inform Marine Corps decisions on force design, quantification, and sizing based on the tasks and capabilities implied, but there is no clear evidence this is the case. The actions of the Marine Corps — doctrinally, organizationally, and programmatically — fail to convey the sense that the Marine Corps as an institution, as it is resetting its force for the future, is internalizing the analysis contained in its conceptual documents on the expected threat environment, operational employment concepts, and partnership with the Navy.

Moreover, any changes that the Marine Corps makes must be made while: sustaining the current level of effort in Iraq and Afghanistan, at least for the foreseeable future; "resetting" the force to account for equipment damaged, worn out, or lost due to these operations; and incorporating the new equipment already scheduled for introduction into the Corps' operating forces over the next decade. This will be a difficult task, if only for the budgetary hurdles facing the Department of Defense. Indeed, as will be discussed, close analysis and comparison of the implied capabilities with current initiatives reveal *a startling gap between the institutional rhetoric of the Marine Corps and the programmatic, operational, and threat realities it will face in the coming years.*

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[62] For a detailed assessment of the Navy's ship-building program, to include aspects that impact the Marine Corps' amphibious capabilities, see Robert O. Work's monograph in this series, *The U.S. Navy: Charting a Course for Tomorrow's Fleet* (Washington, DC: Center for Strategic and Budgetary Assessments, 2008).

CHAPTER 2 > **WHAT MUST THE FUTURE MARINE CORPS BE ABLE TO DO?**

The CSBA monograph *The Challenges to US National Security* describes the "three core strategic challenges" the United States will face over the next twenty years:

- Defeating both Sunni Salafi-Takfiri and Shia Khomeinist brands of violent Islamist radicalism;
- Hedging against the rise of a hostile or more openly confrontational China and the potential challenge posed by authoritarian capitalist states; and
- Preparing for a world in which there are more nuclear-armed regional powers.

These challenges are profound in their complexity, their potential to cause significant harm to the United States and its interests, and their implications for the US military. While each challenge is compelling in its own right, one should always consider how they impact and enable each other, creating conditions that the Corps will need to comprehend, analyze, and account for in preparing for the future.

The Marine Corps will have a role to play in meeting each of the challenges listed above, but the manner in which Marines are employed will vary based on the characteristics of the specific threat environment, the unique operational context, and the specific capabilities the Corps can bring to bear. As noted, it is the Marine Corps' unique ability to project, support and sustain forces from naval platforms, rather than the *types* of forces it can field, that broadens the number of options available to a Regional Combatant Commander.

The remainder of this chapter will look at each strategic challenge's implications and resulting demands on the Corps as a component of the Joint Force.

DEFEATING VIOLENT ISLAMIST RADICALISM

Terrorist organizations, as non-state actors, pose challenges quite different from those of a state competitor. Whereas a state possesses infrastructure, static populations, and formal military forces (usually larger than non-state actors') that can be acquired, monitored, and targeted relatively easily, terrorist groups are amorphous, difficult to track and exceedingly hard to target. They can blend into civilian populations or take up residence in the most remote and inaccessible areas. They can displace far more easily and with less signature than state forces, surreptitiously reassembling in a new location. Operating within the borders of a sovereign state, either with or without official support, they can exploit such sanctuaries to strategic effect.

Violent radical Islamist groups[63] draw support from sympathetic elements of the local population. When working to undermine governments they deem hostile, they attempt to generate local support for a variety of actions against the offending government, they incite and lead insurgencies, or they take direct action (bombings, for example) against instruments and symbols of power in order to undermine perceptions of government competency and legitimacy. In more supportive environments, they exploit sanctuaries to plan and coordinate operations and to train, equip, and support their base of fighters. In either instance, the United States has a vested interest in degrading their ability to draw support from their environment and in building a strategic framework that isolates and eventually eliminates such terrorist organizations as a threat. This macro effort, carried out at regional and local levels, has characteristics and demands that directly impact the Marine Corps.

To "prevail in what is likely to be a protracted struggle against Salafi-Takfiri and Khomeinist terrorist groups, the United States, along with its allies and partners, will need to conduct a sustained, multifaceted, global campaign."[64] This implies three core missions:

- Building partner capacity in CT [counter-terrorism] and COIN [counterinsurgency] capabilities and maintaining persistent, low-visibility ground presence in key operating areas.
- Generating persistent air and maritime surveillance and strike coverage over "under-governed" areas and littoral zones.[65]

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[63] Robert C. Martinage presents an overview of these terrorist organizations and their *modi operandi* in his monograph, *The Global War on Terrorism: An Assessment* (Washington, DC: Center for Strategic and Budgetary Assessments, 2008)

[64] Krepinevich, Martinage and Work, *The Challenges to US National Security*, p. 19–20.

[65] The terms "littoral," "littorals," and "littoral zone" refer to the coastline of a country, usually adjacent to an ocean or sea. When used in discussions with a focus on military or naval affairs, as in this paper, the area being referred to encompasses the swath or band of territory most closely associated with a coastal region, with a specific emphasis on the area that can be influenced or reached by naval forces.

> Conducting clandestine and covert operations (e.g., manhunting, resource interdiction, and counter-proliferation), including in politically sensitive and denied areas.

While the last of these three missions is largely the assigned domain of the nation's special operations and intelligence communities, the first two are certainly conducive to Marine Corps contributions.

Counter-terrorism and counterinsurgency operations can best be performed by forces that have a clear understanding of the local environment and who have established positive and effective relationships with populations that can choose to either support or resist terror groups. If the local population decides to withhold its support to terrorist groups and chooses, instead, to side with the government against such destabilizing organizations, the government has dramatically improved chances of acquiring the intelligence and access critical to effective CT and COIN operations. US forces can assist the efforts of partner nations by providing training in small-unit tactics, operational planning, and local policing, among other important skills. They can also provide access to the more advanced capabilities possessed by the United States, such as intelligence, surveillance, and reconnaissance resources, and even strike assets that can prove to be pivotal in defeating the military components of opposition groups.

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Such interaction with, and support to, host-nation forces is critically dependent on the extent to which US forces are *themselves* trained to provide training and advice to foreign security forces. While most US service personnel can probably figure out how to convey rudimentary technical skills to a foreign counterpart, even in the absence of specific language or cultural knowledge, formal and sustained efforts absolutely depend on language skills, cultural expertise, and detailed training in advisory skill sets. To the extent Marine Corps forces will contribute to such "train and advise" missions, they will need to be trained and educated on the specific regions they will operate in. This implies a significant effort to educate Marines on dozens, if not scores, of languages and cultures in the "zone of instability" that extends from the tri-border area in north-central South America, across Africa and much of the Middle East, and eastward into portions of Southeast Asia and the littorals bounding the South China Sea.

Generating persistent air and maritime surveillance and strike coverage over "under-governed" areas and littoral zones throughout this arc implies the ability to deploy forces capable of accomplishing assigned missions, and possessing sufficient flexibility to adjust to changing conditions. Terrorists seek operational sanctuaries that permit them to plan, train, and prepare for operations. Marine Corps and supporting naval forces need to be postured for sanctuary-denial operations to include surveillance-strike missions, time-sensitive raids, and the potential interdiction of high-value targets (terrorist leaders, for example) or critical assets ("loose" nuclear weapons or resources essential to terrorist operations). This implies fielding forces equipped with aircraft (both manned and unmanned), vessels, and skills suited to

long endurance surveillance missions, long-range raids, control of maritime chokepoints, and seizure of enemy watercraft.

The United States has numerous options with regard to undertaking these missions. Special Forces, in particular, and the Army, in general, have developed extensive experience in counterinsurgency operations these past few years. The Air Force has pushed use of high-altitude unmanned aircraft to unprecedented levels and the ground Services are now routinely employing tactical unmanned aerial vehicles (UAVs) at the company level, with initiatives even at the platoon and squad levels. The nation has invested significant resources in prosecuting a global, clandestine war against terrorists, often in partnership with allies and host countries, but also unilaterally when necessary. All of the Services have made adjustments that reflect a general appreciation for the challenges of "The Long War" such as fielding new equipment, initiating new training, and adopting new deployment patterns.

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The Marine Corps's specific utility in meeting the violent radical Islamist threat will depend on the attention it gives to maturing its relationship with SOCOM, fully implementing its evolving plans for security cooperation and training and advisory initiatives, institutionalizing its cultural awareness education and training programs,[66] getting Marine detachments back aboard ships where they can work in concert with the Navy to patrol the littorals, shipping lanes, and critical maritime chokepoints around the world, and perfecting emerging concepts for both distributed small-unit operations and long-range raids.

In some respects, the other Services and various government agencies are best-suited to many of the primary tasks of the Long War. The Air Force, for instance, operates long-loiter unmanned aircraft that provide persistent surveillance-strike capability (Global Hawk, Predator, and the newly deployed Reaper, for instance) while other federal agencies handle satellite coverage of sensitive areas. Army Special Forces and elements of SOCOM are specifically trained to handle low-profile counter-terrorism,

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[66] As briefly mentioned earlier, the Corps has undertaken numerous initiatives to better prepare its personnel for duties abroad, whether training or advising the forces of a host nation or working alongside those forces, and amongst the indigenous population, in conducting COIN or CT operations, or helping to establish better security conditions in general (through patrolling and pseudo-policing activities) that enable non-military activities to take root (establishing better civil governance structures, creation and expansion of markets, etc.). Forces are more effective in performing such activities if they have a better understanding of the local culture they are engaging and even rudimentary knowledge of the local language and social protocols. To that end, the Corps has established the aforementioned Center for Advanced Operational Culture Learning (CAOCL) and has begun to assign "micro-regions" to all newly commissioned officers who, on their own time, are expected to study their assigned region to gain greater familiarity with its culture and language. From the Corps' perspective, it is not trying to develop experts in specific regions—though such education and training will certainly support operations in those areas—but, instead, is trying to make Marines aware that each region, locality, and people have their own unique characteristics that need to be accounted for when planning and conducting operations. This awareness and appreciation is transferrable across regions and cultures and enables a much more responsive "ramping up" for operations in a specific region. More can be read about the CAOCL and related culture and language training and education efforts at: http://www.tecom.usmc.mil/caocl/.

advisory, and training missions. The Navy regularly executes maritime patrolling and interdiction operations and its submarine force is a substantial national intelligence collection asset. Counterinsurgency operations, in particular, have become an important mission for the US military as a whole.

Each of these Services, however, is limited by the time and logistics needed to deploy into a region and sustain operations. The Marines, on the other hand, are able to maintain a presence at sea in close proximity to many of the areas such operations are likely to be needed. Freed of the requirement to establish bases ashore, they can be used as raiding and interdiction forces, or maintained in a "ready status" pending approval from a potential partner nation to phase ashore. At the same time, the size of their "base," the ship on which they are embarked, limits the size of the force than can be brought into action. Nevertheless, embarked Marine units of varying size can be used as primary or adjunct forces in operations against terrorist entities depending on mission requirements. To be effective, though, such units will need to be able to deploy in small elements (i.e., platoons) at potentially significant distances. Special Operations Forces are effective in part because they deploy in small increments that minimize the chance the enemy will be tipped that an operation is underway. Smaller-size operations are also inherently more flexible and easier to adjust as diplomatic, security, and operational conditions change, and smaller-sized units necessarily generate a smaller "footprint" that makes it far more likely they will be granted access by the host nation.[67] But very small units are also vulnerable to being overwhelmed by enemy forces if the operation is compromised. Consequently, Marine units undertaking such missions will have to be organized, equipped, and trained to maximize their chances for success in such context. Embarked Marines might also be called upon to provide larger "quick-response forces" and on-call strike capabilities if additional support is needed, or an *in extremis* extraction force should the primary raid or strike force require it (a back-up raiding force, as it were).

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For the next two decades, the nation's ability to respond adequately to the array of challenges listed will depend, to a significant extent, on whether the US military can develop and maintain a large enough base of individual units able to undertake the tasks mentioned, such that the nation's global effort can be sustained at desired levels for the duration of the Long War (a capacity vice capability issue). This pertains to a sustained global counter-terrorism effort, where small-unit actions may be needed in many different places at once, where sustained counterinsurgency operations or other protracted efforts to help partner countries build their indigenous capability to handle domestic security challenges will be called for. These situations will demand a larger pool of units to support the necessary rotation over extended periods.

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[67] There have been, and still are, plenty of occasions when a country has desired military assistance from the United States but was (is) restricted by domestic or regional political concerns from hosting a large US presence. Very small teams of highly trained Special Forces personnel are able to operate much more discreetly, "under the radar" of public attention. By leveraging such an option, US security interests can be addressed while also supporting the training or advisory needs of the assisted country.

In addition, violent Islamist entities and other non-state forces that threaten regional stability and US security interests will pose very tough tactical challenges to US forces. Modern technologies are making it possible for small forces, if well-funded or state-sponsored, to field sophisticated capabilities. This was recently seen in southern Lebanon in 2006, when the non-state, political-military organization Hezbollah clashed with Israel Defense Forces. Hezbollah employed advanced military weapons (e.g., unmanned aerial vehicles, guided anti-ship missiles, extended-range rockets, anti-tank guided munitions) and small-unit tactics with such effectiveness that the Israeli forces suffered unexpected tactical defeats. The American military needs to fully understand and account for the implications of this turn of events, particularly as such a threat continues to evolve in the coming years.[68]

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The challenges presented above are areas where the Marine Corps can make substantial contributions in ways other than simply deploying battalions or regiments to perform tasks similar to the Army's. Specifically, the Corps can:

> Leverage its sea-based units as quick-response forces able to execute supporting, raid, or strike missions on short notice, particularly in the form of discreet "support packages" provided by small USMC units embarked on single Navy platforms; e.g., an LPD-17 or a Littoral Combat Ship (LCS)[69] positioned in proximity to a potential target area but maintained "out of sight" in international waters.

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[68] In the Second Lebanon War in 2006, the Israel Defense Force was dramatically surprised by the sophistication and effectiveness of Hezbollah's military forces. Though Hezbollah is a non-state entity, its militia was armed (by state sponsors such as Iran and Syria) with substantial inventories of missiles, rockets, anti-armor, anti-air, and even anti-ship weapon systems. Hezbollah also made expert use of unmanned and remotely controlled air and ground systems, fiber-optic communications networks, and innovative small-unit ambush tactics. Many observers have written about the war, its aftermath, and the impact it had on Israel, but a couple bear specific mention. Russell W. Glenn, *All Glory is Fleeting: Insights from the Second Lebanon War* (Santa Monica, CA: The RAND Corporation, February 2008) and Matt M. Matthews, *We Were Caught Unprepared: The 2006 Hezbollah-Israeli War* (Fort Leavenworth, KS: Combat Studies Institute Press, 2008). The growing concern is that such non-state actors will have increasing access to ever-more sophisticated guided- and precision-weapons in the years ahead. Countries as diverse as Sweden, Israel, France, Russia, China, and the US are all developing guided mortar rounds, guided artillery rounds, and increasingly accurate short- and medium-range ballistic missile systems. Counter-intuitively, such advancements in weapon design actually reduce the need for extensive training in their use since the guidance and homing mechanisms are built into the weapon itself. Consequently, otherwise poorly-trained forces can still mount very lethal and effective attacks on highly-trained military forces. For a more detailed discussion of this phenomenon and its implications for US forces, see Barry D. Watts' monograph in this Strategy for the Long Haul series, *US Combat Training, Operational Art, and Strategic Competence*.

[69] Both of these ships are new designs being developed by the US Navy. The LPD-17 is a new class of amphibious ship able to embark a reinforced company of Marines, fourteen expeditionary fighting vehicles, and a small complement of helicopters; see: http://en.wikipedia.org/wiki/USS_San_Antonio_(LPD-17) for a basic overview. The LCS is a new surface combatant designed primarily to operate much closer to shore than conventional warships. At present, there are two competing designs, both of which are intended to be configurable to support a range of missions: anti-submarine, mine countermeasures, anti-surface warfare, maritime interdiction, etc. See: http://en.wikipedia.org/wiki/Littoral_combat_ship for a brief overview, with related links to other sites. Also see the monograph by Robert O. Work on naval forces in this Strategy for the Long Haul series.

- Develop small-unit tactics and techniques (which the Corps has historically excelled at) to overcome next-generation Hezbollah-like challenges: non-state and state-supported actors armed with substantial inventories of guided munitions, advanced anti-armor and anti-air weaponry, and other technology-enabled capabilities (e.g., night and thermal imaging surveillance, fiber-based communication).
- Field persistent surveillance platforms, perhaps in cooperation with the Navy, able to operate from supporting naval platforms or austere forward locations ashore, including unmanned surface vessels and vertical take-off and landing UAVs, with a specific focus on enabling amphibious operations against targets in the littorals

The Corps should be prepared to execute missions in remote, rugged areas favored as operational sanctuaries by terrorist organizations, often deep inland and far from a coastline, as well as in the equally challenging, densely populated urban centers found along the littorals and that serve as home, and a source of funding and manpower, for many of these radicalized elements. In either case, success will depend on the ability to insert a force that is robust enough (relative to the enemy force it is going up against) to both protect itself and to accomplish mission objectives, despite the opposition's increased access to advanced technological capabilities.

The Corps' Marine Special Operations Advisory Group is specifically oriented toward the task of training and advising the security forces of partner nations. The fundamental reason for undertaking such missions in the first place (whether by MARSOC, other Marine Corps units, the Army, Special Forces, etc.) is to improve the ability of other countries to handle their own domestic security challenges. Marines assigned to the Marine Corps Training and Advisory Group will be working to establish long-term relationships with key senior personnel in the military and at high levels in the government, relationships that might be leveraged in future operations against non-state entities.

As Security Cooperation MAGTFs also work with the security forces of countries subject to the destabilizing influences of Islamist terrorists, they will gain first-hand knowledge of the local security and operational environments. Across the board, then, the Corps' security cooperation and train/advise efforts can be leveraged in the protracted fight against violent Islamist radicals by developing intelligence, adjusting regional engagement efforts, establishing long-term relationships with individuals or groups sympathetic to US interests, helping countries at risk establish and/or maintain "operating environments" that are hostile to violent radicalism, and preparing Marine Corps forces for potential future operations in the area.

The Corps will need to continue in its efforts to improve language and cultural literacy across the force, as well as to refine specific aspects of small-unit training as it pertains to working with foreign military forces. Weapons handling, patrolling, small-unit tactics, and mission planning are all core skills, but how they might be

The Corps' security cooperation and train/advise efforts can be leveraged in the protracted fight against violent Islamist radicals.

conveyed to a foreign element has much to do with the cultural filter through which they must pass.

The Corps' draft initiative to have designated Marine regiments focus on key regions as part of its Security Cooperation MAGTF effort, its more deliberate and sustained engagement activities to be carried out by the nascent Marine Corps Training and Advisory Group, and its expansion of Marine Special Operations Advisor Group capabilities are well-considered and should be pursued with vigor. Each initiative will gain Marine forces greater knowledge of geographic areas of interest and will better equip deployed forces with the detailed understanding of local conditions critical to success in counter-terrorism, counterinsurgency, and maritime security operations. These types of operations in the littorals also favor extensive use of helicopters and small boats—invaluable for riverine operations, coastal patrolling, and operations in heavy jungle and marsh areas—and light vehicles appropriate to small-unit raids conducted from ships, whether projected by surface landing craft or by aerial insertion. While various equipment issues pertaining to the Corps' ability to maintain relevance and effectiveness given these strategic challenges are discussed in Chapter 3, it is interesting to note at this point that the Marine Corps disestablished its riverine capability in 2005[70] in spite of the value such a capability provides an "amphibious force" operating in the littorals and waterways of the world.[71]

In considering the implications that hedging against the prospect of a hostile China might have for the US Marine Corps, one must first look at the issues of *scale* and *strategic terrain*.

HEDGING AGAINST A HOSTILE CHINA

In considering the implications that hedging against the prospect of a hostile China might have for the US Marine Corps, one must first look at the issues of *scale* and *strategic terrain*.

Consider that while the violent Islamist radical threat will pose a globalized problem for the United States for the next couple of decades, the components of that threat can be measured in small bits; that is to say that the problem is one of a dispersed, loosely organized enemy (made very capable by its access to substantial resources and advanced militarily useful assets) with a few key senior leaders and a host of

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[70] The decommissioning announcement for the Small Craft Company was included in Marine Administrative Message (MARADMIN) dated 022329ZFEB05, "Publication of January 2005 Trooplist and Fiscal Year 2005 Tables of Organization and Equipment." Currently, the riverine capability of the naval services is consolidated in the Navy's Naval Expeditionary Combat Command, with the Marine Corps only cursorily engaged in such operations. If the Corps intends to contribute in the various "train and advise" and "build partner capacity" efforts undertaken by the Joint Force, with the objective of assisting local governments in expanding their ability to improve local security conditions, it would seem that regaining an expertise in riverine operations would pay dividends in both conflict prevention and contingency operations occurring in "brown water" terrain

[71] See Robert Benbow, Fred Ensminga, and Peter Swartz, et al, *Renewal of Navy's Riverine Capability: A Preliminary Examination of Past, Current, and Future Capabilities*, Center for Naval Analyses (Alexandria, VA: March 2006) for an overview of naval riverine capabilities and operational utility. Available online at: http://www.cna.org/documents/D0013241.A5.pdf

small operational cells. The biggest challenge to the US military will be fielding a sufficient number of units to counter the Islamists' global presence. Overcoming this challenge will mean broad engagement with other countries to improve their ability to govern well and to displace or destroy destabilizing Islamist elements. As non-state actors, they have no critical infrastructure (cities, roads, natural resources, definable borders), no large-scale military forces that require targetable defense industries or present massed formations, nor do they need to pursue the traditional forms of discourse that occur between nations—trade, diplomacy, membership in international organizations, maintenance of markets, etc.

A major state like the People's Republic of China (PRC), on the other hand, possesses all of these assets, and is both enabled and restricted by them. China holds and must maintain physical territory. It has a growing demand for sources of energy. It is ever-concerned about its "place" among other nations. Its huge population demands jobs, services, and security. Additionally, China possesses a modern military and all the trappings that go along with it—an arms industry, bases and ports, fleets and armies, and critical command/control and logistics nodes. A country of 1.3 billion people, with a 22,000 km border encompassing a land mass nearly as large as the United States,[72] China's scale certainly poses a challenge, but it also provides opportunities for naval forces to prosecute military operations against the country should the United States' grand strategy fail to deter or dissuade China from actions that threaten US security interests. Whereas China is investing in robust anti-access/area-denial (A2/AD) capabilities, aimed to keep the United States out of China's area of interest in the event of conflict and to make operations within China's threat umbrella unsustainable, China's expanding critical infrastructure and its resultant rising demand for raw materials and energy, provide deterrent, coercive, and offensive options against which the United States can use naval power.

China's scale certainly poses a challenge, but it also provides opportunities for naval forces to prosecute military operations against the country should the United States' grand strategy fail to deter or dissuade China from actions that threaten US security interests.

It is important to emphasize that the grand strategy of the United States is to embrace China as a responsible stakeholder in the global system, using a mix of diplomacy and economic incentives. However, there is an important military component to the strategy, as well. It is clear that China sees the United States as its main strategic competitor and is developing military capabilities designed to defeat the United States in a "local war under high technology conditions."[73] Therefore, the United States must ensure its military forces are postured so as to create an environment in which China is not tempted to pursue its interests through coercion or aggression, but rather pursues them along paths recognized as legitimate by the international community.

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[72] *The World Factbook,* Central Intelligence Agency, August 21, 2008. Available at: https://www.cia.gov/library/publications/the-world-factbook/geos/ch.html.

[73] Roger Cliff, Mark Burles, Michael S. Chase, et al, *Entering the Dragon's Lair: Chinese Antiaccess Strategies and Their Implications for the United States*, RAND Corporation (Santa Monica, CA: 2007), pp. 18–23. Available online at: http://www.rand.org/pubs/monographs/2007/RAND_MG524.pdf.

The Marine Corps will have to assess how it might best position itself to contribute to the overall effort, given its primary operating environment, the capabilities it will have available, and the characteristics and capabilities of the opposing force.

The United States will have to consider matters of scale and terrain when determining how best to position its forces and the capabilities it will require. China's physical scale and the characteristics of its maturing A2/AD network (e.g. its increasing expanse of coverage, the range at which it can engage opposing forces, and the density of its defensive belts) provide operational and strategic depth. Consequently, the United States will likely have to field forces able to operate at extended ranges, both to degrade the A2/AD network and to penetrate Chinese terrain in order to achieve operational and strategic military objectives. The Marine Corps will have to assess how it might best position itself to contribute to the overall effort, given its primary operating environment, the capabilities it will have available, and the characteristics and capabilities of the opposing force.

Currently, China is able to field approximately fifty-one divisions of conventional ground forces (infantry, mechanized infantry, armored, airborne, and amphibious) in its (active) standing army of 1.25 million.[74] By any measure, the United States would be hard-pressed to field land forces at a comparable scale, much less deploy them to the region for use against mainland China.[75] Given that the Navy only has sufficient lift to support 2.5 brigades of Marine combat forces—units specifically designed for forcible entry operations from the sea—it is clearly implausible to suggest that the United States would consider deploying large numbers of ground forces for sustained operations against the People's Liberation Army on its home soil. Aside from the amphibious ships in its naval fleet, the only means the United States has of introducing ground combat units into a theater of operations is to ship such forces through large commercial ports capable of handling the deep-draft vessels the Military Sealift Command uses to ferry all of the heavy equipment associated with such units. Since

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[74] All quantities for Chinese military forces are taken from *Military Power of the People's Republic of China, 2008* (Washington, DC: Office of the Secretary of Defense, 2008). Available at: http://www.defenselink.mil/pubs/pdfs/China_Military_Report_08.pdf. All reports since 2002 can be found at: http://www.defenselink.mil/pubs/china.html. The People's Liberation Army (PLA) is comprised of the military forces of the People's Republic of China. In general use, "PLA" can be used to refer to both the unified military force as well as China's army, proper. Within the broader PLA are also found the PLA Air Force (PLAAF), the PLA Navy (PLAN), and the Second Artillery Corps that controls China's strategic nuclear forces. The estimate of 51 divisions is a rough approximation since China's eighteen Group Armies are composed of both divisions and independent brigades.

[75] In rough comparison, the United States is also on track to field approximately fifty-six division-equivalents in the active force by 2012, but some explanation is in order to clarify what is meant by "division equivalents." The United States possesses the most capable ground force in the world: US Army and Marine Corps units employ state-of-the-art armor and weapon systems and are backed by the most sophisticated and battle-tested combined arms formations in history. Additionally, the combat power employed by the US is amplified by the integration of airpower throughout campaign design and the whole of US force employment is further amplified by the advanced "battle network" created through the integration of an advanced command, control, computers, communications, intelligence, surveillance, and reconnaissance (C4ISR) network. In effect, a US brigade can be considered the combat equivalent of another country's division. The US Army is expanding from forty-two to forty-eight brigades and the Marine Corps can field eight regiments (brigade-equivalents) of its own. However, even though US brigades can ably fight "above their weight" due to the advanced combined arms capabilities of the Joint Force, they still have to deploy to and sustain operations in distant theaters. In contrast, China's Army divisions, while less sophisticated, would have the advantage of fighting on their home soil.

China possesses the means to hold all port facilities at risk within any operationally relevant distance from its shores, a large-scale landing of US ground forces appears to be out of the question.

Accepting this, any US ground forces applied against China would be used indirectly, which brings us to the issue of using the Marines in a *peripheral naval campaign* that exploits their naval character.

In contemplating such a situation, one must consider China's view of its strategic terrain and how it might be threatened or exploited to good effect. With regard to Taiwan, the most-often cited catalyst for a US-PRC conflict, China has been steadily improving its position for potential offensive action against the island. The Chinese have amassed fifty-five medium and heavy amphibious ships[76] and have positioned over a thousand short-range ballistic missiles in the vicinity of the Taiwan Strait.[77] It has also developed an impressive anti-access defensive strategy that includes sophisticated over-the-horizon (OTH) radar,[78] an expanding fleet of submarines,[79] and long-range (up to 1,500 nautical mile) anti-ship ballistic missiles.[80] It seems unlikely that in a Taiwan crisis, the United States would attempt to deploy ground forces inside the PRC's anti-access/area-denial defensive umbrella. Rather, the Marines' role in a conflict with China would necessarily emphasize operations in secondary theaters, or on the periphery of the primary battlespace.

The Marines' role in a conflict with China would necessarily emphasize operations in secondary theaters, or on the periphery of the primary battlespace.

China could engage in direct confrontation with US forces inside its defensive umbrella or against US forces, allies and interests in secondary theaters, to include the use of allied and proxy forces to tie up and attrite US forces. China would also be concerned about its access to the sea lanes through which materials, fuel, and commodities are transported from foreign markets to China's shores. This key piece of strategic terrain, of critical importance to China, would be vulnerable to US interdiction and control.

A supporting naval strategy might call for the Marines to assist the Navy in controlling the flow of maritime commercial traffic through sea-lane choke points, as a supporting operation to a distant blockade,"[81] with the goal of interdicting materials and fuel in transit to China. The Chinese themselves have noted their growing dependence

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[76] *Military Power of the People's Republic of China*, p. 4.

[77] Ibid., p. 2.

[78] Ibid., p. 4.

[79] Ibid.

[80] Ibid., p. 2.

[81] For a brief, but very informative discussion of "distant blockading," see Milan N. Vego, *Naval Strategy and Operations in Narrow Seas*, Frank Cass Publishers (Portland, OR: 2003), pp 161–167. The objective of a blockade is to confine the enemy's fleet to its ports, while keeping it under surveillance. If it comes out, the blockading navy engages it. A distant blockade is pursued when the enemy also possesses anti-ship weapons that increase the danger of staying too close to shore. As anti-ship weapons have increased in range, the blockading fleet must necessarily standoff at increasing distances. Given this, a modern distant blockade seeks to intercept the enemy's ships while they are sailing from their port to some other destination.

on such shipping routes and the attendant security vulnerabilities. As mentioned in the *Challenges* paper:

> It is also clearly evident that the Chinese believe that the security threats to their state and its economic interests are growing. These thoughts are made plain in a CCP white paper published in December 2006, which states that "Security issues related to energy resources, finance, information and international shipping routes are mounting." As one Chinese professor wrote, "*Economic globalization entails globalization of the military means for self-defense*. . . . With these complex and expanding interests, risks to China's well-being have not lessened, but have actually increased" (emphasis added).[82]

Even a cursory look at the region from a flow-of-commerce perspective reveals the importance of sea-lines-of-communication (SLOCs) and the extent to which the US could disrupt the flow of sustainment critical to the People's Republic of China.

Tasks associated with a peripheral naval campaign might include:

- Visit-Board-Search-Seizure (VBSS) missions carried out with the Navy against commercial vessels bound for China
- Amphibious assault missions (by surface and/or air) against Chinese outposts, support bases used to sustain Chinese ships and aircraft operating outside territorial waters, or operating locations utilized by proxy forces (e.g. pirates or privateers) threatening the US Navy or attempting to influence US allies through the disruption of trade and the flow of energy[83]
- Defense of US forward operating locations from which the US might conduct a range of operations, to include employment of unmanned surveillance/strike systems, local basing of forward-deployed patrol craft useful for counter-piracy missions or to exploit "swarm" tactics against PLA-Navy formations, or maintenance of support bases for national-level special mission forces

Each of these potential tasks would place great value on relatively small but highly capable units operating in a dispersed manner, whether embarked aboard amphibious warships or US Navy surface combatants designed to operate independently in the relatively congested waters of the Southeast Asia littorals, or in highly independent duty ashore at potentially numerous locations spanning the archipelagos dotting Southeast Asia, bordering the South China Sea and extending westward into the Bay of

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[82] Krepinevich, Martinage, and Work, *The Challenges to US National Security*, p. 28.

[83] While a single small vessel would appear to pose little danger to a US warship, pirates operating on behalf of China's interests, or even operating opportunistically for their own reasons, could employ swarm tactics to overwhelm the defenses of a US ship operating independently (as Littoral Combat Ships are envisioned to do). Pirates or small "militia navies" could also employ modern guided weapons to achieve "hits" on US Navy ships. A successful attack would almost certainly have significant repercussions on US operations, particularly given the stress a 313-ship Navy would be under to maintain a credible presence in keys waters around the world.

Bengal. As stated earlier, the United States would seek to deter or dissuade China from threatening US security interests. In the event a military counter was needed, however, US naval forces would need to be prepared to conduct an array of tasks that would inhibit China's fleet from carrying out offensive operations and restrict the movement of critical materials from foreign sources of supply to the Chinese mainland.

It may be that missions such as those suggested above bring back to prominence many of the Marine Corps' missions executed during its early history; that is, seizure and defense of outposts of the United States in foreign lands and of naval bases necessary to the advancement of US interests.

As was the case with the Corps' contributions to meeting the violent Islamist challenge, its special operations (MARSOC), security cooperation (SCMAGTF), and train/advise (MCTAG) efforts could play an important role in setting conditions for USMC effectiveness in a peripheral naval campaign against the People's Republic of China. These units, through routine and enduring engagement with the region's military forces—in the Philippines, Indonesia, Vietnam, Thailand, Malaysia, and countries—could identify key locations suitable for future use in a peripheral naval campaign, performing peacetime "strategic reconnaissance" in a sense, and monitor operational and tactical practices of regional military forces that would be on either side of a US-PRC conflict.

Taken together, the notional missions and the characteristics of the strategic terrain imply a demand for Marine Corps forces sized to operate from individual Navy ships or small installations ashore, but with sufficient capability to conduct selective raids against proxy forces operating on behalf of Chinese interests, to seize and defend (relatively) small outposts, airfields, or ports/harbors, to assist the Navy in conducting interdiction operations, and to support the conduct of surveillance and monitoring activities.

It may be that missions such as those suggested above bring back to prominence many of the Marine Corps' missions executed during its early history; that is, seizure and defense of outposts of the United States in foreign lands and of naval bases necessary to the advancement of US interests.

PREPARING FOR A PROLIFERATED WORLD

The proliferation of modern technology has made it far easier and more affordable for opponents of the United States to acquire advanced weaponry and supporting capabilities. In like manner, it has also become "less difficult" for states (and, perhaps, non-state actors) to develop or acquire the components of a nuclear weapons program. The full extent of damage to the Nuclear Non-Proliferation Treaty inflicted by Pakistan's Abdul Qadeer "A.Q." Kahn[84] has yet to be determined. That said, it is clear that many actors beyond those comprising the acknowledged "nuclear club"

[84] William Langewiesche, "The Wrath of Kahn," *The Atlantic* (November, 2005). Available at: http://www.theatlantic.com/doc/200511/aq-khan; David Albright and Corey Hinderstein, "The A.Q. Khan Illicit Nuclear Trade Network and Implications for Nonproliferation Efforts," *Strategic Insights*, Volume V, Issue 6 (July 2006). Available at: http://www.ccc.nps.navy.mil/si/2006/Jul/albrightJul06.asp; and David E. Sanger, "Nuclear ring reportedly had advanced design," *International Herald Tribune* (June 15, 2008). Available at: http://www.iht.com/articles/2008/06/15/asia/15nuke.php

have obtained access to advanced nuclear weapons design information.[85] Not only is it highly likely that more states will acquire such weapons over the next decade, it seems that several of the states with the greatest interest in doing so are also states of great concern to the United States. Add to this the potential nexus between states-of-concern and violent Islamist radicalism, wherein a state sponsor provides a terrorist organization with advanced means to attack its interests, and it becomes clear that the United States has a vested interest in ensuring its armed forces have the ability to execute missions against nuclear-armed adversaries, to include the ability to effect regime change against minor nuclear powers, which may involve long-range, distributed combined-arms insertions against an enemy who retains the ability to threaten nuclear attack.

The keys to success on a nuclear-swept battlefield were mobility, dispersion, and a capability to mass fires when conditions warranted.

In the 1950s, the Army experimented with alternative organizations and employment concepts as it struggled with the challenge of operating against the nuclear-armed Soviet Union. Army planners knew that large, massed forces make ideal targets for nuclear weapons. They quickly realized that the keys to success on a nuclear-swept battlefield were mobility, dispersion, and a capability to mass fires when conditions warranted. Despite a large-scale effort to operationalize their concept, they found that the technologies needed did not exist at the time, leading the Army to abandon its Pentomic Division concept.[86]

Deploying and employing relatively small, dispersed units against a nuclear-armed opponent, so that the enemy is never given a target sufficient to warrant the use of one of his limited nuclear weapons, is a challenging proposition. Conducting any type of military operation directly against a nuclear-armed power carries substantial risk. However, intentionally *not* developing the capability to do so conveys the undesirable message that possession of any quantity of nuclear weapons virtually guarantees the possessor safety from US military action. Simply put, maintaining an ability to execute military operations against a nuclear-armed power can both enhance deterrence, while also dissuading other countries contemplating proliferation from assuming that they will be able to pursue ambigous forms of aggression without fear of a forceful US response.

The United States may also find itself confronted with a failing nuclear-armed state. Under those circumstances, the capability to secure a known nuclear weapons

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[85] For a concise summary of "nuclear club" members and related state actors, see Kathleen Sutcliffe, The Growing Nuclear Club, Council on Foreign Relations (November 17, 2006); available online at: http://www.cfr.org/publication/12050/. The current formally declared nuclear powers include: the United States, Russian, Britain, France, China, India, and Pakistan, with North Korea having conducted nuclear tests and believed to possess a very small inventory of weapons, and Israel, not having conducted a public weapons test, also believed to possess a more substantial inventory of weapons (between 100 and 200 warheads).

[86] R. W. Kedzior, *Evolution and Endurance: The U.S. Army Division in the Twentieth Century (Santa Monica, CA: RAND, 2000), p. 27. For additional information on the Army's effort, see also* A. J. Bacevich, *The Pentomic Era: The U.S. Army Between Korea and Vietnam* (Washington, D.C.: National Defense University Press, 1986)

inventory in-place or to seize such weapons in order to extract them to a more secure location could be critical to preventing these weapons from falling into the hands of hostile states or nonstate entities. Though these special missions to seize nuclear weapons would most likely be carried out by organizations apart from the conventional Service forces altogether, nearly any case of this type of contingency planning would assuredly include supporting operations, such as:

- Additional security or reinforcement to augment the originally planned mission force if actual conditions on the ground differ from those that were expected.
- Interdiction or blocking actions to prevent enemy forces from compromising the mission.
- Isolation of the target location to a larger extent than was originally thought necessary.

Marine Corps forces might prove very useful in target isolation, enemy force interdiction, or security augmentation missions.

Marine Corps forces in the region, whether present fortuitously or by design, could provide critical support to such operations if they are appropriately trained, equipped, and sized. Though such an operation could occur in just about any environment, it seems reasonable to assume that a small nuclear power would most likely maintain its limited inventory in locations as difficult to reach as possible. However, there could be cases where such missions are required in the littoral regions, in which case Marine Corps forces might prove very useful in target isolation, enemy force interdiction, or security augmentation missions.

In addition to blast, heat, and radiation, nuclear weapons also generate an electromagnetic pulse (EMP) that plays havoc with electronic systems. While many variables attend the EMP issue, it is not certain that advanced systems such as modern combat aircraft (even if "hardened" against the anticipated effects of an EMP blast) would remain functional. Given the critical reliance of US forces on aircraft in nearly all phases of modern operations (helicopters for transport, command and control (C2), and close air support; fixed-wing aircraft for strike, intelligence-surveillance-reconnaissance (ISR), and some C2; and unmanned aircraft (UAVs) for surveillance and strike missions), Marine forces must be prepared to conduct operations in the *absence* of naval air. Of course, the viability of air operations is not the only concern in an EMP environment. Anything with a circuit board or even a wiring harness, for that matter, could be degraded or destroyed, especially if attached to some type of antenna or conducting rod. This begs the question of how much EMP protection or "hardening" should be built into future ground vehicles, tactical radios, computer suites, and electrical generating equipment. With regard to communications, specifically, nuclear-weapons use also degrades some types of communications modes due to ionization of the atmosphere. While the effect degrades over time, Marine Corps units will have to be prepared to operate independently until reliable communications are restored.

For the Marine Corps, projecting combat power from an at-sea operational base to assist in such operations will present additional daunting challenges, with far-reaching implications. At the very least, the Corps will have to determine the size of the force it can deploy in such an operational context, how many units can be deployed and supported at one time, how fire support would effectively be employed across a greatly dispersed force, the techniques necessary to sustain such operations over time, and the command and control mechanisms needed to conduct operations in a potentially nuclear-swept battlespace.

The Corps can expect to conduct distributed operations, often employing small units from independent Navy platforms, and must be prepared to sustain such forces over time.

This challenge might be mitigated to some extent if the Corps does indeed become routinely engaged in sustained efforts with key regional partners. To the extent it develops relationships with neighboring countries and gains detailed understanding of the operating environment attendant to rising small nuclear powers, it would have an improved chance of succeeding in such difficult missions. Any operations against a nuclear-armed opponent would assuredly call for much greater dispersion of the forces placed ashore and an ability to conduct effective operations in a contaminated environment. But if one accepts that proliferation of nuclear weapons capabilities will be a feature of the future security landscape, one must also account for the implications of such an operational environment.

A FINAL REVIEW

Viewed together, these three challenges have areas of overlap of specific relevance to the Marine Corps. Whether operating against a violent radical Islamist entity, supporting operations against a hostile China, or executing a mission against a minor nuclear power, the Corps can expect to conduct distributed operations, often employing small units from independent Navy platforms, and must be prepared to sustain such forces over time. It must be able to insert forces from substantial distances, then survive and prevail inside the enemy's "threat envelope," particularly given the threat of modern and increasingly capable anti-ship cruise missiles, anti-ship ballistic missiles, and well-armed small craft capable of employing an array of anti-ship and anti-air weaponry. The Corps must be able to bring sufficient combat power to bear such that the unit employed is able to not only succeed in its attack, but also to protect itself from the very capable enemy forces it will engage. Marine Corps units must also understand local and regional conditions thoroughly enough to enable the just-mentioned modes of operation and effectively leverage local relationships to gain a competitive edge in the operational and tactical employment of forces, relative to the enemy, as well as effectively undertake the protracted missions associated with stability operations and "building partner capacity" missions that will be essential to achieving and maintaining secure and stable partners in key countries and regions around the world.

With these in mind, the question then becomes, "Is the Marine Corps positioning itself appropriately to meet these expectations?" Are its investments in key platforms, skills development, doctrine, and organizational design well-matched against the strategic challenges it will be called upon to confront? The last chapter of this paper offers some observations on these issues and a number of recommendations to better align USMC capabilities with the implications of these challenges.

CHAPTER 3 > ASSESSMENT AND RECOMMENDATIONS

A QUICK REVIEW

From the Corps' perspective, the world's oceans will continue to provide nearly unrestricted maneuver space for naval forces, especially when compared to the restrictions faced by land forces in complex terrain ashore. America's ability to control the seas and exploit them effectively in prosecuting military operations remains a key source of military advantage for the United States. The Corps believes that *"irregular" challenges will be more frequent* and will demand the intentional (and sizable) allocation of resources and attention, but that *traditional threats* (major conventional combat operations) *will remain of highest consequence,* particularly if conducted against the strategic backdrop of a proliferated nuclear world.

The Marine Corps' efforts fall short when addressing the specifics of how it (and its Navy partner) will actually meet these challenges in the assessed operational context and against the expected threats. The Service's catalog of documents "does not address what should be a core element of any strategy—namely, how both the goals and the capabilities needed to pursue them will be brought into balance with available resources."[87] Consider, for example, that the *2006 Naval Operations Concept "calls for more widely distributed forces* to provide *increased forward presence*, security cooperation with an expanding set of international partners, preemption of non-traditional threats, and global response to crises in regions around the world where access might be difficult" (emphasis in the original).[88] Yet none of the top-level naval documents mentioned earlier indicates how current forces might operate in a "more widely distributed" manner than they are currently, nor what "increased forward presence" actually means in terms of any increased demands on the operating forces

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[87] Robert O. Work and Jan van Tol, *A Cooperative Strategy for 21st Century Seapower: An Assessment* (Washington, DC: Center for Strategic and Budgetary Assessments, March 26, 2008) p. 5.

[88] NOC 2006, p. 1.

themselves. In fact, the Corps intends to *reduce* operational tempo from a current ratio of 1:1 (months deployed vs. months at home) to a more sustainable ratio of 1:2, with an objective goal of 1:3, through its expansion to 202,000 Marines and reduction of current operational demands. Further, "more widely distributed" operations would imply that the ships and units possessed by the Navy and Marine Corps and deployed to distant theaters will, by definition, have to operate more independently than the current practice of sailing in groups or deploying as Marine Expeditionary Units (MEUs). Within the Corps, there has long been institutional resistance to conducting "split-ARG operations,"[89] though from time to time erupting crises have demanded doing so. These leading documents, however, would seem to demand this approach as a normal mode of operations.

Nothing has been seen, as of yet, that indicates the Corps is considering how to employ company-sized elements as independent units.

The opening chapter of the draft *Marine Operations Concept 2008* hints at such change, but the Corps' current acquisition programs do not explicitly reflect this shift in perspective. Again, *Expeditionary Maneuver From the Sea* places a new emphasis on the Marine rifle company as the "primary organizational focus of Marine Corps operations,"[90] that will "significantly impact both force development and force generation throughout the MAGTF."[91] However, nothing has been seen, as of yet, that indicates the Corps is considering how to employ company-sized elements as independent units—a capability implied by higher-level Service concept documents and that would seem to be very useful in the types of operations described here. In fact, the Corps has stepped back from its initial exploratory efforts in distributed operations, at least for the present, choosing instead to invest in making the infantry company more capable inside its parent battalion.[92] Adding to the confusion, the Corps sees the company as "the smallest unit to conduct independent operations"[93] but is not linking this "independent operations capable" unit to operational concepts useful in the context of the specified challenges.

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[89] A Marine Expeditionary Unit (MEU) usually deploys with a three-ship Amphibious Ready Group (ARG). In a typical configuration, the MEU command element, the ground combat element's senior command, a reinforced infantry company, and the aviation component all embark on the large-deck air-capable amphibious command ship (typically an LHA or LHD), while the second of three infantry companies embarks with some of the logistics element on an LSD, and the third company and bulk of the logistics element embarks on an LPD. During "split-ARG ops," the three ships split up in order to handle multiple operational tasks separated by some distance. While US Navy surface combatants routinely deploy in battlegroups, once in theater they are quite capable of conducting independent operations. In contrast, the Corps' approach to MEUs shows a decided preference for maintaining MEU integrity. If one ship and its embarked Marines are tasked with an independent mission, the MEU's capabilities are degraded disproportionately to the actual size of the force "lost" to the other mission in that the unit would otherwise enable the MEU substantially more options and that when operating alone it is bereft of the enablers (air, artillery, armor, etc.) it would normally have access to.

[90] EMFTS, p. 1.

[91] Ibid., p. 3.

[92] Zachary M. Peterson, "Distributed Ops Concept Evolves into Enhanced Company Operations," *Inside the Navy*, May 19, 2008.

[93] EMFTS, p. 3.

Looking back to the strategic challenges and implied tasks of Chapter 2 of this paper, and considering their implications for the Marine Corps, several questions come to mind:

- Has the Corps thought through the organizational implications of the types of operations it will likely conduct, whether derived from its own internal documents, those developed in concert with other Services, or the strategic-level defense documents generated at the most senior levels of government?
- Do these challenges imply a "unit of reference" on which to base Marine Corps conceptual, programmatic, acquisition, deployment, and employment efforts?
- How will the Marine Corps physically close its forces within striking range of objectives, given the anti-access/anti-ship capabilities increasingly seen in the hands of ever-smaller actors and how does the Corps intend to introduce its forces into the battlespace-proper and to sustain operations in the face of offensive and defensive capabilities likely to be found with greater frequency across the three strategic challenges?
- How does the Corps intend to support Joint Force operations responding to the strategic challenges?
- Do the acquisition decisions the Corps is currently pursuing properly account for the demands and characteristics of likely operational environments, the threats enemy forces will bring to bear, and the extent to which an item of equipment will enhance or inhibit the effective employment of forces?

What matters in the end is the Service's thoroughness in orienting and committing itself intellectually, institutionally, and organizationally to solving real-world operational problems.

In short, is the Marine Corps institutionally realigning itself to meet the demands of the future security environment?

While the Corps has made a solid effort to describe its challenges and to tease out various implications for the Service, its success in actually adjusting to meet these challenges will depend on its conceptual, programmatic, and organizational efforts. Stated another way, words are fine, but what matters in the end is the Service's thoroughness in orienting and committing itself intellectually, institutionally, and organizationally to solving real-world operational problems.

POSTURING FOR THE FUTURE — ORGANIZATIONALLY AND CONCEPTUALLY

The Corps' organizing principle, the Marine Air Ground Task Force (MAGTF), was addressed at the beginning of this paper, where it was noted that the Corps is completely committed to this approach. In general, this is a good thing. As an organizational design, the MAGTF approach ensures that all Marine forces will deploy as combined-arms teams complete with organic air support and an appropriately sized logistical

component under the command of a common leader. Unanswered at this point, obviously, is whether this approach will hold-up as unit sizes get smaller and more distributed, especially if deployed separately aboard Navy ships operating independently of larger naval formations.

Organizational Adjustments

The MAGTF type most commonly formed and deployed is the Marine Expeditionary Unit (MEU), centered on an infantry battalion. Normally, the MEU forms six months prior to deployment so that all of its constituent elements have ample opportunity to work closely together, building familiarity and a common understanding of operating procedures that may differ from deployment to deployment as a result of anticipated missions, unique aspects of the ships they will sail aboard, or particular characteristics of their planned operating environment. MAGTF formations at higher levels—Marine Expeditionary Brigades (MEBs) or a Marine Expeditionary Force (MEF)—are comparatively rare. The organizing principles are the same, but exercises at this level do not occur and actual employment of these larger formations only happens in time of war. When this does happen (e.g. Operations Desert Storm (1991) or Iraqi Freedom (2003), the scale of operations usually dictates fairly standard integration of ground and air operations not entirely unlike Air Force air support for Army operations. The main difference—the Marines would say it makes *all* the difference—lies in the organic ownership of the supporting aircraft and the common understanding of Marine Corps doctrine possessed by ground, air, and supporting logistics personnel; mission context and "commander's intent" is not lost in translation when orders are delivered and executed. But at these higher levels of employment, air support capabilities are typically consolidated for general support of the force. It is only at the MEU level that such close relationships exist amongst the planning staffs and operational elements of the air and ground communities—a function of the tight living conditions aboard ship and the organizational identity that emerges over the twelve months the unit is together. (Of course, this argument only goes so far in that the Marines involved fully identify only with their sub-communities.)

This issue is important because of the impact it has on the ability of the Corps to think about organizational constructs other than the MAGTF it has come to know and love. Prior to full implementation, the Corps vigorously debated the merits of contributing forces to Special Operations Command (SOCOM) and what that contribution should consist of. The Service is famously resistant to notions of "elite" elements in its ranks or losing personnel and possibly aircraft to specialty organizations for any length of time. The rancorous and at times heated debate between the Marine Corps and the Air Force regarding control of sorties and management of airspace is yet another example of how jealously the Corps guards its various elements, preferring to maintain as much ownership of them as possible in order to retain the integrated combat power and flexibility of the MAGTF. To some extent, a form of this argument

colors discussions with the Navy on tactical aircraft integration. The Marine squadrons deployed aboard carriers are, in some measure, "lost" for use in MAGTFs as typically envisioned though even this, perhaps, is mitigated by the fact the Corps can still view it as "naval air" that can be brought into direct support of Marine Corps ground operations.

MAGTF-centricity is not a bad thing in the vast majority of cases, but it can become a problem when it constrains thinking about alternative organizations perhaps better suited to addressing the challenges outlined in this paper. There will likely be occasions within the context of the strategic challenges when Marine units could be deployed in formations other than fully integrated air-ground teams. For example, the idea of forward-deployed, regionally distributed, patrolling operations conducted by ships of the Navy—an LPD-17, perhaps—would require an embarked Marine Corps unit to serve as its landward-focused ground combat power component. With such a unit aboard, this naval force could act in support of counter-terrorism operations, provide a quick-response force for a locally engaged special-forces team *in extremis*, interdict or engage pirates threatening commercial maritime traffic, threaten the flow of critical resources bound for China (as one naval component of a broader maritime strategy), or launch a raid against an al-Qaeda cell in ungoverned or potentially hostile territory. All of this presumes, of course, that the ship is operating independently in concert with the declared naval strategic concept of "globally distributed, mission-tailored maritime forces"[94] that provide "increased forward presence, security cooperation with an expanding set of international partners, preemption of non-traditional threats, and global response to crises in regions around the world where access might be difficult."[95]

MAGTF-centricity is not a bad thing in the vast majority of cases, but it can become a problem when it constrains thinking about alternative organizations perhaps better suited to addressing the challenges outlined in this paper.

It follows that a small unit embarked aboard an LPD-17—a reinforced infantry company, for example—or perhaps an even smaller detachment of platoon-, or even squad-, size aboard a Littoral Combat Ship (LCS) serving as a "global fleet station,"[96] would necessarily be operating independently, separated for much (if not all) of its deployment, from a parent MEU command. Depending on space limitations and the missions assigned to the LPD itself, there may or may not be room for a two-plane

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94 *A Cooperative Strategy for 21st Century Seapower*, p. 8.

95 *NOC 2006*, p. 1.

96 The Naval Operating Concept 2006 introduced the idea of "global fleet stations." This idea was expanded in a subsequent paper entitled, "Global Fleet Stations Concept," published Jul 30, 2007. "A Global Fleet Station provides a highly visible, positively engaged, reassuring and persistent sea base from which to interact with the global maritime community of nations. It focuses primarily on shaping operations consistent with Building Partner Capacity (BPC), Theater Security Cooperation (TSC) plans, and Maritime Security leading to better governance. A GFS will include at least one vessel capable of serving as the main logistics and command and control center, and may include smaller vessels and helicopters for ship-to-shore transfers and other operations. Non-traditional vessels, such as hospital ships for humanitarian assistance (HA) missions can be employed as part of GFS in order to enhance the building of strong partnerships."

section of MV-22 Ospreys (if such a section were seen to be of any value in the first place), further eroding the MAGTF flavor of a deployed Marine Corps unit.

As mentioned, the Corps only reluctantly conducts split Amphibious Ready Group (split-ARG) operations and then for only as long as necessary to accomplish a specific task. Routinely deploying smaller elements of Marines, with the ability to execute the types of missions implied by the Corps' key documents and the challenges addressed here, will require new thinking about how small a unit the Corps can field with the requisite capabilities, the level of command and authorities such a unit would require, the training and equipping that would be needed for success across the range of potential missions anticipated, and the impact such a metric would have on a rotation base, the current pattern of MEU deployments, and the command relationships needed between Marine Corps and Navy higher headquarters.

Routinely deploying smaller elements of Marines will require new thinking about how small a unit the Corps can field with the requisite capabilities, the level of command and authorities such a unit would require, the training and equipping that would be needed for success across the range of potential missions anticipated, and the impact such a metric would have on a rotation base.

Harkening back to the problem the Army tried to solve with its Pentomic Division, the Corps may find itself conducting operations against nuclear-capable opponents where formations may need to be small and dispersed, but capable enough to accomplish mission objectives, or engaged in operations against enemy forces that are themselves small, dispersed, and highly lethal. Such a capability would also translate well to potential operations conducted against China: naval forces deployed in dispersed formations, operating against Chinese objectives, in a peripheral naval campaign.

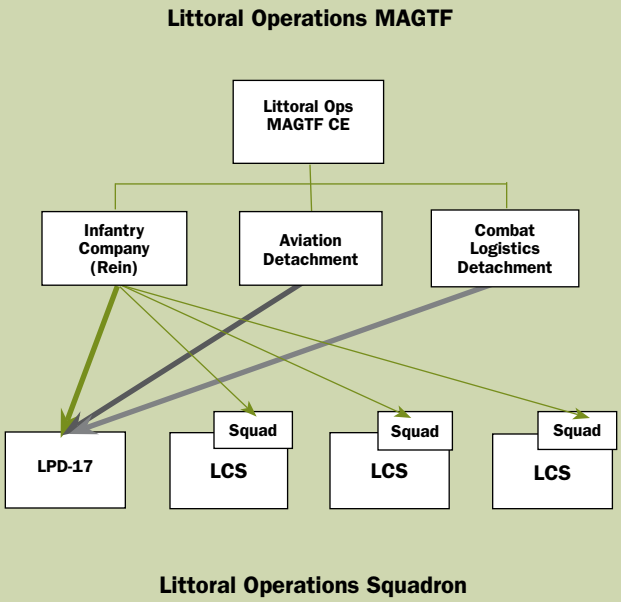
In all these cases, significant operating challenges arise: having sufficient mobility and firepower organic to the unit, maintaining the ability to logistically sustain operations, the necessity to evacuate casualties, and the difficulty of coordinating the actions of a widely dispersed force, to name but a few. Given the current acquisition programs being pursued by the Corps, platform characteristics become a real issue, especially if the Corps determines that *numbers really do matter*. In a highly dispersed environment, a force loses efficiencies that are usually gained in consolidating its resources for general support, such as fires, transport, supply, maintenance, engineering, etc. The more units one has deployed at increased distances from each other, the less one can effectively leverage "general support" organizational constructs to service an increasing number of simultaneously competing requirements. From a programmatic perspective, the more end-items you need, the more total cost becomes an issue. The greater mobility and nimbleness a force might require, the more of an issue platform size and logistical support becomes. In other words, an ability to conduct distributed operations has substantial implications for how one organizes, equips, and sustains the force. The Corps must also carefully consider the course being charted by the Navy[97] (reflected in the new ships it is purchasing), the opportunities for the Corps that will surely emerge as a result, and the organizational changes these opportunities might imply. From nearly all accounts, the LPD-17 is shaping up to be a very capable ship, well-suited to support the types of amphibious operations envisioned by

[97] For a detailed assessment of the Navy and its ship-building program, please see Robert O. Work's monograph in this series, *The US Navy: Charting a Course for Tomorrow's Fleet*.

the Corps and discussed in this paper. The Navy is also acquiring upwards of fifty-five Littoral Combat Ships to better enable it to conduct naval operations in the contested zone where the sea meets the shore.

The Marine Corps should consider engaging the Navy on new naval force constructs made possible by these platforms. For example, the Corps might consider placing a reinforced infantry company aboard an LPD-17 for independent operations in the littorals, while the Navy organizes a new type of squadron consisting of the LPD-17 and two to three Littoral Combat Ships (see Figure 4). The embarked infantry company, augmented with an appropriate section of aircraft and logistical support, might be considered a "Littoral Operations MAGTF" while the Navy component could be called a "Littoral Operations Squadron." Forward-deployed into a littoral region of interest, this mix of ships and Marines would be extremely handy in supporting small unit operations against pirates, state-surrogate forces, conducting small-unit raids, providing training and advisory assistance to the militaries of states threatened by radical groups intent on their destruction, working with the military forces of partner nations in counter-terrorism operations, conducting maritime interdiction, maritime trade route and coastal security patrolling, or serving as an on-call response force for other US forces engaged in a variety of missions ashore. If sufficient investment is made in the appropriate research and development programs, the Littoral Operations Squadron could operate a mixture of unmanned surface vessels and unmanned air

FIGURE 4. **LITTORAL OPERATIONS TASK FORCE**



vehicles designed to conduct a wide range of reconnaissance, probing, targeting, and enabling (electronic attack, spoofing, jamming, deception, etc.) functions that would amplify the abilities of the embarked Marine force. If merged with other Littoral Operations Squadrons/Littoral Operations MAGTFs, a conventional Amphibious Ready Group/Marine Expeditionary Unit, or Naval Expeditionary Strike Group, a Regional Combatant Commander would have a substantial and very flexible naval force able to undertake a wide range of missions.

The Corps currently plans deployments, develops operational concepts, structures its manpower models, and acquires equipment based on battalion-size entities. New concepts and operational models, however, might call for new ways of thinking about the units it organizes, equips, mans, and trains.

Of course, a notional force structure like the one above would have significant implications for the organization, manning, and training of the embarked Marine Corps unit(s). Such an environment would place substantial demands on the skill, maturity, and experience of the officers and senior enlisted members leading these units. Battalions are normally led by a lieutenant colonel, while the companies within the battalion are led by captains. If the Corps were to deploy a reinforced company with the expectation it will perform the range of operations discussed in this paper, it may want to seriously consider assigning majors as company commanders, with captains serving in the key billets of Company Executive Officer and Company Operations Officer. Each of the company's platoons would be led by a senior first lieutenant who had previously served as an Assistant Operations Officer. One would see a corresponding increase in the skill, experience, and seniority of the senior enlisted advisors, especially at the platoon level. The argument for an elevation in rank for unit leaders at the company and platoon levels is based on the assessment that small units deployed aboard a Navy ship (such as a company aboard an LPD-17 or a platoon aboard an LCS) or employed in a distributed operations environment would likely need more senior and experienced personnel since they would be dealing with senior Navy officers aboard the hosting ship and handling the expanded range of operational demands. While this may not be the ideal solution, the point is that organizations would need to adjust to changes in the operational environment and in the types of missions anticipated. The Corps currently plans deployments, develops operational concepts, structures its manpower models, and acquires equipment based on battalion-size entities. New concepts and operational models, however, might call for new ways of thinking about the units it organizes, equips, mans, and trains.

In short, the operational environment advertised by the Corps and the tasks implied by the strategic challenges call for serious study by the Marines into long-held organizing principles, and development of a baseline unit of employment that will inform higher levels of organizational design, plans for training and equipping the force, and, perhaps most importantly, serious consideration of what Marine Corps units can reasonably be expected to do at various levels of employment and distribution.

Conceptual Adjustments

In its simplest description, distributed operations are those operations wherein units operate at distances beyond their ability to support each other with organic fires. The

Corps took a stab at developing ideas for distributed operations in early 2005: after lengthy discussions within the Corps, General Michael Hagee, then-Commandant, approved release of *A Concept for Distributed Operations*.[98] According to this document,

> *Distributed Operations* describes an operating approach that will create an advantage over an adversary through the deliberate use of separation and coordinated, interdependent, tactical actions enabled by increased access to functional support, as well as by enhanced combat capabilities at the small-unit level. The essence of this concept lies in the capacity for coordinated action by dispersed units, throughout the breadth and depth of the battlespace, ordered and connected within an operational design focused on a common aim . . . In the tactical application of the distributed operations concept, it is envisioned that maneuver units will operate in disaggregated fashion, with companies, platoons, and even squads dispersed beyond the normal range of mutually supporting organic direct fires, but linked through a command and control network. All units will be organized, trained, and equipped to facilitate distributed operations, with capabilities beyond those historically resident at the small unit level. They will employ the advantage of extensive dispersion to reduce their vulnerability to enemy observation and fire, but will possess significant combat power, enabling them to locate, close with, and destroy the enemy. Units will possess the capability to rapidly re-aggregate, in order to exploit fleeting opportunities and to reinforce or support another unit in need.[99]

Such operations would place new demands on mobility, fires, and logistical support. The document addresses each of these and also highlights both the benefits distributed operations would convey and the difficulties it would impose on protecting troops ashore; specifically,

> [An] increased degree of force protection is inherent in distributed operations, in that dispersion itself is a protective measure. At the same time, however, dispersion beyond the range of mutual support with direct fire weapons is a potential source of increased vulnerability. We must develop capabilities to capitalize upon the advantages of dispersion, while mitigating its dangers. Such measures include enhanced, lightweight ballistic protective equipment, multi-spectral camouflage systems, and the capability to rapidly harden positions with minimal manpower.[100]

It appears the Corps intended to pursue an operational concept well-suited to the challenges of operating against a tech-enabled non-state opponent, a small nuclear-armed regional power, or in conjunction with highly distributed naval forces. But just two years later, the Corps stepped back and recast "distributed operations" with

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[98] Michael W. Hagee, General, USMC, *A Concept for Distributed Operations* (Washington, DC: Headquarters US Marine Corps, April 25, 2005). Available at: https://www.mccdc.usmc.mil/FeatureTopics/DO/A%20Concept%20for%20Distributed%20Operations%20-%20Final%20CMC%20signed%20co.pdf.

[99] Ibid., p. 1–2.

[100] Ibid., p. 6–8.

a decided focus on developing more capable *small unit leaders*. Gone were the clear implications for new types of equipment that would enable effective operations in this context and that would respond to the challenges posed by the concept itself.

Marine Corps Operations in Complex and Distributed Environments[101] opened with the stage-setting observation, "Our adversary's approach to warfare, along with the continually increasing lethality of modern weapons, has resulted in an ever increasing need for dispersion. Commanders are faced with larger "frontages" and complex areas of operation with potentially fewer forces conducting operations." But it then proceeded to soften the argument by shifting emphasis away from the material enablers needed to execute such operations—new forms of mobility, innovative use of fires, making units organically more robust so that they would be able to fend for themselves while accomplishing assigned missions—and toward a focus on the ability of the small unit leader to exercise sound judgment when faced with such a complex operating environment:

> Distributed operations is a technique applied to an appropriate situation wherein units are separated beyond the limits of mutual support. Distributed operations are practiced by general purpose forces, operating with deliberate dispersion and decentralized decision-making consistent with commander's intent to achieve advantages over an enemy in time and space. Distributed operations relies on the ability and judgment of Marines at every level and is particularly enabled by excellence in leadership to ensure the ability to understand and influence an expanded operational environment.[102]

Even the best of leaders cannot alone overcome the dramatic advances now being seen in enemy offensive capabilities without being enabled by new operational concepts and the tools that make those concepts viable.

Certainly, better-educated, trained, and experienced small unit leaders are at the heart of successful small unit actions, but even the best of leaders cannot alone overcome the dramatic advances now being seen in enemy offensive capabilities (and which will be increasingly seen over the next few decades) without being enabled by new operational concepts and the tools that make those concepts viable. Cavalry charges were still attempted in World War II (up through 1942) by units possessing the utmost bravado, *esprit-de-corps*, and skill; but their warrior ethos was ultimately no match for tanks, long-range modern artillery, radio-coordinated maneuver, and overhead air support. In similar fashion, highly-trained, well-informed, motivated Marine units facing a small nuclear power, a network of Islamist cells employing guided mortars and advanced anti-armor weapons, or a patchwork of surrogate forces acting on behalf of Iran and equipped with next-generation, guided anti-ship, anti-armor, and anti-air weapons may not have many options available beyond today's tactics, techniques, and procedures if they have not also been equipped with innovative concepts and the means to execute them.

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[101] *Marine Corps Operations in Complex and Distributed Environments*, a form of which can be found embedded in the Marine Corps Concepts and Programs 2007, is available at: http://hqinet001.hqmc.usmc.mil/p&r/Concepts/2007/CHPT2PRT1.htm

[102] Ibid.

The clearest expression the Marine Corps could make in its commitment to innovative use of its forces would be to re-engage in its exploration of distributed operations and the implications such operations would have on training, equipping, employing, and supporting it forces.[103] Given the characteristics of the strategic threat environment and the unique aspects of the Marine Corps as a sea-based force, the Service is uniquely positioned to execute such operations if it chooses to make the right investments in concept development, experimentation, training, and equipping. If it is actually determined that the infantry company the "sweet spot" for employment of Marine forces, there is the potential to dramatically redefine how the Corps might be employed, how it might team with the Navy in regionally distributed operations, its ability to work with Special Force and elements of other governmental agencies, and to field small teams able to conduct train-and-advise, counter-terrorism, counter-proliferation, counter-piracy, low-signature raid operations, and highly distributed operations against small nuclear-armed states…all of which can be expected over the coming decades.

The Service is uniquely positioned to execute such operations if it chooses to make the right investments in concept development, experimentation, training, and equipping.

Over the past year, the Marine Corps has spent time developing a concept for "enhanced company operations" and has embarked on a set of "limited objective experiments" (LOE) to identify issues flowing from it.[104] This is a promising start, but the Corps should continue well beyond the currently scheduled set of four limited experiments and commit to a long-term effort to solve the problem of conducting distributed operations from a seabase against the types of threats, and in the various strategic, operational, and tactical environments, previously outlined.

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[103] The full range of areas potentially impacted by a redesign of an operational concept, or any other major change to an organization's standard practices, is often referred to by the acronym "DOTMLPF." This is DoD's shorthand expression for doctrine, organization, training, material, leadership and education, personnel, and facilities. See JP *1-02 Department of Defense Dictionary of Military and Associated Terms* at http://www.dtic.mil/doctrine/jel/new_pubs/jp1_02.pdf, p. A-44.

[104] Vincent J. Goulding, Jr., "Enhanced Company Operations," *Marine Corps Gazette* (Quantico, VA: Marine Corps Association, August 2008), p. 17–19. Col Goulding, USMC (Ret), is the Director for the Experiment Division of the Marine Corps Warfighting Laboratory (MCWL). His article in the *Gazette* describes the evolution in MCWL's thinking as it first grappled with "distributed operations" at the squad and platoon level, from 2004-2006, then built on those early efforts to arrive at its current focus on company-level operations. According to Goulding, "LOE 3 will examine two major objective areas, both in the context of an immature theater and irregular enemy: (1) distributed logistics/casualty handling and evacuation and (2) company-level command and control." LOE 3 is scheduled for late Summer, 2009. "The final event [LOE 4] in the ECO [enhanced company operations] program will occur in 2010 and look at the employment of a reinforced rifle company from the sea [at] significant distance from its higher headquarters… The central idea will be to put stress on communications [as well as] on all aspects of tactical logistics, to include CasEvac." This is precisely the type of experimentation that should be occurring to determine potential solutions, or to identify what difficulties need to be overcome, related to the types of operations implied by the strategic challenges of the coming years. But rather than a four-experiment series occurring over a three-year timeframe, the Corps needs to commit substantial time and effort to fully flesh this problem out, in much the same way it dealt with the challenge of amphibious operations over a twenty-year period in the early part of the twentieth century.

EQUIPPING FOR THE FUTURE — "GETTING THE GEAR RIGHT"

In addition to the organizational and conceptual adjustments a Service may adopt, the extent to which a Service internalizes its rhetoric can be seen in its investments. A decade ago, a Marine colonel of the author's acquaintance expressed his view of Navy support for Marine Corps initiatives by regularly saying, "Follow the money." In other words, one could tell a great deal by observing what the Navy spent its money on and whether those expenditures reflected the verbal commitments it was making. The same can be said for the Marine Corps and its current investment strategy. Are the items it is currently buying setting it up for success in future conflicts? Do they reflect a tight and relevant connection between the threat environments the Corps will be challenged by and the operational concepts, tactics, techniques, and procedures likely to be needed? Is the Service simply pursuing a course it had chosen in the past and cannot seem to shake because of "sunk costs" or invested Service reputation? Does the Service not fully understand the implications of the evolving threat environment? Or are there planned uses for these investments that just need better explanation to show how they do, after all, address the tactical challenges presented?

Four programs (three of which are current programs of record and one with great potential benefit) stand out as bell-weather indicators, items fundamental to the Service's ability to prevail in future naval and amphibious operations: the Expeditionary Fighting Vehicle (EFV), the F-35B Lightning II Short Take-Off Vertical Landing (STOVL) variant multirole fighter, the MV-22 Osprey Tiltrotor Aircraft, and the Navy Unmanned Combat Air System (N-UCAS).

Expeditionary Fighting Vehicle (EFV)[105]

Probably the most controversial Marine Corps acquisition program, and estimated to account for at least a quarter of the Corps' acquisition budget in the coming years, the EFV is slated to replace the 35-year-old AAV-7A1[106] family of amphibious assault vehicles. Programmed to begin coming into service in 2015, 573 vehicles (enough to outfit three battalions) will be purchased at a cost of $14 billion, or $22 million each.[107]

Combat vehicles age over time; availability and reliability rates decrease as maintenance costs climb. By the late 1980s, it had become obvious that a successor to the amphibious assault vehicle would be needed in the not-too-distant future and the

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[105] EFV program details and vehicle operating characteristics can be found at the Program Manager's website: http://www.efv.usmc.mil/ and the manufacturer's website: http://www.gdls.com/programs/efv.html.

[106] The AAV-7A1 is the Marine Corps' "amphibious assault vehicle" that has been in use (in its current form) since the early 1980s, albeit with the occasional upgrade over the past 30+ years. Again, a very readable entry can be found at: http://en.wikipedia.org/wiki/Amphibious_Assault_Vehicle.

[107] *GAO-08-467SP Assessments of Major Weapon Programs*, p. 79.

Corps started exploring alternatives. As the Corps mulled over options, it took into consideration not only attributes it would like to have in a new amphibious assault vehicle but also the types of operations the Corps thought it would have to undertake given evolving threats and the Navy's likely response. Indeed, the Corps' specifications for an amphibious assault vehicle have been driven by how close to shore the Navy is willing to operate, how the Corps envisions it will conduct operations from the sea, and the types of threats the vehicle might encounter in its transit to shore and in operations further inland.

In the Gulf War of 1990/91, the Corps' embarked amphibious assault force kept an estimated seven to ten divisions of Iraqi troops fixed in place to guard against the threat of an amphibious landing, thereby reducing the forces that could be brought to bear against the Coalition forces assembled to eject Saddam Hussein's army from Kuwait.[108] While the amphibious force was ready for action, Navy and Marine Corps leaders were quite concerned about the shallow-water mine threat along the Kuwaiti coast. Any conventional amphibious assault would have had to punch through this obstacle. Though planners expected the operation to be successful, they also anticipated heavy casualties because of the Navy's inability to clear this type of obstacle (a shortfall that still exists). This underscored Marine Corps efforts to avoid head-on confrontations with enemy forces and to avoid the "opposed landing" scenario, if at all possible, by means of selecting undefended or lightly defended penetration points on a coast line. The introduction of an Advanced Amphibious Assault Vehicle (AAAV), precursor to the EFV, reflected this line of thought, along with aggressive use of Landing Craft, Air Cushioned (LCAC) (a hovercraft type of landing craft) and vertical assault (heliborne) concepts.

Meanwhile, the Navy was tracking the development of another danger to operations in the littorals, that of anti-ship missiles. During the Iran-Iraq war of the 1980s, both sides made use of these missiles, particularly the Chinese-made "Silkworm" anti-ship missile, with an effective range of 80 nautical miles. The Navy was made painfully aware of the effectiveness of the anti-ship threat when, in 1987, the USS *STARK* (FFG-31), a Perry-class guided-missile frigate on patrol in the Persian Gulf, was hit by two French-made Exocet anti-ship missiles, fired by an Iraqi Mirage fighter fifteen to twenty miles away. Though several factors contributed to the USS *STARK* being hit, it was a clear message to the Navy of the dangers of maneuvering in relatively constricted waters and operating within easy range of these weapons.

Over the past two decades, various countries have continued to improve the range and lethality of anti-ship missiles. The Chinese in particular have labored to increase the range at which they can target ships from coastal batteries. A recent example

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[108] See the Chief of Naval Operations' summary report, *The United States' Navy in "Desert Shield"/"Desert Storm"*, Naval Historical Center (Washington, DC: May 15, 1991); Chapter V: "Thunder and Lightning": The War With Iraq, and Chapter VI: Lessons Learned and Summary; available online at: http://www.history.navy.mil/wars/dstorm/index.html.

The littorals are becoming an increasingly contested zone well beyond the 25-mile operating range desired by the Navy and accepted by the Corps for amphibious landing forces, and the contest appears to be favoring the shore-based defender.

occurred during the July 2006 war between Israel and Hezbollah, when an Israeli corvette, INS HANIT, was hit by a (suspected) Chinese-made, C-802 anti-ship missile employed by Hezbollah. Though the ship was hit at an approximate distance of ten miles from the Lebanese coastline, the C-802 possesses an effective range of 120 km, or nearly 75 miles. Some anti-ship missiles currently in use by China and other nations can range out to 200+ km (125 miles), with closure speeds of Mach 2.0 or more (greater than 1,500 mph).[109]

Ships sailing close to shore must also account for advanced diesel submarines and improvements to ballistic missiles that enable them to be used in an anti-ship mode (something the Chinese have been pursuing with vigor). It is not implausible that smaller states, and some non-state actors, will soon be able to field guided mortars, and enhanced short range rockets and ballistic missiles as weapons able to self-guide onto at-sea targets, to say nothing of the array of advanced naval mines available from major state powers. The littorals are becoming an increasingly contested zone well beyond the 25-mile operating range desired by the Navy and accepted by the Corps for amphibious landing forces,[110] and the contest appears to be favoring the shore-based defender.

Understanding that the Navy will try to operate as far from shore as possible, the Corps has sought to improve its ability to operate from "over the horizon" (often thought of as twenty-five miles or more). In the past, it envisioned an advanced

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[109] As but one example, the Soviet Union fielded the P-270 Moskit (more commonly known by its NATO designator SS-N-22 Sunburn) in 1981. The Sunburn is a ramjet powered anti-ship missile with a top speed of Mach 3 at "high" altitude and Mach 2.2 at 20 meters above sea-level (in sea-skimming mode). When cruising at its maximum speed in a sea-skimming profile, a ship would only have 25-30 seconds of warning at a distance of 15 km (distance at which the missile would appear over the horizon). The Sunburn, which in various versions can be launched from shore, ships, or aircraft, is used by the Russians, is known to have been sold to the Chinese, and is suspected of having been acquired by the Iranians. For additional information on the Sunburn, see the GlobalSecurity.Org entry at: http://www.globalsecurity.org/military/world/russia/moskit.htm. For information on a range of anti-ship missiles produced and fielded by the Soviets/Russians, see the report "Russian/Soviet Sea-Based Anti-Ship Missiles," Defense Threat Information Group, November 2005, at: http://www.dtig.org/docs/Russian-Soviet%20Naval%20Missiles.pdf.

[110] James T. Conway, General, USMC, "Congressional Transcripts: Congressional Hearings March 6, 2008, House Armed Services Committee Holds Hearing on the Fiscal Year 2009 Budget Request for the Department of the Navy." Accessed at: http://www.marines.mil/units/hqmc/cmc/Documents/CMCTestimonies20080306HASCPostureTrans.pdf. In a response to Rep. K. Michael Conaway, Gen Conway had this to say: "[If] you have a visual of the Tarawa landing beach, you have the wrong impression in mind of how we would intend to do future amphibious operations. We would intend to go where the Navy is not. We would intend to go deep across the beach with the Ospreys…[and] the Expeditionary Fighting Vehicle is a vital part of that. The Navy rightfully will not go closer than about 25 miles to an enemy shore because of the anti-access systems and the potential destruction of Marines, sailors, and ships costing billions of dollars. So we have to somehow bridge that difference. We have a vehicle [the AAV] right now that ostensibly could swim. Although the sea states would make that exceedingly difficult. But it would be four to five hours getting to shore, and Marines would be in no condition to fight. So we need that type of vehicle that can get up on top of the waves at 25 to 30 knots and get us quickly in to start doing the work that must be done. I think that there's a lot of blue out there on that map in the arc of instability and that although, you know, we've been fortunate in years past that there was a host nation willing to accept the buildup and then willing to let us cross their border. The probability of that being present in every case in the future is not likely. And so, I do think that there will continue to be for this superpower nation and ability to have a forcible entry capability."

version of its amphibious assault vehicle (AAV) in combination with the Navy's Landing Craft Air Cushioned (LCAC) and its own long-in-development tilt-rotor MV-22 Osprey. Together, they promised to transport Marines from ships safely out at sea (that is, beyond the range of most shore-based, anti-ship weapons) to objectives deep inland, with minimal transition time. Further, the improved ranges and speeds of these new systems would make available a broader stretch of coastline along which to insert amphibious forces, a technique having the added benefit of complicating the enemy's defense. The Expeditionary Fighting Vehicle program sought to quadruple the speed of the AAV, thus making it possible to traverse these increased distances in an hour or less,[111] while also implementing upgrades to its weapon systems, on-land performance characteristics, and communications capabilities.

The Expeditionary Fighting Vehicle (EFV) was meant to overcome the challenge of closing the increased distance from ship to shore within an acceptable period of time.

But challenges to the amphibious force have not been restricted to anti-ship threats alone. A more recent development that has significant implications for the EFV program is the improvised explosive device (IED) problem. As has been widely reported in the media for the past four years, IEDs have accounted for a significant percentage of casualties in Iraq and Afghanistan. In a dramatic effort to lessen the toll on US forces by providing them increased physical protection, the US has committed upwards of $20 billion to purchase 15,000 Mine Resistant Ambush Protected (MRAP) vehicles. The MRAP provides substantial improvements in protection because of its design characteristics—its physical shape and mass—and the increased quantity of heavy armor the vehicle is able to carry. MRAPs incorporate a v-shaped bottom, or hull, and a chassis that raises the vehicle a substantial distance above the ground. This allows blast to dissipate and the hull design deflects it away from the passenger compartment. The shear mass of the vehicle helps to absorb explosive energy and its substantial armor shields occupants far more than almost any other vehicle. These design characteristics have proven so successful that other vehicle programs are taking them into account (most notably the Joint Light Tactical Vehicle (JLTV).[112]

Herein lies the problem. The Expeditionary Fighting Vehicle (EFV) was meant to overcome the challenge of closing the increased distance from ship to shore within an acceptable period of time, ideally in an hour or so. Its planned speed in the water (listed as 40 knots (45 mph)) would accomplish this feat, provided the ships did not continue to move further from the shore. In order to achieve the necessary speeds to meet the ship to shore time requirement, the EFV was built with an extremely powerful engine and thrusters (to push its 38 tons at desired speeds), a flat bottom,

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[111] This one-hour metric is an important one. Various Marine Corps studies have shown that combat troops transported by AAVs over great distances or protracted times in water suffer from the trip. The passenger area of an amphibious vehicle is dark, hot, cramped, and reeks of fuel. Bobbing in the water for two or more hours leads to motion sickness, disorientation, and a fair amount of exhaustion. Once the vehicle reaches the shore, the troops inside are less ready for combat operations than the Corps would like.

[112] See Andrew F. Krepinevich and Dakota L. Wood, *Of IEDs and MRAPs: Force Protection in Complex Irregular Operations*, Center for Strategic and Budgetary Assessments (Washington, DC: 2007) for an overview of the MRAP program and related issues.

and an extending bow plane that all contribute to getting the vehicle up "on plane" to skim over the top of the water. But a flat bottom and low ground clearance, as well as the EFV's very flat sides, are precisely the design features the MRAP, JLTV, the Army's Stryker (an eight-wheeled combat fighting vehicle), and other armored vehicle programs are seeking to avoid, because they make a vehicle more vulnerable to anti-armor threats. Further, in the decade this vehicle has been in development, the anti-ship missile threat has continued to evolve, now reaching a level of performance that will push Navy ships away from the coastline three to four times the distance the EFV was originally intended to traverse.[113] It seems that the investment in producing a vehicle that solved ship-to-shore closure challenge has been overcome by advances in both land- and sea-based weapons development.[114]

It seems that the investment in producing a vehicle that solved ship-to-shore closure challenge has been overcome by advances in both land- and sea-based weapons development.

In light of these facts, the Corps should cancel the Expeditionary Fighting Vehicle (EFV) program and redirect its efforts along a path that favors a combination of platforms optimized for their operating environments: an at-sea platform suited to meet the challenge of landing amphibious forces from increasing distances, and a combat vehicle optimized for the increasingly lethal ground-combat environment now being seen across the range of military operations.

A successor is needed for the Landing Craft, Utility (LCU)[115] and Landing Craft, Air Cushioned (LCAC) programs, and the Navy has been exploring various options. The Corps should support development of a high-speed landing craft or perhaps some form of high-speed lighterage that would solve the ship-to-shore closure problem. One current program that might be modified to meet Marine Corps requirements is the Improved Navy Lighterage System.[116] This vessel can currently attain 12 knots

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[113] It should be noted that a 25mph over water speed would close a straight-line distance of 25 miles in one hour. This rather obvious point is important in that the EFV's greater speed was also to open a longer stretch of shoreline to penetration by an amphibious force. If ships were 10–15 miles off shore, one could mark angled distances of 25 miles to the left or right of the ships' position with a widened expanse of shoreline available to the force. As the ship puts out further to sea, however, the length of shoreline reachable in one hour necessarily decreases to a single point 25 miles from the ship.

[114] Several of these issues have also been addressed along with a more detailed discussion of the EFV's program history, challenges, and set-backs, in a report from the Congressional Research Service—see Andrew Feickert, *The Marines' Expeditionary Fighting Vehicle (EFV): Background and Issues for Congress*, CRS Report for Congress, September 10, 2008. Accessible at http://www.fas.org/sgp/crs/weapons/RS22947.pdf. The CRS report draws heavily from an article by Sydney J. Freedberg, Jr., entitled, "Future Corps," National Journal, May 10, 2008; accessible at: http://www.nationaljournal.com/njmagazine/print_friendly.php?ID=nj_20080510_4536. Both items are quite useful for additional insight into the EFV program.

[115] The Landing Craft, Utility (LCU) is a small conventional vessel (as opposed to the hovercraft-like LCAC) used to transport personnel, equipment, and material from ships to shore. It has a broad deck on which to load cargo and a sloped, flat bottom that allows it to "beach" itself at the shoreline. By lowering its bow ramp, equipment and personnel can be delivered directly ashore without needing to use a formal port or harbor.

[116] "Whatever Floats Your Tank: the USN's Improved Navy Lighterage System," *Defense Industry Daily*, June 16, 2008. Available at: http://www.defenseindustrydaily.com/whatever-floats-your-tank-the-usns-improved-navy-lighterage-system-02251/

(nearly twice what the current AAV is capable of) in Sea State 3,[117] possesses a bow ramp allowing it to beach for offload, can be hooked together to form a causeway for increased throughput over the beach, and might even serve as a viable surface connector for ships constituting a floating base-at-sea for operations ashore.

Both the Corps and the Navy advertise an increased requirement to more proactively engage in regional matters, work with local naval forces to increase partner capacity and to establish long-term working relationships, support humanitarian assistance/disaster relief (HA/DR) operations, and serve as at-sea support bases for Joint Force counter-terrorism, counter-proliferation, and security assistance operations. When an EFV transitions ashore for ground operations, all of the investment made to get the vehicle from ship to shore quickly is effectively "lost" until the next ship-to-shore movement. Opting for a high-speed lighterage platform, or some other type of landing craft, would preserve that investment for a multitude of uses beyond just the ship-to-shore movement of an assault force. Once the ground combat vehicles are placed ashore, the vessel can be used for logistical support functions; it can be used to move forces from one part of the coastline to another; and it can aid in HA/DR operations. It can also be used to transport forces from shore to ship that would otherwise have to be transported by air, a convenient alternative if inclement weather precludes air operations.

As for the ground combat function of the Expeditionary Fighting Vehicle (EFV), the Corps should reconsider an improved version of something already in production, such as the LAV III used by Canada, other vehicles in the Swiss Mowag "Piranha" family, or the Army's Stryker combat vehicle. These are combat-proven and could be upgraded to accept improvements in weaponry, imaging systems, and communications capabilities planned for the EFV, as well as the types of capabilities mentioned earlier to be able to survive and operate in nuclear-contaminated environments. They come in a variety of sizes, but are on average smaller than the EFV, weighing less than half (18 tons vs. 38 tons), meet range requirements (500 km), and exceed the overland speed requirement (100 kph vs. 72 kph). On the downside, they can only carry half as many troops (7-9 vs. 17).[118] That said, a combat vehicle optimized for ground operations, with some limited ability to ford rivers, lakes, marshes, etc., would (*should*) incorporate design characteristics intended to mitigate the lethal threats of IEDs, explosively

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[117] The "Pierson - Moskowitz Sea Spectrum" is used to describe at-sea conditions resulting from combinations of wind and waves. The higher the "sea state" number, the more rough the surface and, hence, the more difficult the task of conducting operations. For a handy reference to various Sea State conditions, see: http://www.eustis.army.mil/WEATHER/Weather_Products/seastate.htm.

[118] IEDs are the now quite familiar improvised explosive devices typically employed as roadside bombs and used against convoys. They can vary greatly in size, complexity, and triggering mechanism. EFPs are explosively formed penetrators. More sophisticated and professionally-manufactured than their IED cousins, EFPs utilize a tube filled with high explosive, capped with a concave disc of copper. On detonation, the explosive melts the copper into a slug of penetrating metal, able to defeat top-level armor. ATGMs are anti-tank guided missiles. These weapons are formally designed and manufactured for use against armored vehicles; they can be fired from vehicles, aircraft, or man-portable launchers.

formed penetrators, and advanced anti-tank guided missiles (ATGMs),[119] to include body geometries designed to deflect anti-armor munitions, increased height above ground to dissipate blast, and wheels (vice the EFV's tracks) for increased mobility under a wider range of operating conditions (especially in the urban environments expected to be the scene of conflicts in the future).

The Corps should also closely monitor, if not actively participate in, the Army's effort to outfit its Future Combat System family of ground combat vehicles with some form of "active protection system" (APS). An APS system is designed to detect and actively defeat incoming projectiles (as opposed to the more passive protection obtained from armor alone). Active protection systems utilize a radar-like device that identifies an incoming munition then launches an explosive projectile to interdict and destroy the anti-armor missile, rocket, or mortar round.[120] Such a capability will be increasingly needed as state and non-state forces field ever more capable, and plentiful, anti-armor weapons. (On a related note, the proliferation of guided anti-armor/precision weapons will pose a threat to all platforms coming into range of the threat envelope created by such weapons, to include landing craft approaching a beach, ships sailing into port, or aircraft landing at airfields ashore or flying at lower altitudes (below 15,000 feet.)) Consequently, all of these platform types will need to be equipped with active protection systems of some type. The Special Forces community employs such systems on their special mission aircraft, but this capability will need to be extended to the general purpose forces of the military Services, too.

The Corps is also exploring options for a Marine Personnel Carrier (MPC).[121] This vehicle, an as-yet unspecified platform similar in concept to the Army's Stryker or the Corps' Light Armored Vehicle (LAV), is not yet a program of record, but the Corps would like to acquire upwards of 632 of them. The vehicle would also incorporate recent lessons in armored protection for personnel against roadside bombs and

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[119] Additional information on a wide variety of APS programs can be found in a paper from the North American Technology and Industrial Base Organization, entitled "Collaborative Point Paper on Active Protection Systems," available at: www.acq.osd.mil/ott/natibo/docs/Active_Protective_Systems_CPP_Oct06.doc. See also another informative, if not somewhat dated, paper by Tom J. Meyer, "Active Protection Systems: Impregnable Armor or Simply Enhanced Survivability," *Armor Magazine* (US Army Armor Center, Fort Knox, KY: May-June 1998), p. 7, available at: https://www.knox.army.mil/center/ocoa/armormag/backissues/1990s/1998/mj98/3aps98.pdf.

[120] Additional information on a wide variety of APS programs can be found in a paper from the North American Technology and Industrial Base Organization, entitled "Collaborative Point Paper on Active Protection Systems," available at: www.acq.osd.mil/ott/natibo/docs/Active_Protective_Systems_CPP_Oct06.doc. See also another informative, if not somewhat dated, paper by Tom J. Meyer, "Active Protection Systems: Impregnable Armor or Simply Enhanced Survivability," *Armor Magazine* (US Army Armor Center, Fort Knox, KY: May-June 1998), p. 7, available at: https://www.knox.army.mil/center/ocoa/armormag/backissues/1990s/1998/mj98/3aps98.pdf.

[121] Marine Personnel Carrier initiative, managed by Program Executive Officer (PEO) Land Systems (LS) Marine Corps, at: http://www.marcorsyscom.usmc.mil/peolandsystems/MPC.aspx Due to various budgetary pressures and continued development of the EFV, the Marine Corps decided in June, 2008, to delay the MPC effort by two years, to FY 2010. See "Statement on Marine Personnel Carrier (MPC)," http://contracting.tacom.army.mil/majorsys/mpc/mpc.htm

anti-armor munitions while maintaining the mobility necessary to keep pace with modern maneuver-based operations. The MPC itself might be a credible alternative to the EFV when paired with a surface transport platform. This option would have the additional benefit of nearly doubling the intended purchase, thereby lowering the per-unit cost and simplifying related logistics issues within the Service.

By cancelling the EFV and pursuing a combination of ship-to-shore connector and land-optimized combat platforms, the Corps would gain more utility for its investment across a wider range of missions. Conversely, if the Marines stay with the EFV program, they will end up purchasing a vehicle at extraordinary expense that will do little to overcome the challenge for which it is being purchased. In fact, it will likely introduce additional battlefield problems given the advancements in anti-armor munitions of the past decade.

By cancelling the EFV and pursuing a combination of ship-to-shore connector and land-optimized combat platforms, the Corps would gain more utility for its investment across a wider range of missions.

F-35 Lightning II Multirole Fighter

The Marine Corps currently possesses a mixed fleet of fixed-wing aircraft that it uses to control the airspace above Marines, to support them with aerial fires, and to interdict and attrite enemy forces at range. The Corps has thirteen squadrons of F/A-18 Hornets (A, C, and D models) and seven squadrons of AV-8B Harriers.[122] The Service plans to replace these aircraft with 420 F-35Bs,[123] at a projected cost of approximately $41 billion (a per-unit cost of $97 million).[124] The Corps plans to purchase only the "B" (STOVL) model in order to gain efficiencies in fielding a single type of aircraft and maximize flexibility with Marine Air Wings composed entirely of interchangeable F-35 squadrons. For the Corps, the appeal of an all-STOVL fleet is understandable and compelling, but only if viewed from a Marine Corps perspective. If viewed more broadly from the perspective of *naval* air power, other considerations come into play.

In April 2008, the Navy and Marine Corps signed the latest version of a Memorandum of Agreement governing the integration of their tactical air fleets. The stated purpose of the Tactical Air Integration (TAI) plan[125] is "to provide Combatant and Joint Force

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[122] Only "active force" squadrons are listed here. The Corps also maintains one training squadron of F/A-18s, one of AV-8Bs, and two reserve squadrons of F/A-18As.

[123] The F-35 Lightning II, also known as the Joint Strike Fighter (JSF), comes in three variants: the F-35A, a conventional take-off and landing aircraft being purchased by the US Air Force; the F-35B, the short take-off vertical landing (STOVL) model being acquired by the US Marine Corps; and the F-35C, to be purchased by the Navy and possessing heavier landing gear and a larger wing for aircraft carrier operations.

[124] Steve Kosiak and Barry D. Watts, *US Fighter Modernization Plans: Near-Term Choices* (Washington, DC: Center for Strategic and Budgetary Assessments, 2007), p. 12. It should be noted that Marine Corps aircraft are purchased by the Navy, using "blue in support of green" dollars.

[125] Memorandum of Agreement Between Command, Naval Air Forces, and Deputy Commandant for Aviation, United States Marine Corps, *Subject: Department of the Navy Tactical Aircraft Integration*, (Washington, DC: April 17, 2008)

Commanders with flexible, responsive, interoperable and expeditionary forces."[126] It goes on to say,

> Naval Aviation force projection is accomplished by the balanced integration of Marine Corps TACAIR [tactical aircraft] squadrons into Carrier Air Wings (CVW) and, when required, Navy squadrons into Marine Aircraft Wings (MAW). The goal is to exploit revolutionary Network Centric Warfare and Expeditionary Maneuver Warfare concepts to enhance power projection by tightly integrating Carrier Strike Groups (CSGs), Expeditionary Strike Groups (ESGs), and Marine Air-Ground Task Forces (MAGTFs).[127]

Further,

> The objective is to fill all operational and training requirements with the most appropriate unit while balancing unit operational tempo across the force…This process furthers TACAIR integration leading to a fully interdependent DON TACAIR force in which VMFA [Marine Corps F/A-18] and VFA [Navy F/A-18] squadrons routinely deploy as part of CVW and land-based expeditionary operations.[128]

It would seem, then, that some level of commonality between Navy and Marine Corps aviation would be helpful. The Corps' commitment to an all-STOVL fleet appears to go in the opposite direction.

So, while the Corps is pushing forward with its all-STOVL purchase, it must also reach agreement with the Navy on how to effectively implement the tactical aircraft integration plan.

In principle, the Marine Corps will provide a sufficient number of fixed-wing tactical air squadrons to support full utilization of available flight decks represented by the Navy's eleven aircraft carriers. In return, the Navy will provide squadrons in direct support of land-based operations as the need arises. It would seem, then, that some level of commonality between Navy and Marine Corps aviation would be helpful. The Corps' commitment to an all-STOVL fleet appears to go in the opposite direction. The two Sea Services are set to pursue two different tracks for their naval air capability. The Navy has little choice in its selection of a Joint Strike Fighter model since the whole point of having naval aviation is to project it from an aircraft carrier. Airplanes that fly off modern carriers must be able to withstand the increased stresses of launch and recovery. The F-35C (Navy variant) is being designed to account for regular use in this environment, possessing a more robust set of landing gear and a larger wing area (for increased lift at the slower speeds associated with launch and recovery operations). It must also be able to operate at increasing distances given the worsening anti-ship threats already discussed. The Marines seek to operate in multiple worlds—flying tactical aircraft off carriers, amphibious assault ships, and austere operating sites ashore. STOVL—short take-off vertical landing—gives the Marines the ability to operate from a much broader set of locations than the F-35A

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[126] Ibid., p. 1.

[127] Ibid., p. 2.

[128] Ibid.

(conventional take-off and landing or CTOL, the version being purchased by the US Air Force) or F-35C (Navy) models.

As noted earlier, combat operations against a large power, such as China, will presume that the enemy will possess advanced capabilities for targeting carrier battle groups at extreme ranges. A country such as China or Russia will have made substantial investments in anti-access capabilities utilizing ballistic and cruise missiles, next generation submarines (both nuclear and advanced diesel propulsion), and, quite possibly, sophisticated unmanned undersea systems. A robust anti-access network will force aircraft carriers to operate at maximum ranges until enemy defensive systems can be degraded by strikes, raids, network attacks, or attrition of personnel and key enablers. In major combat operations against a large state power, a small nuclear-armed power, or even in counter-sanctuary operations against an Islamist terrorist entity, *range* becomes a critical requirement.

In major combat operations against a large state power, a small nuclear-armed power, or even in counter-sanctuary operations against an Islamist terrorist entity, *range* becomes a critical requirement.

If the Corps insists on placing its 450 nautical mile (nm) combat-radius STOVL F-35Bs on carriers, the jets will either sit idle while the more capable 700nm combat-radius F-35Cs carry the load in the initial stages of a fight or place an additional burden on tanker support to make possible their involvement in long-range naval strikes.[129]

As for the Navy's concern about mixing "B" and "C" aircraft on the same flight deck, it is true that mixed-deck air operations are more complicated than operations with a single type of aircraft. But it would be more accurate to say that the Navy would prefer the Corps to fly the same type of aircraft because it lowers the per-unit cost (as a result of more F-35Cs purchased), makes it easier for the Navy to populate its carrier air wings, and generates efficiencies in supporting squadrons when deployed. However, whether it is easier or more difficult is a secondary consideration; more important are the types of missions a carrier air wing will likely fly, the threat environment they will have to contend with, and the implications this will have on the ability of naval forces to accomplish operational objectives.

The Corps would indeed benefit from the efficiencies of a single model of F-35 Lightning II. Supply, maintenance, avionics, and ordnance support are simplified, and savings are made in training and assignment of personnel. Operating forces become accustomed to the specific performance characteristics of a given aircraft and operational employment planning becomes more streamlined. The Service also benefits from having the largest pool of F-35B squadrons possible from which to draw units in support of its operations. For every squadron that is equipped with F-35Cs, the Corps would have one fewer to use in expeditionary environments, whether aboard large-deck amphibious ships or at austere airfields ashore. But efficiencies in

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[129] When speaking of naval operations, distances are referred to in "nautical miles," often abbreviated "nm." A nautical mile equals one minute (1/60 of a degree) of latitude along a meridian (or a minute of longitude along the equator). Accordingly, the measure of a ship's speed through the water is in "knots" (kts), or nautical miles per hour. A nautical mile is slighter longer than a statute, or land, mile—1:1.15. So, 1 knot of speed at sea is slightly faster than 1 mile per hour on land. See: http://physics.nist.gov/Pubs/SP447/app4.pdf for a discussion of the international nautical mile.

either the Marine Corps or Navy are not entirely the point. Effectiveness in meeting the threats and challenges *is*.

Referring back to the Navy-Marine Corps tactical aircraft integration plan, the naval Services should both consider the implications of deploying aircraft to operate in the other's primary environment—the Corps aboard carriers and the Navy ashore (no mention was made of Navy planes operating off amphibious ships). Since the Navy is purchasing only the F-35C, it will not have the organic ability to support F-35Bs when they are aboard; the Corps will need to embark F-35B-specific avionics, maintenance, and supply packages. Similarly, if the Corps purchases only the F-35B, it will not possess support assets unique to the F-35C. Therefore, when Navy F-35C squadrons deploy in support of Marine operations ashore, they too, will have to bring with them the ability to sustain their platform. If the Corps opts, instead, for a mixed fleet of F-35Bs and Cs, it will possess the ability to operate aboard carriers as easily as the Navy, and it will be able to better integrate Navy squadrons into Marine air operations ashore.

Efficiencies in either the Marine Corps or Navy are not entirely the point. Effectiveness in meeting the threats and challenges *is*.

As for criticism of the need to have a short-takeoff vertical landing capability to begin with, similar criticism accompanied the Corps' acquisition of the AV-8B Harrier II in the early 1970s.[130] The early versions of the aircraft were plagued by developmental difficulties and the AV-8A had a poor track record of flight mishaps, to include instability during the transition between forward flight and vertical take-off or landing. The aircraft also lacked the range of its conventional flight counterparts. Yet the Marine Corps was attracted by the potential to position such an airplane very close to the scene of battle, increasing responsiveness to forces engaged in battle without having to worry about the availability of conventional airfields. Advocates of the attack jet even argued one could forward-position it in fields, parking lots, and wide spots in the road—basically anywhere one might want. While such extreme basing practices were never used in actual operations, the STOVL attributes of the aircraft did allow for them to be based aboard amphibious assault ships and at a greater range of airfields (possessing shorter runways) than would have been possible with a conventional aircraft. It is this aspect of the STOVL version of the Lightning II that makes the F-35B variant compelling—the ability to expand basing options for fixed-wing attack aircraft used by, and in direct support of, Marine Corps units across the broadest range of operating environments. A short-takeoff/vertical landing aircraft effectively doubles the number of naval platforms available to support an amphibious force. At sea, the F-35C carrier version can only be flown from the eleven aircraft carriers operated by the Navy. The F-35B STOVL variant opens up at-sea basing options to include the

[130] A concise, readable summary of the Harrier II's history can be found online at the Naval Historical Center's website: http://www.history.navy.mil/planes/av8.htm. A more expanded discussion of its history, variations, specifications and other reference can be found at the GlobalSecurity.Org website: http://www.globalsecurity.org/military/systems/aircraft/av-8.htm.

eleven LHA/LHD platforms of the amphibious force and also makes possible land-based air operations at a greater number of airfields.

There is one more issue that is likely influencing the Corps' decision to pursue an all-F-35B STOVL fleet: the opportunity to homogenize its fixed-wing pilot community. A mixed inventory of short take-off/vertical landing and carrier versions of the F-35 would force continuation of sub-communities within the Corps' "ready rooms," something the Marines are working hard to prevent. F-35B squadrons would normally deploy aboard LHDs/LHAs (large-deck "amphibs") while F-35C squadrons would cycle through aircraft carrier deployments. In effect, two distinct communities would exist within the Corps. This isn't unlike current conditions, of course, where the Corps has Harrier, Hornet, and EA-6B Prowler[131] communities, but an all-STOVL fleet would do away with this issue.

Finally, in reviewing the array of potential scenarios the Corps might come up against in the next couple of decades, one would be hard-pressed to conclude that the Corps would ever base all of its aircraft aboard large-deck amphibious ships or at short-runway airfields ashore. Far more likely is that some portion of its F-35 fleet would remain at sea aboard carriers. This being the case, it would be far more effective to base carrier-optimized F-35Cs aboard carriers than to lose combat power for whatever time is needed to close shorter-legged F-35Bs with the objective area. If the Marine Corps plans to deploy squadrons aboard carriers for the foreseeable future, the best choice it could make in support of national *naval* power, as opposed to narrow Marine Corps interests, would be to deploy squadrons best suited for carrier operations.

In view of the above, the Marine Corps should reconsider its all-STOVL policy and purchase a mixed fleet of F-35B STOVL and F-35C Carrier Joint Strike Fighters — up to eleven squadrons of F-35Cs[132] to fulfill the Corps' tactical aircraft integration commitment to carrier-based, naval aviation wings, with the remainder F-35B STOVL variants to support Marine Corps requirements for tactical aircraft support aboard LHA/LHD platforms and operations at expeditionary bases ashore.

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[131] The Marine Corps operates four squadrons of EA-6B Prowlers, an electronic warfare version of the old A-6 Intruder attack aircraft. The Navy intends to replace its own EA-6Bs with the F/A-18G Growler, an electronic warfare version of the F/A-18 Hornet. As of this writing, the Marine Corps has not yet decided whether to pursue the Navy's course or push for development of a corresponding version of the F-35. See: http://www.navy.mil/navydata/fact_display.asp?cid=1100&tid=900&ct=1 and http://en.wikipedia.org/wiki/EA-6B for additional information on this aircraft.

[132] Assuming a ratio of one squadron per carrier, with the Navy planning to maintain an inventory of 11 CVNs, though it may only maintain 10 CVWs (carrier air wings).

N-UCAS

While considering a mixed fleet of F-35 Lightning II fighters, the Corps should also give serious consideration to augmenting its naval aviation capabilities with the Navy-Unmanned Combat Air System (N-UCAS).[133]

One of the many conclusions reached by the Secretary of Defense in his 2006 QDR Final Report was that the challenges specified in the report[134] would require US forces to field joint air platforms with *greater range* (independent reach), *greater persistence* (ability to loiter over the target area), *improved stealth* (ability to survive in contested airspace), and *improved networking* (ability to operate as part of a joint multidimensional network).[135] Consequently, the Department of the Navy (DoN) was directed to "develop an unmanned longer-range carrier-based aircraft capable of being air-refueled to provide greater stand-off capability, to expand payload and launch options, and to increase naval reach and persistence."[136] This direction from the Secretary of Defense, along with the underlying threat analysis and the evolving characteristics of the expected operational environment, should have a profound impact on the investments being made in naval aviation platforms by both the Navy and the Marine Corps. As observed by Ehrhard and Work:

> [Manned aircraft] are generally limited to missions no more than ten hours long, and they more typically fly missions that last only a few hours. Therefore, US carrier air wings can maintain a persistent 24-hour-a-day presence over the battlefield only by massing several carriers…However, emerging national security challenges […] will likely require future carrier task forces to stand off and fight from far greater distances than in the past, and to maintain a far more persistent presence over future battlefields. Moreover, when under constant threat of guided weapons attack, carriers will need to operate dispersed and mass their aircraft over targets from widely distributed operating areas. Under these circumstances, a carrier-based UCAS with an unrefueled combat radius of 1,500 nm or more and unconstrained by pilot physiology offers a significant boost in carrier combat capability. Indeed, with aerial refueling, a UCAS would be able to stay airborne for 50 to 100 hours—five to ten times longer than a manned aircraft. With

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[133] Thomas P. Ehrhard and Robert O. Work, *Range, Persistence, Stealth, and Networking: The Case for a Carrier-Based Unmanned Combat Air System*, (Washington, DC: Center for Strategic and Budgetary Assessments, 2008). In this paper, Ehrhard and Work thoroughly explore the merits of a Navy-Unmanned Combat Air System (N-UCAS) capability.

[134] Donald Rumsfeld, *Report of the 2006 Quadrennial Defense Review*, (Washington, DC: Department of Defense, February 6, 2006). The 2006 QDR identified "four priority areas for examination" that included defeating terrorist networks, defending the homeland in depth, shaping the choices of countries at strategic crossroads, and preventing hostile states and non-state actors from acquiring or using WMD (p. 19). The report categorized areas and subsets of each into four types of challenges: traditional (often thought of as conventional operations against conventional/state opponents), irregular (e.g. terrorists), catastrophic (e.g. WMD and homeland defense), and disruptive (e.g. countries at "strategic crossroads" potentially developing capabilities that would dramatically reshape the security contest with the US) (p. 19).

[135] 2006 QDR, p. 45. These points were neatly summarized and then expanded upon by Ehrhard and Work.

[136] 2006 QDR, p. 46.

> multiple aerial refueling, a UCAS could establish persistent surveillance-strike combat air patrols at ranges well beyond 3,000 nm, and could strike fixed targets at even longer ranges. Such extended reach and persistence would allow a dispersed aircraft carrier force to exert combat power over an enormous area.[137]

This is in stark contrast to the limitations imposed by conventional manned systems or naval air operations, even accepting the arguments for maintaining a "man in the cockpit," where manned aircraft employed in naval air wings are "best suited for striking targets at ranges between 200 and 450 nautical miles" from their home aircraft carrier.[138] Quite obviously, an operational reach advantage of over 1,000 nautical miles and an ability to provide persistent coverage five to ten times longer would create tactical options not possible with the currently programmed naval aviation inventory.

Clearly, additional study would be needed to determine how well a carrier-based Navy version of an unmanned combat air system would serve USMC operational interests. It is certainly the case that all of the attributes of N-UCAS could be brought to bear in support of Marine Corps operations ashore, as with any element of carrier-based aviation, but from far greater distances and for longer periods of time. Additionally, the availability of N-UCAS aboard supporting nuclear-powered aircraft carriers might actually free up squadrons of Marine Corps F-35s for use ashore. As has been seen in tactical actions in Afghanistan, very small units operating in extremely remote and rugged terrain can have an impact disproportionate to their unit size through their ability to operate with very low "signature" and enable strikes carried out by unmanned aircraft. N-UCAS might have a similar effect on Marine Corps distributed operations concepts. This advantage could also be leveraged in counter-insurgency and counter-terrorism operations and in highly dispersed operations against a small, nuclear-armed opponent.

The Marine Corps should invest in N-UCAS, the Navy-Unmanned Combat Air System, as a mechanism to enhance its evolving operational and organizational concepts. Whether the Corps continues with "enhanced company operations" or reengages in experimenting with distributed operations, a long-loiter surveillance/strike system would be of inestimable value, with utility across the range of operations the Corps expects to undertake.

The Marine Corps should invest in the Navy-Unmanned Combat Air System, as a mechanism to enhance its evolving operational and organizational concepts.

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[137] Ehrhard and Work, *Range, Stealth, and Networking: The Case for a Carrier-Based Unmanned Combat Air System*, p. 3–4.

[138] Ibid., p. 3.

MV-22 Osprey Tiltrotor Aircraft

The Marine Corps has regularly argued that the Landing Craft Air Cushioned, Expeditionary Fighting Vehicle, and MV-22 Osprey are integral components of their ability to conduct "expeditionary maneuver warfare."

Before leaving the topic of programmatic adjustments, the MV-22 Osprey must be addressed.[139] The Osprey is a tiltrotor aircraft, meaning its propellers are attached to a wing that can be rotated between horizontal and vertical positions, thus giving the aircraft the ability to take off and land like a helicopter but fly like an airplane once in the air. This arrangement gives it the ability to overcome the speed, range, and altitude limitations that normally characterize conventional helicopters, thus giving a military force like the Marine Corps the ability to base helicopter-like capabilities aboard ships at sea, yet retain the ability to project military forces at greater distances and with greater speeds than would be possible with a helicopter-based air element. The Osprey has been in development for over twenty-five years at a cost of more than $20 billion;[140] during that time, it has been the subject of great controversy, engineering challenges and related development delays, a few highly publicized crashes, and many funding debates.[141] It has ardent supporters and equally passionate critics, both sides claiming that it is either better or worse than conventional helicopter alternatives. Those favoring the program cite its speed, range, and altitude advantages over helicopters, characteristics that make it possible for Marine Corps forces to execute operations from increased distances. Those against cite its troubled developmental history and its high cost (relative to helicopters) and argue that less expensive helicopters can just as effectively support ship-to-shore movements, amphibious landing operations, and various amphibious assault missions without having to coordinate with aircraft of lesser capability.[142]

The Marine Corps has regularly argued that the Landing Craft Air Cushioned (LCAC), Expeditionary Fighting Vehicle (EFV), and MV-22 Osprey are integral components of their ability to conduct "expeditionary maneuver warfare" and that all three items are needed to exploit the maneuver space provided by the ocean, overcome the challenges of operating from over-the-horizon, and push forces deep

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[139] See Christopher Bolkom, *V-22 Osprey Tilt-Rotor Aircraft*, Congressional Research Service (March 13, 2007) for a concise report on the V-22 Osprey program, with summaries of its development, costs, problems, program restructuring, and attendant arguments in favor and against. Available online at the Federation of American Scientists website: http://www.fas.org/sgp/crs/weapons/RL31384.pdf.

[140] Ibid., p. 2.

[141] "V-22 Osprey: A Flying Shame?," Defense Industry Daily (March 31, 2008), available online at: http://www.defenseindustrydaily.com/V-22-Osprey-A-Flying-Shame-04822/. This article provides an overview of the main criticisms of the program, citing a range of other reports that go into greater detail. In contrast, Col Glenn Walters, USMC, former commander of the Marine Tiltrotor Operational Test and Evaluation Squadron 22 (VMX-22), authored a commentary piece, carried by Defense-Aerospace.Com, that rebutted many of the criticisms addressed in the Defense Industry Daily article; Col Walter's article available at: http://www.defense-aerospace.com/cgi-bin/client/modele.pl?prod=88361&session=dae.35514981.1207498414.ohOFv38AAAEAAD0j200AAAAI&modele=feature.

[142] Ibid., pp. 11–12.

inland.[143] But such as argument begs the question of how, exactly, these three platforms would be integrated within an operational concept given the fact that the MV-22's greatest advantage lies in its range and speed (measured in hundreds of miles) while the LCAC and EFV are specifically intended to close a ship-to-shore distance of 25+ miles as rapidly as possible. It would seem that helicopters could just as easily support most of the tasks typically associated with amphibious assault operations or the insertion of an amphibious force at any point along an extended coastline.

Where the MV-22 seems to have the greatest value is in supporting longer-range raid missions and distributed operations (whether at sea or on land). For example, were the Marine Corps to deploy a Marine Air-Ground Task Force to Africa for operations that covered a very wide expanse of territory, an MV-22 squadron would be invaluable in supporting the movement, support, and reinforcement of dispersed small units. In like manner, dispersed operations undertaken in the littorals of Southeast Asia, as part of a peripheral naval campaign against China or counter-terrorism operations against violent Islamist radicals, would also benefit from the range and speed of the Osprey. But in any of these cases, the longer-range capability of the Osprey (and the mission profiles themselves) would preclude use of escort support from the Marine Corps' helicopter gunship, the AH-1W (soon to be AH-1Z) Cobra. Accordingly, an MV-22 raiding force, or distributed operations force, would need to be supported by conventional fixed-wing strike aircraft.

It would seem, therefore, that the MV-22 might be better viewed not as an integral component of a well-coordinated expeditionary maneuver warfare concept incorporating the EFV, LCAC, and MV-22, but separately, as a specific platform that has highly desirable characteristics for a specific range of missions. If so, then the MV-22 should be judged on its own merits with respect to how well it supports the range of operations the Marine Corps is most likely to undertake, the operational and threat environments within which those operations will occur, and whether the expanded capabilities of the platform are worth the expense relative to readily available helicopter options.

Earlier in this chapter, the Corps was urged to re-engage in its exploration of distributed operations and to determine the implications such operations would have on training, equipping, employing, and supporting it forces. One outcome of additional experimentation in distributed operations would likely be a revised assessment of the Marine Corps' requirement for the MV-22 Osprey. The Marines may very well determine that MV-22s are best utilized in a paired relationship with their KC-130 Hercules fleet and that Marine Corps units embarked aboard amphibious ships are best supported with helicopters. The Osprey's range and speed would be well-matched by the capabilities of the KC-130 cargo aircraft and the mix of helicopters maintained

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[143] *United States Marine Corps Concepts and Programs 2007*, Programs and Resources Department, Headquarters Marine Corps (Washington, DC: 2007), p. 59, is but one reference in a long line of concepts, programmatic, and doctrinal publications that make this argument.

aboard ship would better match the range of missions most likely to be undertaken by an amphibious force. In those instances where MV-22s were needed, or where operational demands could be forecast with confidence, MV-22s could always be sent forward to be embarked aboard ship or to support operations just as KC-130s are called forward as needed today.

Consequently, the Corps may find the best option is to truncate its MV-22 Osprey purchase to a core capability able to provide mission support as dictated by operational conditions, while using the remaining planned funding to purchase a greater number of helicopters still needed to replace the Service's rapidly aging fleet of CH-46E Sea Knight medium-lift helicopters. Though additional experimentation and evaluation would obviously be needed, modified versions of the Sikorsky MH-60 SeaHawk or perhaps a variant of the AugustaWestland EH101[144] medium lift helicopter might be practical alternatives.[145]

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Moving beyond programmatic issues the Service should re-evaluate, the Corps should also invest considerable time and energy in developing new *operational concepts* that are more reflective of the threat and operational environments it will contend with in the coming years and a revised *strategic concept* for the Service that will help it better focus its efforts to train, equip, and field forces best suited to address national security demands. Granted, the previous pages have made specific recommendations on programs the Marine Corps has committed to in spite of the fact that the next section calls for increased experimentation to determine how best to answer the challenges of the evolving security environment. But the Marine Corps' effort to replace worn-out equipment and modernize its forces cannot be delayed indefinitely awaiting resolution of the recommended experimentation, especially if such an effort takes many more years to tease out an answer to the stated challenges. The recommendations advanced here take into account what the Marines have already learned from recent operations and the diagnosis of emerging challenges. Further, these recommendations create options for the Corps as it prepares for an uncertain world.

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[144] The MH-60 SeaHawk is currently replacing the Navy's older SH-60 SeaHawks, while a variant of the AugustaWestland EH101, designated the VH-71, was selected to replace the Marine Corps' fleet of presidential support helicopters. In both cases, the helicopters are in production, they are used by other Services of the US military (in the case of the EH101, the Marine Corps will already be using the VH-71 version), and they would be improvements over existing Marine Corps capabilities at prices very likely to be less than the MV-22.

[145] Robert O. Work has also addressed this issue of whether MV-22s are the best option for the Marine Corps, given a range of operational and cost factors. See *The Challenge of Maritime Transformation: Is Bigger Better?* Center for Strategic and Budgetary Assessments (Washington, DC: 2002), pp. 92–95. While some of the aircraft issues have changed, most notably the increasing reliability of the MV-22 as a result of extensive reengineering efforts and operational experience being acquired in Iraq (with the deployment of an MV-22 squadron), so, too, has the operational environment, revised operational concepts within the Marine Corps, and the threat environment.

STRATEGIC CONCEPT FOR THE FUTURE

In May of 1946, General Alexander A. Vandegrift, USMC, then-Commandant of the Marine Corps, made a speech before the Senate Committee on Naval Affairs, during which he voiced his concern about the future of the Corps, perceiving that it was at risk of being disestablished. In an effort to clarify the value, contributions, and necessity of the Marine Corps, he explained that

> The heart of the Marine Corps is in its Fleet Marine Force…and the Marine Air Arm whose primary task is the provision of close air support for the Marines who storm the beaches. The strength of that Fleet Marine organization lies in its status as an organic element of our fighting fleet—prepared at any time and on short notice to extend the will of the naval commander ashore in the seizure of objectives which are vital to the prosecution of a naval campaign or in protection of American interests abroad.[146]

He went on to speak of the Corps' efforts to solve the problem of amphibious operations against an opposed beach, noting that the Corps had dedicated itself to developing the techniques necessary to executing the "most difficult problem of warfare—the major landing operation."[147] In other words, it had assessed that such operations would be required in a Pacific campaign and that in spite of the problems encountered at Gallipoli,[148] they had determined to figure out how to execute such a difficult operation successfully.

As stated by Vandegrift, the Corps' expertise in landing operations "did not come about by chance. It was the logical issue of 20 years of conscientious devotion by the Navy and Marine Corps to the complexities of the amphibious subject—to the development of the detailed techniques, doctrines, and equipment…"[149] He attributed success in this field to the fact that "the Marines have always viewed the landing operation as a specialty…and their efforts have been oriented in that single direction on a full-time, year-in-and-year-out basis."[150] In effect, he was making the case that some types of operations are so complex, but so vital to success, that a Service must focus on them for an extensive period of time in order to develop the proper solutions and expertise to be successful in executing them.

Some types of operations are so complex, but so vital to success, that a Service must focus on them for an extensive period of time in order to develop the proper solutions and expertise to be successful in executing them.

In similar manner, the challenges facing the US over the next few decades will be substantial. Modern corollaries to Vandegrift's history lesson might be found in

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[146] Alexander A. Vandegrift, General, USMC, *Bended Knee Speech*, presentation to the Senate Committee on Naval Affairs, May 6, 1946. Available at: http://www.tecom.usmc.mil/HD/Docs_Speeches/BendedKnee.htm

[147] Ibid.

[148] The Battle of Gallipoli, April 1915-January 1916, took place at the southern tip of the Turkey's Gallipoli peninsula, the southwestern bit of land extending into the Mediterranean and serving as the northern boundary for the Dardanelles Straight. It was a disaster for the British-led Allied force that landed there and served afterward as testimony to the folly of trying to execute an opposed amphibious landing.

[149] Vandegrift.

[150] Ibid.

solving the perplexing problem of conducting regime removal operations against a small, nuclear-armed power; penetrating anti-access defenses that leverage substantial anti-ship and anti-air systems at significant ranges (100+ miles and more); or launching raids against terrorists operating from the sanctuary of a sympathetic state—all of which might be conducted from the vast maneuver area of the sea.

The perplexing military problems implied by the three primary strategic challenges, as seen earlier, should be the Corps' focus on in the coming years. They call for:

- An ability to engage dispersed irregular enemy forces.
- An ability to build up the capabilities of friendly indigenous forces.
- An ability to conduct major combat operations against an enemy possessing a small number of nuclear weapons.
- An ability to prevail in hybrid warfare, conducting successful military operations in an environment characterized by state or non-state opponents using regular and irregular tactics, enabled with advanced militarily-relevant technologies, and waging war in complex settings where the impact on local populations must be accounted for to a much greater extent than would normally be the case in conventional warfare.
- An ability to conduct operations against a very large, well-equipped, and mature state such as China.

Legislated directives are not sufficient to sustain any organization. An organization must justify its existence based solely on its continued relevance, value, and effectiveness.

Each of these operational challenges, and the fielding of units organized, trained, and equipped to prevail in such complex environments, can be viewed as the next "Gallipoli problem," a seemingly insurmountable military challenge that must be overcome in light of evolving military threats and US national security interests. Of all the components of the Joint Force, the Marine Corps would seem to be the Service best suited to the task. But it will have to carefully invest its resources in the platforms, formations, and operational concepts with the greatest potential to contribute to success.

To return to General Vandegrift, the Commandant closed his remarks by observing, "Congress has perpetuated the Marine Corps as a purely American investment in continued security...on the basis of its demonstrated value and usefulness alone."[151] It was as a result of the Corps' dedicated efforts to solving the most challenging (and relevant) operational and tactical problems that Congress recognized the value of maintaining such an institution and wrote into law its primary missions. Legislated directives, however, are not sufficient to sustain any organization. An organization must justify its existence based solely on its continued relevance, value, and effectiveness.

Samuel P. Huntington would have agreed with the underlying basis of Vandegrift's argument. In an article published some time ago in *Proceedings*, he stated that the

[151] Ibid.

"fundamental element of a military service is its purpose or role in implementing national policy. The statement of this role may be called the *strategic concept* of the service (emphasis in the original). [This] concept is a description of how, when, and where the military service expects to protect the nation against some threat to its security."[152]

So far, the Corps has addressed Huntington's "when" and "where" but it has not answered the "how." Sixty years ago General Vandegrift provided Congress a clear example of the lengths to which the Corps had dedicated itself to determining the "how" of opposed landing operations . . . the most vexing challenge of the early twentieth century. In the "interwar period" (the years between World War I and World War II) the Service developed an effective "strategic concept" relevant to the primary challenge it faced at that time, fully explained and made practical in its amphibious doctrine, and then successfully applied against an expected enemy in a specific context. The Marine Corps of 2008 needs to repeat this accomplishment and clearly define *how* the Service will overcome the strategic challenges of the twenty-first century.

The modern capabilities possessed by the range of opponents the Marine Corps will face—violent Islamist radicals, hostile regional hegemonic states, and small nuclear-armed states—will make offensive operations supremely difficult, but not insurmountable *if* the Service commits to solving the problem-set described earlier, making necessary adjustments to the equipment it is procuring and the forces it will field, and pursuing full development of the concepts of operation those forces will employ.

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A new strategic concept for the Corps should account for advances in guided and precision weapons (with specific emphasis on anti-armor, anti-ship, and anti-air weapons), anti-access networks that incorporate anti-ship ballistic and cruise missiles, the consequent requirement to operate from extended ranges, the likely necessity for distributed operations driven by the increased presence of nuclear weapons, and the advantages that come from leveraging the ocean as an operational base.

An analytically rigorous and logically consistent strategic concept would bind together all activities being considered and undertaken by the Corps. Its intent to return to a focus on *naval operations* is well placed but its primary acquisition efforts are not well matched to its expected environment or to the threats associated with the strategic challenges. Though the Corps has performed superbly in current operations, *it risks being overtaken by new challenges on the near-horizon*, just as some of its key acquisition programs (the Expeditionary Fighting Vehicle, for example) have been overtaken by technological advances in anti-armor, anti-air, and anti-ship weapon systems.

The strategic, operational, and threat environments in the opening decade of the twenty-first century have evolved much more rapidly than anticipated and with every indication of accelerating their pace of change over the next several years. So, too, must the Marine Corps.

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[152] Samuel P. Huntington, "National Policy and the Transoceanic Navy," *United States Naval Institute Proceedings*, Vol. No. 80, No. 5, May 1954, p. 483.

CONCLUSION

FINAL THOUGHTS

The three primary strategic challenges posed by the *Strategy for the Long Haul* have areas of overlap of specific relevance to the Marine Corps. Given the nature and characteristics of all three—defeating both Sunni Salafi-Takfiri and Shia Khomeinist brands of violent Islamist radicalism, hedging against the rise of a hostile or more openly confrontational China, and preparing for a world in which there are more nuclear-armed regional powers—the Corps can expect to conduct distributed operations, often employing *small units from independent Navy platforms*, and must be prepared to sustain such forces over time. It must be able to insert forces from substantial distances, particularly given the threat of modern and increasingly capable anti-ship cruise missiles, anti-ship ballistic missiles, and well-armed small craft capable of employing an array of anti-ship and anti-air weaponry. The Corps must be able to bring sufficient combat power to bear such that the unit employed is able to not only succeed in its attack, but also to protect itself from the very capable enemy forces it will engage. Marine Corps units must also understand local and regional conditions thoroughly enough to enable the just-mentioned modes of operation and effectively leverage local relationships to gain a competitive edge in the operational and tactical employment of forces, relative to the enemy, as well as effectively undertake the protracted missions associated with stability operations and "building partner capacity" missions that will be essential to achieving and maintaining secure and stable partners in key regions around the world.

To be successful in these types of operations the Corps will have to improve its ability to operate with smaller and more independent units, often in a highly distributed manner, against enemy forces able to employ precision-guided weapons at increasing ranges. This means the forces the Corps fields—their organization, organic capabilities, knowledge of the operating environment, and equipment they will employ—will have to account for the environment within which they will operate and the

characteristics of the enemy and his weapon systems. Specifically, the ground equipment the Corps will rely on must be optimized for intense anti-armor warfare and the disposition, movement, and employment of its units will need to be informed by the enemy's own disposition, his use of precision weapons in large numbers, and the complexity of terrain in which the enemy will seek refuge.

Over the past few years, the Corps has undertaken extensive efforts to adjust its education, training, and equipping initiatives to meet the *current* challenges of ongoing operations and it has expressed concern that its skills in amphibious warfare, i.e. projecting combat power from the sea, are atrophying. What it has not done is made a compelling case for how its current operational doctrine, planned acquisition of major equipment, and current organizational construct will be employed against the range of challenges and implied tasks addressed in this paper. In particular, its arguments have not accounted for the proliferation of nuclear technologies, the spread of advanced weapons and related capabilities to a widening circle of non-state entities, and the evolution of enemy tactics, operational approaches, and strategies over the past decade.

Accordingly, the Marine Corps should seriously consider making significant adjustments to bring its equipment and conceptual efforts into better alignment with the missions and threats that are implied by the most likely strategic challenges. Failure to do so will run the risk of organizing and equipping Marines in ways that may prove disadvantageous. The recommended modifications to the modernization of Marine amphibious ground combat vehicles and fighter aircraft, and to Marine Corps strategic, operational and organizational concept development, will position the Marines to maximize their utility and value as soldiers of the sea, able to successfully support US national security objectives in an increasingly complex and dangerous world.

GLOSSARY

AAV	Amphibious Assault Vehicle
AH-1W	Designator for the Cobra, the Marine Corps' attack helicopter
APS	active protection system
ARG	Amphibious Ready Group
ATG	Advisor Training Group
ATGM	anti-tank guided missile
AV-8B	Designator for the Harrier "jump jet," the current Marine Corps fighter jet capable of vertical and short-take-offs and vertical landings
C2	command and control
C4I	command, control, communications, computers, intelligence
CAOCL	Center for Advanced Operational Cultural Learning
CH-46E	designator for the Sea Knight, a medium-lift helicopter
CH-53E	designator for the Sea Stallion, a heavy-lift helicopter
CIW	Center for Irregular Warfare
COCOM	Combatant Command (aka Regional Combatant Command)
COIN	counterinsurgency
CSG	carrier strike group
CT	counter-terrorism
CTOL	conventional take-off and landing
CVN	aircraft carrier, nuclear propulsion
CVW	Carrier Air Wing
DOTMLPF	doctrine, organization, training, material, leadership and education, personnel, facilities
EA-6B	designator for the Prowler, an electronic warfare aircraft
EFP	explosively formed penetrator
EFV	Expeditionary Fighting Vehicle (successor to the AAV)
EMFTS	Expeditionary Maneuver From The Sea
EMP	electro-magnetic pulse
ESG	Expeditionary Strike Group
F-35	designator for the Joint Strike Fighter

F/A-18	designator for the Hornet, a fighter-attack aircraft
FFG	guided missile frigate
HA/DR	humanitarian assistance/disaster relief
HMMWV	High Mobility Multipurpose Wheeled Vehicle
IED	improvised explosive device
ISR	intelligence, surveillance, reconnaissance
JLTV	Joint Light Tactical Vehicle (follow-on to the HMMWV)
JSF	Joint Strike Fighter (the program title prior to formalizing it as the F-35 Lightning II)
KC-130	designator for the Hercules, a propeller-driven plane used for cargo and aerial refueling
LAV	Light Armored Vehicle
LCAC	Landing Craft, Air Cushioned
LCS	Littoral Combat Ship
LCU	Landing Craft, Utility
LHA	Amphibious Assault Ship (Attack/Assault) (emphasis on air)
LHD	Amphibious Assault Ship (Dock) (emphasis on landing craft)
LPD	Amphibious Transport, Dock (aka Landing Platform, Dock)
LSD	Landing Ship, Dock
MAGTF	Marine Air Ground Task Force
MARSOC	Marine Special Operations Command
MAW	Marine Air Wing
MCTAG	Marine Corps Training and Advisory Group
MCTOG	Marine Corps Tactics and Operations Group
MCWL	Marine Corps Warfighting Laboratory
MEB	Marine Expeditionary Brigade
MEF	Marine Expeditionary Force
MEU	Marine Expeditionary Unit
MOC	Maritime Operational Concept
MPC	Marine Personnel Carrier
MPSRON	Maritime Prepositioning Ship Squadron
MRAP	Mine Resistant Ambush Protected
MSOAG	Marine Special Operations Advisor Group

MSOB	Marine Special Operations Battalion
MSOSG	Marine Special Operations Support Group
MV-22	Designator for the Osprey, a rotating wing propeller-driven airplane capable of vertical take-off and landing and transitioning to fixed-wing flight
NOC	Naval Operations Concept
N-UCAS	Navy-Unmanned Combat Air System
OTH	over the horizon
PAA	Primary Authorized Aircraft; this is the number of aircraft authorized per Squadron
PLA	People's Liberation Army
SCMAGTF	Security Cooperation Marine Air Ground Task Force
SCETC	Security Cooperation Education and Training Center
SLOC	sea lines of communication
STOVL	Short Take-Off, Vertical Landing
UAV	Unmanned Aerial Vehicle
UCAS	Unmanned Combat Air System
UH-1N	designator for the Huey, a light utility helicopter
VBSS	Visit, Board, Search, and Seizure
VFA	Fixed Wing Fighter-Attack Squadron (Navy)
VMFA	Fixed Wing Marine Fighter-Attack Squadron

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Graphic of silhouetted Marines on page 46 courtesy of AP/WIDE WORLD PHOTOS.

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