Commanding Tomorrow's Contested Zone: Operationalizing CS21 in the Littorals

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This short paper will focus on the strategic importance of the littorals, a topic frequently overlooked. Instead, too often the global commons is accorded strategic status and overemphasized. Command of the global commons, is a key enabling element of our larger national strategy. It is important to be able to gain control where and when needed, and it should be a critical mission for maritime forces.¹ But this use of the sea, space, and air is NOT the end game of our strategy—it is simply an enabler to achieve larger strategic objectives in maintaining international order and access to allies, partners and critical resources. Once opened, we must leverage our control of the commons to achieve assigned objectives in the risky littorals and the complex terrain and urbanized political centers where political power and centers of gravity will congregate. This is where the back half of the A2/AD challenge is too often overlooked. Countering the area denial threat is already here and also a growing challenge, in a world in which cheap but lethally effective counters can proliferate even faster and much cheaper than modern, long-range anti-access technologies. It is not an end unto itself, despite thinly veiled attempts to portray it as such.²

While we need to secure control of those commons when we need to, reflecting our Mahanian roots, we should not lose sight of the Corbettian notion of exploiting that access for strategic and operational maneuver in the *Contested Zones*.³ These zones include the complex and congested littorals where the majority of the world's population, economic activity, energy distribution networks and political power is centered.⁴ The requirement to maneuver over the global commons and into these littoral environments has been and remains the real extant challenge for U.S. military strategy. Our Nation accrues a number of strategic advantages from its relatively robust amphibious projection capacity.⁵ At the end of the day, we must ensure our adversaries are not granted impunity in the contested zones where their area denial

¹ Sam J. Tangredi, Anti-Access Warfare: Countering A2/AD Strategies, Annapolis, MD: Naval Institute Press, 2013.

² Barry R. Posen, "Command of the Commons: The Military Foundation of U.S. Hegemony," *International Security*, Vol. 28, No. 1, Summer 2003, pp. 5-46.

³ Something once stressed in Robert Schmidle and F. G. Hoffman, "Commanding the Contested Zones," *Proceedings*, Nov. 2004.

⁴ Ralph Peters, "Our Soldiers, Their Cities," *Parameters*, Spring 2000, pp. 43-50. See also David Kilcullen, *Out of the Mountains*, New York: Oxford Univ. Press, 2014.

⁵ F. G. Hoffman, "21st Century Power Projection," *Marine Corps Gazette* December, 2011.

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systems and exploitation of the dense complex terrain of the littoral environment presents challenges at the operational level in ground expeditionary operations.

I was asked to apply my research on adaptation to the challenge of preparing for littoral warfare. In order to satisfy the chair's direction, I arranged my presentation in four parts. In the first section, I will define and then redefine what is meant today by adaptation. I will then briefly discuss the foundational attributes of the U.S. Marine Corps, which I consign responsibility for its remarkable degree of adaptability. In the third portion, the paper transitions to a discussion about the adaptations made by the Marine Corps represented in the concepts of Operational Maneuver from the Sea and Distributed Operations. In my final section, I delineate a few areas where the Corps can continue to adapt in order achieve the requisite capabilities for the United States to excel in littoral warfare in the 21st Century.

Adaptation Defined

The current state of the literature today defines adaptation narrowly. Adaptation is not synonymous with innovation or change. Innovation theories are almost entirely focused on major innovative leaps which generally occur during peacetime when states and their military institutions have the time and resources to explore new technologies and innovative concepts. Innovation studies have focused on rare but significant shifts requiring both a new "theory of victory" and the creation or change of a primary combat arm.⁶

Most theorists, starting with Theo Farrell, head of War Studies at King's College London, define adaptation as something that occurs in wartime. Farrell defined adaptation as a "Change to strategy, force generation, and or military plans and operations that is undertaken in response to operational challenges and campaign pressures."⁷ This notion of force generation includes weapons and new equipment, and the supporting doctrine. This definition captures the reaction/response character of adaptation that dominates the literature.

Adaptation was shorted during the RMA movement, as it was focused on creating new victory mechanisms and new domains. But now, there is a surge of detailed studies about military organizations learning and changing based on operational experience. This includes books by Meir Finkel, Wick Murray, James Russell, Janine Davidson, and Chad Serena.⁸ This rich body of literature has generated a greater appreciation for wartime change and the incorporation of

⁶ Stephen P. Rosen, *Winning the Next War, Innovation and the Modern Military,* Ithaca, NY: Cornell Univ. Press, 1991, 20–21.

⁷ Farrell, "Introduction," to Theo Farrell, Frans Osinga and James Russell, eds., *Military Adaptation in Afghanistan*, Stanford, CA: Stanford Security Studies, 2013, p. 2.

⁸ Meir Finkel, *On Flexibility, Recovery from Technological and Doctrinal Surprise on the Battlefield*, Stanford, CA: Stanford Security Studies, 2011; Williamson Murray, Military Adaptation in War, With Fear of Change, New York: Cambridge Univ. Press, 2012; James A. Russell, *Innovation, Transformation, and War, Counterinsurgency Operations in Anbar and Ninewa Provinces, Iraq,* Stanford, CA: Stanford Security Studies, 2011; Chad Serena, A *Revolution in Military Adaptation,* Washington, DC: Georgetown Univ. Press, 2012, pp. 104–119; Janine Davidson, *Lifting the Fog of Peace, How Americans Learned to Fight Modern War,* Ann Arbor: Michigan Univ. Press, 2010.

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inputs from real operational experience generated at the edge of the organization at the tactical level.

In my research "Adaptation is the alteration of existing competencies at either the institutional or operational level to enhance performance based on perceived gaps or deficiencies generated by combat experience during wartime."⁹ This involves recognizing or perceiving gaps in performance and the search for alterations. A number of adjustments and adaptations may be aggregated into a new organizational competency that constitutes an innovation for that organization. Adaptation is a dynamic process involving the acquisition of knowledge, the utilization of that knowledge to create altered capacity, and the sharing of that learning to other units to integrate and institutionalize the better operational praxis across the institution.¹⁰ Additionally, this definition, per previous scholarship by Grissom incorporates "enhanced organizational performance."¹¹ The change continuum and definition also accepts Farrell and Terriff's conception that a bundle of adaptations can lead to the evolution of an aggregate of skills and methods that constitute an innovation.¹²

However, now my definition requires adaptation. We can drop the 'during wartime' element to include the alteration of core competencies of the institution in response to *anticipated changes in* adversary capabilities or environmental conditions. The rationale for such a definitional change is relevant to studying the Marine Corps which has often excelled at anticipatory adaptation in peacetime, reflecting its constant evolution of tactics and operational practice within its fundamental mission and core competency of amphibious operations. Going back to the 1930s and an equally rich period of history in the 1990s, the Marines have a noted ability to learn from the experiences of others, and to recognize the need to adapt competencies that the Nation requires of them well before the next crisis.

Space precludes explaining the attributes that buttress this institutional adaptability of the Corps, but it is sufficient to underscore that the Marine culture or ethos is a major element as well as its leadership philosophy.¹³ In *First to Fight,* General Krulak, describes adaptation as "a way of life for the Marines."¹⁴ Commanders articulate a mission and their intent as how this objective contributes to the larger objective. Subordinates take in the "what" and why, and are left to their own devices to conceive the "how."¹⁵ What doctrine the Corps does publish extols the value of "adaptability to respond effectively without a great deal of preparation time to a

 ⁹ F. G. Hoffman, *Learning Under Fire, Military Change in Wartime*, PhD thesis, King's College London, 2015.
¹⁰ Adapted from Anthony Dibella, Edwin Nevis and Janet Gould, "Understanding Organizational Learning

Capability," Journal of Management Studies, 33: 3, October 1996, 363.

¹¹ Adam Grissom, "The Future of Military Innovation Studies," *Journal of Strategic Studies*, 29:5, October 2006, 905–934.

¹² Farrell and Terriff, *Military Change*, 6.

¹³ U.S. Marine Corps, MCDP 1 *Warfighting*, Quantico, 1997.

¹⁴ Victor Krulak, *First to Fight*, Annapolis, MD: Naval Institute Press, 1996, 111.

¹⁵ See Mission Command Concept paper, Quantico, VA.

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broad variety of circumstances.¹⁶ Overall, the Marine culture is suited to organizational learning and adaptation. It is not a perfect system.¹⁷ But a penchant for 'can do' pragmatism, coupled with an institutional bias for action abets continuous inquiry and adaptation in peacetime and during war.

Operational Maneuver and Distributed Operations

Adaptation in littoral and expeditionary operations has been a continuous process within the Marine Corps for the last 25 years, despite pressures to execute contingencies across the conflict spectrum. The most critical manifestation was the publication of *Operational Maneuver from the Sea (OMFTS)* in 1996, and its supporting concept, *Ship-to-Objective Maneuver* (STOM). These concepts evidence a great deal of accurate anticipation about the future operating environment we now take for granted. The Marines have evolved the initial concepts of OMFTS and STOM by incorporating distributed operations and distributed maneuver.

Perhaps the most critical adaptation that has been made in the last decade was the eventual recognition by the Marine Corps senior leadership about the operational impact of the A2/AD threat as it evolved over the last two decades. The Marine Corps should be credited with recognizing the potential emergence of A2/AD challenges, particularly the impact of precision munitions back in the 1990s when they realized that amphibious operations would have to a) start from greater standoff and b) avoid operational pauses at the beach head, which could easily be targeted. These considerations were not recognized by most forecasters except by Marine planners back in the 1990s, and they drove the critical development of new operational concepts and materiel solutions like the V-22 and the Advanced Amphibious Assault Vehicle which was supposed to launch from 25 miles offshore and transit through the littorals and seamlessly pass deep into the littoral operating area without days of assembling combat power and necessary logistics support. These were recognized as operational weaknesses that could be exploited, and this recognition occurred years before anyone coined the A2/AD acronym.

One can also see further adaptation in the decade long development of Distributed Operations entail netted units physically dispersed and operating over an extended battlespace.¹⁸ This was a concept developed by a small cell working for the Commandant that was then deliberately and simultaneously placed in the professional journals of the Naval Services to abet professional debate and discourse over the implications of these concepts.¹⁹ Some of the responses were predictable but they were also professional and productive.²⁰ Distributed

¹⁶ U.S. Marine Corps, MCDP 3, *Expeditionary Operations*, Quantico, VA: Marine Corps Combat Development Command, 1998, 43–44.

¹⁷ Terriff, "Warriors and Innovators," 235.

¹⁸ Ship to Objective Maneuver, Quantico, VA: Marine Corps Combat Development Command, May 16, 2011.

¹⁹ As suggested by CDR Benjamin J. Armstrong, USN, *21st Century Sims: Innovation, Education, and Leadership for the Modern Era*, Annapolis, MD: Naval Institute Press, 2015, 14.

²⁰ COL Robert Dobson, USMC (ret.), "Distributed Operations Hurdles," *Marine Corps Gazette*, October, 2004.

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Operations are characterized by decentralization, multi-dimensionality, simultaneity, and continuous pressure over the adversary's entire system to preclude his ability to reconstitute or adjust. Distributed Operations are conducted by squad- to battalion-sized units operating as part of a Marine Air-Ground Task Force (MAGTF). Units trained and equipped to perform Distributed Operations can make a contribution across the full range of military operations from Stability and Support Operations to Joint forcible entry missions.

This concept is consistent with both current trends in conflict and the enduring aspects of the operational art. It is particularly oriented on the acute requirements for greater agility, decentralization, and multi-dimensionality in future conflict.²¹ Distributed Operations seek to achieve the high degree of operational tempo and fluidity inherent to maneuver warfare. Such operations avoid linear, sequential and predictable operations, and extensive reliance on attrition.

By increasing the ability to simultaneously attack in many directions with all forms of fires and maneuver, distributed operations create *continuous pressure* on the opponent. The resulting relative tempo prevents the opponent from adapting or readjusting his force posture or from effectively reconstituting capabilities. Continuous pressure degrades the enemy's overall combat effectiveness, produces paralysis or induces systemic collapse. The ultimate aim of any commander is to "implant a picture of defeat in his opponent's mind."²² Continuous pressure, over the breadth of the battlespace, from multiple lines of attack, is how the Corps seeks to inject this dim chance for success into the opponent's mind.

The combination of these characteristics blinds and disorients the opponent, and produces a sudden psychological dislocation when the opponent realizes that his options and assets are declining at an accelerating rate.

The latest iteration of Marine service concepts, in *Expeditionary Force 21* (EF 21), sustains the original thrust behind distributed operations, particularly in emphasis on the amphibious set of missions.²³ This service vision supports the *Cooperative Strategy* need to:

Conduct sea control and power projection in a more distributed fashion in littoral environments. This includes employing forward deployed and surge expeditionary forces that are task-organized into a cohesive amphibious force in order to provide scalable

²¹ Robert H. Scales, Jr. *Yellow Smoke: The Future of Land Warfare For America's Military*, Baltimore, MD: Rowan and Littlefield, 2002; and Richard Sinnreich and Williamson Murray, "Joint Warfighting in the 21st Century," 2002, Alexandria, VA: Institute for Defense Analysis, pp. 10-12.

 ²² Richard E. Simpkin, *Race to the Swift: Thoughts on Twenty-First Century Warfare*, London: Brassey's, 1994, p.
227.

²³ *Expeditionary Force 21, Forward and Ready: Now and in the Future*, Washington, DC: Headquarters, Marine Corps, March 4, 2014.

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options to defeat land-based threats, deny enemy use of key terrain, or establish expeditionary advance bases and oceanic outposts as described in EF 21.²⁴

However, while the Marines got locked into a good solution set for the problem of the 1990s, the technological developments required for that solution did not keep pace with emerging threats. Stand-off ranges for amphibious operations, stated at 25 miles, were challenged by projected threat abilities to identify and strike at the landing force with super-sonic missiles. The requirement for self-deployment and seamless transition to maneuver ashore gave the AAAV/EFV dual requirements for water and land operations from a single vehicle that drove up both system complexity and costs. The resulting hybrid solution, a large vehicle that could plane on the surface at speeds of 25 MPH, was sub optimized for the increasingly lethal area denial threat. The program offered an expensive solution to a critical national capability, but at \$12-15M a copy with extensive O&M costs, it was not seen as cost effective. Even more daunting was the limited force protection the vehicle offered, a \$15M target for a \$150 EFP. Eventually, the Marines have realized that they must continue to search for an operationally relevant capability that better deals with the ground side of the equation. The Amphibious Combat Vehicle program reflects this critical adaptation, as the continued search for creative solutions to support hi-speed and self-deploying vehicles.²⁵ Marine concepts underscore the greater need for standoff distances of 65 nm, the need for distributed maneuver thru multiple penetration points, and critical need for a combination of connectors to gain positional advantage in the complex littoral terrain.²⁶

Distributed STOVL operations.

In parallel with this new technology, the Marines are adapting their doctrine and tactics to maximize aviation support to the MAGTF via a concept known as Distributed STOVL Ops or DSO.²⁷ The capability inherent in a STOVL jet allows the Marines to operate in pretty limited or adverse conditions and from remote locations where few airfields are available for conventional aircraft. The F-35B supports doctrinal maneuver warfare and operational needs for close air support in austere conditions, and it does so in the locations our Marines need them the most. The ability to operate from runways of less than 3,000 feet provides a more than three-fold increase in the number of airfields worldwide that STOVL aircraft can use. STOVL aircraft can operate from expeditionary airfields constructed from airfield matting or on no airfield infrastructure such as developed roads or even large parking lots. Naturally, the Marines have used this flexibility to a degree with the AV-8B Harrier and thus are adapting a skill set within a changed environment.

²⁴ Department of the Navy, *A Cooperative Strategy for 21st Century Seapower: Forward, Engaged, Ready,* Washington DC, March, 2015, p. 32.

 ²⁵ General Joseph Dunford, Testimony before the Senate Armed Service Committee, Washington, DC, Feb. 2015.
²⁶ EF 21, p. 22.

²⁷ This section relies heavily upon the description provided in LtGen Jon Davis, USMC, "Forward to the Fight," *Marine Corps Gazette*, May 2015, pp. 20-42.

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The foundation of future STOVL operations is the F-35B Joint Strike Fighter executing DSO to exploit the agility and multi-faceted capabilities of the 5th Generation jet. DSO is a task-organized MAGTF operation employing STOVL aircraft in a distributed force posture, independent of fixed infrastructure, but just on a temporary basis. The transitory use of DSO sites mitigates the antiaccess/area denial (A2/AD) threat, increasing the sites the opponent has to reconn, reducing the effectiveness of preplanned targeting, expanding the possible sites they must strike with G-RAMM systems, and cutting the number of assets at risk in each location.

DSO increases early Phase I deterrence efforts and greatly increases sortie generation rates throughout a conflict. The critical component of DSO is having F-35B aircraft launched from a sea or land base to conduct multiple missions, with gas, bullets and bombs provided at mobile forward arming and refueling points (M-FARPs) located closer to or within the operating area. The planes can return to their seabased platforms or use a field on land. In this way, the M-FARPs achieve protection incrementally by dispersion, mobility, and deception, while the aircraft operate and rearm outside the threat engagement zone. This is certainly not a new competency but it is an extension under new circumstances and thus a major adaptation.²⁸

If one needed to wrap up the stream of adaptation over the past generation within the Marine Corps, I would summarize it as "the end of the Tarawa Syndrome." The Marines realize that "hitting the beach" is passé but that expeditionary excellence is not. Creating a large beach may be old fashioned but creating and defending a lodgment as part of a larger joint campaign may not be.²⁹ Adaptation, to both new opportunities and to evolving threats has been the order of the decade, despite the necessary application of the Marine Corps in two protracted counterinsurgencies.

Additional Amphibious Adaptations

The Marines need to extend their work to adapt to 21st Century challenges, and the following section details areas where particular payoff can be garnered.³⁰

Robotics and Unmanned Systems. The Marine Corps is not new to UAS, having been the first U.S. military service to acquire Remotely Piloted Vehicles for intelligence and surveillance tasks in the 1980s from Israel. The MCWL has maintained an active experimental effort in small and micro-UAVs for decades, and the Marines have been at the forefront of the use of both unmanned ground vehicles for detecting mines and in the use of UAVs for logistics.³¹ That said,

²⁸ See Bill Sweetman, "Marines Shift F-35 Deployment Plans," Ares, accessed at <u>http://aviationweek.com/blog/marines-shift-f-35-deployment-plans</u>.

²⁹ Robert O. Work and F. G. Hoffman, "Hitting the Beach: Future Amphibious Capabilities," *Naval Institute Proceedings*, Nov. 2010.

³⁰ Office of Naval Research, *Naval S&T Strategy: Innovations for the Future Force,* Washington, DC: Department of the Navy, Jan. 15 2015.

³¹ Marc Wohlsen, "Delivery Drones Aleady Exist," *Wired*, Jan. 6, 2014, at <u>http://www.wired.com/2014/01/delivery-</u> <u>drones-already-exist/</u>

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much more can be done in the employment of UAVs for long loiter fire support to distributed ground units as captured in operating concepts going back for over a decade now. The Marines may have been the first to employ UAS, at the direction of civilian leaders. But they emphasized intelligence and logistics over fire support.

Additionally, there is a lot of potential in UUV for countering mines in shallow waters, and there is an additional rich vein of unexploited combat power in unmanned combat breaching systems. For example, many existing Amphibious Tractors could be converted to Autonomous or Remotely Operated Assault Breaches. The first wave that hits the beach in a truly contested landing in the next war should be completely unmanned, but capable of conducted beach reconnaissance, mine clearing, and suppressive fires.³²

There is also a lot of potentially in applying Marine lessons in UAV Logistics to robotic surface vehicles to deliver combat service support from shipping directly to the landing area. A swarming logistics train is a feasible concept.³³

Exo-Skeleton Capabilities. A natural transition from purely unmanned system is the employment of human performance augmentation from exo-skeleton technologies.³⁴ The use of lower body exo sets could be a huge advantage to ground units in certain operational contexts. I can think of two major scenarios where this technology could be immediately useful; in reconnaissance teams and in urban operations.

Strategic Reconnaissance Teams capable of deep interdiction operations with heavier loads, over longer periods of time, and over rough terrain. Using the load bearing capacity of the emerging Lower Extremity model, a strategic reconnaissance team could be inserted much further from its objective area to preclude detection during insertion. With the additional endurance and mobility afforded by the system the team could travel further and farther, without tiring the team when it arrives at a hide site. A special operations unit could carry more mission equipment or more rapidly transit an austere area or complex terrain than is possible today. With the inherent load capacity of the system, the team could lengthen mission performance periods, enhance mission capability with added systems, and preclude the need for additional logistics resupply that might compromise the team's position.

Another option is the design and fielding of *urban combat teams* capable of bringing heavy weapons, more munitions, and self-powered breaching or surveillance systems to city fighting. Exoskeleton clad teams could bring more firepower, greater mobility enhancing systems, and

³² J. Noel Williams, Amphibious Maneuver Warfare 2.0" Naval Insitutte Proceedings, Nov. 2012; J. Noel Williams, "A Fleet for the Unmanned Era," *Naval Institute Proceedings*, Nov. 2014.

³³ Robert Brizzolara, "The Swarm: Autonomous Boats Take on Navy Missions," in *Naval Science and Technology Future Force*, Winter 2015.

³⁴ Jeffrey L Eby "It Is Time for the Exoskeleton," *Marine Corps Gazette*, Sept. 2005; pp. 33-35; C. Travis Reese, "Exoskeleton Enhancements for Marines: Tactical-level Technology for an Operational Consequence," M.A. thesis, Quantico, VA: School of Advanced Warfighting, 2010.

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highly advanced force protection/body armor systems to bear than current infantry units. Exoskeleton-clad teams could use the power of the system's energy pack to operate weapons for creating holes in walls, clearing rooms, or employing scalable lethal and less than lethal fires. Such teams could include designated team members with different versions of the suit for various roles with an urban fighting unit. Some members could use the technology to carry significantly increased forms of body armor. Other team members could be heavy weapons operators, or breachers, and others could carry additional munitions for the gunners. The capacity of such teams to rapidly penetrate into urban gaps, employ firepower, and maintain the momentum of the attack may preclude the traditional difficulties of dangerous and predictable room clearing. The Battle for Fallujah might have been an entirely different affairs with exo-skeleton supported fighters.³⁵

Expeditionary Power. Another area where the Marines have excelled in adaptation is in exploring expeditionary power sources. This line of operational experimentation has delivered results, especially in Afghanistan to date. Technological developments in this field will produce more power, greater flexibility in operations, and lessen the load on tactical units in maneuver. All naval forces will benefit ultimately from advances in power generation, but the tip of the tactical spear should not be overlooked. One can envision better power sources improving C2, intelligence, and logistic burdens, but we should not overlook potential advances in firepower as well. We can expect further advances in this area which will hopefully increase combat effectiveness and efficiency, while minimizing the exposure of human and material resources in support tasks and sustainment.³⁶

Counter-G-RAMM. Finally, future Marine Air-Ground Task Forces may no longer have complete air superiority against cheap, low flying drones and other Guided-Rocket, Artillery, Missiles and Mortars. Tomorrow's improvised explosive devices may not be strewn along the ground, instead they could be IEMs or Intelligent Explosive Munitions delivered by small drones with target recognition technologies. They may also be highly precise fires placed on Marine units. Such forces may need to both control their signatures and generate decoys and have layered defenses against such systems.³⁷

Conclusion

In wrapping up, it should be evident that our national security interests require us to do more than "command the commons." The Joint warfighting community recognized the importance

http://www.dtic.mil/ndia/2011power/GeneralSession Gallagher.pdf.

³⁵ See John F. Sattler, "The Battle for Fallujah," *Marine Corps Gazette*, 2005; Bing West, *No True Glory: A Frontline Account of the Battle for Fallujah*, New York: Bantam Books, 2005.

³⁶ As suggested in *Cooperative Strategy for 21st Century Seapower*, p. 29. See also Michael Gallagher, USMC Acquisition Initiatives in Tactical Electric Power USMC Acquisition Initiatives in Tactical Electric Power, NDIA conference, briefing slides, 3 May 2011 accessed at

³⁷ Dakota Wood, "Caught on a Lee Shore," *The American Interest* 6 (1) Sept. 2010 ;T.X. Hammes, "The Future of Warfare: Small, Many, Smart vs. Few & Exquisite?, *War on the Rocks*, July 16, 2014.

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of these operations when it put forward the Joint Concept for Entry Operations.³⁸ The establishment of sea control as the foundation for power projection is a priority, and the strategic advantages of exploiting sea-based maneuver must be preserved and extended to our projected security environment.³⁹ Tomorrow's threats are larger, more adaptive, and have greater access to technology than in the past.⁴⁰

Our assumptions about uncontested access to critical domains are now outdated. We no longer have a monopoly over access to this great highways of the oceans and we need to break down what Tangredi called "the great walls" that seek to put our strategic freedom of action at risk.⁴¹ Thus, we need to counter the emergent anti-access problem as suggested in the extensions beyond Air-Sea Battle.⁴² We should not forget that the purpose of maneuvering thru the commons was eventually to be able to successfully maneuver into and achieve assigned political objectives in the risky *Contested Zones*. Our policy masters will eventually expect us to contest for control over those dense physical spaces where populations live, financial institutions have assets, political governance is situated, and where transportation, telecommunications and energy networks converge. To advance and secure our nation's interests, we must master the chaos and ambiguity of the Contested Zones in the littorals. That is where future fights will be won or lost, and now is the time to begin *adapting* to that reality.

³⁸ Martin Dempsey, *Joint Concept for Entry Operations*, Washington, DC: Joint Staff/J7, April 7, 2014.

³⁹ General Al Gray and LtGen George Flynn, USMC (ret.) "Naval Maneuver Warfare Linking Sea Control and Power Projection," *Occasional Paper*, Arlington, VA: Potomac Institute for Policy Studies, August 25, 2015.

 ⁴⁰ F. Hoffman and G. P. Garrett, "The Great Revamp, 11 Trends Shaping Future Conflict," War on the Rocks, Oct. 8, 2014.

⁴¹Tangredi, pp. 231–252.

⁴² Harry J Kazianis, "Air-Sea Battle's Next Step: JAM-GC on Deck," *National Interest*, accessed at <u>http://nationalinterest.org/feature/air-sea-battles-next-step-jam-gc-deck-14440</u>; Terry Morris, et al., "Securing Operational Access: Evolving the Air-Sea Battle Concept," *National Interest*, March-April 2015.

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