AN ANALYSIS OF THE MARINE CORPS' SURFACE AMPHIBIOUS CAPABILITY AND ITS RELATIONSHIP TO CURRENT DOCTRINE

A thesis presented to the Faculty of the U.S. Army Command and General Staff College in partial fulfillment of the requirements for the degree

MASTER OF MILITARY ART AND SCIENCE
General Studies

by

CHRISTOPHER ASHINHURST, MAJOR, USMC
B.S., United States Naval Academy, Annapolis, MD, 2004

Fort Leavenworth, Kansas
2019

REPORT DOCUMENTATION PAGE

Form Approved
OMB No. 0704-0188

1. REPORT DATE *(DD-MM-YYYY)*	**2. REPORT TYPE**	**3. DATES COVERED** *(From - To)*
14-06-2019	Master's Thesis	AUG 2018 – JUN 2019

4. TITLE AND SUBTITLE

An Analysis of the Marine Corps' Surface Amphibious Capability and Its Relationship to Current Doctrine

5a. CONTRACT NUMBER

5b. GRANT NUMBER

5c. PROGRAM ELEMENT NUMBER

6. AUTHOR(S)

Major Christopher A. Ashinhurst

5d. PROJECT NUMBER

5e. TASK NUMBER

5f. WORK UNIT NUMBER

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

U.S. Army Command and General Staff College
ATTN: ATZL-SWD-GD
Fort Leavenworth, KS 66027-2301

8. PERFORMING ORG 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

Approved for Public Release; Distribution is Unlimited

13. SUPPLEMENTARY NOTES

14. ABSTRACT

The Marine Corps is the U.S. military's amphibious force and as such it is required by directive to execute amphibious operations in support of efforts to gain and maintain access to regions around the globe. The Marine Corps' role in a joint forcible entry operation is to be able to seize a lodgment through amphibious assault. Consequently, the Marine Corps must ensure it has the capabilities to conduct an amphibious assault as anti-access/area denial threats around the world challenge amphibious forces' ability to close the distance to the beach. As the Marine Corps looks to build capabilities to compete on the 21st century battlefield, it must pay mind to its doctrinal assignment as an amphibious force and to be able to provide multiple options to a Joint Force Commander.

15. SUBJECT TERMS

amphibious operations, amphibious assault, joint forcible entry operations

16. SECURITY CLASSIFICATION OF:			**17. LIMITATION OF ABSTRACT**	**18. NUMBER OF PAGES**	**19a. NAME OF RESPONSIBLE PERSON**
a. REPORT	**b. ABSTRACT**	**c. THIS PAGE**			**19b. PHONE NUMBER** *(include area code)*
(U)	(U)	(U)	(U)	88	

Standard Form 298 (Rev. 8-98)
Prescribed by ANSI Std. Z39.18

MASTER OF MILITARY ART AND SCIENCE

THESIS APPROVAL PAGE

Name of Candidate: Christopher A. Ashinhurst

Thesis Title: An Analysis of the Marine Corps' Surface Amphibious Capability and Its Relationship to Current Doctrine

Approved by:

_____, Thesis Committee Chair
Wilburn E. Meador Jr., M.A.

_____, Member
Harry S. Laver, Ph.D.

_____, Member
Lieutenant Colonel Barry G. Mulligan, MMS

Accepted this 14th day of June 2019 by:

_____, Director, Graduate Degree Programs
Robert F. Baumann, Ph.D.

The opinions and conclusions expressed herein are those of the student author and do not necessarily represent the views of the U.S. Army Command and General Staff College or any other governmental agency. (References to this study should include the foregoing statement.)

ABSTRACT

AN ANALYSIS OF THE MARINE CORPS' SURFACE AMPHIBIOUS CAPABILITY AND ITS RELATIONSHIP TO CURRENT DOCTRINE, by Major Christopher Ashinhurst, 88 pages.

The Marine Corps is the U.S. military's amphibious force and as such it is required by directive to execute amphibious operations in support of efforts to gain and maintain access to regions around the globe. The Marine Corps' role in a joint forcible entry operation is to be able to seize a lodgment through amphibious assault. Consequently, the Marine Corps must ensure it has the capabilities to conduct an amphibious assault as anti-access/area denial threats around the world challenge amphibious forces' ability to close the distance to the beach. As the Marine Corps looks to build capabilities to compete on the 21st century battlefield, it must pay mind to its doctrinal assignment as an amphibious force and to be able to provide multiple options to a Joint Force Commander.

ACKNOWLEDGMENTS

This thesis would not have been possible without the dedication and detailed review provided by my MMAS Committee. First, Mr. Wilburn “Budman” Meador graciously accepted this project during a well-earned retirement after nearly six decades of service to this nation and provided the guidance, direction, and a whole lot of history for me to wrap my mind around. Second, Dr. Harry Laver spent his time between teaching my peers and me Clausewitz, Napoleon, and all things CGSC History to read, critique, analyze, and review every word and page. Third, LTC Barry Mulligan, who took on this project in the midst of an international move, challenged me from his arrival to be clear, focused, and disciplined in the words I chose to write. I must also thank Commander Dave Stebbins, USN, who took the time to read and provide his thoughts based on his time in the “Gator Navy.” I am grateful to all for the early morning meetings, the feedback, and the professional education they provided me along the way.

As with my entire career, I owe most of this to the love of my life, Allison, for dealing with many late nights of me researching and writing and for pushing me when I was losing motivation. To her and our sons, Jake, Cole, and Chase, I owe a debt of gratitude for this and so much more that I fear I will never be able to repay.

Finally, I want to thank my father, Joel. A Marine who never ceases to see, even when others fail to, that ship-to-shore assault is one of the many things that makes “us” special. He is man who has dedicated his entire adult life to the art and science of amphibious movement, because he knows that if the U.S. Marines cannot do it, who the heck can?

TABLE OF CONTENTS

Page

ACRONYMS

A2	Anti-Access
AD	Area Denial
A2/AD	Anti-Access/Area Denial
AAAV	Advanced Amphibious Assault Vehicle
AAV7A1	Amphibious Assault Vehicle (variant 7A1)
ACV	Amphibious Combat Vehicle
ASBM	Anti-Ship Ballistic Missile
ASCM	Anti-Ship Cruise Missile
CJCS	Chairman of the Joint Chiefs of Staff
CPD	Capabilities Production Document
CSBA	Center for Strategic and Budgetary Assessment
DoD	Department of Defense
DoDD	Department of Defense Directive
DoN	Department of the Navy
EF21	Expeditionary Force 21
EFV	Expeditionary Fighting Vehicle
LCAC	Landing Craft, Air Cushions
LVT	Landing Vehicle Tracked
LCU	Landing Craft Utility
LCVP	Landing Craft, Vehicle and Personnel
JOA	Joint Operational Area
JOAC	Joint Operational Access Concept
JP	Joint Publication

MAGTF	Marine Air Ground Task Force
MCIA	Marine Corps Intelligence Activity
MOC	Marine Corps Operating Concept
OMFTS	Operational Maneuver from the Sea
ORD	Operational Requirements Document
OTH	Over-the-Horizon
PLA	People’s Liberation Army
STOM	Ship-to-Objective Maneuver
USMC	United States Marine Corps
USN	United States Navy
WW2	World War Two

CHAPTER 1

INTRODUCTION

> Landings should not be attempted in the face of organized resistance, if, by any combination of march or maneuver it is possible to land unopposed and undetected.
>
> —Gen Alexander Vandegrift, USMC, *The Amphibians Came to Conquer*

Amphibious Operations in an Anti-Access/Area Denial Environment

The Marine Corps is at risk of losing the ability to execute an amphibious joint forcible entry operation in an anti-access/area-denial (A2/AD) environment. Unfortunately, if the status quo continues, Marines will be stuck sitting off the coast in amphibious shipping unable to get forces ashore. Furthermore, any Marines that do manage to make it from ship-to-shore via assault support aviation will quickly be isolated and left without necessary mobility, sustainment, or reinforcement. The Marine Corps Operating Concept reinforces this argument when it highlights the USMC "is currently not organized, trained, and equipped to meet the demands of a future operating environment characterized by complex terrain, technology proliferation, information warfare, the need to shield and exploit signatures, and an increasingly non-permissive maritime domain."[1] The situation is dire. Consequently, analysis, debate, and academic papers are required when identifying solutions for the future course.

[1] Gen Robert Neller, *The Marine Operating Concept: How an Expeditionary Force Operates in the 21st Century* (Washington, DC: Headquarters Marine Corps, September 2016), 8.

This paper is written to contribute to discussions regarding what the MAGTF must do, as the cornerstone of the Marine Corps amphibious capability, to project combat power via protected ship-to-shore surface assault in the future A2/AD environment. This paper will highlight the actions required to enhance the Marine Corps' protected amphibious assault craft capabilities, so the Corps may effectively move across the sea's surface to the shores of a hostile, neutral, or friendly coastline within an A2/AD environment. A protected amphibious assault craft, for the purpose of this paper, is defined as an amphibious armored personnel carrier that can land the surface assault echelon of the landing force during an amphibious operation while providing protection to the landing force during ship-to-shore movement and subsequent operations ashore.

This thesis is presented in five chapters. Chapter 1 will set conditions for the discussion by defining the role of the Marine Corps and discussing the concepts, strategic guidance, doctrine, and capabilities that govern how the Marine Corps contribute to the joint force. Chapter 2 will strengthen the validity of the central thesis and proposed solutions by providing a synopsis of the literature reviewed during this qualitative analysis. Chapter 3 will explain the methodology used for research. Chapter 4 is pivotal and will give the author's analysis of the literature and the gaps, if any, the Marine Corps has in its ability to meet its requirements. Chapter 5 will give the author's conclusions and provide recommendations for the future. This paper, through the strength of the presented argument, will contribute to the discussion regarding the future of the Marine Corps, the future of the MAGTF and the legitimacy of protected amphibious assault and the use of protected amphibious assault craft in the A2/AD environment.

The Context - Anti-Access/Area-Denial (A2/AD)

The intelligent debate surrounding the future of the Marine Corps and MAGTF in the A2/AD environment must be based on a clear understanding of the term A2/AD. The terms, or term, A2/AD arguably originated in a 2003 Center for Strategic and Budgetary Assessment (CSBA) report "Meeting the Anti-Access and Area-Denial Challenge" authored by Andrew Krepinevich, Barry Watts, and former Deputy Secretary of Defense, Robert Work.[2] The CSBA report defined A2 as the capabilities designed to restrict entry into a theater and AD as threats which restrict freedom of action within an adversary's span of control.[3] The term A2/AD arguably became prominent in military parlance following the release of the 2012 *Joint Operational Access Concept* (*JOAC*) and the terms A2/AD are now codified in joint doctrine. Joint Publication (JP) 1-02, *DoD Dictionary of Military and Associated Terms* of July 2017, defines anti-access (A2) as an "action, activity, or capability, usually long-range, designed to prevent an advancing enemy force from entering an operational area."[4] Correspondingly, JP 1-02 defines area-denial (AD) as an "action, activity, or capability, usually short-range, designed to limit an enemy force's freedom of action within an operational area."[5] These definitions are of

[2] Andrew Krepinevich, Barry Watts, and Robert Work, "Meeting the Anti-Access and Area-Denial Challenge" (Center for Strategic and Budgetary Assessment, Washington, DC, 2003), ii.

[3] Ibid., 5.

[4] Joint Chiefs of Staff (JCS), Joint Publication (JP) 1-02, *DoD Dictionary for Military and Associated Terms* (Washington, DC: Government Publishing Office, July 2017), 17.

[5] Ibid., 18.

paramount importance to this thesis and are paradoxically complimentary and disparate. The concepts are complimentary of one another as A2 seeks to prevent an adversary from entering the operational area and AD wants to limit an adversary's options for maneuver and sustainment should a force gains access to the joint operational area (JOA).[6] The terms are unequal because they affect different operational range activities, capabilities, and effects. Nonetheless, history provides guideposts which a strategist or tactician may use to guide the response to an A2/AD threat.

Modern A2/AD: An Evolution of Capability

A2/AD strategies and A2/AD environments have challenged military action for centuries. While others may exist, the Greeks are often given credit for some of the first A2/AD actions during the Greek-Persian War of 480 BC. The Greek fleet, commanded by Themistocles, combined with land armies of the Spartan hoplites, exercised a strategy of mutually supportive naval and land operations designed to prevent the Persian Army and Xerxes' access to Greece. Furthermore, once the Persians landed ashore, the Greeks attempted to use their naval forces to cut off the supply lines to not only starve the Persian invaders but also restrict their freedom of movement with the operational area.[7] In 1942, the Japanese Imperial Navy attempted its version of A2 by utilizing bomber aircraft to contest the U.S. Naval Forces' access to the operational area within the

[6] Department of Defense (DoD), *Joint Operational Access Concept v1.0* (Washington, DC: DoD, 17 January 2012), i.

[7] Sam J. Tangredi. *Anti-Access Warfare: Countering A2/AD Strategies* (Annapolis, MD: Naval Institute Press, 2013), 8-12.

Solomon Islands chain.[8] The Japanese fleet created an AD challenge by using Japanese warships and aircraft to attack the U.S Fleet thus limiting its ability to maneuver within the Solomon Islands' archipelagic waters and provide sustainment and naval gunfire support to operations ashore.[9] Finally, the British Navy encountered Argentine A2/AD capabilities during their fight in the Falkland Islands in the early 1980s. The sinking of HMS Sheffield in May of 1982 by an air-fired anti-ship missile is a case study in modern A2/AD. This modern case study is particularly relevant to the central thesis because, as Max Hastings writes in *The Battle for The Falkland Islands*, following the sinking of the Sheffield the British lost freedom of maneuver because "never again . . . would the main task force operate so close in shore."[10] This evidence as mentioned above demonstrates that the Marine Corps and MAGTF's challenge to maneuver in an A2/AD environment is not new. However, the character of modern threat has changed.

The term modern A2/AD is used to describe actions taken by an adversary to limit or deny access using advanced weaponry which was unheard of at the time of the Greek, Japanese, or Argentinean effects but that are now described in the U.S. *JOAC* of 2012. Furthermore, modern A2/AD weaponry, unlike the less flexible and capable tools of yesteryear, can now be used to achieve either an A2 or AD effect on an adversary.[11]

---

[8] James D. Hornfischer, *Neptune's Inferno: The U.S. Navy at Guadalcanal* (New York: Bantam Books, 2011), 47-49.

[9] Ibid., 62-79.

[10] Max Hastings and Simon Jenkins, *The Battle for the Falklands* (New York: W.W. Norton & Company, Inc, 1983), 151-156.

[11] DoD, *Joint Operational Access Concept*, 6.

Consequently, the threat posed by modern A2/AD threats has been highlighted by successive Chairmen of the Joint Chiefs of Staff. General Martin Dempsey, the 18th Chairman of the Joint Chiefs of Staff (CJCS), described A2/AD strategies as "favorable course of action" for adversaries looking to contest American global power.[12] General Dunford, the current CJCS, has stated adversaries that possess A2/AD capabilities will attempt to limit United States influence in areas they control.[13] These statements by some of America's senior military leaders express that these modern A2/AD threats will likely continue to challenge U.S power projection and Marine Corps amphibious operations into the future.

The territorial disputes in the South and East China Sea are a modern case study of the contemporary A2/AD threat. China's disputed claims to territories within the area of interest are reinforced by the disciplined development of sophisticated A2 systems which raise the cost-risk-benefit of any challenge to Chinese territorial claims. The Chinese Navy has invested heavily in the development of surface combatant and submarine technology. The DF-21D Anti-Ship Ballistic Missile (ASBM) is designed to keep adversary ships at bay with an engagement range of approximately 900 nautical

[12] DoD, *Joint Operational Access Concept*, no page number.

[13] Gen Joseph Dunford, Jr., "Remarks and Q&A at The Center for Strategic and International Studies" (Speech, Center for Strategic and International Studies, Washington, DC), accessed 13 February 2019, https://www.jcs.mil/Media /Speeches/ Article/707418/-dunfords-remarks-and-qa-at-the-center-for-strategic-and-international-studi/.

miles, and in essence, prevent access to the JOA.[14] The S-400 air defense system is capable of protecting Chinese airspace out to 250 nautical miles.[15] The YJ-62 anti-ship cruise missile (ASCM) has a range of less than 120NM and the YJ-18 submarine-launched ASCM has a range of 290 nautical miles. To return to the central thesis, undoubtedly, A2 threats like the submarine and missile systems will restrict the ability for naval amphibious ships with an embarked MAGTF to close the distance between the ship and shore during the seizure of future amphibious lodgments in an A2/AD environment. Unfortunately, the vessels and missile systems mentioned above are only one part of the modern A2/AD threat.

Modern AD capabilities now have the range, speed, and lethality to challenge any amphibious lodgment or ship-to-shore operation. Arguably, the current AD threat will be most prevalent during forcible entry operations against a near-peer in an A2/AD environment. However, A2/AD systems, like radar, missiles, and aircraft, will likely affect a wide range of activities and present a threat during any littoral operation.[16] The 2012 *JOAC* also highlights the threat posed by short-range Guided Rockets, Artillery, Missiles, and Mortars (G-RAMM), anti-ship missiles, submarines, land maneuver forces,

[14] Department of Defense (DoD), *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015* (Washington, DC: DoD, 2015), 8.

[15] Tangredi, *Anti-Access Warfare*, 164

[16] Paul McCleary, "'Fight to Get to the Fight': Marine Amphibs Under the Gun," *Breaking Defense*, 11 February 2019, https://breakingdefense.com/2019/02/marines-want-more-punch-on-amphibs-but-littorals-increasingly-risky/.

unmanned systems, special operations units, and enemy air and air defense forces and include these systems in their description of AD.[17]

The preceding analysis demonstrates why A2/AD presents a significant challenge to the Marine Corps during ship-to-shore movement within a near-peer A2/AD threat environment. The analysis is relevant for three reasons. First, an A2/AD strategy is a contest between the agency trying to gain access and the agency trying to restrict or deny access to the joint operational area. Importantly, concerning the central thesis, an A2/AD strategy will potentially keep USMC and Naval amphibious ships well outside of a JOA and a long way from shore to mitigate the likelihood of a strike by an extended range A2/AD system. Second, an A2/AD strategy will restrict future Marine Corps operations by denying those units that do gain access to the JOA with the ability to freely execute tasks across the range of military operations (ROMO) and sustain or reinforce any Marine Corps elements ashore. Finally, A2/AD threats challenge the ability for any force to maintain a persistent presence in a region, troubling the ability to sustain forces ashore or continue power projection. The evidence demonstrates the complexity of the A2/AD and highlights that there are no simple solutions when countering A2/AD capabilities or tactics. Fortunately, the Marine Corps will not counter the A2/AD threat alone.

A2/AD: A Joint Problem

The Marine Corps operates as part of a Joint Force whose collective strength can be used to counter the A2/AD threat. Nonetheless, operating in a near-peer A2/AD threat environment will be a complex problem which will require the integration of joint

[17] DoD, *Joint Operational Access Concept*, 10.

capabilities if one is to succeed. To effectively combat the A2/AD threat, the Joint Force will need to orchestrate disparate efforts across the land, sea, air, cyber and space domains against any perceived adversary weakness.[18] First, as reinforced in the *JOAC*, the Joint Force will shape or avoid the A2/AD environment by gaining access prior to conflict through humanitarian efforts or multi-national engagements. Second, gaining access to a JOA will require the Joint Force, and potentially regional or coalition partners, to overcome area denial threats that restrict freedom of maneuver and access to the JOA.[19] Third, as outlined in Joint Publication 3-02, *Amphibious Operations,* the Joint Force Maritime Component Commander (JFMCC) will need to protect the amphibious force (AF) when preparing for an amphibious operation. These conditions may include local maritime superiority, or the neutralization of enemy ASCMs, submarines, and surface combatants; and local air superiority through the countering or neutralization of enemy aircraft.[20] Finally, the Marine Corps may need to put Marines ashore to conduct humanitarian missions, seize advanced bases provide a credible land force that is independent of land-basing in support of a joint forcible entry operation.[21] Furthermore, specific to this paper and the central thesis, a history demonstrates large-scale Marine Corps amphibious lodgments, which will rely on speed and mass unobtainable using

[18] DoD, *Joint Operational Access Concept*, 18-22.

[19] Ibid., 14.

[20] Joint Chiefs of Staff (JCS), Joint Publication (JP) 3-02, *Amphibious Operations* (Washington, DC: Government Publishing Office, 18 July 2014), V-42.

[21] DoD, *Joint Operational Access Concept*, 20.

aviation assets alone, will require the use of a suitable protected amphibious assault craft and the orchestration of capabilities from across the Joint Force.[22]

USMC Amphibious Operations: A Brief History of Assured Access

Amphibious operations have been used to project ground forces ashore for thousands of years. The Persians were arguably the first when they landed at Marathon in 490 B.C., and since this time empires, states, and militaries have used the sea to maneuver and to project decisive capabilities into hostile lands.[23] Today, sea-based maneuver, sea-basing, and amphibious operations are an attractive option for political leaders and commanders alike. Maneuver from the sea is attractive because it can be executed from the global commons with fewer political sensitivities and it does not burden the sovereignty of nations because there is place little reliance on infrastructures such as ports and airfields. Also, the sea provides the ability to rapidly support the arrival or withdrawal of large forces reasonably quickly and with greater flexibility.[24] Today, as has been the case throughout history, amphibious forces provide nations with a credible, flexible, and rapidly deployable force capable of operating across the spectrum of conflict around the world.[25]

---

[22] JCS, JP 3-02, III-2.

[23] William L. Rodgers, "Marathon, 490 B.C.," in *Assault From the Sea: Essays on the History of Amphibious Warfare*, ed. LtCol Merrill L. Bartlett (Annapolis, MD: Naval Institute Press, 1983), 6-7.

[24] Maj Douglas King, "U.S. Marine Corps Tactical Mobility Requirements For Ship to Objective Maneuver" (Master's Thesis, U.S. Army Command and General Staff College, Fort Leavenworth, KS, 1996), 4.

[25] Ibid., 5.

The Marine Corps is the United States' expeditionary and amphibious force of choice. America has leveraged the readiness, flexibility, and reach of its amphibious forces since the birth of the United States Marine Corps in the 18th century. Marines have been used to capture supplies in the Bahamas in 1776, seize Confederate coastal defenses in 1861, support limited contingency operations across the globe, and led U.S operations throughout the Pacific in WW2.[26] America's Marines, in a testament to their utility and relevance, executed almost 180 amphibious landings to meet objectives ashore between the years 1800 and 1934.[27] However, it was not until the 1920s that the concept of amphibious assault, or the landing of an assault force on a hostile or potentially hostile shore, gained traction within the Marine Corps.[28] Subsequently, prophetic Marines, like the Lieutenant General John A. Lejeune and Lieutenant Colonel Earl "Pete" Ellis, predicted the versatility of amphibious assault despite early failures like the allies' disastrous amphibious landing at Gallipoli in 1915. Eventually, the concepts of Lejeune, Ellis, and others became the 1934 *Tentative Landing Operations Manual*, and then the 1938 Fleet Training Publication No. 167 *Landing Operations Doctrine, U.S. Navy,* and led to the Marine Corps experimenting with and perfecting the art and science of amphibious power projection.[29] History demonstrates the strategic vision of the pioneers

---

[26] Victor H. Krulak, *First to Fight: An Inside View of the U.S. Marine Corps* (Annapolis, MD: Naval Institute Press, 1984), 2, 72-73.

[27] Col Robert Heinl, Jr., USMC Ret., "The U.S. Marine Corps: Author of Modern Amphibious Warfare," in *Assault From the Sea: Essays on the History of Amphibious Warfare*, ed LtCol Merrill L. Bartlett (Annapolis, MD: Naval Institute Press, 1983), 185.

[28] Krulak, *First to Fight*, 73; JCS, JP 3-02, I-3.

[29] Krulak, *First to Fight*, 76-81.

of amphibious warfare and the Marine Corps has been at the forefront of amphibious concept and doctrine development since these humble beginnings. Today, the Marine Corps remains the lead service for the development of amphibious doctrine and functions almost 90 years later.[30]

Amphibious Operations: Assuring Access in Support of National Interests

Today, the U.S. Marine Corps is a potent weapon in the arsenal of the U.S government. The Marine Corps, as outlined in external and internal strategic guidance, is responsible for assuring access in contested regions which are critical to the interests of the U.S. There are several strategic documents which guide Marine Corps development and actions. Department of Defense Directive 5100.01. states the Marine Corps shall "[c]onduct amphibious operations, including engagement, crisis response, and power projection operations to assure access."[31] Specifically, the Department of Defense charges the Marine Corps with operations in or around the littoral environment both seaward, the open ocean to the shore, and the landward, the area inland that is directly supported from the sea.[32] The Marine Corps launches a wide array of amphibious operations from the littoral environment inclusive of amphibious assault in support of Joint Forcible Entry Operations (JFEO), amphibious raids, demonstrations, withdrawals,

[30] Department of Defense (DoD), DoD Directive 5100.01, *Functions of the Department of Defense and Its Major Components* (Washington, DC: Government Publishing Office, 21 December 2010), 32.

[31] Ibid.

[32] JCS, JP 1-02, 144.

and support to crisis response and other operations.[33] The *JOAC* of 2012 compliments the National Security Strategy and Defense Directive 5100.01 by highlighting the joint force must retain the ability to conduct forcible entry operations inclusive of raids and other limited-objective operations through to sustained land operations.[34] The *Marine Corps Operating Concept* (*MOC*): *How an Expeditionary Force Operates in the 21st Century* was published in 2016 by the USMC Commandant General Robert Neller and describes how the Marine Corps will execute its responsibilities within the Joint Force to 2025 and beyond.[35] The *MOC* builds on previous operating concepts, like *Expeditionary Force 21,* and reinforces the role the Marine Corps would play as part of the Joint Force to conduct amphibious operations in order to assure access.[36] The *MOC* highlights explicitly that the Marine Corps must "be prepared to perform large-scale, forcible entry operations and maneuver and sustain operations in a littoral environment.[37]

Defense Directive 5100.01, the *JOAC*, and the *MOC* have high relevance to the central thesis. First, the directive and *JOAC* demonstrate the continuing military and political relevancy of the Marine Corps. The USMC is the only service that is specifically directed to assure access through amphibious operations.[38] Second, the directive and

---

[33] JCS, JP 3-02, I-2 – I-3.

[34] DoD, *Joint Operational Access Concept*, 35-36.

[35] Neller, *Marine Corps Operating Concept*, 4.

[36] Gen James Amos, *Expeditionary Force 21: Forward and Ready Now and in the Future* (Washington, DC: Headquarters Marine Corps, 4 March 2014), 5.

[37] Neller, *Marine Corps Operating Concept*, 20.

[38] DoD, DoD Directive 5100.01, 32.

supporting concepts highlight amphibious forces can contribute to a wide array of operations and campaigns due to the inherent flexibility of a sea-based power.[39] However, to promote flexibility, the Corps must be able to respond to both the highest and lowest threat contingencies. Third, the external and internal documents highlight the requirement to conduct joint forcible entry amphibious operations or at the very least ship-to-shore maneuver against a near-peer threat. Fourth, the Marine Corps' mastery of the littoral environment is distinctive. In short, no-one else does what the Marine Corps does. This analysis, returning to the central thesis, demonstrates why the Corps must retain a potent protected amphibious assault craft capable of operating in an A2/AD environment. The Marine Corps must be capable of doing what the statesman requires, even in an A2/AD environment. The protected amphibious assault craft is arguably the cornerstone of the amphibious A2/AD assault capability.

The Platforms

The Marine Corps' current protected amphibious assault craft have origins in the technological advancement completed between the World Wars. First, the Landing Craft, Vehicle and Personnel (LCVP) or *Higgins Boat* provided the Corps with a versatile ship-to-shore connector. Second, the Landing Vehicle Tracked (LVT) or *Roebling Alligator* or *"Gator"* provided limited support to the amphibious assault and mobility during the seizure of objectives ashore. Ultimately, these revolutionary platforms provided the critical ability to land Marines ashore and to provide mobility and sustainment within and

[39] JCS, JP 3-02, I-2.

beyond the lodgment during WW2.[40] Third, the U.S. Navy developed and commissioned the Landing Ship, Tank (1942) and the Landing Ship, Dock (1943), ships designed to provide a base for the amphibious assault craft during amphibious landings. Finally, with the orchestration of the LCVP, LVT, and the amphibious ships the United States had the formidable amphibious force the Marine Corps sought.[41] These platforms were of pivotal importance during the Marine Corps island-hopping campaign during WW2.

The Marine Corps continued its amphibious platform development post WW2. The Marine Corps made continuous modifications to the amphibious tractor throughout the 1950s and into the 1970s. The LVT finally culminated in the early 1970s with the seventh variant of the class, or LVT(7). The Marine Corps upgraded the LVT(7) to the AAV7A1 Amphibious Tractor in 1983.[42] The AAV7A1 is still the primary Marine Corps protected amphibious assault craft in service today.

Today, the AAV7A1 is outdated and incapable of operating in an A2/AD environment nor meeting the future needs of the Marine Corps. The problem is well-known and clearly understood. In 1983, barely a decade after the AAV7A1 entered service, Vice Admiral Frank Vannoy, USN (ret), former Commander, Amphibious

---

[40] Krulak, *First to Fight*, 110.

[41] Allen R. Millet, "Assault from the Sea: The Development of Amphibious Warfare Between the Wars," in *Military Innovation in the Interwar Period*, ed Williamson Murray and Allen R. Millet (New York: Cambridge University Press, 1996), 83.

[42] Brian K. Buckles, "Case Study of the United States Marine Corps Advanced Amphibious Assault Vehicle (AAAV) Program Test and Evaluation Strategy" (Master's Thesis, Naval Post-Graduate School, Monterey, CA, 1999), 16-20, accessed 17 December 2018, https://apps.dtic.mil/dtic/tr/fulltext/u2/a373689.pdf.

Forces, U.S. Atlantic Fleet, identified the AAV7A1 would not be suitable against the projected A2/AD capabilities of future adversaries. In his essay "Where Do the Gators Go From Here?" Vice Admiral Vannoy highlights the AAV7A1 is vulnerable against cruise missiles because it does not have sufficient protection, speed, or range. Vannoy prophetically describes the shortfall when he states Marine Corps amphibious assault is being "led by amphibious tractors which have the water speed slightly greater than a tortoise going downhill…ships carrying the tractors and their troops have to get close inshore to launch them."[43] Today, the outdated AAV7A1 still requires a capable replacement.

The Amphibious Combat Vehicle

The race to replace the aging AAV7A1 commenced in 1994 when Lieutenant General Charles Krulak, the Commanding General for Marine Corps Combat Development Command (MCCDC), signed an Operational Requirements Document (ORD) for the development of an advanced amphibious assault vehicle (AAAV).[44] The AAAV was designed to provide over-the-horizon, ship-to-shore surface movement of a

[43] VADM Frank Vannoy, "Where Do the Gators Go From Here?" in *Assault From the Sea: Essays on the History of Amphibious Warfare*, ed LtCol Merrill L. Bartlett (Annapolis, MD: Naval Institute Press, 1983), 398-401.

[44] The term "amphibious assault vehicle" is what Marines call the platform. The name is not intended to imply that the vehicle is solely designed for amphibious assaults. The vehicle's employment is relevant in all five types of amphibious operations described in JCS, JP 3-02.

combat-equipped landing force.[45] The AAAV was renamed the Expeditionary Fighting Vehicle (EFV) in 2003 although the concept of the program was never changed.[46] The EFV would not only provide the amphibious force the ability to preserve the safety of the naval shipping by allowing the ships to stay beyond the line of sight of coastal defenders, but its speed would allow the force to maximize flexibility in choosing landing beaches. In 1999, General Charles Krulak, by then the Commandant of the Marine Corps, described the AAAV (EFV) to *Leatherneck Magazine's* Chris Lawson as "the most capable weapon in the world."[47] Unfortunately, Secretary of Defense Robert Gates, citing cost growth and reliability concerns, recommended canceling the EFV program in 2011.[48]

The Marine Corps recommenced the journey to replace the AAV7A1 in 2011 with a request for information to defense industry. The new Amphibious Combat Vehicle (ACV) was desired to be able to conduct amphibious movement (ship-to-shore) while

---

[45] LtGen Charles Krulak, *Proposed Operational Requirements Document for the Advanced Amphibious Assault Vehicle* (Quantico, VA: Marine Corps Combat Development Command, 1994), encl. (1), 5.

[46] Andrew Feikert, *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress,* Congressional Research Service Report for Congress (Washington, DC: Library of Congress, 10 September 2008), CRS-3.

[47] Chris Lawson, "The Corps' Future One-Two Punch: The V-22 Osprey and the Advanced Amphibious Assault Vehicle," *Leatherneck* (January 1998): 14, ProQuest.

[48] Andrew Feikert, *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress,* Congressional Research Service Report for Congress (Washington, DC: Library of Congress, 14 March 2011), 7.

carrying 17 Marines at a speed of 8 knots from a range of 12 nautical miles.[49] The ACV is still under development and testing, so many publications regarding the ACV capabilities, limitations, and status are classified FOR OFFICIAL USE ONLY or higher, and this paper does not include their data. However, a RAND Corporation open testimony of May 2017 to the U.S. House of Representatives Committee, Armed Services Subcommittee on Seapower and Projection Forces highlights the ACV still lacks the range and speed to counter battlefield threats or achieve surprise.[50] Nonetheless, on 19 June 2018 BAE systems were awarded a $1.2 billion contract to develop the ACV.[51] The unclassified BAE systems data sheet highlights the ACV will have a range of 12 nautical miles at a speed of 6 knots.[52] It appears the RAND assessment is correct and if the ACV program is not modified, the Marine Corps may be moving into the future with what VADM Vannoy would describe as another slow-moving tortoise. Hopefully, this is an

[49] Congressional Research Service (CRS), *Marine Corps Amphibious Combat Vehicle: Background and Issues for Congress*, CRS Report for Congress (Washington, DC: Library of Congress, 15 March 2019), 3.

[50] Bradley Martin, *Amphibious Operations in a Contested Environment: Insights from Analytic Work* (Testimony presented before the House Armed Services Committee, Subcommittee for Seapower and Projection Forces, U.S. Congress, Washington, DC, 18 May 2017), 4-5.

[51] Congressional Research Service (CRS), *Marine Corps Amphibious Combat Vehicle Program*, CRS Report for Congress (Washington, DC: Library of Congress, September 26, 2018), accessed 13 December 2018, https://news.usni.org/2018/09/27/report-congress-marine-corps-amphibious-combat-vehicle-program-2.

[52] BAE Systems, "Amphibious Combat Vehicle 1.1," accessed 7 November 2018, https://www.baesystems.com/en-us/product/amphibious-combat-vehicle.

over-dramatization because the Marine Corps operational requirement is increasingly important.

The Amphibious Triad

The Marine Corps must rapidly build-up combat power, because the force is at its weakest at the time of landing, if it is to succeed during amphibious operations. The Marine Corps promotes the speed of assault through the use of an amphibious triad. The amphibious triad includes a high-speed, over-the-horizon protected assault craft, the Landing Craft, Air Cushion (LCAC), and the MV-22 Osprey. The combined range and speed of these platforms would achieve an over-the-horizon, flexible amphibious force that was capable of amphibious assault or any other type of amphibious operation.[53] The protected assault craft, the EFV (or AAAV) as initially envisioned, would provide the landing and subsequent mobility ashore for the surface assault echelon. The LCAC would land combat capabilities such as tanks, artillery, and additional sustainment. The MV-22 would transport the vertical assault force and additional combat service support in support of the landing force. The triad was envisioned as being a solution to crises, coastal defense systems, and amphibious power projection operations anywhere in the world.[54]

There is a distinct difference distinction between the capabilities provided by the aforementioned protected assault craft and surface connectors. This distinction is critical

[53] King, "U.S. Marine Corps Tactical Mobility," 13.

[54] LtCol Robert Earl, "The Over-the-Horizon Alternatives," *Marine Corps Gazette* (October 1988): ProQuest.

to this paper and the central thesis. The Marine Corps defines a connector as a "critical component either organic to, or in support of, the sea-base to transport personnel, supplies, and equipment within the sea-base and maneuver them from the sea base to objectives ashore."[55] In addition to the LCAC, the Marine Corps identifies the Landing Craft, Utility (LCU), and the Expeditionary Fast Transport as "surface connectors."[56] The term connector and surface connector are of relevance to this paper. Connectors are essential to the build-up of combat power ashore through the host of amphibious operations, and while they do give the Marine Corps an OTH capability referenced in JP 3-02, they do not provide the protected ship-to-shore maneuver or inland mobility like the AAV or the ACV. Consequently, the Marine Corps must retain a protected amphibious assault craft capability so the Corps may effectively move across the sea's surface to the shores of a hostile, neutral, or friendly coastline within an A2/AD environment.

The Threat Today

Despite the rightfully renewed focus on A2/AD weapons and systems, the concept of modern A2/AD is not something created in the last few years. Indeed, technology has advanced, the weapons' ranges are extended, and the lethality of these systems has grown, but the Marine Corps has routinely discussed these problems since at least the 1980s. In an article published in the *Marine Corps Gazette* in October of 1988, (then)

[55] U.S. Marine Corps Combat Development Command, Maritime and Expeditionary Warfare Integration Division, "Surface Connectors," accessed 1 February 2018, https://www.mccdc.marines.mil/Units/Seabasing/SurfaceConnectors.aspx.

[56] U.S. Marine Corps Concepts and Programs, "Surface Connectors," accessed 08 February 2018, https://www.candp.marines.mil/Programs/Focus-Area-3-Naval-Integration/Surface-Connectors/.

Marine Lieutenant Colonel Robert Earl wrote of the proliferation of smart, long-range cruise missiles that will challenge the ability for amphibious naval forces to get within a few miles of the beach as traditional employment concepts dictate. Earl writes, "no longer can the [amphibious task force] ATF afford to steam boldly to within 4,000 yards of the beach before commencing a ship-to-shore (STS) movement at conventional landing craft speed."[57] The amphibious force's landing force must be able to come from over-the-horizon (OTH).

The current situation is reminiscent of the post-Vietnam world when the Soviet Union's military build-up sparked a significant rivalry in conventional military capabilities between the Soviets and the United States. Moreover, when viewing the threat of 30 years ago as compared to the dangers of today through the lens of senior military leaders, the comparisons become even more evident. As the Marine Corps' 28th Commandant, General P.X. Kelley, wrote in *Proceedings Magazine* in 1986, that while America was heavily involved in Vietnam, the Soviets accelerated their conventional military build-up and "boosted the existing imbalance of conventional forces even more in their favor."[58] General Kelley goes on to describe an environment where the Soviets were using increased naval capabilities in the form of "huge naval complexes" to contest American maritime superiority in the Arctic and Pacific Oceans.[59] This view is similar

[57] Earl, "The Over-the-Horizon Alternatives," 37.

[58] Gen P. X. Kelley and Maj Hugh K. O'Donnell, Jr., "The Amphibious Warfare Strategy," *Proceedings* (January 1986), https://www.usni.org/magazines/proceedings/1986-01/amphibious-warfare-strategy.

[59] Ibid.

the those shared today about China's increased military technology and presence in the South China Sea, specifically A2/AD threats that challenge the ability for an ATF to operate freely. In the Unclassified Summary of the 2018 National Defense Strategy, Secretary of Defense James Mattis describes the Chinese as "militarizing features in the South China Sea" and "leveraging military modernization . . . to reorder the Indo-Pacific region to their advantage."[60]

In 2015, the Marine Corps' Futures Directorate, an organization designed to identify future challenges that may drive the combat development process, published a comprehensive viewpoint on the potential realities of the future operating environments that Marines, as part of a joint force, could be operationally employed. The document, titled "2015 Marine Corps Security Environment Forecast (MCSEF): Futures 2030-2045," describes a future operating environment where A2/AD capabilities are readily accessible to not only wealthy states that can afford the developing technologies, but due to globalization the weapons that comprise these systems may be found in under-developed countries or the possession of non-state actors.[61] The increased range and effectiveness of these systems will also pose significant challenges to operational maneuver and access to areas contested by countries protecting their interests.[62]

---

[60] Department of Defense (DoD), *Summary of the 2018 United States National Defense Strategy: Sharpening the American Military's Competitive Edge* (Washington, DC: DoD, 2018), 1-2.

[61] U.S. Marine Corps Warfighting Laboratory, Futures Directorate, *2015 Marine Corps Security Environment Forecast: Futures 2030-2045* (Quantico, VA: U.S. Marine Corps Warfighting Laboratory, 2015), vii.

[62] Ibid., 75.

Additionally, in 2016, the Marine Corps Intelligence Activity published a document titled "2015-2015 Future Operating Environment: Implications for Marines." This document highlights trends that Marines will face in the future. In terms of access, the report specifically calls out that in future, MAGTFs will need to possess greater mobility to access and within crisis areas and may not have immediate access to port and airfields.[63] The document describes the A2/AD capabilities currently being developed and proliferated around the world as presenting a technological environment that all but diminishes the United States' historical technology advantage.[64]

Conclusion

In the 1980s, the Marine Corps began planning for the development of a triad of amphibious platforms based on the MV-22 Osprey, the LCAC, and the Advanced Amphibious Assault Vehicle.[65] Unfortunately, the Marine Corps' amphibious triad is only a bipod today. The LCAC and the MV-22 are now operational; however, the Corps still lacks an advanced protected amphibious assault craft.

While the Marine Corps remains a premier fighting force, its ability to conduct forcible entry operations have never been more in question. Near-peer competitors have

---

[63] U.S. Marine Corps Intelligence Activity, *2016 Update - 2015-2025 Future Operating Environment: Implications for Marines* (Quantico, VA: Headquarters Marine Corps, 2016), 13.

[64] Ibid., 21.

[65] Lexington Institute, "Dragons of Change: The U.S. Marine Corps' Advanced Amphibious Assault Vehicles," 01 January 1999, accessed 01 February 2019, https://www.lexingtoninstitute.org/dragons-of-changethe-u-s-marine-corps-advanced-amphibious-assault-vehicles/.

increased their ability to challenge the United States' ability to conduct amphibious forcible entry operations in the case of crisis or contingency, thus providing the basis for multiple dilemmas. Consequently, the relevance of the Marine Corps, historically a viable forcible entry option, is increasingly challenged as the littoral threats push the Navy further from the coastline and thus increase the need for OTH capabilities. Today, the Marine Corps is at risk of losing the ability to execute an amphibious joint forcible entry operation in an anti-access/area-denial (A2/AD) environment because they have become solely reliant on aviation capabilities which provide only one option for future Marine Corps forcible entry operations.

The Marine Corps predicted the current situation in 2006; however, it has arguably failed to address the problem. The Expeditionary Fighting Vehicle Capabilities Production Document (CPD) argued, if the aging AAV7A1 was not modernized, "joint forcible entry operations would become . . . single dimensional operations relying entirely upon air assault of infantryman."[66] Unfortunately, the prediction has now come true. This paper will contribute to the debate regarding what to do now by addressing three key: First, can the Marine Corps meet its operational concept and doctrinal requirements without a protected ship-to-shore amphibious vehicle that is capable of over-the-horizon assault in an A2/AD environment? Second, what surface assault capabilities does the Marine Corps need to meet doctrinal demands? Third, and finally, does the current acquisitions strategy effectively align resources to meeting those capabilities? At endstate, this paper will contribute to the discussion regarding the future

[66] Krulak, *Proposed Operational Requirements Document for the Advanced Amphibious Assault Vehicle*, iii.

of the Marine Corps, the MAGTF, the legitimacy of protected amphibious assault and the use of protected amphibious assault craft in the A2/AD environment.

CHAPTER 2

LITERATURE REVIEW

> If amphibious assault is part of the forcible entry operation, it will include air and land assaults that originate from the sea.
>
> —Joint Chiefs of Staff, Joint Publication 3-18, *Joint Forcible Entry Operations*

The information, ideas, and analysis presented in this thesis are based on professional literature related to the Marine Corps, amphibious operations, A2/AD, and amphibious platforms. This chapter will examine the literature used during the development of this paper to demonstrate the depth of analysis, the strength of the argument, and the relevance of the central thesis. The literature review will examine what external political leaders, scholars, strategists, and commanders think the Marine Corps must do to provide a viable option during joint force entry operations in an A2/AD environment.

Anti-Access/Area Denial

A2/AD is not a 21st-century problem. Militaries have faced A2/AD threats for centuries. Today, Modern A2/AD has been influenced by technology; however, the premise remains the same: prevent the enemy from gaining access and deny the enemy the ability to land their forces. Consequently, the author sought to use history as a conduit through which to predict the future. Initially, *Neptune's Inferno,* the seminal work by James D. Hornfischer, was used as a basis to understand the challenges which will likely be faced by the United States Navy and Marine Corps in A2/AD environments of the future. Throughout the book, Hornfischer highlights how the Japanese A2/AD strategies

of 1942 challenged the U.S. Navy during the fighting within the Solomon Islands chain.[67] Hornfischer describes how the Japanese operations pressured the allied efforts to land, provide fire support and provide logistics ashore despite the persistent presence of allied aircraft carriers and patrol aircraft.[68] Hornfischer highlights that the Japanese A2/AD was so effective it forced the allies to consider withdrawing the allied aircraft carriers which would potentially leave the Marines ashore at risk of air attacks from Japanese bombers.[69] This case study demonstrates the Marine Corps needs a protected amphibious platform which is also capable of operating on land in a semi-independent fashion away from the supporting fleet. A modern case study was then sought to balance this perspective.

The Max Hastings' book, *The Battle for the Falklands* describes the dawn of modern A2/AD. Hastings highlights anti-aircraft radar provided the Argentine coastal defenders the ability to shoot down an AV-8B Harrier while the jet was attempting an air-to-ground attack.[70] He also describes in harrowing detail the impact a high-speed, long-range ASCM, an Exocet missile, flying at almost 700 mph had on *HMS Sheffield*.[71] Finally, Hastings gives prophetic credence to the need for protected amphibious assault

---

[67] Hornfischer, *Neptune's Inferno*, 2-3.

[68] Ibid., 53.

[69] Ibid., 53-55.

[70] Hastings and Jenkins, *The Battle for the Falklands*, 151.

[71] Ibid., 153.

craft with OTH capabilities when he states; following the attack on the *Sheffield,* the British naval task force would not be able to "operate so close inshore."[72] This case study demonstrates that the Marine Corps needs a protected, OTH capable surface assault craft if it is to operate in a modern A2/AD environment. Subsequently, the author turned to academic and strategic studies to reinforce the validity of the analysis.

The Center for Strategic and Budgetary Assessments (CSBA) is one of the world's premier centers for understanding future international competition and conflict. The CSBA develops innovative, resource-informed defense concepts, promotes public debate, and spur action to advance U.S. and allied interests.[73] In a 2003 CSBA report on A2/AD challenges, respected strategists Andrew Krepinevich, Barry Watts, and Robert Work describe the modern A2/AD environment following the proliferation of military technology around the world.[74] The report highlights the current United States global force posture, centered on major ports or airfields, was outdated and the United States would now not only need to maintain access through ports and airfields, but it would also need to use maritime forces to maneuver within the littorals to project and sustain ground and air forces ashore. Further, the report highlights high fidelity satellite and radar technology will support adversary targeting which reduces the effectiveness of static

---

[72] Hastings and Jenkins, *The Battle for the Falklands*, 156.

[73] Center for Strategic and Budgetary Assessments, "Our Mission," accessed 16 May 2019, https://csbaonline. org/about/mission.

[74] Krepinevich, Watts, and Work, "Meeting the Anti-Access and Area-Denial Challenge," 1.

land-based sites.[75] Consequently, the report emphasizes the Joint Force will be increasingly reliant on sea-based forces who can operate from OTH independent of fixed sites, thus challenging the defender's ability to target the force.[76] The CSBA analysis reinforces Hasting's observations from the Falklands and strengthens the central thesis.

The 2013 book, *Anti-Access Warfare: Countering A2/AD Strategies*, further reinforces the validity of the central thesis. The author, ex-Naval officer and strategist Sam J. Tangredi, describes anti-access/area denial as "strategies focused on preventing an opponent from operating military forces near, into, or within a contested region."[77] He combines the terminology A2 and AD but reinforces that the concepts are complimentary.[78] Tangredi uses the Chinese militarization of the South-China Sea as a modern example of an A2/AD strategy. He argues the military fortification of the islands forms "a great wall" which will challenge opposing naval forces from being able to project power.[79] Tangredi further asserts that the Chinese military is acquiring systems that "are optimized for an anti-access strategy" which will present the United States with formidable challenges should conflict arise.[80] He highlights that the Chinese have

---

[75] Krepinevich, Watts, and Work, "Meeting the Anti-Access and Area-Denial Challenge," 3-4.

[76] Ibid., 29-30.

[77] Tangredi. *Anti-Access Warfare,* 1.

[78] Ibid., 33.

[79] Ibid., 164.

[80] Ibid., 163, 182.

invested in space-based surveillance systems, over-the-horizon radars, submarines, surface combatants and aircraft which will push adversary sea-based capabilities beyond the normal radar horizon, deny access, and restrict maneuverability within the area of influence.[81] Tangredi also discusses strategies which could be used to counter the A2/AD threat. In this regard, he reinforces that the United States must leverage joint force capabilities to gain access and maintain freedom of maneuver once inside the JOA.[82] To conclude, Tangredi reinforces the importance of orchestrated maritime and amphibious operations during operations to seize or retain islands which are of pivotal importance to the defeat of an A2/AD strategy.[83] *Anti-Access Warfare: Countering A2/AD Strategies* reinforces the authority of the central thesis and the role the Marine Corps may play during an anti-A2/AD strategy.

The relevancy of Hornfischer, Hastings, and Tangredi arguments are reinforced in several modern Congress testimonies, political or military reports. The 2013 and 2015 reports to Congress on the Military and Security Developments Involving the People's Republic of China seeks to understand "the current and probable future course of military-technological development of the People's Liberation Army (PLA)."[84] The

[81] Tangredi, *Anti-Access Warfare,* 164

[82] Ibid., 241.

[83] Ibid., 242-243.

[84] DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015.*

reports highlight that PLA modernization appears to promote A2/AD operations.[85] In 2017 the Marine Corps published both classified and unclassified concepts for *Littoral Operations in a Contested Environment*. The unclassified version, which was reviewed for this paper, highlights long-range, precision cruise missiles, and undersea capabilities will challenge freedom of maneuver during naval operations.[86]

Similarly, in March of 2019, the Chairman of the Joint Chiefs of Staff (CJCS), told the Senate Armed Services Committee China's militarization of islands within the South-China Sea and new air and maritime capabilities are likely to deny the United States access and freedom of maneuver.[87] The CJCS bluntly highlights the impact A2/AD is having on the United States when he highlights the U.S. military can still project power anywhere in the world; however, "that competitive advantage has eroded."[88] The 2015 Marine Corps Security Environment Forecast there may be little distinction between an A2 capability and an AD capability once adversaries harness the

[85] DoD, *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015*, i.

[86] Gen Robert Neller and ADM John Richardson, *Littoral Operations in a Contested Environment 2017* UNCLASSIFIED Edition (Washington, DC: Department of the Navy, 2017), 5.

[87] U.S. Congress, Senate, Armed Services Committee, *Statement of General Joseph Dunford, Jr., USMC, 19th Chairman of the Joint Chiefs of Staff, Department of Defense Budget Hearing*, 116th Cong., Washington, DC, 14 March 2019, 4, accessed 14 March 2019, https://www.armed-services.senate.gov/imo/media/doc/Dunford_03-14-19.pdf.

[88] Ibid., 3.

power afforded by the distribution of A2 and AD technologies.[89] Furthermore, the Marine Corps' 2016 intelligence review emphasizes that missile technology will challenge how the Marine Corps projects forces.[90] The 2016 *Marine Corps Operating Concept* (MCOC) fortifies this theme by emphasizing the impact anti-ship cruise missiles, precision-guided munitions, targeting systems, and surface-to-air missiles will have on future Marine Corps operations in support of national interests.[91] The weight and credibility of the aforementioned evidence reinforce the central thesis and is recently supplemented by prominent military leaders, journalists, and academics.

General Charles Krulak, the 31st Commandant of the Marine Corps, authored an article for the Spring 1999 edition of *Joint Forces Quarterly* entitled "Operational Maneuver from the Sea." General Krulak envisions a world where adversaries leverage sophisticated technology to gain an asymmetric advantage over the United States.[92] He emphatically states the Marine Corps needs a protected over-the-horizon landing capability to protect naval shipping and amphibious support craft from enemy missiles, mines, and "other emerging threats."[93] In the 2019 article "First to Get to the Fight:

---

[89] U.S. Marine Corps Warfighting Laboratory, Futures Directorate, *2015 Marine Corps Security Environment Forecast*, 75.

[90] U.S. Marine Corps Intelligence Activity, *2016 Update - 2015-2025 Future Operating Environment*, 21.

[91] Neller, *The Marine Corps Operating Concept*, 5-7.

[92] Charles Krulak, "Operational Maneuver From the Sea," *Joint Forces Quarterly* (Spring 1999): 79.

[93] Ibid., 84.

Marine Amphibs Under the Gun" defense journalist Paul McLeary states shipping will have to remain 1000 miles from the shoreline during operations in an A2/AD environment. This range is needed to protect the ships from radar enhanced surface-to-air defense capabilities, mid-to-long range missiles, and attack craft and submarines. McLeary expresses that the Marine Corps ability to get ashore is more challenged than ever before.[94] In a *Foreign Policy* article of January 2019, "A New Cold War Has Begun," Robert Kaplan argues China is pursuing an A2/AD strategy designed to push the United States Naval Forces further away from the Western Pacific Ocean. Kaplan asserts China is extending the range of their maritime capabilities to restrict America and compete for the hegemony of the Pacific Ocean. Alarmingly, Kaplan also asserts that while economics drives China's intentions, there is a significant possibility of conflict between the United States and China.[95]

The above-mentioned historical, defense, strategic, and academic analysis all reinforce the legitimacy of the central thesis. The Marine Corps must be able to project combat power via protected ship-to-shore surface assault in the future A2/AD environment. Unsurprisingly, noting the weight of the evidence presented so far in this literature review, the Marine Corps understands the threat and implications. Consequently, the Corps used this knowledge as a baseline during the development of the

[94] Paul McLeary, "'Fight to Get to the Fight': Marine Amphibs Under the Gun," *Breaking Defense*, 11 February 2019, https://breakingdefense.com/2019/02/ marines-want-more-punch-on-amphibs-but-littorals-increasingly-risky/.

[95] Robert Kaplan, "A New Cold War Has Begun," *Foreign Policy,* 07 January 2019, https://foreignpolicy.com/2019/01/07/a-new-cold-war-has-begun/.

1994 *Operational Requirement Document (ORD) for the Advanced Amphibious Assault Vehicle* which had guided the Corps' efforts to modernize the protected amphibious assault fleet. The ORD describes the threat posed by the integration of modern air, land, and sea-based weapons, mines, and systems all designed to defeat U.S. naval and landing forces.[96] The ORD highlights the cogency of the A2/AD definitions discussed in this paper by highlighting "every [adversarial] target acquisition and fire support agency is integrated for the purpose of denying the [Amphibious Task Force] entry into the [Amphibious Operating Area]" and if that fails, "every means is brought to bear to destroy the combat potential of the landing force."[97]

Amphibious Guidance and Requirements

The initial review of the literature regarding amphibious capabilities began with a need to establish a baseline of the Marine Corps as an amphibious force. The first piece of literature reviewed was the iconic work of Lieutenant General (ret) Victor Krulak, *First to Fight: An Inside View of the U.S. Marine Corps*. LtGen Krulak expresses in the introduction to his book that from the very beginning the Marine Corps was seen as a naval amphibious force. He writes that while it may not have been put in to practice, that the two battalions of Marines authorized in 1775 were approved with the intent of seizing

[96] Krulak, *Proposed Operational Requirements Document for the Advanced Amphibious Assault Vehicle*, 2.

[97] Ibid., 8.

the British base in Halifax.[98] While he indeed expresses the Marine Corps ability and willingness to fight anywhere it was needed, the relationship between the Navy and the Marine Corps has been well established since the late 18th century.[99] Even when Marines only viewed themselves as a necessary component to naval combatant ships, officers of the U.S. Navy saw the vital role of an expeditionary force for service in support of the fleet and the nation.[100] The book continues to the inter-war period where Marines began the development of amphibious assault capabilities and doctrine. Yet, as LtGen Krulak describes, because of the successes of Marines in limited contingency operations in places like Haiti and Nicaragua, many Marines did not believe themselves as an amphibious force.[101] However, the book describes Marines such as "Pete" Ellis, John A. Lejeune, and John H. Russel envisioning amphibious assault as a core mission for the Marine Corps as early as 1912.[102]

The Department of Defense Directive 5100.01, published in 2010, is the most updated directive that outlines the roles and functions of the DoD and its major components. The directive is intended to provide the core mission areas for the different branches of the Armed Forces in the execution of strategic guidance given by the

---

[98] Krulak, *First to Fight*, 1.

[99] Ibid., 2-5.

[100] Ibid., 8-11.

[101] Ibid., 72-73.

[102] Ibid., 75-76.

President, Secretary of Defense, and the Chairman of the Joint Chiefs of Staff. The document applies to the entire U.S. Department of Defense, including the individual services.[103]

Enclosure 6 of the document specifically lays out the functions of the Armed Forces. In Paragraph 3 of Enclosure 6, the DoD Directive highlights specific functions that are common to all branches of the Armed Forces. One task given to all of the branches is to organize, train, and equip their forces to provide "unique service capabilities" to joint force commanders in order to achieve the desired effects across all domains in a variety of functions. One of those specific functions is forcible entry operations.[104] Paragraph 5 of Enclosure 6 dictates the functions of the Department of the Navy (DoN). The DoN, specifically the U.S. Navy and the U.S. Marine Corps, serves as the primary maritime force for the U.S. military and is functionally responsible for securing global access and freedom of action in operating areas around the world.[105] Continuing on to Enclosure 6, the directive details specific functions to each of the individual branches within the U.S. military. For the Marine Corps, the service is expected to conduct seven different functions, but in specific regards to this analysis, the Marine Corps is expected to: seize and defend advanced naval bases or lodgments to facilitate subsequent joint operations, to [c]onduct complex expeditionary operations in

[103] DoD, DoD Directive 5100.01, 1.

[104] Ibid., 28.

[105] Ibid., 30-31.

the urban littorals and other challenging environments and to [c]onduct amphibious operations, including engagement, crisis response, and power projection operations to assure access.[106] The only other branch of the armed forces, as written in the directive, that is expected to conduct amphibious operations is the United States Army. The Army is directed that one of its functions is to conduct airborne and air assault, and amphibious operations.[107]

The December 2017 National Security Strategy, signed by President Donald Trump, expresses the strategic visions for maintaining the security of the United States and its interests around the world.[108] Though the strategic document does not specifically call for amphibious operations, the President highlights many aspects that are critical to assuring access and freedom of maneuver. First, the President highlights that global competitors, like Russia and China, are developing systems that contest the United States' ability to access regions of the world and then equally seek to restrict the U.S. freedom of movement even in uncontested areas. To combat this, the President demands that the U.S. is capable of providing a credible deterrence across the land, air, maritime, space, and cyber domains.[109] The strategy calls out China's military modernization as designed to limit the United States' ability to access the Pacific Region and that their

---

[106] DoD, DoD Directive 5100.01, 32.

[107] Ibid., 30.

[108] U.S. President, *2017 National Security Strategy of the United States of America* (Washington, DC: The White House, 18 December 2017), ii.

[109] Ibid., 27.

militarization of islands in the South China Sea threatens to reduce stability within that part of the world.[110] The Presidents directs that the U.S. military retains a capable force that is capable of deterring and winning in every domain in any level of conflict across the ROMO.[111]

The 2018 National Defense Strategy defines the mission of the U.S. Department of the Defense as being able to provide "combat-credible military forces needed to deter war and protect the security of our nation. Should deterrence fail, the Joint Force is prepared to win."[112] Former Secretary of Defense James Mattis highlights his vision of building a Joint Force that is capable of employment in contested domains that can strike against U.S. adversaries and maintain freedom of movement well within their ability to defend the battlespace.[113] His visions of building a more lethal and agile force are grounded in an objective to ensure that the military forces can provide maximum options to strategic decision makers on Joint Force employment while simultaneously remaining unpredictable to adversary decision-makers.[114]

Though published in 2012, the *Joint Operational Access Concept* was created as a concept to ensure that the Joint Force can continue to provide operational access, or the

---

[110] U.S. President, *2017 National Security Strategy of the United States of America*, 46,

[111] Ibid., 29.

[112] DoD, *Summary of the 2018 United States National Defense Strategy*, 1.

[113] Ibid., 6-7.

[114] Ibid., 5-7.

ability to project military power into an operational area, in contested regions around the world. This is something that the United States has not had to be widely concerned with since at least before 1991.[115] The concept identifies three specific developments that will contest operational access in the future: 1) the proliferation of improved weapons that deny access or freedom of maneuver, 2) the changing overseas posture of U.S. forces, and 3) the rise of cyberspace and space as contested domains.[116] The reality of these emerging trends continues to be a critical component to the force development and strategic outlooks seven years after the *JOAC* was published. The document specifies that force projection remains an enduring requirement for the Joint Force and that the current military challenge was accomplishing force projection to project and sustain power against increasingly capable enemies.[117]

The *JOAC* identifies several precepts, or principles, that the Joint Force must apply to assure access in support of national or campaign objectives. The first important precept that related to amphibious operations is "to seize the initiative by deploying and operating along multiple, independent lines of operation." This precept seeks to force an adversary to defend over multiple avenues of approach and increases the employment options for the Joint Force Commander.[118] The second precept that aligns to the benefits

---

[115] DoD, *Joint Operational Access Concept*, 1-2.

[116] Ibid., ii.

[117] Ibid., i-ii.

[118] Ibid., 20-21.

of an amphibious force is to "maximize surprise through deception, stealth, and ambiguity to complicate enemy targeting." Specifically, regarding the term ambiguity, the *JOAC* seeks to present multiple courses of action that are credible which forces the enemy that possesses A2/AD capabilities to prepare against a wide array of friendly force projection options.[119]

Finally, the *JOAC* expresses that to achieve access the Joint Force must possess a set of broad capabilities. While these capabilities range across the entire spectrum of domains and through every Joint Function, specific to this analysis, the *JOAC* specifies three capabilities that are pertinent to the future of amphibious ship-to-shore power projection. The first being JOA-021: The ability to protect forces and supplies deploying by sea and air. The second being JOA-017: The ability to mask the approach of joint maneuver elements to enable those forces to penetrate sophisticated anti-access systems and close within striking range with acceptable risk. Finally, the third capability that aligns to the purpose of this analysis is JOA-016: JOA-016. The ability to conduct forcible entry operations, from raids and other limited-objective operations to the initiation of sustained land operations.[120]

The *JOAC* additionally discusses the risks associated with projecting power in a contested environment. One of the risks discussed in the *JOAC* is that the capabilities needed to operate in an A2/AD environment may be fiscally unsupportable dependent on

---

[119] DoD, *Joint Operational Access Concept,* 25-26.

[120] Ibid., 33-35.

any year's current or future Defense budget. The concept admits that the resources required to execute the concept are expensive due to the need for capable platforms, as well as robust training necessary to execute challenging operations.[121] The next risk area that challenges the ability to conduct operations under a potential umbrella of A2/AD threats is that it may logistically demanding or even unsupportable. The idea of having multiple units that can provide various means by which to enter or operate freely within an environment places a significant sustainment burden on the Joint Force, one that may make it impractical in execution.[122]

Joint Publication 3-18: *Joint Forcible Entry Operations* is the Joint Force's governing document on the conduct of JFEO. The document describes a JFEO as a naturally joint operation, but that each the Service's each possess unique service-specific capabilities that contribute to JFEO. One of the specific means is amphibious assault, and it additionally attributes amphibious raids as a contributing operation to JFEO. It describes these capabilities within the context of JFEO as necessary to provide a credible deterrence to potential adversaries and to give political and strategic leaders military options to enforce U.S. policy.[123] As part of the amphibious assault, in order to maximize the capability of the amphibious force in relation to the defending force, the doctrine

---

[121] DoD, *Joint Operational Access Concept*, 37.

[122] Ibid., 37.

[123] Joint Chiefs of Staff, Joint Publication 3-18, *Joint Forcible Entry Operations* (Washington, DC: Government Publishing Office, 27 June 2018), I-1 – I-2.

states that "[i]f an amphibious assault is part of the forcible entry operation, it will include air and land assaults that originate from the sea."[124]

Specific to amphibious assault, this method may be employed, according to the publication, due to the flexibility, mobility, and ability of amphibious forces to achieve surprise. However, to accomplish this, the amphibious force should be capable of the rapid build-up of combat power and possess the capability to strike the enemy where he is not prepared to defend.[125] If the force is credible in these areas, they present a threat that must be accounted for by the defenders. The publication continues to highlight the success of the amphibious demonstration in Operation DESERT STORM as an example of what effect a credible amphibious forcible entry capability has on an enemy plan.[126] In the 1992 Gulf War Report to Congress, which conceptually aligns with JP 3-18, the writers express that the credible threat of an amphibious assault forced the Iraqi Army to defend the coast with five divisions of forces and diverting their attention from the ground attack or urban areas.[127]

Joint Publication 3-02: *Amphibious Operations* is the document that governs amphibious operations across the Joint Force. First, the publication ensures it

---

[124] JCS, JP 3-18, II-4.

[125] Ibid., I-1 – I-2.

[126] Ibid., I-8, IV-15.

[127] Department of Defense, *Final Report to Congress: Conduct of the Persian Gulf War* (Washington, DC: Government Printing Office, April 1992), accessed 18 November 2018, https://www.globalsecurity.org/military/library/report/1992/cpgw.pdf.

distinguishes between amphibious operations and the historically based connotations of a landing force attacking in linear formations on to well-defended beaches. While this may be a reality, it is an undesirable reality.[128] Then it requires that forces conducting amphibious operations be able to perform operations in the air, on land, and through the sea. JP 3-02 also states that amphibious forces should not only be able to conduct these operations from OTH, it should, in some cases, be capable of maneuvering from the sea base directly to inland objectives.[129] The doctrine also discusses the disadvantages of OTH operations; one specifically being the inability of amphibious assault vehicles to swim from ship-to-shore from OTH distances of 25 nautical miles or greater.[130]

As the preeminent amphibious force, and the service directed to perform amphibious operations, the Marine Corps developed its operational concept, the *Marine Corps Operating Concept* (*MOC*). The *MOC*, a concept designed to aid force development in the 21st century opens with a fictional vignette that aims to describe a future conflict. In the scene, written through the lens of a notional interview panel, Marines assault from the sea to seize expeditionary advanced bases and repel both an adversary conventional force invasion and insurgency in a U.S. partner nation. The vignette describes an enemy that attempts to create an A2/AD environment, but one that

[128] JCS, JP 3-02, I-1.

[129] Ibid., I-1.

[130] Ibid., III-37.

Marines can penetrate through a combination of a surface amphibious raid and a combined surface and vertical amphibious assault.[131]

The *MOC* continues to highlight necessary amphibious capabilities that will be needed to operate in the actual environments of the future. It requires the MAGTF to have capabilities that avoid "linear, sequential, and phased approaches" to operations and to be a force capable of fighting "at sea, from the sea, and ashore."[132] Ultimately, it is this last phrase that the *MOC* views as a national requirement that demands the Marine Corps be able to operate effectively in and amongst littoral environments in the 21st century.[133] As the Marine Corps attempts to develop the capabilities, the *MOC* requires the force to look at deterrence, sea control, and power projection as two of the essential functions of Naval forces and accordingly must develop capabilities that allow the MAGTF to contribute to these tasks.[134] The document states that a necessary requirement for the MAGTF to contribute it must be able to develop capabilities that enable to the seizure of a lodgment through forcible entry operations.[135]

The *MOC* builds on the previous operating concepts of *Operational Maneuver from the Sea (OMFTS), Ship-to-Objective Maneuver (STOM),* and *Expeditionary Force*

---

[131] Neller, *Marine Corps Operating Concept*, 1-3.

[132] Ibid., 8.

[133] Ibid., 9.

[134] Ibid., 10.

[135] Ibid., 11-12.

21 (EF21). Reviews of the literature about these concepts see similar trends in amphibious capability requirements. *OMFTS*, the concept General Krulak wrote about in 1999, was a concept developed in 1996 due in part to rising conventional weapon lethality.[136] *OMFTS* required reviews of capability areas, specifically in expanding maritime maneuver and revolutionizing forcible entry capabilities, through the ability to maneuver to objectives from over-the-horizon.[137] *STOM*, published in 2011, further expands *OMFTS* to allow more focus on access challenges.[138]

STOM emphasizes that surface maneuver forces will be a necessary component to defeating contemporary defenses through the ability to contain combined arms units, capable of attacking across the sea's surface all the way to inland objectives. These forces, according to *STOM*, must consist of self-deploying amphibious assault craft and other vehicles and capabilities transported via other Navy landing craft. *STOM* further highlights that the amphibious assault craft are required to provide the landing force the necessary mobility to be successful ashore.[139] *EF21*, the 2014 operating concept, defines

[136] Department of the Navy, Headquarters Marine Corps, Marine Corps Concept Paper 1: *Operational Maneuver From the Sea* (Washington, DC: Department of the Navy, 4 January 1996), 1.

[137] Ibid., 21-23.

[138] Department of the Navy (DON), Marine Corps Combat Development Command (MCCDC), *Ship-to-Objective Maneuver 2011* (Quantico, VA: MCCDC, 16 May 2011), iii-1.

[139] Ibid., 21.

one of the primary missions of the Marine Corps as "assuring littoral access."[140] The document desires for the Marine Corps, as part of a naval team, to challenge A2/AD strategies by conducting amphibious operations to conduct missions ranging from raids to the seizure of lodgments.[141] The force should be able to do this by further developing capabilities to "shape the operating environment and, if required, conduct forcible entry operations."[142]

In 2010, the Marine Corps joined forces with the U.S. Navy and U.S. Coast Guard in concept development to bring *OMFTS* in the *Naval Operations Concept 2010: Implementing the Maritime Strategy.*[143] The *Naval Operations Concept (NOC)* was reviewed as an additional piece of literature that sought to help the sea-faring services tackle the challenges of A2/AD. The concept highlights opportunities within permissive, uncertain, and hostile environments that can be exploited by amphibious forces seeking to gain or maintain access and freedom of maneuver in the maritime environment.[144] In all of these environments, the concept explains that possessing naval power projection forces allow for the execution of operations across the ROMO, but that specifically in a

---

[140] Amos, *Expeditionary Force 21*,7.

[141] Ibid., 9.

[142] Ibid., 11.

[143] DON, MCCDC, *Ship-to-Objective Maneuver*, ii.

[144] Gen James Conway, ADM Gary Roughead, and ADM Thad Allen, *Naval Operations Concept 2010: Implementing the Maritime Strategy* (Washington, DC: Department of the Navy, 2010), 63-67.

hostile environment, capable forces possess a unique coast challenge to defenders that can fix or disperse their forces beyond their desires.[145] According to the *NOC,* to counterbalance the advanced capabilities of A2/AD systems, landing forces should be able to come from over-the-horizon as it further inhibits the detection capability of the adversary.[146]

On the contrary, despite historical and modern literature outlining the amphibious assault development and dictating the requirement for Marines to be able to conduct forcible entry through amphibious assault, not all literature reviewed claimed that the Marine Corps is or needs to be an amphibious force and certainly an amphibious assault force capable of independent, over-the-horizon surface maneuver. In March of 2011, noted author-strategist Peter Singer published an online article with Brookings. The article "The Marine Corps is All Right" was written upon learning that Defense Secretary Robert Gates canceled the Marine Corps' Expeditionary Fighting Vehicle.[147] He points out that the ability to conduct an amphibious assault only benefited the Marine Corps for a period of about eight years between 1942 and 1950. It is the Marine Corps' ability to

[145] Conway, Roughead, and Allen, *Naval Operations Concept 2010*, 63-65.

[146] Ibid., 66.

[147] Peter Singer, "The Marine Corps is All Right," Brookings Institution, 4 March 2011, accessed 29 August 2018, https://www.brookings.edu/articles/the-marine-corps-is-all-right/.

operate in small, independent units in expeditionary environments is the true value of the Corps to the nation.[148]

Also, in a 2014 *Marine Corps Gazette* article, Marine Major Trevor Howell writes in "Traditional Amphibious Warfare: Wrong for Decades, Wrong for the Future," that forcible entries using amphibious assault are in fact, "detrimental" to the service and the Nation.[149] Major Howell echoes Singer in that amphibious operations are the exception and not the rule to Marine Corps employment and irregular warfare (though he notes amphibious raids) as the Marine Corps' place since 1775. He contradicts the claim that the Marine Corps should rekindle its amphibious character following a decade and more of counter-insurgency operations and that it would be better suited for forcible entry if it was not an amphibious force.[150] He advocates instead for the Marine Corps to leverage small unit operations, aided by the MV-22 Osprey and unmanned platforms, to conduct "specialized amphibious operations" vice the traditional operations executed in the past and outlined in current doctrine.[151]

Surface Assault Craft and Connectors

Literature concerning the surface assault capabilities of the MAGTF was

---

[148] Singer, "The Marine Corps is All Right."

[149] Maj Trevor Howell, "Amphibious Warfare: Wrong for Decades, Wrong for the Future," *Marine Corps Gazette* (September 2014): 18, ProQuest.

[150] Ibid., 19-21.

[151] Ibid., 23.

reviewed to determine the capabilities that the MAGTF can offer the Joint Force in support of JFEO or even smaller scale amphibious operations. The capabilities reviewed began with the current assault craft, the AAV7A1, and then its replacement, the Amphibious Combat Vehicle (ACV). Additional connectors, such as the LCAC and LCU were analyzed to provide the breadth of platforms that can transport Marines from ship-to-shore in support of a JFEO. The literature reviewed did include the original desired replacement for the AAV7A1, the EFV, as well as writing that highlighted the necessity for a replacement platform at all.

According to Marine Corps Technical Publication 3-13 *Employment of Amphibious Assault Vehicles,* the AAV7A1 has an operational range, which the publication only defines the maximum distance in terms of time, of seven hours.[152] However, in further analysis of the organization of an amphibious landing area described in the employment manual, one can see that the doctrinal Boat Lane (lane in the water extending from the beach to the line of departure) is 2,700 yards in distance and a maximum Approach Lane (lane extending from the line of departure to the inner transport area – or unloading area) of 10,000 yards.[153] These distances infer that the ideal range for an AAV7A1 is approximately seven nautical miles, well within the range of

[152] Department of the Navy (DON), Headquarters Marine Corps (HQMC), Marine Corps Technical Publication (MCTP) 3-10C, *Employment of Amphibious Assault Vehicles* (Washington, DC: Department of the Navy, 02 May 2016), 3-12.

[153] Ibid., 3-10 – 3-11.

coastal defense systems and visual and radar detection.[154] The manual further expresses the capability of the platform in terms of its water speed. At its maximum, the vehicle can travel at 8.2 knots in the water in what the manual describes as "calm seas."[155] Unfortunately, the manual does not adequately define "calm", but does highlight that the vehicle is most effectively maneuvered in Sea State Three or lower (wave height of four feet or less with winds not greater than 15 knots). According to the manual, the vehicle will suffer speed and maneuverability challenges in Sea State Four or greater, thus increasing the ship-to-shore time when launched from the vehicle's maximum range.[156]

The ACV, the replacement assault vehicle, is currently under development and many of its associated acquisitions documents remain For Official Use Only or at a higher level of classified. In order to maintain this thesis at a strictly UNCLASSIFIED level, those documents were not a part of this literature review. However, when reviewing the Marine Corps Ground Combat and Tactical Vehicle Strategy through the service's official website, one can see that the vehicle intends to provide greater ground mobility and protection than its predecessor. However, the only threat indicated against the requirement for this vehicle is the improvised explosive device.[157] In an 2019 article

---

[154] The author used the equation of 1 nautical mile as being equal to 2,025 yards.

[155] DON HQMC, MCTP 3-10C, 11-4.

[156] Ibid., 3-3.

[157] U.S. Marine Corps Concepts and Programs, "Amphibious Combat Vehicle 1.1," accessed 14 December 2018, https://www.candp.marines.mil/Programs/ Focus-Area-4-Modernization-Technology/Part-3-Ground-Combat-Tactical-Vehicles/Amphibious-Combat-Vehicle/.

for *The National Interest*, author Kris Osborn wrote that the ACV is designed for sea-land operations and is designed to greatly increase the ground maneuver capability in comparison to its tracked predecessor. Osborn writes that the vehicle can achieve speeds of nearly 60 mph on land for hundreds of miles.[158] In terms of water mobility, through the vehicle manufacturer, BAE's, website, the vehicles specifications were pulled to review the capabilities of the ACV. The general characteristics provided were that the vehicle should be able to swim at a speed of six knots with a water range of 12 nautical miles.[159]

A direct comparison of the two vehicles is challenging in the fact that the ACV has yet to see true operational employment due to its early stage of procurement. However, to form a basis for an opinion, the author consulted testimonies and research provided to the United States Congress regarding the Marine Corps' amphibious vehicle capabilities. Policy Researcher for the RAND Corporation, Dr. Bradley Martin, provided a 2017 testimony to the House Armed Services Committee where he declared that the ACV's operational swim capability was no real improvement over the AAV7A1 and would still leave naval shipping at risk of being well within the range of even unsophisticated weapons.[160] Then, while acknowledging of the range and speed

---

[158] Kris Osborn, "Marine Corps Builds New Amphibious Combat Vehicle for "Deep Strike" Attacks," *The National Interest,* 22 January 2019, accessed at https://nationalinterest.org/blog/buzz/marine-corps-builds-new-amphibious-combat-vehicle-deep-strike-attacks-42272

[159] BAE Systems, "Amphibious Combat Vehicle 1.1."

[160] Martin, *Amphibious Operations in a Contested Environment*, 4-6.

limitations of the ACV 1.1, a 2019 report to Congress on the ACV indicates that the Marine Corps still intends to pursue a high-water speed, longer range amphibious vehicle, designated as ACV 2.0.[161]

Literature dating as far back as 1983, indicated the need for a high-speed, over-the-horizon amphibious assault platform. Vice Admiral (VADM) Frank Vannoy's essay "Where Do the Gators Go From Here?" discusses such a concept in the book *Assault From the Sea: Essays on the History of Amphibious Warfare.* VADM Vannoy writes that an OTH capability will further protect the force against most land-based threats and additionally allows for a greater element of surprise when the enemy cannot identify the launch of the assault force. He exasperates the limiting capability of the AAV7A1 of forcing the amphibious task force well within visual range of a beach but states that the development of what would become the AAAV (EFV) and the LCAC as potential solutions to the problems of speed and range.[162]

A June 2014 article written for *Proceedings* by then-Marine Commandant General Jim Amos, discusses the need to develop greater surface assault capability to achieve the intent of concepts like the *JOAC.* In "Bridging Our Surface-Connector Gap," General Amos acknowledges that the future environment will demand amphibious forces that are capable of responding to a crisis or the seizing of a lodgment on a hostile

[161] Andrew Feikert, *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress,* Congressional Research Service Report for Congress (Washington, DC: Library of Congress, 15 March 2019), 7-11.

[162] Vannoy, "Where Do the Gators Go From Here?" 401.

shore.[163] General Amos outlines the need for better assault capabilities and that while the MV-22 and the LCAC are highly capable platforms, they do not entirely meet the requirement. He goes on to highlight surface platforms that provide long-range, high-speed approaches to a beach. Real and even conceptual platforms like the Ultra Heavy-Lift Amphibious Connector, the Landing-Catamaran, or the Landing Craft Utility (F) all provide the speed and range required of the 21st-century battlefield.[164] The question that he fails to answer in his article, though is, can they fight for entry if necessary?

Mr. Douglas King and Mr. Brett Friedman's article "Why the Navy Needs a Fighting Connector: Distributed Maritime Operations and the Modern Littoral Environment" outlines a requirement that whatever the vessel is that carries Marines from ship-to-shore, it needs to be able to fight. The authors describe an environment consistent with the previously reviewed literature on A2/AD but further describe it as requiring dispersion of forces to increase survivability from the modern weapons. While the capability they represent can be used to achieve effects on either the seaward or landward side of the littorals, the fact remains that the vessel they describe must be able to fight for access. This ability, as they claim, would provide the ability to employ dispersed and distributed forces to make entry to accomplish any number of assigned missions.[165]

---

[163] Gen James Amos, "Bridging Our Surface-Connector Gap," *Proceedings* (June 2014), U.S. Naval Institute, accessed 7 November 2018, https://www.usni.org/magazines/proceedings/2014/june/bridging-our-surface-connector-gap.

[164] Ibid.

[165] Douglas King and Brett Friedman, "Why the Navy Needs a Fighting Connector: Distributed Maritime Operations and the Modern Littoral Environment," *War*

The article regarding a fighting connector was not the only piece of literature from Mr. King reviewed for this analysis. Mr. King, who now serves as the Director of The Ellis Group within the Marine Corps Warfighting Laboratory, also authored a thesis in 1996 while a student the U.S. Army Command and General Staff College. His thesis, titled "U.S. Marine Corps Surface Tactical Mobility Requirements for Ship-to-Objective Maneuver" is similar in scope to this paper, without the aid of the actuality of the modern threat environment. In his thesis, he argues that the MV-22 and the AAAV (which was the named of the EFV at the time of his paper), provide the necessary lift, range, and speed to bring infantry forces ashore, but that the lack of LCAC survivability against modern threats may be prohibitive to building necessary combat power to win ashore.[166] At the time, he further advocates in his thesis that in order to bridge the capability gap, the Marine Corps should look at producing a family of [EFVs] that can provide multiple battlefield functions beyond just infantry lift and mobility, such as tank variant and mortar variant.[167]

Literature on the Expeditionary Fighting Vehicle dates back to the early 1980s, first with VADM Vannoy's article expressing the Marine Corps' interest in a high-speed, over-the-horizon assault vehicle.[168] In 1993, a Lieutenant Commander Stephen Goertzen,

---

on the Rocks, 10 November 2017, https://warontherocks.com/2017/11/navy-needs-fighting-connector-distributed-maritime-operations-modern-littoral-environment/.

[166] King, "U.S. Marine Corps Tactical Mobility," 99-100.

[167] Ibid.

[168] Vannoy, "Where Do the Gators Go From Here?" 401.

another student at the U.S. Army's Command and General Staff College, described the [AAAV] as a capability that will provide forcible entry and achieve battlefield surprise for an amphibious force in his thesis "The Feasibility of the Over-the-Horizon Amphibious Assault for the U.S. Navy and Marine Corps Forces".[169] A further opinion on the advanced assault platform is found in George V. Galdorisi's essay "Expeditionary and Amphibious Warfare," where he states that the combination of the [AAAV], the MV-22, and the LCAC provided the MAGTF the "operational agility, strategic mobility, potent lethality, and embedded sustainment to influence events ashore decisively."[170]

However, the best literature reviewed was the actual production documents for the AAAV or EFV. The 1994 ORD states that the AAV7A1 did not have the water speed to meeting *OMFTS* requirements, as well as other deficiencies, thus requiring the AAAV, with threshold speeds of 20 knots, to propel landing forces ashore in the future.[171] By the time the vehicle was the EFV and the Capabilities Production Document (CPD) was developed in 2006, the speed remained at a minimum of 20 knots and the vehicle's range

---

[169] LCDR Stephen Goertzen, "The Feasibility of the Over-the-Horizon Amphibious Assault for the U.S. Navy and Marine Corps Forces" (Master's Thesis, U.S Army Command and General Staff College, Fort Leavenworth, KS, 1993), 86.

[170] George V. Galdorisi, "Expeditionary and Amphibious Warfare," in *Globalization and Maritime Power*, ed. Sam J. Tangredi (Washington, DC: National Defense University Press, 2002), 415.

[171] Krulak, *Proposed Operational Requirements Document for the Advanced Amphibious Assault Vehicle*, 9.

was advertised to be between 20-25 nautical miles.[172] The rationale for the vehicle in CPD was aligned with *OMFTS* and the Joint Force's requirements to be able to conduct OTH forcible entry, to gain and maintain access, to project forces from strategic and operational distances directly to objectives, to provide force protection through range and speed, and to allow for greater dispersion and distribution of forces in operations across the ROMO.[173]

[172] U.S. Marine Corps, *Capabilities Production Document for the Expeditionary Fighting Vehicle* (Quantico, VA: Headquarters Marine Corps, 13 April 2006), 59.

[173] Ibid., 1-2.

HAPTER 3

RESEARCH METHODOLOGY

> A force trained and equipped to land across a defended beach can always land across an undefended one, but the reverse is not true.
>
> —Theodore L. Gatchel, *At the Water's Edge*

Through the analysis contained within this thesis, the author sought to answer the question of whether the Marine Corps' current amphibious vehicles enabled the service to provide multiple options to joint forcible entry operations against modern A2/AD threats. The author completed this analysis agnostic to the fiscal realities that the service certainly has faced in recent years and may potentially face in the future, yet with the understanding that the service may be trying to solve more pressing issues in the short term. However, this was necessary to allow the analysis to factor in the Marine Corps' role in the U.S. Department of Defense and the capabilities to fully execute that role.

The increasingly capable anti- needed access/area denial capabilities around the world are an often-discussed reality facing the Joint Force today, and there is no reason to believe that these capabilities will not continue to progress in the 21st century. The risks to naval forces operating across the seas are more at risk than they were in the 1940s when the amphibious operations doctrine was being executed in WW2. The ranges of missiles, vessels, aircraft, and the precision of missiles place not just naval, but any forces within strike distance from, in some cases, over a thousand miles away. The modern threats remain a challenge to the entire Joint Force, but for the Marine Corps, whose

historical ability to execute protected STS movement has given it a distinct role in protecting national interests, these risks are highly problematic.

For the purposes of this analysis, the author used a qualitative approach to research and a content analysis of the current threat, strategic guidance and doctrine, operational concepts, and the capabilities of the portfolio of amphibious platforms within the Marine Corps. By analyzing the threat, one can begin to see what capabilities may be necessary to counter the threat. Then, reviewing strategic guidance and doctrine allowed the author to understand the requirements of the Marine Corps as the nation's amphibious service. Combining analysis of the threat with the guidance and doctrine, the gaps become apparent in what the nation asks of its amphibious force versus what that force can do all within the context of a known environment.

First, a thorough review of literature regarding the threat was analyzed. Though significant research exists, the author focused on historical examples of A2/AD capabilities and how they were eventually overcame. For instance, when reviewing literature on the battle for the Falkland Islands in 1982, one can see the advent of over-the-horizon capabilities becoming a requirement in doctrine and acquisitions approaches. Additional literature beginning in the early 21st century shows the initial publication of the terms anti-access/area denial and the problem that analysts, in this case, those from CSBA and author Sam J. Tangredi, saw for the current and future Joint Force.

Second, the author conducted a content review of strategic guidance and doctrine. Specifically, guidance from strategic leaders ranging from the President and Secretary of Defense demonstrated a strategic need to provide access and freedom of action within

contested areas. There was also evident a necessity to provide capabilities that would deter potential adversaries from escalating contested access to areas that the U.S. deemed as global commons or vital to the nation's national interests. This necessity led to a further review of current doctrine that outlined not only the necessity for a credible deterrence force, but that part of that deterrence was the realistic capability for forcible entry. Per the doctrine, the Marine Corps' role in forcible entry was through amphibious operations.

As such, a review of the *Marine Corps Operating Concept* and the concepts that spawned the *MOC* was necessary. These documents are the driving forces behind the Marine Corps' approach to warfighting over the next 10-15 years. However, as the Joint Force subscribes to Joint (doctrinal) Publications, it is important to see a cross-walk between what the Marine Corps sees as its contribution to future operations and what the Joint Force expects from an amphibious force. Specifically, it was imperative to see if the Marine Corps' approach remains nested with Joint Publications 3-02 and 3-18.

As part of the research, the past may very well be prologue. The Marine Corps saw a need as far back as the early 1980s to be able to conduct over-the-horizon surface movement, no doubt in combination with vertical movements as well, and it created a solution in the EFV. As part of the content analysis of current operating concepts and doctrine, a review of what Marine Corps and Navy leadership viewed as the threat warranting over-the-horizon maneuver is essential. The review of the documents governing the two decades of research, development, and testing of the EFV expressly state the requirements for this platform's capability. From that analysis, an orderly

transition to current acquisitions programs can be conducted. Programs like the Amphibious Combat Vehicle and the Ship-to-Shore Connector are the near future of amphibious surface movement. As part of the qualitative review of these capabilities, one can make an accurate assessment of whether they meet the demand signal expressed through current operational concepts.

Finally, a review of the Marine Corps acquisitions strategy was warranted to complete the analysis. The Marine Corps is open about its desire for technological solutions to current capability gaps and the *Marine Operating Concept* is full of the exploitation of technology to gain an advantage over adversaries. However, technological maturation in areas like cyber and unmanned systems may help set the conditions or be an enabling capability, but they do little to solve the problem of moving combat power from ship-to-shore. The Marine Corps Ground Combat Tactical Vehicle Strategy is how the Marine Corps lays out how and when it intends to produce platforms that provide mobility across the maritime and land domains to the individual Marine, and a thorough review of this strategy is critical to understanding where the Marine Corps sees these capabilities in the future. In the current case, the Marine Corps' decision to procure the Amphibious Combat Vehicle is, in theory, indicative of the service's approach towards modernizing its amphibious assault craft. This platform is intended to bring the Marine Corps a modernized protected assault craft against current A2/AD threats.

CHAPTER 4

ANALYSIS

> When he concentrates, prepare against him; where he is strong, avoid him.
> —Sun Tzu, *The Art of War*

This thesis wanted to determine if the Marine Corps possesses the necessary surface assault capabilities, in the form of a protected amphibious assault craft, to provide an amphibious option for JFEO to future Joint Force Commanders in the face of modern A2/AD systems. It looked at what capabilities the Marine Corps may need to execute its Department of Defense directed task of conducting amphibious operations on the future battlefields and if the Marine Corps was realistically striving to achieve these capabilities. The qualitative content review of doctrine, concepts, and advertised capabilities of platforms provide the ability to conduct an analysis of the central thesis. As stated earlier, the author remained agnostic to fiscal reality while understanding that the Marine Corps has invested significant amounts of current and future dollars into seemingly more immediate needs. However, as the fiscal situation remains a constant stressor to any desired acquisitions strategy, those decisions are typically held within the U.S. Congress and predictions about their future may fall short of political reality. This did not alleviate the necessity for the author to look at the current and projected capabilities and try to decide on the Marine Corps' future in an amphibious assault or in any amphibious operation.

Threat Analysis

The first area of analysis was the threat that has spawned much attention over the last few years. A2/AD is actually the sum of two various activities that seek to challenge the United States', for the purpose of this thesis, ability to accomplish its strategic, operational, or tactical objectives on the battlefield. JP 1-02 breaks down the over-arching term in to anti-access and area-denial, the former being designed to prevent access to an operational area, the latter to restrict freedom of maneuver to forces that enter.[174] The difference between the two is not necessarily exclusive to differing weapon systems but is often referred to in the joint definition as a difference in range. While the term "long-range" is provided for anti-access actions and capabilities, "shorter range" is applied to area denial.[175] Unfortunately, no distinction is drawn between what constitutes the difference between a long-range weapon and a short-range weapon.

While DoD Direction 5100.01 directs the Marine Corps to conduct amphibious operations to assure access, the Marine Corps does provide a more contribution to access than just amphibious operations. A combination of Theater Security Cooperation and engagement exercises do not necessarily begin and end with an amphibious operation. These events, however, are equally as critical to access to an operational area as a ship-to-shore movement of any sort. Though the term "operational area" is not restrictive to size or scope, but a term that encompasses more familiar concepts like "area of

[174] JCS, JP 1-02, 17-18.

[175] Ibid., 17.

operations" or "amphibious operations area". it may also include a larger "joint operations area."[176]

Therefore, to develop a relationship between the capabilities and actions with A2/AD and the actions needed to defeat them, the author drew a converse relationship between the two. To defeat A2 systems, the Joint Force employs a variety of activities prior to a conflict across all levels of warfare, including the previously mentioned Theater Security Cooperation and engagement, to ensure access to probable or defined operational areas. Additionally, non-Marine Corps capabilities from across the Joint or coalition force, such as Air Force global precision attack, may be necessary to ensure access to the operational area once hostilities commence.[177] AD, on the other hand, may require much more tactical actions and capabilities to defeat.

The range of modern battlefield missiles that may keep ships outside of 900 nautical miles will likely preclude any amphibious operations, by surface or air, that can defeat anti-access capabilities. The sheer distance would be preventative to even vertical assault capabilities without a significant amount of high-signature, slow-speed air-to-air refueling capabilities, at least until adversary air defense systems are reduced to a lower risk level. This reality would imply that amphibious operations are not going to be necessarily used to gain access, but more to maintain a freedom of maneuver and to accomplish objectives within the JOA once the anti-access systems are neutralized. As

[176] JCS, JP 1-02, 174.

[177] DoD, DoD Directive 5100.01, 34.

such, amphibious operations will likely be used to offset or defeat the capabilities of shorter-range area denial.

Doctrine Analysis

Regardless of the possible verbiage difference in whether amphibious operations are employed for access or once access is already achieved, the fact remains that the Marine Corps is specifically tasked with conducting them. *Joint Publication 3-02 Amphibious Operations* clearly defines the types of amphibious operations that an amphibious force must be able to accomplish. Amphibious assault, amphibious raid, amphibious demonstration, amphibious withdrawal, and amphibious support to other operations are the five specified types that the Marine Corps, for most if not all, of its history has been able to do and must continue to do. In terms of a JFEO, the Marine Corps contribution is through amphibious assault.

While amphibious assault is just one type of amphibious operation, it is the only amphibious operation that is directly aligned to JFEO. *Joint Publication 3-18: Joint Forcible Entry Operations* does specifically state that a forcible entry may be conducted by amphibious assault, air assault, ground assault, or airborne assault or can be conducted by a combination of these methods.[178] It is prudent to note that amphibious raids are also referenced as missions that can contribute to a JFEO, the employment platforms do not differ, and they are conducted with the same considerations.[179] The apparent rationale for

[178] JCS, JP 3-18, I-9.

[179] JCS, JP 3-18, II-1; JCS, JP 3-02, IV-3.

the variety of methods is the necessity to provide as many options as possible that a Joint Force Commander can employ in their assigned operational area. Without options, the Joint Force increases its risk of becoming less flexible in its ability to respond to or deter a crisis. As such, in terms of the Marine Corps contribution to options in a JFEO is through the directed execution of amphibious operations, specifically amphibious assault.

The doctrine states that an amphibious assault is an inherently joint operation, as the conditions necessary for success requires capabilities across the joint force, and the Marine Corps is almost uniquely organized, trained, and equipped to execute them.[180] Not only is the Marine Corps the only U.S. force that organizes itself for service within a naval force, but Marines are specifically tasked with being able to execute an amphibious assault. While amphibious assault remains a type of amphibious operation, the Department of Defense requires its Marines to be capable of executing an assault to gain access ashore.[181] The Marine Corps itself recognizes that this is a primary role for Marines and highlights its requirement in the opening pages and throughout the *Marine Corps Operating Concept.* This leads one to rationalize that within the construct of a joint operation, a Joint Force Commander should reasonably expect that an assigned MAGTF can execute an amphibious assault in support of a JFEO or to otherwise establish a presence ashore.

---

[180] JCS, JP 3-02, I-1; JCS, JP 3-18, I-3 – I-7.

[181] DoD, DoD Directive 5100.01, 32.

Joint Publication 3-02 Amphibious Operations describes the vast considerations required when planning any amphibious operation, but, especially the amphibious assault. While the doctrine spends time discussing these considerations in the context of both surface and vertical assault, it spends time highlighting the advantages of being able to conduct an assault (or any amphibious operation) from OTH. As many documents specify, the most considerable advantages provided by amphibious forces are the flexibility and the ability to achieve surprise on the battlefield. OTH operations are credited with achieving both in a contested environment as well as providing for the defense of the ships transporting the landing force.[182] As the doctrine and other literature emphasize, OTH operations are preferable to risking the amphibious task force too close to the shore. So, to be able to more effectively conduct amphibious assault in support of a JFEO, the Marine Corps must be able to project power from beyond visual and radar range.

The Platform Analysis

The current AAV7A1 is too slow and is not capable of executing amphibious landings from OTH. This is precisely why the Marine Corps has sought to replace the vehicle since as early as the 1980s. With a realistic range of roughly seven nautical miles, at speeds of considerably less than 10 knots, the vehicle is much too slow and requires the ships to be much too close to be employed without significant risk. The only realistic model of employment would be much like the British attempted in the Falklands over 35

[182] JCS, JP 3-02, III-36.

years ago. The Marine Corps recognized this as well as recognized that without an OTH surface assault capability, the MAGTF would become a one-dimensional (air) amphibious force.

While the LCAC and LCU provide an OTH capability, they are not assault craft. They are not capable of fighting against AD threats nor do they provide a great deal of protection to embarked troops or vehicles. The LCAC and LCU provide the means by which to bring larger vehicles or equipment (tanks, artillery) ashore, not land an assault force capable of securing the beachhead needed to establish a lodgment. The Marine Corps' acquisition of the Amphibious Combat Vehicle, the replacement for the nearly 50-year-old AAV7A1, demonstrates that the service appreciates that though the LCAC and LCU (and potential replacements) are critical to the rapid build-up of combat power ashore, a protected ship-to-shore assault craft is still necessary for the assault.

The ACV provides significant improvements in over-land mobility in support of the Marine Corps long-standing desire to conduct operational maneuver from the sea and ship-to-objective maneuver. The light infantry may, though not always, require greater mobility at faster speeds than a purely dismounted force provides. However, there is little to no improvement in water capability. A modest five nautical mile improvement up to a 12 nautical mile range still does not generate the visions of OTH ship-to-shore movement as desired considering modern area denial systems. The water speed remains below 10 knots which still significantly reduces the ability to achieve the flexibility and surprise described in many pieces of doctrine. This lack of any real improvement seemingly keeps

the Marine Corps' surface amphibious assault capability at no better position than it was 30 years ago.

CHAPTER 5

CONCLUSIONS AND RECOMMENDATIONS

> Marines were determined that there must be a family of mechanisms that would be able to carry them, their weapons, and their equipment through seas and the surf and deliver them face-to-face with the enemy on his own shore.
>
> —Victor Krulak, *First to Fight*

Conclusions

The Marine Corps is the premiere amphibious force in the United States Armed Forces, and probably in the entire world. The United States expects, even tasks, its' Marines to come from the sea. Today, despite a history of employment in irregular conflicts, this remains true and amphibious warfare is what makes the Marine Corps unique. Consequently, the Marine Corps must, despite advances in weapons and systems technologies across all domains, continue to pursue capabilities that make it the most dynamic, flexible, and capable amphibious force in the world. The Marine Corps has failed to provide the modern joint force commander with an over-the-horizon capable protected amphibious assault platform which can be used to support forcible entry operations in accordance with current missions and doctrine.

This paper has demonstrated that the Marine Corps knew the shortfall decades ago. The EFV was the panacea; however, it was too costly to survive the acquisitions process. The EFV provided the OTH protected surface assault capability that, in combination with the MV-22 and the LCAC, the Marine Corps needed to complete the amphibious triad and thus provide the basis for joint forcible entry operations in an A2/AD environment. Today, the ACV provides improved mobility ashore, but if the

ships that transport it cannot get within 12 nautical miles of the coast, the vehicle and its embarked troops will remain afloat away from the fight. The LCAC, Ship-to-Shore Connector, and the LCU provide the range needed to protect the ships but they provide little to no protection against a coastal threat. Today, General Krulak's dystopian vision has been realized and the Corps has become one-dimensional. Today, the Marine Corps is reliant on the MV-22 Osprey to conduct a vertical assault onto a hostile beach.

Recommendations

The Marine Corps is striving to increase its relevancy and capability in the 21st century and A2/AD environments. *The Marine Corps Operating Concept* has been the basis for this development; however, further development and modernization in the service's core mission is desperately needed. This can be accomplished through a series of courses of action. First, while unlikely, the Marine Corps could divest itself of further procurement of the ACV. While the platform provides a greater capability in land mobility, its' waterborne performance statistics are only slightly greater than the AAV7A1. It is of no greater benefit to getting ashore than what the Marine Corps already has. Then, the Marine Corps should immediately invest heavily in the research and development of an OTH, surface assault craft that provides protection and mobility ashore to the landing force. While this may take time and resources to accomplish and would inevitably require a reprioritization of the service's acquisitions strategy, this solution would enable the Marine Corps to maintain its ability to conduct amphibious forcible entry. If the Marine Corps becomes serious about the OTH assault capability requirement, it could save both the time and the money by resurrecting the EFV. The

platform, while not perfect, provided the OTH capability that increased the performance of the afloat MAGTF in operations across the ROMO.

Presumably, it would not be fiscally reasonable for the service to divest itself of the ACV, however, the Marine Corps should immediately invest in protected, high-speed, OTH surface assault craft capabilities. Protected, high-speed, OTH capabilities are critical to the success of amphibious operations in an A2/AD environment. The development of this type of capability will deter potential adversaries from pursuing expensive A2/AD capabilities because they will know the United States retains the ability to rapidly project power to potential landing sites within finite windows of sea control and air superiority. The platform, whether tracked or wheeled, must also be able to protect the landing force once ashore and provide the necessary mobility to execute operational maneuver.

Also, a new vision of amphibious assault must be developed and instilled across the MAGTF. Too often the images of assault past plague the minds of decision-makers into believing that amphibious assaults must be wrought with significant casualties. A new approach could be warranted. The Marine Corps must seek to disperse the size of the amphibious forces to mitigate the possibility of catastrophe during landings. The Marine Corps should explore options associated with the landing of small units, operating independently of one another, at many beaches. Instead of multiple waves of assault craft hitting a single beach in echelon, this new concept would see platoon-sized elements landing simultaneously at multiple beaches, thus forcing the enemy to defend everywhere, and providing a lower signature for the entry force. The application of this concept increases the flexibility of the entry force by dispersing the landing force and

preventing the defender from massing their effects on a single landing site. Additionally, it provides increased flexibility to the Joint Force Commander as the enemy cannot as effectively disrupt a landing without widely dispersing his own forces. Nonetheless, the requirement to launch OTH, outside of visual and radar range, is critical to the success of these operations.

Finally, the Corps should consider broader use of light dismounted forces. In this case, if troops may be exposed to on-shore threats such as improvised explosive devices and anti-armor munitions, surface assault capability would be used only to ferry personnel from ship-to-shore and then quickly return to the sea-base. This would provide additional flexibility although there are disadvantages of having a dismounted force if inland objectives are to be seized. In this case, commanders would need to make an assessment on the balance between mobility required ashore and survivability against threats designed to defeat mechanized maneuver. Consequently, the method of insertion will obviously need to be shaped by the type of mission.

Finally, the Marine Corps needs to continue to prepare for over-the-horizon amphibious assault in the A2/AD environment. History, military practitioners, strategists, and academics all foresee the need for this type of operation. Additional emphasis is required to develop high-speed, OTH assault craft; escort aircraft for vertical assault, protection for sea bases to include long-range offensive and defensive missiles, and method of reducing both physical and electromagnetic signatures to prevent detection during the assault. This paper demonstrates these will be the challenges most likely faced by future amphibious forces. The Marine Corps, as the preeminent amphibious force in

the world, needs to retain its focus on getting Marines ashore, not just worrying about how they will fight once they get there.

BIBLIOGRAPHY

Amos, Gen James. "Bridging Our Surface-Connector Gap," *Proceedings* (June 2014). U.S. Naval Institute. Accessed 7 November 2018. https://www.usni.org/magazines/proceedings/ 2014/june/bridging-our-surface-connector-gap.

———. *Expeditionary Force 21: Forward and Ready Now and in the Future.* Washington, DC: Headquarters, Marine Corps, 2014.

BAE Systems. "Amphibious Combat Vehicle 1.1." Accessed 7 November 2018. https://www.baesystems.com/en-us/product/amphibious-combat-vehicle.

Buckles, Brian K. "Case Study of the United States Marine Corps Advanced Amphibious Assault Vehicle (AAAV) Program Test and Evaluation Strategy." Master's Thesis, Naval Postgraduate School, Monterey, CA, 1999. Accessed 17 December 2018. https://apps.dtic.mil/dtic/tr/fulltext/u2/a373689.pdf.

Center for Strategic and Budgetary Assessments. "Our Mission." Accessed 16 May 2019. https://csbaonline. org/about/mission.

Congressional Research Service (CRS). *Marine Corps Amphibious Combat Vehicle: Background and Issues for Congress*. CRS Report for Congress. Washington, DC: Library of Congress, 15 March 2019.

———. *Marine Corps Amphibious Combat Vehicle Program*. CRS Report for Congress. Washington, DC: Library of Congress, September 26, 2018. Accessed 13 December 2018. https://news.usni.org/2018/09/27/report-congress-marine-corps-amphibious-combat-vehicle-program-2.

Conway, Gen James, ADM Gary Roughead, and ADM Thad Allen. *Naval Operations Concept 2010: Implementing the Maritime Strategy*. Washington, DC: Department of the Navy, 2010.

Department of Defense (DoD). *Annual Report to Congress: Military and Security Developments Involving the People's Republic of China 2015*. Washington, DC: DoD, 2015.

———. DoD Directive 5100.01, *Functions of the Department of Defense and Its Major Components.* Washington, DC: DoD, 21 December 2010.

———. *Final Report to Congress: Conduct of the Persian Gulf War*, Washington, DC: Government Printing Office, April 1992. Accessed 18 November 2018. https://www.globalsecurity.org/military/library/report/1992/cpgw.pdf.

———. *Joint Operational Access Concept v1.0.* Washington, DC: DoD, 17 January 2012.

———. *Summary of the 2018 United States National Defense Strategy: Sharpening the American Military's Competitive Edge*. Washington, DC: DoD, 2018.

Department of the Navy, Headquarters Marine Corps. Marine Corps Concept Paper 1: *Operational Maneuver from the Sea.* Washington, DC: Department of the Navy, 4 January 1996.

———. Marine Corps Technical Publication 3-10C, *Employment of Amphibious Assault Vehicles.* Washington, DC: Department of the Navy, 02 May 2016.

Department of the Navy, Marine Corps Combat Development Command (MCCDC). *Ship-to-Objective Maneuver 2011.* Quantico, VA: MCCDC, 16 May 2011.

Dunford, Gen Joseph, Jr. "Remarks and Q&A at The Center for Strategic and International Studies." Speech, Center for Strategic and International Studies, Washington, DC. Accessed 13 February 2019. https://www.jcs.mil/Media/Speeches/Article/707418/gen-dunfords-remarks-and-qa-at-the-center-for-strategic-and-international-studi/.

Dyer, VADM George C. *The Amphibians Came to Conquer: The Story of Admiral Richmond Kelly Turner*. Vol 1. Washington, DC: Department of the Navy, 1972.

Earl, LtCol Robert. "The Over-the-Horizon Alternatives." *Marine Corps Gazette* (October 1988). ProQuest.

Feikert, Andrew. *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress*. Congressional Research Service Report for Congress. Washington, DC: Library of Congress, 10 September 2008.

———. *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress.* Congressional Research Service Report for Congress. Washington, DC: Library of Congress, 14 March 2011.

———. *The Marines' Expeditionary Fighting Vehicle: Background and Issues for Congress.* Congressional Research Service Report for Congress. Washington, DC: Library of Congress, 15 March 2019.

Flynn, LtGen George. *Ship-to-Objective Maneuver*. Washington, DC: Headquarters, Marine Corps, 2011.

Galdorisi, George V. "Expeditionary and Amphibious Warfare." In *Globalization and Maritime Power,* edited by Sam J. Tangredi, 405-425. Washington, DC: National Defense University Press, 2002.

Gatchel, Theodore L. *At the Water's Edge: Defending Against the Modern Amphibious Assault.* Annapolis, MD: Naval Institute Press, 1996.

Goertzen, LCDR Stephen. "The Feasibility of the Over-the-Horizon Amphibious Assault for the U.S. Navy and Marine Corps Forces" Master's Thesis, U.S Army Command and General Staff College, Fort Leavenworth, KS, 1993.

Hastings, Max, and Simon Jenkins. *The Battle for the Falklands.* New York: W.W. Norton & Company, Inc., 1983.

Heinl, Jr., Colonel Robert USMC Ret. "The U.S. Marine Corps: Author of Modern Amphibious Warfare." In *Assault From the Sea: Essays on the History of Amphibious Warfare*, edited by LtCol Merrill L. Bartlett, 185. Annapolis, MD: Naval Institute Press, 1983.

Hornfischer, James D. *Neptune's Inferno: The U.S. Navy at Guadalcanal* New York, NY: Bantam Books, 2011.

Howell, Maj Trevor, USMCR, "Amphibious Warfare: Wrong for Decades, Wrong for the Future." *Marine Corps Gazette* (September 2014). ProQuest.

Hughes, CAPT Wayne. *Fleet Tactics and Coast Combat.* 2nd ed. Annapolis, MD: Naval Institute Press, 2000.

Joint Chiefs of Staff. Joint Publication 1-02, *DoD Dictionary of Military and Associated Terms.* Washington, DC: Government Publishing Office, July 2017.

———. Joint Publication 3-0, *Joint Operations.* Washington, DC: Government Publishing Office, 22 October 2018.

———. Joint Publication 3-02, *Amphibious Operations.* Washington, DC: Government Publishing Office, 18 July 2014.

———. Joint Publication 3-18, *Joint Forcible Entry Operations.* Washington, DC: Government Publishing Office, 27 June 2018.

Kaplan, Robert. "A New Cold War Has Begun." *Foreign Policy*, 07 January 2019. https://foreignpolicy.com/2019/01/07/a-new-cold-war-has-begun/

Kelley, Gen P.X., and Maj Hugh K. O'Donnell, Jr. "The Amphibious Strategy." *Proceedings* (January 1986). https://www.usni.org/magazines/ proceedings/1986-01/amphibious-warfare-strategy.

King, Maj Douglas. "U.S. Marine Corps Surface Tactical Mobility Requirements for Ship to Objective Maneuver." Master's Thesis, U.S Army Command and General Staff College, Fort Leavenworth, KS, 1996.

King, Douglas, and Brett Friedman. “Why the Navy Needs a Fighting Connector: Distributed Maritime Operations and the Modern Littoral Environment.” *War on the Rocks*, 10 November 2017. https://warontherocks.com/2017/11/navy-needs-fighting-connector-distributed-maritime-operations-modern-littoral-environment/.

Krepinevich, Andrew, Barry Watts, and Robert Work. “Meeting the Anti-Access and Area-Denial Challenge.” Center for Strategic and Budgetary Assessment, Washington, DC, 2003.

Krulak, LtGen Charles. *Proposed Operational Requirements Document for the Advanced Amphibious Assault Vehicle.* Quantico, VA: Marine Corps Combat Development Command, 1994.

Krulak, LtGen Victor H. *First to Fight: An Inside View of the U.S. Marine Corps.* Annapolis, MD: Naval Institute Press, 1984.

Lawson, Chris. “The Corps’ Future One-Two Punch: The V-22 Osprey and the Advanced Amphibious Assault Vehicle.” *Leatherneck* (January 1998). ProQuest.

Lexington Institute. “Dragons of Change: The U.S. Marine Corps’ Advanced Amphibious Assault Vehicles.” 01 January 1999. Accessed 01 February 2019. https://www.lexingtoninstitute.org/dragons-of-changethe-u-s-marine-corps-advanced-amphibious-assault-vehicles/.

Martin, Bradley. *Amphibious Operations in a Contested Environment: Insights from Analytic Work*. Testimony presented before the House Armed Services Committee, Subcommittee for Seapower and Projection Forces. U.S. Congress, Washington, DC, 18 May 2017.

McCleary, Paul. “‘Fight to Get to the Fight’: Marine Amphibs Under the Gun,” *Breaking Defense*, 11 February 2019. https://breakingdefense.com/2019/02/marines-want-more-punch-on-amphibs-but-littorals-increasingly-risky/.

Millet, Alan R. “Assault from the Sea: The Development of Amphibious Warfare Between the Wars.” In *Military Innovation in the Interwar Period,* edited by Williamson Murray and Allen R. Millet, 83. New York: Cambridge University Press, 1996.

Neller, Gen Robert. *The Marine Operating Concept: How an Expeditionary Force Operates in the 21st Century.* Washington, DC: Headquarters, Marine Corps, 2016.

Neller, Gen Robert, and ADM John Richardson, *Littoral Operations in a Contested Environment 2017* UNCLASSIFIED Edition. Washington, DC: Department of the Navy, 2017.

Osborn, Kris. “Marine Corps Builds New Amphibious Combat Vehicle for ‘Deep Strike’ Attacks.” *The National Interest*, 22 January 2019. Accessed https://nationalinterest.org/blog/buzz/marine-corps-builds-new-amphibious-combat-vehicle-deep-strike-attacks-42272.

Rogers, William L. “Marathon, 490 B.C.” In *Assault From the Sea: Essays on the History of Amphibious Warfare*, edited by LtCol Merrill L. Bartlett, 3-11. Annapolis, MD: Naval Institute Press, 1983.

Singer, Peter. “The Marine Corps is All Right.” Brookings Institution, 04 March 2011. https://www.brookings.edu/articles/the-marine-corps-is-all-right/.

Sun Tzu. *The Art of War*. Translated by Samuel B. Griffith. New York: Oxford University Press, 1963.

Tangredi, Sam J. *Anti-Access Warfare: Countering A2/AD Strategies*. Annapolis, MD: Naval Institute Press, 2013.

U.S. Congress. Senate. Armed Services Committee. *Statement of General Joseph Dunford, Jr., USMC, 19th Chairman of the Joint Chiefs of Staff, Department of Defense Budget Hearing*. 116th Cong., Washington, DC, 14 March 2019. Accessed 14 March 2019. https://www.armed-services.senate.gov/imo/media/doc/Dunford_03-14-19.pdf.

U.S. Marine Corps. *Capabilities Production Document for the Expeditionary Fighting Vehicle*. Quantico, VA: Headquarters Marine Corps, 13 April 2006.

U.S. Marine Corps Combat Development Command, Maritime and Expeditionary Warfare Integration Division. “Surface Connectors.” Accessed 1 February 2018. https://www.mccdc.marines.mil/Units/Seabasing/SurfaceConnectors.aspx.

U.S. Marine Corps Concepts and Programs. “Amphibious Combat Vehicle 1.1.” Accessed 14 December 2018. https://www.candp.marines.mil/Programs/Focus-Area-4-Modernization-Technology/Part-3-Ground-Combat-Tactical-Vehicles/Amphibious-Combat-Vehicle/.

———. “Surface Connectors.” Accessed 08 February 2018. https://www.candp.marines.mil/Programs/Focus-Area-3-Naval-Integration/Surface-Connectors/.

U.S. Marine Corps Intelligence Activity. *2016 Update - 2015-2025 Future Operating Environment: Implications for Marines.* Quantico, VA: Headquarters Marine Corps, 2016.

U.S. Marine Corps Warfighting Laboratory, Futures Directorate. *2015 Marine Corps Security Environment Forecast: Futures 2030-2045.* Quantico, VA: U.S. Marine Corps Warfighting Laboratory, 2015.

U.S. President. *2017 National Security Strategy of the United States of America.* Washington, DC: The White House, 18 December 2017.

Vannoy, VADM Frank. “Where Do the Gators Go From Here?” In *Assault From the Sea: Essays on the History of Amphibious Warfare*, edited by LtCol Merrill L. Bartlett, 396-403. Annapolis, MD: Naval Institute Press, 1983.