REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	2. REPORT TYPE	3. DATES COVERED *(From - To)*
27-Oct-2010	FINAL	

4. TITLE AND SUBTITLE

Projecting Power Ashore: An Expanding Problem for the Joint Force Commander

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

James Christopher Lewis, Lieutenant Colonel, USMC

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

7. PERFORMING ORGANIZATION NAME(S) AND ADDRESS(ES)

Joint Military Operations Department
Naval War College
686 Cushing Road
Newport, RI 02841-1207

8. PERFORMING ORGANIZATION REPORT NUMBER

9. SPONSORING/MONITORING AGENCY NAME(S) AND ADDRESS(ES)

10. SPONSOR/MONITOR'S ACRONYM(S)

11. SPONSOR/MONITOR'S REPORT NUMBER(S)

12. DISTRIBUTION / AVAILABILITY STATEMENT

Distribution Statement A: Approved for public release; Distribution is unlimited.

13. SUPPLEMENTARY NOTES A paper submitted to the Naval War College faculty in partial satisfaction of the requirements of the Joint Military Operations Department. The contents of this paper reflect my own personal views and are not necessarily endorsed by the NWC or the Department of the Navy.

14. ABSTRACT

As military planners consider regional security challenges in the 21st century, the need to project power ashore remains a critical requirement, but the means of doing so must adapt to a rapidly changing operational environment. Concepts that assume the landing force can launch from just over the horizon are being challenged as weapon and targeting systems become more capable, and access to space and cyber domains proliferates. Among the growing list of new challenges to that Joint Forces face, anti-access missile technologies pose a significant asymmetric threat. As these technologies mature, they will continue to transform the operational factors of *time*, *space* and *force*, placing the landing force increasingly at a disadvantage. Consequently, the paradigm of a contested beach landing site must be revisited as nations pursue anti-access capabilities that challenge naval and air forces at ever greater ranges. In several potential theaters of operation, hostile action against power projection forces is likely to begin far from the landing site. Naval and air forces must be prepared to operate in increasingly hostile sea lanes far from the objective area, while the landing force must be able to launch, land and sustain itself without the benefit of complete air and sea control.

15. SUBJECT TERMS

Power Projection, Ashore, Forcible Entry, Operational Space, Amphibious, Anti-Access, Missile

16. SECURITY CLASSIFICATION OF:			17. LIMITATION OF ABSTRACT	18. NUMBER OF PAGES	19a. NAME OF RESPONSIBLE PERSON
a. REPORT	b. ABSTRACT	c. THIS PAGE			Chairman, JMO Dept
UNCLASSIFIED	UNCLASSIFIED	UNCLASSIFIED		22	19b. TELEPHONE NUMBER *(include area code)* 401-841-3556

Standard Form 298 (Rev. 8-98)

NAVAL WAR COLLEGE
Newport, R.I.

Power Projection Ashore:
An Expanding Problem for the Joint Force Commander

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: _____

27 October 2010

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Abstract

As military planners consider regional security challenges in the 21st century, the need to project power ashore remains a critical requirement, but the means of doing so must adapt to a rapidly changing operational environment. Concepts that assume the landing force can launch from just over the horizon are being challenged as weapon and targeting systems become more capable, and access to space and cyber domains proliferates. Among the growing list of new challenges that Joint Forces face, anti-access missile technologies pose a significant asymmetric threat. As these technologies mature, they will continue to transform the operational factors of *time*, *space* and *force*, placing the landing force increasingly at a disadvantage. Consequently, the paradigm of a contested beach landing site must be revisited as nations pursue anti-access capabilities that challenge naval and air forces at ever greater ranges. In several potential theaters of operation, hostile action against power projection forces is likely to begin far from the landing site. Naval and air forces must be prepared to operate in increasingly hostile sea lanes far from the objective area, while the landing force must be able to launch, land and sustain itself without the benefit of complete air and sea control.

"The primary purpose of forward-deployed naval forces is to project American power from the sea to influence events ashore in the littoral regions of the world across the operational spectrum of peace, crisis, and war."

—Admiral Jay L. Johnson, 1997

As military planners consider regional security challenges in the 21st century, the need to project power ashore remains a critical requirement, but the means of doing so must adapt to a rapidly changing operational environment. Concepts that assume the landing force can launch from just over the horizon are being challenged as weapon and targeting systems become more capable, and access to space and cyber domains proliferates. Among the growing list of new challenges Joint Forces face, anti-access missile technologies pose a significant asymmetric threat.[1] As these technologies mature, they will continue to transform the operational factors of *time*, *space* and *force* placing the landing force increasingly at a disadvantage. While service-level operating concepts provide a practical frame of reference to understand this new environment, the development of a theoretical framework that seeks to balance joint warfighting functions against relative changes in the operational factors of *time*, *space*, and *force* has not materialized.

Using a three-step methodology, this paper assesses the impact of advancements in anti-access missile technology on the Joint Force's ability to project power ashore. First, a reexamination of the power projection requirement is provided using the most recently available strategic and operational documentation. Second, the impact of technological advances on the operational factor of *space* is considered. Finally, relative changes in the operational factor of *space* are balanced against changes in the joint warfighting functions of *movement and maneuver*, *fires*, and *sustainment*. While Joint doctrine includes additional

[1] Joint Publication 3-0, *Joint Operations, Change 2*, Mar 22, 2010, p. IV-17. According to doctrine, asymmetric actions "pit Joint Force strengths against enemy vulnerabilities." Dr. Milan Vego uses the example of naval forces against air or land forces, with the objective of producing "disproportionate outcomes" that have "the potential for a quick and decisive victory with minimal losses."

functions, which may also be examined; these three, in particular, yield important conclusions that should prove useful to military planners examining power projection operations in an expanding and increasingly contested operational space.

Power Projection Ashore

A variety of national-strategic, joint and service authoritative documents explain the requirement to project power and conduct forcible entry operations. A common theme throughout is the importance of projecting power as a means of reassuring friends and allies. The *2008 National Defense Strategy* explains the importance of alliances as the "cornerstone of peace and security… [and] the key to our success, contributing significantly to achieving all U.S. objectives."[2] The *2010 Quadrennial Defense Review* discusses the critical link between power projection and maintaining the Nation"s alliance system, stating: "Without dominant U.S. capabilities to project power, the integrity of U.S. alliances and security partnerships could be called into question, reducing U.S. security and influence, and increasing the possibility of conflict."[3] Admiral Robert F. Willard, the Commander of U.S. Pacific Command, recently reinforced this belief, stating that the ability "to project credible combat power serves as an effective deterrent to those who would disrupt the Asia-Pacific security environment or threaten our friends and allies."[4]

The Universal Joint Task List discusses forcible entry as an extension of power projection numerous times and provides one theater-strategic task and one operational task specifically dealing with the subject.[5] Within this joint construct, projecting power in the sea

[2] National Defense Strategy, June 2008, p. 15.
[3] Quadrennial Defense Review Report, February 2010, p. 31.
[4] Willard, Robert F., "Statement before the House Armed Services Committee on U.S. Pacific Command Posture," March 23, 2010, p. 4.
[5] The *Universal Joint Task List*, CJCSM 3500.04D, 1 August 2006, assigns ST 1.3.3. *Synchronize Forcible Entry in Theater*, and OP 1.2.4.3 *Conduct Airborne, Amphibious and Air Assault*. (Hereafter, UJTL)

and air domains, and ashore if necessary, will remain a critical requirement for future Joint Forces. According to the latest *Capstone Concept for Joint Operations* "Diminishing overseas access is another challenge anticipated in the future operating environment. Foreign sensitivities to U.S. military presence have steadily been increasing. Even close allies may be hesitant to grant access for a variety of reasons." The document goes on to say that "in war, this challenge may require forcible-entry capabilities designed to seize and maintain lodgments in the face of armed resistance."[6] The 2010 *Joint Operating Environment* (JOE) published by U.S. Joint Forces Command echoes this requirement explaining that "access" and "logistics" are "two important constraints" Joint Force commanders will have to consider. Should allies conclude that the use of their bases may draw them into a potential conflict, the Joint Force may find itself without access to bases close to the area of conflict. "Hence" the JOE concludes, "the ability to seize bases in the enemy territory by force from the sea and air could prove the critical opening move of a campaign."[7]

Against this backdrop, Secretary of Defense Robert Gates has publically questioned the future requirements for amphibious forces. At a speech to the Navy League in May of 2010, he stated, "we have to take a hard look at where it would be necessary or sensible to launch another major amphibious landing again — especially as advances in anti-ship systems keep pushing the potential launch point further from shore."[8] Mr. Gates went on to ask, "in the 21st century, what kind of amphibious capability do we really need to deal with the most likely scenarios, and then how much?"[9]

[6] Capstone Concept for Joint Operations version 3.0, January 15, 2009, p. 6.
[7] United States Joint Forces Command, *Joint Operational Environment 2010*, Feb 18, 2010, p. 63.
[8] Wolf, Jim, "Gates Worried of Marines" Amphibious Vehicle Spending," *Reuters*, May 3, 2010.
[9] Robbins, Gary, "Marines to Test Amphibious Assault Vehicle," *San Diego Union-Tribune*, May 5, 2010.

The proliferation of anti-access technologies by potential adversaries drives much of the apprehension regarding the Joint Force‟s need to project power ashore. Historical examples, which are often characterized by heavy casualties and attrition, do little to ameliorate these concerns. As such, it is easier for critics to focus on the high costs in men and materiel at places like Tarawa or Iwo Jima than to consider the lives saved by an amphibious assault at Inchon, which forced a determined enemy into wholesale retreat. Today and into the future, however, these examples paint an inadequate picture for Joint Force amphibious operations. In size alone, past operations dwarf the capabilities available to landing forces today; yet the qualitative advantage of smaller force packages may still prove a decisive capability.

The Emerging Operational Environment and the Factor of Space

The 2010 JOE explores a variety of trends that will challenge regional and global stability in the 21st Century. The trends include demographic changes, access to resources, potential pandemics and globalization among others. Important to this paper is the proliferation of advanced missile technologies, which poses an asymmetric threat to Joint Forces, and expands the contested operational space in which they maneuver and operate.

According to the JOE, advanced weaponry is available at ever cheaper prices and proliferating widely. "This will allow relatively moderately funded states and militias to acquire long-range precision munitions, projecting power farther out and with greater accuracy than ever before."[10] China is widely reported to have the "most active land-based and cruise missile program in the world."[11] Its recently unveiled Anti-Ship Ballistic Missile (ASBM) has a reported range of 900 nautical miles and is capable of mid-course ballistic

[10] JOE, p. 55.
[11] Office of the Secretary of Defense, "Annual Report to Congress: Military and Security Developments Involving the People‟s Republic of China-2010, p. 1. (Hereafter, CMPR)

corrections to guide the weapon onto a target at speeds of up to Mach 12.[12] Perhaps most alarming is the speed with which China acquired this new technology. According to Scott Bray, who drafted an August 2009 Office of Naval Intelligence Report on Chinese naval capabilities, China moved from concept to finished product "in a little over a decade."[13]

China also possesses a variety of air, surface and submarine launched anti-ship cruise missiles.[14] These technologies are in high demand by several nations and groups like Hezbollah, who may see them as an asymmetric means of countering U.S. conventional superiority. Over 20 countries currently possess ballistic missile technology, and as many as 20 may possess land attack cruise missiles (LACMs) in the next decade.[15] In this regard, China's role as a major arms exporter must also be considered, since it exported approximately $8 billion in conventional weapons between 2005 and 2008.[16]

An additional threat to forward deployed Joint Forces comes from unmanned aerial vehicles, and here again, the trend is toward more nations possessing this type of technology. Iran, for example, recently announced its new unmanned platform, with a reported range of 180 miles and, according to Iranian authorities, possessing the ability to attack ships, bases or other targets.[17] At the same time, ground and space-based systems, which provide improved surveillance, reconnaissance and target location, are available to a growing number of nations. Over-the-Horizon Radar (OTHR) technologies are also increasingly available, which provide longer-range early warning and, in the case of China, a cueing capability for

[12] O'Rourke, Ronald, "China Naval Modernization: Implications for U.S. Navy Capabilities-Background and Issues for Congress," *Congressional Research Service*, December 23, 2009, p. 5.
[13] Capaccio, Tony, "China's New Missile May Create A „No-Go Zone" For U.S. Fleet," *Bloomberg.com*, November 17, 2009. This excerpt is found in the CRS report drafted by Ronald O'Rourke.
[14] Ibid.
[15] National Air and Space Intelligence Center, Wright Patterson Air Force Base, "Ballistic and Cruise Missile Threat," April 2009, p. 4.
[16] CMPR, p. 9.
[17] Daragahi, Borzou, "Iran Unveils Unmanned Aerial Bomber," *Los Angeles Times*, August 23, 2010.

its new anti-ship ballistic missile.[18] As early as 2000, Ukraine was offering to sell a sky-wave OTHR capable of operating on ship or land and reportedly able to track 1,200 air targets and 300 surface targets beyond a range of 300 kilometers within certain parameters.[19]

Anti-Access capabilities also pose a threat to forward bases from which the Joint Force plans to operate, even as the use of those bases is contingent on the approval of allies who may fear being drawn directly into a potential conflict. Already, China"s arsenal of air and surface- launched missiles place all U.S. bases in the Pacific, west of Guam, at significant risk in the event of conflict.[20] According to Toshi Yoshihara, "Chinese strategists see these bases as collectively representing both a threat to Chinese interests and a critical vulnerability for the United States."[21] In the event of hostilities with China, denial of a significant portion of this operational space may be viewed as a likely objective.

In another region of strategic interest, Iran possesses the ability to threaten sea lines of communication in the Straits of Hormuz and as far west as the Bab el Mandeb, which links the Red Sea to the Gulf of Aden, with its ballistic missile program.[22] While Iranian threat weapons have not impeded Joint Force operations in the Gulf, the start of hostilities would place naval and air forces within contested operational space requiring counter-actions intended to defeat the threat those weapons pose.

Perhaps the greatest challenge for Joint Forces is the requirement to project power ashore against a potentially hostile force when sea and air control remain uncertain.

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[18] Hsiao, L.C. Russell, "In a Fortnight: PLA Posturing for Conflict in the South China Sea?" *The Jamestown Foundation*, (online journal).Vol X, Issue 16, August 5, 2010, p. 1.
[19] Janes Defense Online, "Ukraine Focuses on Ballistic Missile Defense and Over-the-Horizon Radar Market," July 1, 2000.
[20] Tol, Jan Van, Krepinevich, Andrew F., et al., "AirSea Battle Presentation," *Center for Strategic and Budgetary Assessments*, May 18, 2010, p. 10. Derived from graphic which show the anti-access threat density by range.
[21] Yoshihara, Toshi, "Chinese Military Strategy and the U.S. Naval Presence in Japan: The Operational View from Beijing," *Naval War College Review Summer 2010, Vol. 63, No. 3*, Newport, RI, p. 46.
[22] Krepinevich, Andrew F., "Why AirSea Battle," *Center for Strategic and Budgetary Assessments*, 2010, p. 35.

Amphibious doctrine has long been based on the ability to achieve local naval and air superiority in the joint operational area. With sea lines of communication secure, the amphibious force moved to just a few thousand meters off shore to conduct the landing. In the late 1980s, Marine Corps planners recognized the changing operational environment would threaten these long-used tactics, and began to study ways to conduct landings from further out at sea.[23] By the late 1990s, new amphibious concepts were articulated in *Operational Maneuver from the Sea* and *Ship to Objective Maneuver*, which included launching from a sea base located over the horizon and moving directly to inland objectives. Had the capability been fielded when the requirement was recognized, Joint Forces would have enjoyed a significant advantage for several years to come. Yet, after two decades without achieving this capability, the original requirement must be reviewed in light of emerging threat systems and operational requirements.

This is not to say that the requirement to project forces ashore is now somehow invalid. As previously explained, the requirement stems from a variety of authoritative documents and serves as a natural extension of an operational commander's ability to project power in the air and sea domains. Yet, one may look at the damage sustained to the British fleet during Operations in the Falkland Islands or the attack on an Israeli ship 75 miles out at sea by a Hezbollah C-802 missile in 2006 as reference points to the threat new technologies present.[24] At the same time, both Great Britain and Israel were pursuing national security objectives, which required operations that placed their ships at risk. For Joint Forces acting in support of friends and allies, or to secure critical sea lines of communication, similar conditions may arise in this new operational environment.

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[23] Feickert, Andrew, "The Marines' Expeditionary Fighting Vehicle (EFV): Background and Issues for Congress," *Congressional Research Service Report to Congress*, September 10, 2008, p. 3.
[24] Ibid, p. 1. In the document, the range to the Israeli ship and description of the Hezbollah attack are explained.

Within this construct, Joint Force planners may determine that it is necessary to directly attack the enemy's anti-access capabilities using a combination of kinetic and non-kinetic measures as the best means of ensuring freedom of maneuver. The political determination to do so will certainly be the driving factor as the potential of conflict escalation is weighed by policy makers, especially if action is required against a major power such as China. Even so, a certain amount of operational risk will likely remain, as it may not be possible to achieve the certainty that such strikes completely remove the threat to naval and air forces operating within the contested space. Indeed, the capabilities and proliferation of these sophisticated weapons may, by their nature, deny Joint Forces the ability to destroy them preemptively in order to gain freedom of maneuver. In such a circumstance, it is necessary to consider what measures Joint Forces might employ to offset their relative disadvantage in the operational factor of *space*.

Movement and Maneuver

The UJTL tasks Joint Forces with the ability to "conduct operational maneuver and force positioning," which may be considered a necessary pre-condition to projecting power ashore.[25] The 2010 Naval Operations Concept (NOC) discusses, at length, using the sea as maneuver space, the requirements necessary to optimize its use, and force packages available to defend against a variety of threats.[26] Recognizing the challenges presented by anti-access and area denial technologies, the NOC states naval forces must be "able to achieve sea control and sustain resilient sea-based operations in uncertain and hostile environments."[27] As a potential adversary's ability to employ precision fires extends to ever greater ranges,

[25] UJTL, OP 1.2, p. B-C-C-14.
[26] Naval Operations Concept, "Implementing Maritime Strategy," 2010, pp 13-16.
[27] Ibid., p. 22.

naval forces must begin maneuvering farther from the objective area to achieve an advantage in space and time.

The concept of moving forces to an intermediate staging base may become strained as longer-range precision weapons place those forces in peril far from the objective. The notion of a far blockade enforced, in part, by long range precision missiles, may become increasingly plausible, and serve to threaten lines of communications while having a chilling effect on allies. As the contested operational space grows, the factor of time expands in favor of the defender who is increasingly able to bring his asymmetric advantage to bear. Joint Forces attempting to maneuver toward an objective may need to mass for common protection against surface, subsurface and missile threats, or disperse if their defensive capabilities are limited in order to reduce the chance of being located.

Improvements in operational and tactical speed necessary to compress the factor of time back in favor of the Joint Force is apparent, yet naval forces will not possess the ability, by speed alone, to counter the projected asymmetric threats. An ability to conceal the movement of the naval force from electro-optical or visual detection improves its ability to maneuver, while providing a means of protection against kinetic strike. Additionally, deception operations to confuse the adversary about the timing, objective, or perhaps even the existence of the landing force may prove a critical factor in their success.

For the landing force, the ability to launch at great distances provides a measure of operational surprise and deception as to the intended objective. Speed, dispersion and concealment (e.g., stealth) serve as measures of force protection but may also impact the size and capabilities of the landing force. A combination of air and sea landings will likely be required to provide the necessary speed and sustainment for the landing force. The purpose

of the surface-borne movement may be largely based on the need to push supplies, ammunition or heavier equipment forward, while the movement by air is intended to get the preponderance of infantry and supporting forces forward. Still the requirement to achieve operational surprise to avoid precision attack, and the possibility there are hostile forces in the landing area require a balance between combat power, concealment or stealth, speed, and the ability to sustain the force.

An important objective for future power projection operations may be to establish forward ballistic missile defense positions that combine deployable radar and weapon systems capable of defeating incoming missiles in the terminal segment of their flight path. Such operations would serve to establish a permanent or semi-permanent position, or series of positions, to protect critical infrastructure (e.g., airfield, port) while extending their protective envelope seaward for naval forces to press deeper into the contested operational space. Rapidly deployable radars such as AN/TPY-2 and ballistic missile defense systems such as PAC-3 and Theater High Altitude Air Defense (THAAD), operating from forward lodgments, may prove an essential capability to ensure freedom of movement for naval and air forces in these contested spaces.

Fires

In order to assess the role of fires, it is necessary to define the purpose and effects required. According to Joint Publication 3.0, *Joint Operations*, joint fires are those which are "delivered during the employment of forces from two or more components in coordinated action to produce desired effects…"[28] Dr. Milan Vego defines operational fires as the "application of one"s lethal and/or nonlethal firepower for generating a decisive impact on

[28] Joint Publication 3-0, p. III-18.

the course and outcome of a campaign or major operation." By contrast, tactical fires "support maneuver forces in direct contact with the enemy…"[29] For this analysis, it is necessary to consider both tactical and operational fires.

Operational fires integrated into the overall plan for the landing operation may be used to achieve multiple effects and be accomplished over the vast expanse of contested space. Fires may be used to enhance deception operations while denying air, space and information domains to the enemy force. Fires may be executed, as previously mentioned, against an enemy"s asymmetric capabilities by direct attack, or by denying the target acquisition capabilities necessary to employ them. While potential adversaries may possess an asymmetric advantage in missile technologies, Joint Forces generally retain an advantage for targeting and strike operations, which may extend over a wide area and impact the course of the operation as Dr. Vego describes.

The advantage of joint and operational fires is that they are exclusive of those capabilities required by the landing force, yet mutually supportive. Tactical fires may be delivered by supporting arms agencies to produce an intended effect at the landing site or across the breadth of the joint operational area. For these fires to be useful, they must be coordinated within the overall plan. Once forces arrive in the joint operational area, responsiveness and timeliness of fires becomes extremely important. These fires may be provided by long-range naval munitions, or a nearer sea base if adequately protected from enemy threat systems.

Still, forces in contact often have an immediate requirement for supporting fires, which may be measured in as little as a few minutes. These fires must be rapidly available,

[29] Vego, Milan N., Joint Operational Warfare: Theory and Practice, *U.S. Naval War College*, Newport, RI., 2009, p. VIII-59.

regardless of weather conditions. The Joint Force will be challenged to provide this capability on a persistent basis, especially if the air domain remains contested. Landing forces will, therefore, require the organic ability to mass fires at some level against certain target sets (e.g., enemy infantry formations) but may also require organic precision attack capabilities. Precision weapons offer the benefit of reducing logistical sustainment, while improving the likelihood of target destruction.

The landing force will require the means to request, direct and pass on targeting information to air and naval forces which may yet be several hundred miles distant. This important communications link is both a critical requirement and vulnerability to the landing force. In summary, in order to augment external supporting fires, the landing force must possess some organic means of fire support to prosecute their mission ashore. This has implications for lift and sustainment, requiring the use of surface-borne landing vehicles, which are part of the early assault waves.

Sustainment

The ability to project forces ashore hinges on the concurrent ability to sustain those forces. Historically, an "iron mountain" was required to ensure critical equipment and supplies were readily available. In a detailed study of 22 amphibious operations, Carter Malkasian found that forces take, on average, 18 days to secure a lodgment and buildup stores (which he termed an "operational pause") before they initiate a breakout.[30] Long before this study, Marine planners considered ways to avoid the time-consuming process of building up supplies ashore. As a result of their extensive study, Marine planners developed a concept where the landing force would be supplied from a sea base rather than an iron

[30] Malkasian, Carter A., "Charting the Pathway to OMFTS: A Historical Assessment of Amphibious Operations from 1941 to the Present." *Center for Naval Analysis*, Alexandria, VA, July 2002, p. 10.

mountain ashore. This innovative concept, however, is reliant on local air and sea control and may be difficult to execute in a contested space. Marine Corps Warfighting Publication 3-31.7 *Seabasing*, lists eight planning assumptions for the sea base to operate, five of which deal directly with its ability to defend itself, while maintaining access to the air and space domains.[31]

The RAND Corporation conducted an extensive study on the ability of a sea based force, using a variety of future platforms, such as the CH-53K heavy-lift helicopter, and desired Maritime Prepositioning Force (Future) surface platforms to determine whether sustaining a landing force was even feasible. The study considered sustainment distances of between 25 and 110 nautical miles using a mix of air and surface means to transport supplies ashore. The projected throughput requirement of 1,000 tons per day was necessary to sustain a single Marine Expeditionary Brigade (MEB) during major combat operations. According to the study, under optimal conditions, the MEB could be sustained "with some difficulty" at distances up to 110 nautical miles, "assuming that trucks or other means are available to move supplies inland from where the LCACs [Landing Craft Air Cushion] drop them at the beach." Using a combination of MV-22 and CH-53K aircraft only, the force could be sustained from a distance of 85 nautical miles. [32]

The most recent Marine Corps Operating Concept discusses the requirement to reduce the tactical footprint of expeditionary forces in order to improve their ability to operate from a sea base and conduct operations ashore.[33] Accordingly, the uninterrupted bridging of the sea base to forces ashore is the critical requirement. However, currently

[31] Headquarters, U.S. Marine Corps, "Marine Corps Warfighting Publication 3-31.7, *Seabasing*," 2006, p. 1-4.
[32] Button, Robert W., et al., "Maritime Prepositioning Force (Future) Capability Assessment, Planned and Alternative Structures," *The RAND Corporation*, Santa Monica, CA, 2010, pp. 15-18.
[33] Headquarters, United States Marine Corps, Combat Development and Integration, "Marine Corps Operating Concepts, Assuring Littoral Access… Proven Crisis Response," June, 2010, pp. 33-34.

configured expeditionary maneuver fleets are not designed for operations in a contested area, and require access to port facilities for offloading supplies. As a result of these limitations, there is a recognized inability to directly project the entire amphibious force into the JOA as part of landing operations. This, also, requires lightening of the force, which must be able to operate for some period of time with minimal resupply.

Summary of Analysis

In this changing operational environment, the paradigm of a contested beach landing site must be revisited as nations pursue anti-access capabilities that challenge naval and air forces at ever greater ranges. In several potential theaters of operation, hostile action against power projection forces is likely to begin far from the landing site. Naval and air forces must be prepared to operate within increasingly hostile sea lanes far from the objective area, while the landing force must be able to launch, land and sustain itself without the benefit of complete air and sea control. At the same time, the sea lines of communication will be stretched to ever greater lengths, necessitating a lighter force, requiring minimal sustainment, but which packs sufficient punch to accomplish its mission. Improved operational speed, deception and concealment become increasingly important factors for the landing force. Operational fires may be used to deny informational, space and air domains to an adversary, as well as for deception. The right balance of tactical fire support is critical to the landing force‟s organization. In order to reduce the threat to these forces, regain freedom of maneuver at sea and press forward necessary sustainment, landing forces may require missile or air defense capabilities as well.

The Sea Base as a Critical Vulnerability

While efforts may be taken that improve the Joint Force‟s ability to project power ashore in contested operational space, the prospect of success without gaining air and sea control in the local area may yet be remote. Service operational concepts stress the need for a sea base from which the "deployment, assembly, command, projection, reconstitution, and re-deployment of joint power" may be accomplished.[34] However, such heavy reliance on the sea base makes it the critical vulnerability for future amphibious operations, and a prime target of anti-ship missiles or other hostile measures. Since the effectiveness of the sea base hinges on its uninterrupted ability to sustain the force, provide fires, and enable command, for such attacks to be successful they need only *disrupt* seabasing operations without necessarily sinking the sea base outright.

As previously discussed, the proximity of the sea base to the landing site(s) has a significant impact on its ability to support and sustain the landing force. Additionally, the proximity of sea based forces to hostile action drives the design and abilities of the ships involved, which has generated much disagreement between the services in the past. According to a 2007 Center for Strategic and Budgetary Assessment presentation, the services were often at odds over the design, mission and capabilities of a future expeditionary maneuver fleet.[35]

The sea base concept is severely limited by the ships currently available for its operation. The vast majority of equipment and supplies, as well as follow-on echelon forces for larger operations, must come ashore through a port or airfield. Current Maritime Prepositioning Force ships simply lack the ability to support landing operations in areas

[34] NOC, p. 21.
[35] Work, Robert O., "Seabasing: All Ahead Slow," *Center for Strategic and Budgetary Assessment*, Feb 6, 2007, p. 22.

where air and sea control has not been achieved. Instead, according to a 2004 Congressional Budget Office report, "they require a secure port for unloading equipment and a secure airfield where troops can fly in from the United States to pick up the equipment and assemble for operations."[36] For the sea base to viably support power projection concepts in contested space, planned improvements to the maritime prepositioning fleet are essential. Yet, in the most recent Navy Long-Term Shipbuilding Plan, all of the planned ships were removed.[37] This casts doubt on the success of any sizable Joint Force operation to project power ashore against a potentially hostile force in contested operational space.

Conclusions and Recommendations

The future operating environment presents significant challenges for Joint Force power projection operations. While the requirement to project power without support from nearby operating bases, or possibly even intermediate staging bases is expected to grow, the ability to do so is contingent on the freedom of maneuver at sea. Yet, the proliferation of anti-access technologies poses an asymmetric threat to naval forces, expanding the contested operational space in which they must operate. By assessing this problem in the context of joint warfighting functions and operational factors, this study derived the following initial conclusions:

1. Joint Forces must retain the ability to conduct power projection operations even when they are unable to achieve complete air and sea control.

2. A primary purpose of future amphibious operations may be to secure critical infrastructure from air and missile threats, while simultaneously improving the freedom of maneuver for air and naval forces.

[36] Congressional Budget Office, "The Future of the Navy‟s Amphibious and Maritime Prepositioning Forces," *Congress of the United States*, November 2004, p. x.
[37] Congressional Budget Office, "Analysis of the Navy‟s Fiscal Year 2011 Shipbuilding Plan," *Congress of the United States*, May 2010, pp. 1-2.

3. The employment of speed, deception and concealment, among other potential factors, is critical to success when air and sea control cannot be achieved prior to landing forces.

4. The sea base concept has great potential to sustain the force provided it can move into position and defend itself from anti-access threats.

As stated previously, this analysis reviewed the most pertinent warfighting functions (*movement and maneuver*, *fires*, and *sustainment*) against the operational factor of *space* to provide important insights for Joint Force Planners considering future operations to project power ashore. Additional study is required to more fully understand the operational factors of *time* and *force* as well as the remaining joint warfighting functions of *protection*, *command and control*, and *intelligence*.

The authoritative documents referenced in this study, such as the 2010 JOE and the Capstone Concept for Joint Operations, provide Joint Force commanders with a useful description of the environment in which their forces will operate. Military planners should not ignore these documents, or the several others, which describe an environment where access to ports and airfields may be denied, and which require the use of sea based forces to project power ashore. Already, the Joint Force‟s ability to successfully project power ashore against a potentially hostile force is uncertain. Several materiel, doctrinal and training challenges must be overcome, while Joint Forces are engaged in a variety of on-going and concurrent missions. Yet, failing to meet this challenge, calls into question the Nation‟s ability to support friends and allies, likely undermining the U.S. alliance system on which its security relies. Only by embracing these challenges and training to a set of rigorous standards that balance the Joint warfighting functions to overcome relative changes in the operational factors, will Joint Forces be better able to achieve the nation‟s objectives when called upon.

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