

EXPEDITIONARY WARRIOR 2013



Future Maritime Operations for the 21st Century Operating Environment

**Final Report
6 June 2013**



UNCLASSIFIED/DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

UNITED STATES MARINE CORPS
Commanding General, Marine Corps Combat Development Command
Deputy Commandant for Combat Development and Integration

This Final Report, with observations and insights from the Expeditionary Warrior 2013 wargame on 25 February-1 March 2013, is released with my approval.

A handwritten signature in black ink, appearing to read 'R. P. Mills' followed by a stylized flourish.

R. P. MILLS

DISTRIBUTION STATEMENT A. Approved for public release; distribution is unlimited.

“We cannot solve a problem by using the same kind of thinking we used when we created them.”

Albert Einstein

Executive Summary

Introduction

Expeditionary Warrior 2013, the latest iteration of the Marine Corps' Title 10 wargame, seeks to provide a venue that spurs innovation for the force of the future. This Final Report discusses observations and insights from the EW13 Main Event, which occurred on 25 February-1 March 2013 at The Mason Inn Conference Center and Hotel on the campus of George Mason University in Fairfax, Virginia. The unclassified wargame featured 125 participants representing all five Services of the U.S. Armed Forces, the Joint Staff, Office of the Secretary of Defense, U.S. Special Operations Command and 13 partner nations.

In July 2012, the Deputy Commandant for Combat Development and Integration (DC CD&I) approved a three-year wargaming campaign plan to explore a vision for future maritime operations that leverages forces deployed forward that can gain awareness of the operating environment, act early, and scale the response to the threat or crisis across the range of military operations (ROMO). A draft Future Maritime Operations (FMO) concept paper provided an organizing construct for the wargame. On 26 July 2012, DC CD&I approved the following objective statement for EW13:

Identify concepts, capabilities and capacity solutions required by the Marine Corps and Navy to provide forward presence, yet rapidly build forces for crisis response, for future maritime operations in 2035.

EW13 used a fictional scenario set in 2035 Southeast Asia that presented operational challenges for a distributed joint force conducting engagement across the U.S. Pacific Command area of responsibility. The scenario focuses on the fictional U.S. ally Karta, and the U.S.-led response to protect coalition interests and quell the crisis.

Key Observations

- Expanded use of individual and small units in theater security cooperation (TSC) engagements can provide the maritime force better situational awareness, and potentially enable senior political and military leaders with options for proactive, preventive early actions in emerging crises. Risks of early engagement must be considered.
- Single Naval Battle and littoral maneuver need further study and analysis to identify and develop the required capabilities. Establishing a co-located, integrated Navy-Marine Corps maritime operational staff appears to be a useful first step for the conduct of a coherent naval campaign.
- The ability to rapidly aggregate and disaggregate forces requires agile, adaptive command arrangements – which involve how battlespace and forces are organized as well as the associated command relationships. Aggregation of U.S. maritime and joint forces with partner forces can create interoperability (institutional, organizational, cultural and procedural)

challenges. Timely, proactive actions in emerging crises will likely require continued forward deployment of military forces.

- C2 processes, mechanisms and capabilities to integrate U.S. maritime, joint, interagency, and partner nations, as stated in the FMO draft concept, represent a significant challenge and will require further development in order to link current and planned C2 capabilities to desired future requirements. Potential exists for simplifying or flattening command arrangements. Some of the specific challenges to integration include information sharing; difficulties associated with rapid, dynamic task organization of maritime, joint and combined forces; diverse C2 systems and technologies between coalition forces; and potential differences in the structural organization, operational concepts, and command philosophies among multiple military organizations and civilian agencies.
- The future maritime force requires multiple, diverse platforms to enable operational maneuver from the sea and provide tactical mobility once ashore. A robust anti-access/area denial (A2/AD) environment will likely stress the ability to insert forces through aerial platforms. The use of distributed, flexible, low-signature small boats and surface connectors may facilitate operational and tactical maneuver from the sea. Once inserted, ground units will require some level of organic tactical ground transport.
- The ability to rapidly provide accurate kinetic and non-kinetic fires (effects) in sufficient quantity to distributed forces can mitigate risk for smaller tactical units. Players envisioned that precision kinetic fires in the future would include manned and unmanned systems with support from loitering munitions and over-the-horizon platforms. Technological and communications advances would improve and simplify the request, approval and deconfliction processes.
- Airspace command and control of manned and unmanned systems, coupled with the likely need for deconfliction with surveillance platforms as well as long-range and loitering munitions, will likely challenge the future joint and maritime force. These challenges will be particularly acute when attempting to synchronize operations at multiple echelons of command within contested or semi-permissive airspace.
- Space, cyberspace and other non-kinetic activities will play an increasingly important role in military operations in the years ahead. Players examined the role of cyber authorities in the context of early action, the interrelationship between cyber and information operations and the impacts on cyber authorities, and the use of embedded and forward deployed cyber forces. In general, players stated that cyber activities will become more complex within the context of a FMO approach that utilizes early action to address a budding crisis.
- Sustainment of distributed maritime forces will require the logistics system to be flexible and capable of access to redundant sources of supply. Future efforts should examine logistics and sustainment for FMO forces in more detail and explore options to improve naval logistics integration.
- Wargame participants said the EW13 scenario portrayed an unrealistically generous allocation of resources, speed of movement and agility of forces.

Recommendations

In order to be able to conduct joint and maritime operations in the manner described in the FMO draft concept and in view of current fiscal constraints, it will be necessary for the Marine Corps to conduct a realistic assessment of its concepts and develop a roadmap to connect current and planned resources and capabilities to tomorrow's vision. This may require a willingness to challenge existing assumptions, review and modify current organizational structures, and develop and test new operational concepts and approaches. This holistic approach should realistically assess future Marine Corps operational requirements and coherently link them with current capabilities. As an institution, the Marine Corps must work together with the Navy to examine potential ways to resolve and/or mitigate the challenges identified in EW13. This effort will require support from senior leadership, as well as the vision and iterative ideas of operators, concept developers and capabilities development specialists.

The following recommendations are offered to the Commandant of the Marine Corps for future study, analysis, modeling, simulation and if required, wargaming.

Command and Control

- Conduct experiments or exercises that explore non-traditional command arrangements including use of a regional Maritime Operations Center to exercise JTF operational control, use of rear-based functional commands to support forward JTF operations, and interoperability of Marine Corps forces that fall under operational control of a Theater Special Operations Command acting as a JTF headquarters (HQ).
- Conduct a detailed excursion that explores the command and control challenges faced when attempting to aggregate forces in-stride for crisis response in a compressed timeframe, as articulated during EW13 game play.
- As discussed during EW13, explore an immediately deployable JTF-capable headquarters and MCWL's Fly-in Command Element (FICE) initiative, which seeks to provide an integrated blue/green staff – potentially employing alternative ship platforms such as T-AKE, T-AVB, JHSV and the Littoral Combat Ship – while aggregating forces greater than an ARG/MEU for crisis response. FICE will be part of MCWL's Advanced Warfighting Experiment, scheduled for execution during Exercise Rim of the Pacific (RIMPAC) 2014.
- Examine manning impacts of an integrated Navy and Marine Corps maritime component operational staff.

Intelligence/Information Sharing

- Examine/develop alternative tools and processes that can manage and facilitate information sharing, from embedded forces to regional HQs.
- Develop manning, training and equipping priorities to improve conventional forces' capabilities to solicit and analyze information, then distill and disseminate intelligence to provide context.
- Leverage ongoing Department of Defense-level C2 working groups to study information sharing options across a multinational force that can provide tiered access across CENTRIX/SIPRNET networks.

- Assess the benefits and limitations of cloud-based information/intelligence networks. Consider how off-the-shelf tools may enable a cloud-based regional network to connect embedded forces with potential elements of a maritime task force.
- Examine new and innovative ways to employ existing intelligence, surveillance and reconnaissance (ISR) capabilities, and ensure future ISR platforms are compatible with and, if appropriate, suitably integrated into, existing architectures.

Maneuver

- Use the 2013 Naval Services Game (NSG13) to wargame alternate methods to a forward-deployed ARG/MEU to meet geographic combatant commander operational requirements, as well as procedures and capabilities required for Single Naval Battle and littoral maneuver.
- Conduct modeling and simulation on mobility implications in a high-end A2/AD environment, and the integration of unmanned aerial capabilities (e.g., ISR and close air support) into assault support.
- In conjunction with the Navy, examine the tradeoffs between capital ships and high-speed, low-signature platforms.
- Explore the feasibility of affordable, internally transportable vehicles to provide ground forces with organic mobility.

Fires

- Establish a working group to establish kinetic and non-kinetic fire support procedures, target identification, rules of engagement, means for assessing results, and airspace deconfliction in complex operating environments featuring enemies, friendlies and neutrals in a small area.
- Determine naval surface fire support capability gaps for next-generation naval ships.
- Examine human dimension considerations and challenges associated with fires approval and deconfliction in complex, dynamic operational environments.

Logistics/Sustainment

- In conjunction with the Navy, conduct a detailed excursion that includes modeling and simulation of the logistics and sustainment challenges for an extended campaign in the future operating environment depicted in EW13, including how the Naval Logistics Integration (NLI) initiative can tie-in with the distributed approach postulated in the FMO paper.
- Examine/develop ways to make naval sustainment capabilities as useful for the Marine Corps Ground Combat Element as it is for the Aviation Combat Element.

Force Protection

- Participate in wargames and analysis efforts that examine employment of ships and unmanned undersea systems that minimize their exposure to A2/AD threats.
- Assess ballistic missile defense capabilities include Aegis, THAAD and their successors to enhance force protection of forward naval bases and enabling sites.
- Examine the use of unmanned systems and its role in force protection.

Table of Contents

Executive Summary.....	i
Introduction	1
Implications for the Joint and Naval Force	2
EW13 Game Design.....	4
EW13 Scenario	5
Player Cell Campaigns and Decision Points	5
Analytic Methodology.....	10
Observations and Insights.....	12
Strategic Implications.....	12
Conceptual Implications	14
Tactical Implications.....	17
Recommendations	28
<i>Command and Control</i>	28
<i>Intelligence/Information Sharing</i>	28
<i>Maneuver</i>	28
<i>Fires</i>	29
<i>Logistics/Sustainment</i>	29
<i>Force Protection</i>	29
Conclusion.....	29
Expeditionary Warrior Series Way Ahead.....	30
EW13 Contacts.....	31
Appendix A: EW13 Participating Organizations	A-1
Appendix B: Future Maritime Operations for the 21 st Century Operating Environment	B-1

Introduction

The Department of Defense (DOD) has reached an inflection point, signaled by a number of factors that will affect the nature of the U.S. military in the coming years. First, the constrained fiscal environment – marked by at least \$500 billion in cuts to the defense budget over 10 years – has forced the Marine Corps to take a serious look at how existing and future concepts and capabilities can be linked to address the challenges of the future operating environment. Second, with the large conventional troop commitments in Iraq and Afghanistan transitioning to an advisory role, Marines are postured for a return to the sea to provide the forward presence that serves as a rapid crisis response force for geographic combatant commanders worldwide. Third, the diffusion of advanced technologies among potential adversaries – featuring anti-access/area-denial (A2/AD) threats, unmanned vehicles, cyber weapons and space-based capabilities – requires a fresh examination of how the Marine Corps of the future will operate in this new battlespace.

Expeditionary Warrior 2013, the latest iteration of the Marine Corps' Title 10 wargame, seeks to provide a venue that spurs innovation for the force of the future. This Final Report discusses observations and insights from the EW13 Main Event, which occurred on 25 February-1 March 2013 at The Mason Inn Conference Center and Hotel on the campus of George Mason University in Fairfax, Virginia. The unclassified wargame featured 125 participants representing all five Services of the U.S. Armed Forces, the Joint Staff, Office of the Secretary of Defense, U.S. Special Operations Command and 13 partner nations.

The EW series is conducted annually by the Wargaming Division of the Marine Corps Warfighting Laboratory (MCWL) to provide the Commandant of the Marine Corps with a means to address key issues relating to the future of the Corps. Topics of the Title 10 wargame leverage ongoing joint and naval initiatives and issues. From 2008 to 2010, the EW series examined the opportunities and challenges associated with seabasing. In 2011, the wargame helped to develop the Joint Operational Access Concept (JOAC) and inform MCWL's Enhanced Marine Air-Ground Task Force (MAGTF) Operations series of experiments. In 2012, the wargame examined the joint and naval force's ability to overcome A2/AD challenges.

In July 2012, the Deputy Commandant for Combat Development and Integration (DC CD&I) approved a three-year wargaming campaign plan to explore a vision for future maritime operations that leverages forces deployed forward that can gain awareness of the operating environment, act early, and scale the response to the threat or crisis across the range of military operations (ROMO). On 26 July 2012, DC CD&I approved the following objective statement for EW13:

Identify concepts, capabilities and capacity solutions required by the Marine Corps and Navy to provide forward presence, yet rapidly build forces for crisis response, for future maritime operations in 2035.

After nearly a year of working groups, planning conferences, excursions and other events, the EW13 wargame pathway culminated in the Main Event in February 2013. Insights and observations of the Title 10 wargame are captured, analyzed and published in two products. A QuickLook Report is published within two weeks of the conclusion of the Main Event by CG MCWL. This initial QuickLook is followed several months later by a Final Report, which is approved for publication by DC CD&I. Planners across Headquarters Marine Corps transition the findings for use in Service-level planning documents such as the Marine Corps Service Campaign Plan.

Implications for the Joint and Naval Force

Throughout game development, planners sought to link the wargame with ongoing joint and Marine Corps concepts, ideas and initiatives. These include, but are not limited to:

- Capstone Concept for Joint Operations: Joint Force 2020 (CCJO: JF2020). CCJO: JF2020 describes a joint force that conducts *globally integrated operations* to combine capabilities across the Services, as well as mission partners across domains, echelons, geographic boundaries and organizational affiliations. These forces have the ability to form, evolve, dissolve and reform in different arrangements in time and space with greater flexibility than the joint force of today.¹
- Joint Operational Access Concept (JOAC). Globally integrated operations build on the ideas of JOAC's *cross-domain synergy*, which espouses a complementary employment of capabilities in different domains so that each enhances the effectiveness and compensates for the vulnerabilities of the others – facilitating greater freedom of action.²
- Air-Sea Battle (ASB). Nested under JOAC is ASB, which was developed as a method for gaining and maintaining operational access using *networked, integrated attack-in-depth to disrupt, destroy and defeat A2/AD threats*. Air and naval forces would be organized by mission and networked for integrated operations across all of the domains – creating a synergy in which one's capabilities could enable another's critical activities.³
- Multiservice Concept for Military Engagement and Crisis Response in the Maritime Domain. This concept, expected for approval and publication in summer 2013, articulates a collective USSOCOM-Naval (Navy, Marine Corps and Coast Guard) approach for enhancing geographic combatant commanders' ability to fulfill forward engagement and crisis response requirements in the future operating environment. The document reflects the ongoing commitment to institutionalize greater interoperability and integration among General Purpose Forces and Special Operations Forces.
- Single Naval Battle (SNB). SNB seeks to integrate all elements of sea control and naval power projection in order to create an approach to planning and execution that removes seams in the application of naval power. SNB gives a joint force commander an integrated, domain-spanning littoral capability to enable the ends of his campaign.⁴

¹ *Capstone Concept for Joint Operations: Joint Force 2020*, 10 September 2012.

² *Joint Operational Access Concept*, January 2012.

³ "The Air-Sea Battle Concept" unclassified summary, Air-Sea Battle Office, 10 November 2011.

⁴ "Single Naval Battle Explained" unclassified point paper, Headquarters Marine Corps, Ellis Group, p. 1.

- Littoral Maneuver. As described within the Naval Operations Concept 2010 (NOC10), the Marine Corps Operating Concept, 3rd Edition (MOC3), and MCDP 1-0, Marine Corps Operations, littoral maneuver is the ability to transition ready-to-fight combat forces from the sea to the shore in order to achieve a position of relative advantage over the enemy.⁵

Most prominently, EW13 was also informed by ideas offered in a draft Future Maritime Operations (FMO) concept paper,⁶ which outlined an approach to seabased operations that can leverage forces deployed forward to gain awareness of the operating environment, act early, and scale the response to the threat or crisis across the range of military operations (ROMO), including major combat. FMO was heavily informed by Free Form Operations, which was developed by the Chief of Naval Operations Strategic Studies Group XXV in 2006.⁷

The FMO paper:

- Supports expansion of military engagement activities to increase awareness and develop relationships.
- Endorses greater use of embedded U.S. personnel and forces that train and operate with host-nation forces. These embedded personnel and small units provide situational awareness; inform theater and maritime commanders of changes in political and military developments; and facilitate potential rapid access to host-nation political and military leadership.
- Emphasizes the use of forward-deployed forces to mitigate the tyranny of distance, calls for regionalization of Marine Corps Operating Forces, and supports conducting operations using intent-based and mission-command principles.
- Discusses proactive/preventive early action by using maritime task forces to rapidly aggregate with embedded or other forward-deployed forces to respond to and provide scalable options in dealing with low- to mid-ROMO crises.
- Outlines how the maritime task force can readily leverage additional capabilities and capacity from additional forward-deployed units and CONUS-based forces if the crisis expands into a wider conflict.
- Envisions the use of littoral maneuver through a Single Naval Battle approach across traditional blue-green-brown water boundaries to reach objectives on land to seize, retain and exploit the initiative and gain relative advantage over the adversary.

⁵ "Conducting littoral maneuver, Marine Corps forces will be capable of employing decentralized operations to assure access through multiple entry points and will selectively mass or disperse forces and fires at desired times and places. Strategically, the ability of a joint force enabled by Marine access capabilities compels potential enemies to make investment choices among a broader array of technologies and anti-access defenses. Operationally, Marine capabilities compel the enemy to defend the length and breadth of his coastline, or to concentrate his force." *Marine Corps Operating Concepts, 3rd Edition*, p. 10.

⁶ "Future Maritime Operations for the 21st Century Environment," Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013.

⁷ *Free Form Operations: Operational Agility for an Uncertain Future*, CNO Strategic Studies Group XXV, December 2006.

- Seeks to achieve integration of US maritime, interagency, joint and partner nation capabilities. This includes integration and coordination within traditional warfighting functions, as well as specialized activities such as lift, medical services and communications.
- Envisions readily available kinetic and non-kinetic fires for the maritime task force to include enhanced direct fire capabilities from supporting arms, loitering munitions from unmanned aerial vehicles or over-the-horizon platforms to non-kinetic effects from space and cyber capabilities.
- Suggests for the maritime task force the capability to provide mobility and logistics/sustainment needed for an agile, dynamic, distributed and adaptive military force.

EW13 Game Design

EW13 was an unclassified wargame focusing on the operational and tactical levels of warfare in the context of FMO. During the first three days of the Main Event, players designed a campaign plan and developed a number of tactical actions in response to a fictional 2035 scenario using ideas and constructs described in the FMO paper. These planning activities fed the fourth day, when the players

Futures Panel (Day 2)

- “The Future of Sea Control,” CDR Phil Pournelle, USN, Office of Net Assessment, Office of the Secretary of Defense
- “Future Technologies,” Maj Tom Dono, USMC, DARPA Transition Officer, MCWL
- “The Future Security Environment,” Mr. J.D. Canty, Center for Emerging Threats and Opportunities, MCWL (Moderator)

Multinational Perspective on the Maritime Environment Panel (Day 3)

- CDRE Alok Bhatnagar, Indian Naval Attache
- CDRE Stephen McDowall, Australian Naval Attache
- CAPT Izuru Ikeuchi, Japanese Naval Attache
- CMDR Matt Williams, New Zealand Naval Attache
- LTCOL Simon Bonavita, Australian LNO to MCCDC (Moderator)

focused their energies on seminar discussions about FMO’s central ideas. They presented their initial observations in an open plenary forum on the wargame’s final day.

Other events at the wargame focused players’ attention on the future. They included a plenary discussion that described plausible visions of the future operating environment, future capabilities and technologies, and new ideas about sea control, as well as a panel discussion offering partner nations’ perspectives about the maritime environment.

Game play itself consisted of a theater-level campaign move and three tactical moves that focused participants on maritime challenges in a future operational environment. The players were organized into three blue cells – A, B and C – consisting of roughly 30 people each that were presented with an identical scenario. The cells were led, respectively, by Marine, Navy and Australian officers, and consisted of subject-matter experts across the domains – land, maritime, air, space and the information environment that includes cyberspace. Enemy and partner nation equities depicted in the wargame were played by a white cell, which also adjudicated the blue cells’ tactical plans as part of a move/counter-move construct.

A panel of distinguished subject matter experts of the Asia-Pacific region assisted in the development of EW13 and participated in the actual wargame as players. The three members of the wargame’s “Gold

Cell” were ADM Walter Doran, USN (Ret), who was Commander-in-Chief, U.S. Pacific Fleet from May 2002 to July 2005; LtGen Wallace “Chip” Gregson, USMC (Ret), who served as the Assistant Secretary of Defense, Asian and Pacific Security Affairs in 2009-2012 and was Commanding General of Marine Corps Forces Pacific and Marine Corps Forces Central Command in 2003-2005; and LtGen Duane D. Theissen, USMC (Ret), who was Commanding General of Marine Corps Forces Pacific from 2009 to 2012.

EW13 Scenario

EW13 utilized a fictional scenario set in 2035 Southeast Asia that presented operational challenges for a distributed joint force conducting engagement across the U.S. Pacific Command (USPACOM) area of responsibility. The scenario revolves around the fictional U.S. ally Karta, made up of the real nations of Malaysia, Indonesia and Brunei. When the King of Karta dies unexpectedly, a power struggle ensues between the rightful heir – the oldest prince who is a U.S. friend – and his younger brother, an anti-American traditionalist. When the younger prince takes action to stage a coup, the modern Kartan Armed Forces splinter into camps that pledge their allegiances to the rightful heir or rebel prince, or stay neutral. With a regional conflict brewing astride the strategic Strait of Malacca, a U.S.-led coalition seeks to protect the new king and coalition interests.

A world significantly different than today provides a plausible future beyond the next few budget cycles to stimulate imaginative thinking about FMO. Planners used a “Move 0,” executed in December 2012, two months prior to the Main Event, to establish the strategic assumptions and steady state force laydown within the EW13 scenario. The wargame created a different geopolitical reality that realigned U.S. force posture in the Asia-Pacific region and created operational stressors to the coalition responding to the crisis in Karta. These changes included:

- A newly unified Korea no longer hosting significant U.S. permanent basing on its soil, forcing changes to U.S. force posture and basing away from Northeast Asia to Southeast Asia.
- The People’s Republic of China (PRC) unifying with Taiwan after peacefully resolving decades-long tensions. At the same time, the PRC asserts itself in the region due to territorial disputes with other countries.⁸
- A new Status of Forces Agreement between Japan and the United States prompting a reduction in the military footprint on the island nation. This also prompts U.S. forces to redefine the nature and size of its bases and enabling sites within the region.

Player Cell Campaigns and Decision Points

The three player cells planned distinct approaches to address the scenario. Each cell applied the tenets of the FMO paper in its own way. The task organizations of the cells most clearly encapsulate these diverse approaches. Even with overarching alternative task organizations, the cells shared common elements to their campaign plans. These commonalities included the use of task groups; coordination

⁸ Although the PRC was a factor that helped shape the geopolitical landscape of the fictional EW13 scenario, it was not a direct adversary in the wargame.

with the U.S. country team, host nation and interagency; and maximization of a small footprint already in-country.

Campaign Move Planning

Cell A created a relatively flat command structure (fewer layers between task group commanders and the combined joint task force (CJTF) commander), but divided its task groups’ higher headquarters (HHQs). The cell created a Regional SOF Coordination Center that commanded one task group and one task force in and around Borneo, while two additional task groups were directly commanded by the CJTF. The Regional SOF Coordination Center did not have the task of supporting the CJTF commander, as designed in the task organization. The SOF task group and task force commanders retained the responsibility to support the CJTF commander directly.

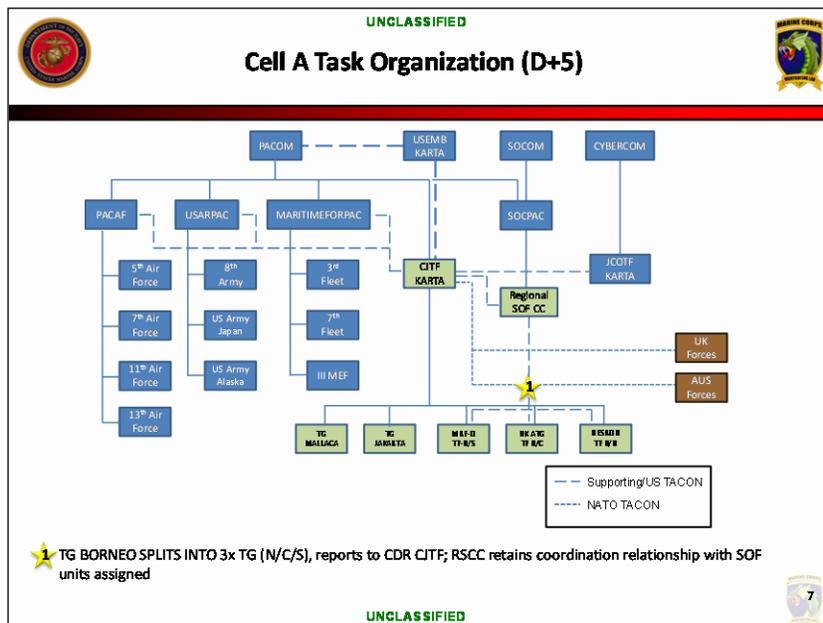


Figure 1. Cell A task organization.

Players in Cell A felt strongly that the U.S. Ambassador and country team would play a critical role in facilitating the CJTF’s activities within the host nation, and that keeping the Strait of Malacca open was the CJTF’s priority of effort. These two points were the primary drivers of the cell’s task organization. Additionally, the need to coordinate with the country team and host nation encouraged the players to fly in the commander and a

supporting staff into Jakarta, where the commander would

operate out of the U.S. embassy. Cell A debated about whether the Marine Expeditionary Force (MEF), as the CJTF, had the resident capability and capacity to support a JTF HQ-level effort and component commands. The players concluded that the MEF could handle JTF HQ requirements without having to depend on component commanders residing at USPACOM HQ.

Cell B created a more hierarchical command structure that divided the task groups between two HHQs. Of the four task groups created by Cell B, two reported directly to the combined forces maritime component commander (CFMCC) and one consisted of SOF operators reporting to the combined joint special operations task force (CJSOTF) commander. The CFMCC and CJSOTF reported directly to the CJTF. Cell B players suggested that the CFACC could execute its responsibilities from the geographic combatant commander’s HQ, but retain the ability to deploy into the JOA as a signal of commitment in

the initial stages of the crisis. The fourth task group consisted of host nation forces and reported directly to the host nation government, while also supporting the CFMCC.

Cell B spent some time discussing various ways to organize the force. Discussion focused on organizing along component commander lines or mission sets for the joint forces. These organizations could further break down along geographic or functional lines. Cell B decided to orient its task groups on objectives corresponding to geographic locations. The task groups then fell under HHQs of the CFMCC, host nation government or CJSOTF.

Cell B decided against having its task groups operate within predefined, boxed geographic boundaries. Players felt that boundaries would force the task group commander to command forces in his box that were not necessarily going to support his tasks. These transiting forces would distract the task group commander from executing his mission.

Cell C had a flat command structure that did not divide command of the task groups, instead having all task groups report directly to the CJTF. Meanwhile, the component commanders were in general support to the CJTF and operated from Hawaii, to reduce resourcing, boatspace, bandwidth and footprint demands on the CJTF HQ. The CJTF then prioritized and assigned assets from the component commands to the task groups. Unlike Cells A and B, Cell C's SOF did not have an assigned geographic area to command as a task group/task force.

The drivers to Cell C's task organization included: the size of the operating area, the desire to place a host nation face on operations and the nature of friendly forces already in the host nation. By forming task groups, troop-to-task planning became simpler and enabled more effective decision-making by the commander on the ground. The assigned areas of operations for the task groups fell along the lines of the host nation military districts. Cell C planners sought to minimize disruption to the host nation's pre-existing military structure and organization when they tied in with the CJTF. The need for a flat task organization structure arose from the pre-existing, widely distributed, small unit operations by blue forces in the host nation.

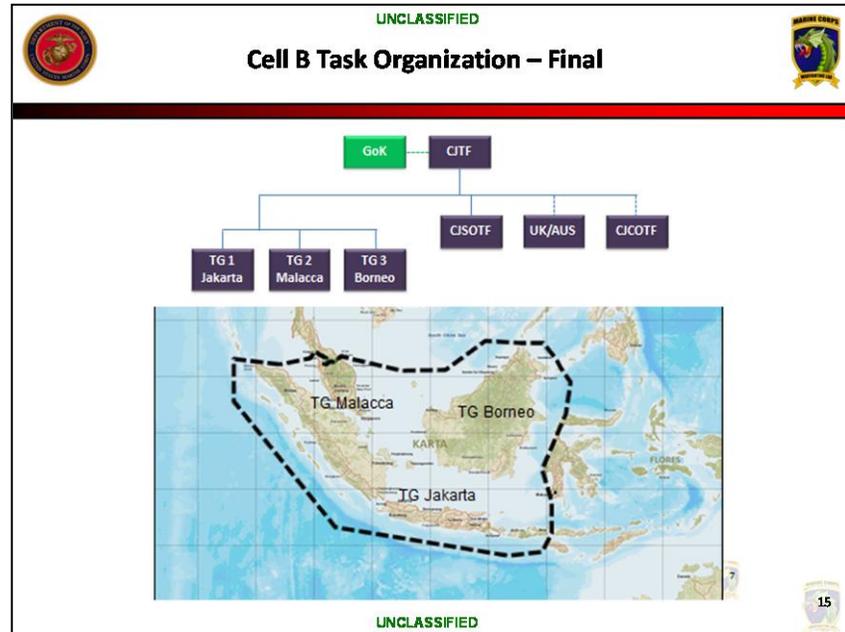


Figure 2. Cell B task organization.

Move 1

Cell A decided predominately to employ kinetic fires and directly engage enemy forces for most objectives within the JOA. The SOF task group was the one countervailing point to this method, focusing on partnering with host nation forces that led kinetic operations and on influencing undecided forces. Kinetic fires depended heavily on a combination of precision naval fires, Tomahawk missiles and long range precision strike. Cell A’s amphibious operations required extensive air support – MV-22s provided assault support to move forces ashore, while the Air Force provided air superiority. Cell A players prioritized freedom of navigation, assigning effort accordingly.

Players from Cell B expressed the belief that aviation was critical to their operations but reduced the availability of shipping for other tasks and that the fluid situation required a flatter command structure. There was tension between the need for immediate air superiority and deckspace for MV-22s supporting landing operations. As ships became consumed with air operations, they were limited in their ability to support other CJTF tasks. To reduce this tension, Cell B focused on securing aerial ports of debarkation (APODs) and establishing forward operating bases (FOBs), moving ship-based aviation to

land-based sites. In mid-stride, the cell flattened the CJTF’s organizational structure, with fewer task groups and the removal of the CFMCC and CFACC, creating more responsive command and control.

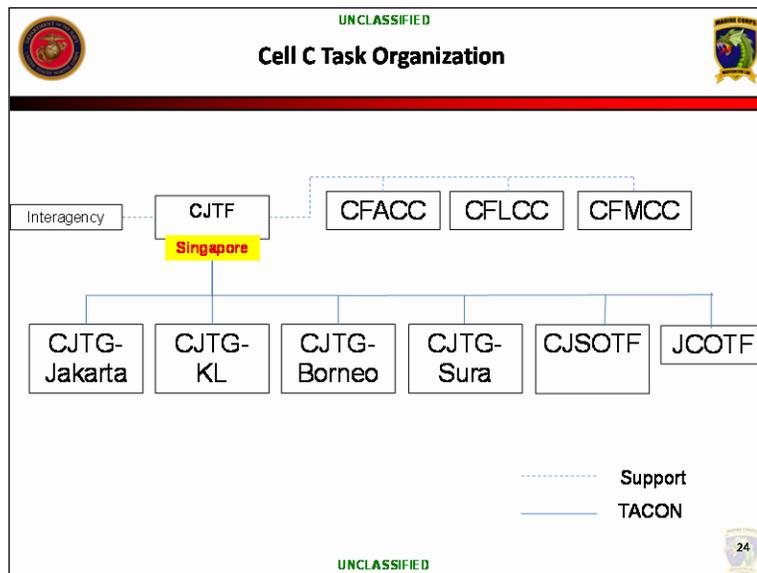


Figure 3. Cell C task organization.

Cell C emphasized the role of information operations and cyber as key tools to de-escalate the situation, turn neutral forces in favor of the host nation, while conducting operations to enable favorable conditions on the ground for blue and host nation forces. Information operations (IO) and cyber played critical roles in

influencing and communicating with enemy forces. This was done in an explicit attempt by the players to open communications between the feuding parties, make the enemy reassess the situation and undermine legitimacy of enemy actions. While these operations occurred, the CJTF sought to provide technical support to host nation cyber forces and conduct operations – supported by blue attaining air superiority – to neutralize enemy A2/AD capabilities and enable movement of host nation forces. Cell C focused on enabling host nation forces to maintain and strengthen their legitimacy, while limiting kinetic engagements with the enemy.

Move 2

Players in Cell A continued to focus on their primary objective of freedom of navigation while supporting host nation forces – the need for air superiority continued to play a decisive factor during game play.

Aggregation became a larger issue as more forces of varying sizes began to move into the JOA. Players questioned how effectively the joint force could aggregate and immediately employ its forces to achieve objectives without a pre-established joint aggregation protocol. Players also stated that the commanders would likely lack familiarity with each other and not have enough time to build relationships. Cell A also split the CJTF command and control into three elements: the CJTF commander flew into the host nation capital, while the main command element and supporting logistics efforts were based out of Singapore and Australia, respectively. Because C2 organizations were so physically disaggregated, players said they needed to have better context about the information that was shaping operations – not simply more information.⁹ Eventually, Cell A split its SOF-led task group into two subordinate task units, still under SOF operational control, as it grew to include SOF, Marine Rotational Forces, and coalition amphibious forces.

Cell B recognized that many of their operations relied heavily on airpower, concluded that coordination was becoming increasingly complex, and saw the use of SOF as an enabler (instead of a direct action force) as paramount to effectively leveraging special operations capabilities. Players utilized theater and JOA air assets for mobility, strike, ISR and refueling. As forces flowed in and moved toward objectives, effective horizontal coordination increasingly introduced friction. This friction became apparent in areas where U.S. general purpose and special operations forces, coalition forces, and host nation forces operated in dispersed but proximate locations. With small ground forces dispersed over a large geographic area, task groups found vertical coordination and command and control difficult. Players believed that using SOF as a direct action or “blocking force” undermined its utility to the campaign. Specifically, SOF’s ability to gain entry to areas to conduct ISR and targeting persuaded the players to keep SOF out of the direct action force role.

Cell C focused on maintaining air superiority and synchronizing kinetic strikes to support its information operations. As with Cells A and B, Cell C found that maintaining air superiority played a critical supporting role in enabling the movement and maneuver of forces in the JOA. This movement included a composite Marine battalion formed from Marine companies from two different regiments, host nation forces, coalition forces, and a U.S. Army brigade. Players continued to stress the need to communicate messages that articulated strength and a willingness to provide a “way out” for the Kartan rebel forces. This included the use of kinetic fires solely to disrupt maneuver of rebel forces and only targeted the enemy in self-defense of coalition or host nation forces.

Move 3

During Move 3, Cell A moved its MEF rear element, re-analyzed methods for supporting freedom of navigation from land-based operations, and reorganized its SOF-led task groups on Borneo. Cell A believed that overcoming distance challenges for the MEF rear element in Australia required relocation to Vietnam. Players believed this placed the MEF rear in a more practical position to support CJTF operations in the JOA. Players also reviewed their freedom of navigation operations in the Strait of

⁹ This is an interesting point, since the FMO paper highlights the use of embedded forces to build and sustain relationships with host nation forces, as well as to provide context to information being gathered from a variety of sources.

Malacca and considered the value of opening a land battle along the strait. They believed that this new front posed an operational dilemma to the Kartan rebels and would help enable coalition efforts to ensure freedom of navigation in the strait. The SOF Regional Coordination Center, which started in Move 1 leading one task group and splitting into two subordinate task units by Move 2, further separated into a third, coalition partner-led, task unit. SOF players noted that with multiple operations ongoing, the SOF Regional Coordination Center had to “get out of the way,” centralizing coordination but decentralizing control.

Cell B activities during Move 3 underscored its heavy reliance on air operations, requirements for better communication networks and the importance of steady-state relationships to establish critical enablers ashore such as logistics and prepositioning hubs. Players pushed to seize and secure airfields in order to transfer the aviation burden from ship to land. Among the ideas discussed was moving the regional Maritime Operations Center to an airfield in country, in an effort to enhance C2 capacity and situational awareness, particularly by GPF and SOF units which sought to complement each other’s capabilities and activities. Cell members talked about the need for more robust, resilient battle networks that could rapidly reconstitute if degraded by enemy cyber attacks. With heavy dependence on air for mobility, fires and sustainment, players viewed relationships with host nation individuals and companies as critical during steady state operations. These groups could provide support that might temporarily reduce logistics strains and demands placed on aviation assets at the onset of crisis response.

Cell C’s Move 3 focused on more kinetic actions as Kartan rebels engaged coalition forces. The cell also re-located elements of the CJTF headquarters and discussed dedicated Navy logistics and boundary constraints. Although overall information operations and the non-kinetic approach were successful, Cell C noted that dealing with some Kartan rebels required more kinetic options. There was also a need to move forward a “light” headquarters element to Singapore, providing the CJTF with more awareness. The need for Navy ships to stay engaged required resupply ships, such as the T-AO(X) refueling ship, to remain close to the fighting; the other option being to send ships out of the JOA to refuel. Players did not feel that sending the ships out of the JOA was an option in a crisis response situation as this movement risked undermining the operation’s tempo. Cell C considered that it originally started play with the area of operations for task groups as guideline AOs. Soon, though, these artificial divisions became constraining; players wondered if conventional boundaries introduced unnecessary C2 and communication friction that slowed operational tempo.

Analytic Methodology

Data for EW13 was captured through a variety of techniques. During each game move, in response to a game-initiated event, recorders within each cell documented player discussions on the evolving situation, their assessment of mission priorities, and player rationale and expected outcomes for the selected courses of actions. A facilitated discussion on the fourth day of the Main Event enabled each cell to discuss the attributes and challenges associated with the tenets of the FMO concept paper.

A post-game analysis workshop was held on the week following the Main Event to assess the data and observations from EW13. The session was enabled by a computer-assisted program provided by

Headquarters Marine Corps' (HQMC) Human Resources Branch (ARHM). Analysts from the CD&I G3/G5 Concepts Branch, MCWL's Center for Emerging Threats and Opportunities (CETO), HQMC Strategic Initiatives Group (SIG) and MCWL Wargaming Division analyzed the raw data in three related ways. First, the data was examined through each player cells' planning response and the implications of those actions on concepts, capabilities and capacities. Second, analysts assessed the data's implications on the warfighting functions (C2, intelligence, maneuver, fires, sustainment and force protection). Third, the team assessed the data relative to its impact on selective military missions as outlined in the *Capstone Concept for Joint Operations: Joint Force 2020 (CCJO: JF2020)*.¹⁰

By using this methodology and synthesizing the observations from three different but related perspectives, the analysis team was able to form a number of observations and insights.

¹⁰ *CCJO: JF2020* highlighted 10 primary missions through which the Joint Force will protect U.S. national interests. The scenario in EW13 facilitated the examination of the concepts, capabilities, capacities and tenets of the FMO paper in several, but not all, mission areas. Applicable missions include: power projection in anti-access and area-denial environments, deter and defeat aggression, providing a stabilizing presence, and conduct of stability operations.

Observations and Insights

The FMO paper, which advocates for broader engagement efforts, increased use of embedded personnel and forward-deployed units, and agile, scalable forces that can rapidly aggregate or disaggregate as necessary to proactively respond to emerging crises, can be implemented to a lesser degree with today's forces and capabilities. Although written in terms of future required Service capabilities, the ideas and vision promoted within the FMO paper are consistent with the framework of *globally integrated operations* outlined in *CCJO: JF2020*.¹¹

The diffusion of advanced technology in the global economy means that middleweight militaries and non-state actors can now muster weaponry once available only to superpowers. The proliferation of cyber and space weapons, precision munitions, ballistic missiles, and anti-access and area denial capabilities will grant more adversaries the ability to inflict devastating losses. These threats place our access to the global commons at risk, target our forces as they deploy to the operational area, and can even threaten forces at their points of origin. Meanwhile, adversaries continue to explore asymmetric ways to employ both crude and advanced technology to exploit U.S. vulnerabilities. Consequently, the capability advantage that U.S. forces have had over many potential adversaries may narrow in the future. Adversaries will not only have more advanced capabilities in every domain. More of them will have the ability to simultaneously fight across multiple domains.

Capstone Concept for Joint Operations: Joint Force 2020, 10 September 2012

Strategic Implications

Expanded use of individual and small units in theater security cooperation (TSC) engagements can provide the maritime force better situational awareness, and potentially enable senior political and military leaders with options for proactive, preventive early actions in emerging crises. Risks of early engagement must be considered.

In EW13, the starting conditions envisioned a large number of liaison personnel as well as conventional and SOF units operating or training with partner nations in the region. During their campaign planning session, players made fundamental assumptions regarding their available capabilities within this future environment that would allow them to operate under the FMO tenets. Participants expected to have interoperable technology, robust networks and bandwidth that would allow them to communicate and share information with each other. A fundamental assumption was interoperability between GPF and SOF, which is one of the foundations of the FMO draft concept.¹² In addition, established and integrated relationships as well as agreements would be in place among joint, interagency and partner nations. This enabled the maritime force to not only gain insight into changes within the operational environment, but to also shape it.

¹¹ *CCJO: JF2020*, p. 2.

¹² "Future Maritime Operations for the 21st Century Environment," Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013.

***“We aggregate units faster than we aggregate trust.”
– EW13 Participant***

Players highlighted the importance of building enduring relationships and trust. They recognized that in a fiscally constrained environment, the United States would likely have to rely on other groups and entities for information and resources. A participant stressed, “We aggregate units faster than we aggregate trust.” Many discussions focused on host/partner nation support, specifically fostering mutual understanding of capabilities and limitations as well as managing expectations. Persistent

overseas presence means that U.S. forces need to balance mission requirements with host nation population support and tolerance. Participants also emphasized the value of multinational exercises, such as Cobra Gold and Balikatan, to develop trust, habitual relationships and networked regional expertise. Other discussions acknowledged that individual and collective training needs to emphasize mission command and active interoperability with other Services and interagency partners.

In the EW13 scenario, the situation rapidly deteriorated and required the joint force commander to take actions to quickly limit the scope of the crisis within six days. This resulted in a discussion of the need to clearly understand operational risks associated with employing small, distributed forces in a high-threat environment as well as the need to have host-nation, interagency, and when appropriate, coalition partner support. There was consensus that FMO significantly sacrificed security for speed. Rapid aggregation and preventive action is predicated on the National Command Authority's willingness to sustain or commit forces in an uncertain environment (rather than withdraw them) and accept associated risks. Within the scenario, force protection concerns were mitigated to some degree by the use of electronic warfare (EW), IO and military information support operations (MISO) capabilities to reduce threats.

For example, one cell initially televised embedded forces with their Kartan counterparts as a show of force to deter potential adversaries. Further, players developed significant escalatory capacity by combining aggregation and maneuver to challenge the rebel Kartan forces. Participants took immediate action to move coalition forces into Karta before the rebels had time to organize themselves and activate their A2/AD capability. Players also used overt maneuver to make the rebel Kartan forces to react with their A2/AD capabilities, using deception to create seams that could be exploited by the coalition. Players employed rapid aggregation in an anticipatory fashion, reacting not only to the current situation, but forecasting potential enemy actions as well.

Players articulated the sensitive nature of operating in a region that puts great emphasis on maintaining national pride and protocol. With this in mind, each cell integrated host nation forces during planning and execution in order to maintain the legitimacy of the rightful heir. While forces were predisposed to use kinetics as soon as possible because it provides assurance, some participants constrained kinetic operations at the onset of game play in order to minimize attrition and encourage reconciliation between the loyal, neutral and rebel Kartan forces. They believed that taking a nuanced approach to this crisis would provide them more options to defuse the situation.

In general, while players agreed that expanded security cooperation programs were beneficial and are an effective way to gain enhanced situational awareness in a declining budget environment, they were skeptical regarding the ability to forecast and prevent major crises, even in countries in which we have a long-standing presence. Players challenged the assumption of the FMO white paper that U.S. forces will even be able to gain the right awareness that directly relates to the ability to build an appropriate force. Participants stated awareness is not just about gathering information, it is about finding the right expertise and placing it in the right place at the right time so as to put the raw data into coherent and actionable context. Even if a small embedded team has awareness, it does not mean it can take preventive action.¹³

Wargame attendees exposed seams in policy, practices and capabilities for optimal information management and dissemination. Information culled from embedded forces still requires processes, systems, capabilities and analyses to provide context that is valuable and actionable. Players asserted that information sharing challenges need to be resolved to allow interoperability and integration with joint, interagency and multinational partners. Participants also highlighted the importance of access to ISR.

Conceptual Implications

Single Naval Battle and littoral maneuver need further study and analysis to identify and develop the required capabilities. Establishing a co-located, integrated Navy-Marine Corps maritime operational staff appears to be a useful first step for the conduct of a coherent naval campaign.

MCDP 1-0 defines littoral maneuver as “the ability to transition ready-to-fight combat forces from the sea to the shore in order to achieve a position of advantage over the enemy. It may be employed directly against an objective ... to seize infrastructure or lodgments that will enable the arrival of follow-on forces ... or to pose a continuous coastal threat that causes an adversary to fix, maneuver or dissipate his forces.”¹⁴ Adversary capabilities such as aircraft, air and coastal defenses, submarines, surface combatants, fast attack craft, maneuver forces, land and sea mines will require the future joint forces to be able to conduct seaward and landward operations in the littorals holistically, unconstrained by traditional battlespace boundaries, roles and responsibilities. Single Naval Battle is an approach that facilitates the integration of all elements of sea control and naval power projection into a cohesive whole. The purpose of this approach is to “strengthen the naval force and its efficacy in achieving the ends of a joint campaign by providing an approach to planning and execution that removes seams in the application of naval power.”¹⁵

¹³ The FMO paper states: “A judicious use of force is derived from awareness and the speed with which the crisis response can be provided. This approach does prompt concerns about force protection for smaller, highly dispersed units. This risk is not mitigated by mass, but is diminished by awareness created by a persistent or recurring presence with knowledge of potential threats, the human and physical terrain, and the socioeconomic drivers of the burgeoning conflict.”

¹⁴ MCDP 1-0, *Marine Corps Operations*, pp. 2-23-2-24.

¹⁵ “Single Naval Battle Explained,” unclassified point paper, p. 1.

In the EW13 scenario, the starting assumption was that the current construct of separate U.S. Navy and U.S. Marine Corps components within U.S. Pacific Command had been replaced by a Maritime Component Commander based in Hawaii. A combined Navy-Marine Corps staff also manned a Maritime Operations Center based in Guam. In game play, many players believed that the establishment of a Navy and Marine Corps maritime component *operational staff* was essential for executing a coherent naval campaign. However, creating integrated Navy – Marine Corps maritime component staffs will require strong senior Navy and Marine Corps leadership support. The capability will have to be developed over time as personnel and fiscal constraints will likely impact efforts to create additional staff organizations. Players also noted that the requirement to maintain separate Navy and Marine Service components remains valid, as these organizations are responsible for the conduct of Service Title 10 responsibilities. Thus, further analysis to examine the manning impacts of these requirements is needed.

As with EW12, players in EW13 highlighted the need for the Navy and Marine Corps to further examine the command and control aspects of Single Naval Battle and littoral maneuver. Part of the challenge lies in the conceptual approach to C2 between the Navy and Marine Corps. The U.S. Navy employs Composite Warfare Commander (CWC) doctrine as its framework for the tactical C2 of naval forces – with missions divided according to the environment (air, surface, subsurface, etc.) and authority for defensive and offensive operations delegated to warfare commanders.¹⁶ While the broad idea of the doctrine may appear to be consistent with the Marine Corps' idea of operations based on commander's intent, details for how a combined Navy-Marine Corps staff works to implement C2 of Single Naval Battle in a coherent maritime campaign is not as clear. In the September 2012 Naval Services Game (NSG12), participants identified "lack of service culture awareness and diminished understanding of cross-domain resources as the greatest challenges to combined Navy-Marine Corps force aggregation." Specifically, Navy personnel did not fully comprehend amphibious operations, whereas Marine Corps participants acknowledged only cursory familiarity with maritime operations, particularly the CWC doctrine. This lack of fluency between the naval services presented the greatest challenge for players when planning viable courses of action for combined operations in the littorals.¹⁷ Limitations on embarkation space in amphibious platforms will also impact staff integration and co-location. Additional focused analysis to refine the procedures and capabilities to implement the ideas of littoral maneuver and Single Naval Battle, perhaps with simulation, will be needed.

The ability to rapidly aggregate and disaggregate forces requires agile, adaptive command arrangements – which involve how battlespace and forces are organized as well as the associated command relationships. Aggregation of U.S. maritime and joint forces with partner forces can create interoperability (institutional, organizational, cultural and procedural) challenges. Timely, proactive actions in emerging crises will likely require continued forward deployment of military forces.

Central to understanding the command and control of forces in the JOA was how to structure relationships among myriad forces in a way that provides function without losing responsiveness.

¹⁶ NWP 3-56, *Composite Warfare Doctrine*, p. 1-14-1-18.

¹⁷ *Naval Services Game 2012 Final Report*, War Gaming Department, Naval War College, p. 6.

Participants experimented with several command arrangements ranging from a traditional CJTF functional hierarchy to flattened, non-traditional groupings. One of the critical challenges was matching a diverse collection of multinational forces to evolving complex missions across a vast area with very little time. Each cell spent a considerable amount of effort wrestling with the problem, and each came up with different solutions illustrating the difficulties associated with orchestrating rapidly unfolding events with ill-defined authorities among multinational partners.

Ultimately, participants determined command arrangements would evolve over time as operational requirements necessitate. They felt that they would need to have room for flexibility, for example, to disaggregate task groups in one phase to form smaller task units for specific missions as needed and then re-aggregate them for larger missions in later phases. Although participants desired rapid aggregation, they admitted that the ease with which they were able to join and disjoin capabilities at will in the game did not necessarily reflect reality. Participants indicated that the actual execution of these efforts will require many experiments, exercises, training, system changes and repetitions to get it right. It was unclear who and how the commanders of the various aggregating groups would be determined. If cross-decking of forces and capabilities were required, it would present a logistical challenge. C2 and deconfliction of joint fires and aviation assets within rapidly changing task organizations could also pose problems, which could be mitigated by engagement and training.

Nonetheless, participants determined that flexibility in command arrangements must be facilitated by a maritime staff with the education and expertise to effectively manage multinational capabilities across the range of military operations. The staff must be able to manipulate the forces assigned to them in appropriate ways with consideration given to their physical, cultural or legal limitations, as well as the desired effects. Additionally, units operating must have a high degree of interoperability across the warfighting functions in order to enable the flexibility in command arrangements required to operate as outlined in the FMO paper.

Given the time constraint, participants stated that commands, however arranged, should be forward deployed to mitigate time-distance challenges and facilitate face-to-face engagements by senior leaders with partner nation counterparts. Players stressed that the ability to creatively organize forward deployed forces does not necessarily guarantee solutions to the challenges presented in the scenario. Forces can be organized in various ways to enable greater awareness, but this additional awareness does not eliminate the uncertainty of human conflict and will not guarantee appropriate actions informed by that awareness. Although awareness helps, participants struggled with how to determine when they had enough awareness, or if they were getting the right awareness to respond with the appropriate force at the appropriate time. The consensus was that greater focus should be made on gaining a fuller understanding of the adversary and determining what approach would be most effective rather than searching for arbitrary measurements of awareness.

Nonetheless, players emphasized that awareness cannot be gained without the proper collection, processing and actions taken on critical information. Command arrangements should not impede the flow of large amounts of information and there must be a way of processing information, determining the data's importance, and making decisions on that information in order to act appropriately within a

very short time period. Participants conceded that current forces are not good at doing this yet, but suggested that advanced computer applications combined with effective steady state operations will enable a better understanding and sensitivity to the local culture and adversary – which will help forces hone in on the right data rather than becoming overwhelmed by too much information.

Tactical Implications

C2 processes, mechanisms and capabilities for “seamless global integration of U.S. maritime, joint, interagency, and partner nations,” as stated in the FMO draft concept, represent a significant challenge and will require further development in order to link current and planned C2 capabilities to desired future requirements. Potential exists for simplifying or flattening command arrangements. Some of the specific challenges to integration include information sharing; difficulties associated with rapid, dynamic task organization of maritime, joint and combined forces; diverse C2 systems and technologies between coalition forces; and potential differences in the structural organization, operational concepts, and command philosophies among multiple military organizations and civilian agencies.

One of the defining characteristics outlined in the FMO concept paper was that future maritime task forces should seek to achieve seamless integration of capabilities with joint, allied, non-governmental and international agencies to create a synergistic effect.¹⁸ Although players accepted the underlying premise that there will be tremendous technological innovations in future years, many challenged whether “seamless” integration of capabilities could be achieved, even by 2035. In EW13, player cells explored using different joint force command arrangements based on FMO’s central idea and players’ assessments of the environment and operational tasks. One cell placed the JTF commander in Karta, with routine operational control exercised primarily through the Maritime Operations Center. Another cell removed the Combined Force Maritime and Air Component Commands (CFMCC and CFACC), postulating that these functional commands could support JTF operations from their land-based headquarters. All of these approaches are innovative and worthwhile ways to examine C2 arrangements in future maritime operations and merit further focused study.

Much of the discussion on information sharing focused on seeking ways to overcome security and procedural barriers. Players noted that afloat information sharing is inherently complex. Security classification procedures need to be developed to enable coalition and interagency partners to access required information. Additionally, current challenges with bandwidth limitations also need to be resolved – either through technological advances, by developing processes to reduce the amount of information that needs to be transmitted or a combination of both. Players believed the ability, and willingness, to use future versions of “cloud-based” information sharing may be one way to facilitate global information exchange.

¹⁸ “Future Maritime Operations for the 21st Century Operating Environment,” Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013, p. 9.

Players also noted that C2 issues associated with rapid, dynamic task organization of forces need to be further developed. In EW13, players accepted the premise that embedded, enduring and cruising forces deploying to the operational area can be organized, aggregated and employed as task groups to take action as needed to prevent the crisis from escalating. However, participants also noted that it is not easy to rapidly aggregate these "come-as-you-are" forces. Much will depend on the specific mission assigned. It was unclear who and how the commanders of the various groups would be determined. C2 and deconfliction of joint fires and aviation assets within rapidly changing task organizations could also pose problems. Cell decisions to distribute command and control functions among multiple locations (afloat, Guam, Karta, Singapore, etc.) in the short duration postulated for the game can also create awareness and understanding issues. One way to mitigate some of these challenges and improve interoperability is through engagement, exercises and training.

Future maritime forces will also need to reconcile technical and interoperability issues between different C2 systems among joint, multinational forces and civilian organizations. Currently, many interoperability issues are addressed through exchange of liaison officers. Future C2 systems and processes need to facilitate shared situational awareness and provide updated information/ assessment of ongoing operations and offer tools to facilitate all aspects of operational planning for friendly forces and organizations. Players also noted a need for maritime forces to review, update or reconcile C2 approaches, current practice and existing doctrine.¹⁹ Finally, while there may be commonalities among U.S. and some close allies, military units from other coalition forces may be organized differently. Tactics, techniques and procedures may be different, and rules of engagements or national caveats may vary.

The future maritime force requires multiple, diverse platforms to enable operational maneuver from the sea and provide tactical mobility once ashore. A robust anti-access/area denial (A2/AD) environment will likely stress the ability to insert forces through aerial platforms. The use of distributed, flexible, low-signature small boats and surface connectors may facilitate operational and tactical maneuver from the sea. Once inserted, ground units will require some level of organic tactical ground transport.

Littoral maneuver requires a combination of watercraft, amphibious vehicles, ground vehicles and a determination of when, why, and which surface ships are exposed to risk in the conduct of tactical operations. Throughout game play, multiple approaches were coordinated to ensure forces were in position to ensure success. However, players of several cells noted that in a "come-as-you-are" fight, commanders must be open to the possibility that arrival of forces and supplies might not come via U.S. or coalition vessels. They were open to new methods of finding any means necessary to accomplish operational maneuver. In multiple cells with U.K. representation, an example of relative success was the 1982 Falkland Islands campaign. Non-traditional platforms such as cruise ships and other commercial ships were used to transport and supply forces fighting in the Falklands. The use of commercial ships

¹⁹ A starting point would be to review the compatibility between the *Naval Operations Concept 2010* and *Marine Corps Operating Concepts, 3rd Edition* and the "Future Maritime Operations in the 21st Century Security Environment" paper.

raises interesting opportunities to look at the capacity of ships to support engaging forces. While none of the cells chose to use commercial ships in their approach, they did view the scenario as a feasible option given the compressed timeline and dynamic situation depicted in EW13. (The EW13 threat environment was less than permissive; putting forces aboard defenseless commercial ships would entail high risk).

Additionally, Cell A players grappled with the level of support for “an appropriate sized force responding to crisis,” as stated in the FMO paper. Specifically, game participants noted that limited embarkation space requires carefully considered tradeoffs between assault support and fires – in particular, between MV-22 and F-35s. They also talked about deckspace management issues that emerge when naval forces become overly dependent on air assets to provide fires, assault support and logistics.

All cells employed aerial kinetic fires to gain superiority over A2/AD capabilities in order to support maneuver from the sea. During Move 1, Cell C used low-signature assets in conjunction with speed to move forces ashore to neutralize additional A2/AD threats before they were activated. Meanwhile, Cell B used a non-traditional task organization consisting of amphibious ships, DDG-51, a DDG-1000-type ship and the littoral combat ship (LCS) to land Marines, and a DDG-1000 and U.S. Coast Guard cutter to strike A2/AD targets. Wargame participants debated optimal methods for ensuring there were enough low-signature ships and connectors available to support a crisis response such as was depicted in EW13; “dedicated” support was perceived to be unrealistic given the lack of capacity for these types of platforms.

To minimize risk, Cell B matched platform signature and capabilities against potential threats. For example, planners used lower-signature LPD-17s to sail closer to shore and launch shorter range assault support aircraft, while exploiting the range of F-35s to keep the higher signature LHA-model platforms outside of anti-ship missile threat rings. Additionally, Cell C discussed using amphibious raids to neutralize land-based threats to access, essentially using the raids to help *gain* air and maritime superiority instead of employing raids only after air and maritime superiority are achieved. Players also attempted to create A2/AD dilemmas for the enemy, using amphibious forces to establish littoral outposts with shore-based anti-ship capabilities to target enemy ships.

Equally important for littoral maneuver is the force’s ability to maneuver once ashore. Players discussed the need for a family of cheap internally transportable vehicles to shift the logistics burden from the individual Marine to the vehicle to enhance organic mobility. Some expectation management and education was required. For example in Cell B, players debated using a SOF unit on a long overwater transit via MK-5 Special Operations Craft, followed by an extended foot march through 100 kilometers of mountainous terrain. Players also wondered whether SOF would be able to travel to new locations and gain transportation in unfamiliar locales. Cell A believed that with the desire for rapid movement in theater, access to high-speed vehicles – either by direct rental or contracting from the local economy – was critical to the mobility of forces. One player noted that mobility should also consider movement -

enablers, such as causeways, port and cargo handlers, Navy Construction Battalion (Seabees), connectors, and other Naval Expeditionary Command capabilities previously discussed during EW12.²⁰

A cost vs. reward analysis needs to be conducted on current and future requirements that enable movement. Players said these capabilities should be both cheap and applicable across a wide range of missions, with the exact mix to be prioritized based on the most likely or most dangerous scenarios. Some participants stated that these costs cannot be borne entirely by the Navy alone, and that the Marine Corps needs to be prepared to shoulder more of the resourcing and investment burden in order to get the capabilities to fill the requirements.

The ability to rapidly provide accurate kinetic and non-kinetic fires (effects) in sufficient quantity to distributed forces can mitigate risk for smaller tactical units. Players envisioned that precision kinetic fires in the future would include manned and unmanned systems with support from loitering munitions and over-the-horizon platforms. Technological and communications advances would improve and simplify the request, approval and deconfliction processes.

Smaller tactical units that have access to close air support feel more secure entering combat with a smaller footprint. This smaller footprint also worked to give smaller tactical units within the EW13 scenario greater responsiveness, with fewer troops, weapons and sustainment to move to the point of employment. The cells made a concerted effort to complement the efforts of loyalist Kartan forces to guarantee that coalition forces were not viewed as occupiers, and convey to Kartans that they were in charge of their own destiny. Cells also guaranteed that any actions coalition forces took were approved by the king. Cells did not want to destroy assets that were going to be needed by Kartan loyalists once the mission objectives were accomplished.

When cells did decide to use fires, both kinetic and non-kinetic, they discussed a range of aspects that would allow for the process of requesting and using fires in the future easier. Among the potential tools were computer applications on handheld tablets that exist today that could send and receive fire support requests, as well as provide input and recommendations for targeting. These tablets would also be capable of facilitating deconfliction. Widely distributed forces on the ground would all have access to these fire support tablets, which could provide up-to-date information on fire mission status, weaponeering, desired effects, supporting agencies, ammunition and battle damage assessment (BDA).

Historically, the commander of a given AO has approval authority over all weapons systems in his command. With the development of precision munitions, the approval chain has climbed to higher echelons of command. Decisions over fires must be at the level of the task assigned with authorities articulated by either pre-approval or conditions sets. Players said that there is a need for some acceptance of risk if the authority is at a lower level. However, cells discussed a desire for tactical units to have an ability to quickly determine the necessity of a strike and the ability to execute the mission. When approval for fires resides at different echelons of commands within a coalition, such as the CJTFs formed to address the crisis response in EW13, expeditious delivery becomes problematic.

²⁰ Expeditionary Warrior 2012 Final Report, Wargaming Division, Marine Corps Warfighting Laboratory, July 2012.

The diffusion of technology will have great impacts to the future operating environment. Capabilities that are considered on the cutting edge by today's standards may be ubiquitous in the future and may even increase in lethality. This will require greater awareness and the ability for commanders to use both kinetic and non-kinetic fires to complete missions that are normally covered under another warfighting function. It is important to remember that the Southeast Asia physical terrain depicted in the scenario (dense vegetation vice sparse or mountainous terrain) may impede communications and delivery of fires differently than in Iraq and Afghanistan. Different terrain and conflict environments may require different capabilities than those developed for previous applications.

***Airspace C2 cannot
be done by a
"pickup team."
– EW13 Participant***

The primary supplier of support for kinetic fires used by cells was typically air support. Cells relied heavily on an increase of air support for fires, necessitating a balance to be struck between sustainment and moving of forces using aviation. The limited amount of deckspace available and the time required to launch onboard air assets required that C2 decisions were made in regards to which assets were used. Reliable access to airfields either ashore or in close proximity of the JOA was a critical driver to operations planned by EW13 players.

Airspace command and control of manned and unmanned systems, coupled with the likely need for deconfliction with surveillance platforms as well as long-range and loitering munitions, will likely challenge the future joint and maritime force. These challenges will be particularly acute when attempting to synchronize operations at multiple echelons of command within contested or semi-permissive airspace.

Although crisis response is very often a "come as you are" operation, one of the inherent tasks that cannot be executed in a haphazard fashion is airspace C2. Some participants noted that this complex coordination cannot be done by a "pickup team," although others said that ad hoc airspace C2 could be conducted akin to what occurred during Operation Odyssey Dawn air campaign. Continued experiments involving integrated naval staffs, perhaps using the Maritime Operations Center as a framework, were among the solutions offered by players.

For Cell B, airspace C2 was established by the combined forces air component commander (CFACC), which was involved at a higher level of operation for the entire JOA and for strategic lift and limited fire support. The task group commanders were in charge of maintaining control over the tactical airspace in their assigned geography. Participants felt they needed fewer coordinating steps with the CFACC to accomplish their mission in the quick time frame needed to solve the crisis. A Single Naval Battle approach allowed for efficiencies in command during an operation that required immediacy. For the most part, the CFACC functions were absorbed into the CJTF. In Cell C, for instance, the CFACC was used in a supporting role to the CJTF commander. The CFACC maintained its higher level authority, but was an additional tool for the commander to use in deconflicting air support and prioritizing essential missions.

Current doctrine, procedures and policies support airspace C2 in 2035, with future technological innovation capable of facilitating more distant, higher fidelity controls over aviation. Like other C2 discussions on locations of command elements, players discussed the locations of C2 assets in order to best support the air campaign. Participants noted that the Air Operations Center did not necessarily need to be in the JOA, with Air Force players stating that their tasks could be accomplished from as far away as Hickam Field in Hawaii.

The cells identified a need for multiple platforms capable of expedient excessive precision fires ranging from destroyers, submarines, and manned and unmanned aircraft. Some players believed that traditional projection of air power will render expensive manned systems too risky due to increased capabilities to enemy A2/AD systems. Development of future design capabilities of fires are moving towards loitering munitions and autonomous attack systems. They will be able to map an area and attack specified targets once a requester initiates a request for a fire mission. However, some players expressed unease with any process not requiring human interaction once a call-for-fire has been initiated. Airspace C2 remains a complex issue that will require future modeling and experimentation, particularly when dealing with forces aggregating in-stride as they did during EW13.

Space, cyberspace and other non-kinetic activities will play an increasingly important role in military operations in the years ahead. Players examined the role of cyber authorities in the context of early action, the interrelationship between cyber and information operations and the impacts on cyber authorities, and the use of embedded and forward deployed cyber forces. In general, players stated that cyber activities will become more complex within the context of a FMO approach that utilizes early action to address a budding crisis.

Cyber Authorities

In a preventive crisis, early action situation, cyber authorities and permissions will involve more than just DOD and military considerations. Some players believed that in 2035, authority issues will be resolved; they perceived the issue of permissions as ascending to the current prominence of authorities in cyber policy. Nonetheless, both sides saw early action and the need for influencing actions through cyber effects as requiring coordination among DOD, the ambassador, his country team and other interagency organizations – e.g., treasury and commerce. Players believed that in a pre-crisis situation, even with presidential approval to begin military activities, the ambassador will still control and influence U.S. activities in the host nation. The impacts of DOD cyber activities would likely introduce friction into other interagency activities that preceded the crisis and will be concurrently ongoing with U.S. military activities. The complexity of this issue grows as considerations expand to include coalition forces and host nation activities – especially if the host nation is still a relatively functioning entity.

Conducting IO through the cyber domain requires further study as it relates to the relationship between authorities and outcomes. A strong desire existed to leverage social media for information operations – particularly problematic because this would involve the use of a private enterprise for a military operation. Players preferred to support host nation information operations through the cyber domain. The result of these psychological activities, though, posed the dilemma of influencing physical violence and destruction by large crowds. Players were not sure if the risk of this outcome required that the

information operation promulgated through cyber required prior approval from higher authorities. There was a similar issue of relationship and definition that arose when discussing electronic warfare and cyber – players were unsure if a defining difference would always be present between offensive electronic warfare activities not requiring higher approval and offensive cyber activities requiring such approval.

Cyber Forces – Embedded and Forward Deployed

To effectively operate in a contested cyber domain within the context of early action, embedded forces will require cyber expertise. Some players mentioned that cyber operators would be more effective at responding to a crisis by having physical proximity to the threat. With a contested cyber domain, reach-back could not be assured; field-based cyber operators would have more ability and situational awareness to support the CJTF's cyber needs.

In order to support a CJTF effectively in preventive crisis response, headquarters-based cyber forces may not be the best option. There are two possible reasons why cyber operators need to be in the field, as articulated by players. First, timing may not allow them to deploy from the headquarters and quickly gain proximity to the enemy. Second, the physical infrastructure of cyber within a country needs securing, and specialists with a technological familiarity of the physical infrastructure are better positioned to physically secure vulnerable cyber “nodes and arcs.” Outside of embedding with forces, players suggested that the carrier strike group or other naval shipping may provide a good platform to place cyber operators to increase their crisis-response flexibility. This would give the cyber operators a better awareness of the desired effects because of their proximity to the supported commander, as well as greater capacity to support the commander at multiple points of employment.

The operations depicted in EW13 required coalition forces to sway the Kartan populace in favor of loyalist Kartan forces, while denying and degrading the ability of the rebel forces. Additionally, the CJTF commander had to retain the ability to command and control his force over great distances while denying the ability of the rebel commander to develop and maintain a cohesive force to overthrow the King of Karta. Given these critical objectives, players stressed that information gathered during the early action state of an FMO campaign must be carefully analyzed and integrated into information-related capabilities during early aggregation of forces. However, with a massive amount of data being exchanged, there are numerous uncertainties about network capacity available in the 2035 timeframe depicted. Players noted that if current technological advances are any indication, telecommunication possibilities will evolve more rapidly than our ability to supply the force with new capabilities.

Information Operations

Bandwidth is anticipated to be a significant challenge as Services, U.S. interagency community and allies all require secure means of communications between each other and with their operational and/or national headquarters. The use of information operations in support of mission objectives will require interagency coordination. Numerous military capabilities can contribute to IO and should be taken into consideration during the planning process (e.g., joint interagency coordination groups, public affairs, civil-military operations, cyberspace operations (CO), information assurance, space operations, military information support operations (MISO), intelligence, military deception, operations security, special

technical operations, joint electromagnetic spectrum operations, and key leader engagement). It will be equally as important to protect some key assets in cyberspace as it is to protect their related "brick-and-mortar" assets, such as a central bank. Cell C discussed how the enemy's use of cyber could allow for banking and commerce to be disrupted without the enemy using traditional forces to secure their objectives by creating economic uncertainty and public panic.

During the game, rebel and coalition forces used deception as a means to influence the situation. Rebels had threatened to mine the Strait of Malacca, causing coalition forces to carefully consider the second- and third-order effects on the global economy their actions in the strait could precipitate. Coalition forces aggressively targeted neutral forces and the Kartan population with IO messaging throughout the operation.

Sustainment of distributed maritime forces will require the logistics system to be flexible and capable of access to redundant sources of supply. Future efforts should examine logistics and sustainment for FMO forces in more detail and explore options to improve naval logistics integration.

In EW13, the short duration of game moves, covering six days, precluded a detailed examination of the challenges associated with logistics support for an extended campaign. Players recognized that although the coup may be over in six days, the fight may last much longer and prepared for that contingency. At the onset of game play, participants had, as one player critiqued, "too much stuff" at their disposal and felt the plethora of capabilities was not realistic. Some players reacted to this by bringing in everything that they would have needed using a much shorter timeline instead of over a longer period. Other players took a more measured approach with the belief that access to an extensive force list does not mean you need to use every unit on that list.

The FMO paper postulated that "dedicated" mobility and logistics would enable flexible response from aggregated forces. In EW13, some players were uncertain what "dedicated logistics" meant in the concept paper, fueling skepticism. Players discussed topics such as steady state versus crisis response, efficiency over self-sufficiency, and host nation support. Players noted that a MAGTF traditionally brings much more than it needs today and in the future, care must be taken to balance capability and capacity with sustainability. It was also pointed out that until the commander knows what he possesses logistically and where those capabilities are located, he cannot adequately plan and conduct operations. While MAGTFs deploy with a certain level of sustainment, eventually they must rely on other Service, naval, joint/DOD, host nation, or commercial sources to obtain support that may not necessarily be "dedicated." Players stated that naval force logistics is inherently general support, not direct support as suggested by the term "dedicated" logistics.

According to the FMO paper, "Embedded forces dispersed across a wide geographic area can draw from the local economy for resources such as fuel, food and water." Participants stated that this can be achieved by small units operating in a benign environment as long as they have the latitude to contract many services and supplies once ashore. However, once the situation degrades into a crisis state, those small units may not have the reliable access to resources that they once enjoyed from the local economy, especially if they aggregate into a larger force. Players highlighted that foraging within a

hostile environment poses a significant risk. Players also discussed the potential de-stabilizing effect of contracting and “false economy building” that comes with U.S. and allied forces.

Players discussed the importance of relationships with host and partner nations to enable sustainment of FMO forces. Players emphasized getting early awareness in all areas with U.S. interests and developing relationships in order to be effective. Participants noted that a good metric of the strength of relationships is the level of access to not only APODs and SPODs, but also to equipment such as forklifts. Having embedded forces in country would lay the ground work for generating actionable intelligence, such as the location of ports and airfields, as well as establishing access to enable critical speed of response.

In cell discussions, players noted that the distribution of the sustainment effort, and not the materiel itself, was the key driver in attempting to supply multiple dispersed units ashore. The general consensus was the sustainment efforts in FMO would require multiple platforms vice a “hub-and-spoke” approach that relied on a single ship or limited number of ships to provide support to dispersed forces.

All three cells relied heavily on air assets for sustainment efforts in order to maintain the operational tempo of the force. Players emphasized that strategic lift will be more important than ever when conducting FMO. Players were acutely conscious of how the tyranny of weight due to up-armored vehicles and other equipment, batteries, fuel and water affect transportability/deckspace in balance with ashore protection and mobility requirements. One player stated, “The heavier we get, the slower we are to respond to crises.” Players cautioned against overreliance on air assets since potential U.S. adversaries would aggressively target fuel sources in order to shut down coalition operations.

Players agreed that sustainment efforts were stressed under FMO. Although the use of enduring presence forces improved speed of maneuver, logistics demands still needed to be satisfied over long external sea lines of communication. Players also identified logistics challenges such as the disparate nature of aggregate forces, the equatorial/tropical environment’s effect on consumption rates and equipment degradation, as well as the effect of A2/AD on logistics assets arriving into the theater of operations.

***“The heavier we get,
the slower we are to
respond to crises.”
– EW13 Participant***

Players recognized that they won’t always have everything that they need. In order to enable a quick response force, participants discussed the feasibility of forward basing and strategically placing logistics enablers throughout the theater. The size, scope and character of these bases must be different from today’s typically large U.S. military footprint in order to assuage host nation sensitivities and stay within fiscal limits. Players recognized that host/partner nations and other Services have many resources that can be shared, especially if they are common items. One player suggested that boosting foreign military sales in the region would not only encourage interoperability among partner nations but also allow access to readily available spare parts for platforms like the F-35. For example, players in Cell A initially considered flying in supplies from Darwin, Australia, which will eventually serve as a base for a MEU-

sized MAGTF presence. As the wargame progressed, Cell A planners decided to place intermediate staging bases in Vietnam and Singapore instead because they were much closer to Karta. However, although game play allowed participants to take this course of action in this instance, players noted that not all countries may be willing to allow the presence of U.S. and joint forces on their soil. Players discussed potential steady-state actions that may help to facilitate positive relationships.

Meanwhile, seabased sustainment of distributed operations would require a mature theater with greater infrastructure and C4 capacity, according to some player discussions. Players applied seabasing in the broadest possible sense to include consideration of forward amphibious shipping, Maritime Prepositioning Force (MPF), connector craft, utility aircraft and C4I issues. Financial constraints and reduced MPSRON capabilities – two squadrons in full operational status as of FY13 – add pressure to efforts to leverage technology to assure efficient logistics. Players discussed anticipated technology improvements in power systems, energy and 3D printing which would facilitate more efficient and responsive logistics.

Many players postulated that unmanned systems would also be useful for resupply. Discussion also raised concerns that seabased sustainment presupposes unmanned systems or aircraft availability, potentially challenging amphibious platform deckspace management – an area that merits a future excursion. Players discussed the criticality of continued development of the CH-53K program in order to provide heavy lift capability; others trumpeted efforts to lighten the MAGTF. Additionally, players expressed concerns over having unmanned systems conducting casualty evacuations in order to meet the “golden hour” requirement.

Finally, some players noted that logistics sustainment for aviation has been well integrated between Navy and Marine Corps systems, and future efforts should seek to improve the naval logistics integration (NLI) for ground systems. Players noted that forward-deployed Marine logisticians are predisposed to bringing the “iron mountain” with them or reaching back to their home station for needed items, rather than exploiting NLI and the associated network of forward hubs, connectors and logistics ships. The general consensus among EW13 participants was that MAGTF logistics either does not trust or is too unfamiliar with NLI to fulfill logistics combat element (LCE) requirements. One participant noted that the Marine Corps currently fields logistics C2 systems that exceed shipboard bandwidth capacity.

Wargame participants said the EW13 scenario portrayed an unrealistically generous allocation of resources, speed of movement and agility of forces.

This criticism was repeated by players and observers across the cells throughout the planning phases of the wargame, and was highlighted a number of times during the EW13 Post-Game Analysis Workshop. Each campaign had an abundance of forces with no shortage of lift to deploy them to the point of crisis – an assertion that EW13 critics said stretched believability. However, other participants countered that forces only *seemed* to be readily available for operations and appeared to be more responsive to the crisis because of two factors. First, U.S. forces in the EW13 scenario’s 2035 timeframe were employed unconventionally compared to today, particularly with general purpose forces embedded with Kartan

forces in country and others using a multitude of lift capabilities (not just amphibious ships) to arrive in the JOA. Second, coalition responsiveness in the scenario reflected a force posture shaped by forward presence and engagement – principles that are articulated in today’s U.S. strategic guidance which were affirmed during Move 0 deliberations of participants at the EW13 Main Planning Conference. Thus, some participants suggested that forces only appeared to be unrealistically plentiful and responsive – and that the speed with which they were able to address the crisis seemed to support some of the ideas articulated in the FMO paper.

Recommendations

The following recommendations are offered to the Commandant of the Marine Corps for future study, analysis, modeling, simulation and if required, wargaming.

Command and Control

- Conduct experiments or exercises that explore non-traditional command arrangements including use of a regional Maritime Operations Center to exercise JTF operational control, use of rear-based functional commands to support forward JTF operations, and interoperability of Marine Corps forces that fall under operational control of a Theater Special Operations Command acting as a JTF HQ.
- Conduct a detailed excursion that explores the command and control challenges faced when attempting to aggregate forces in-stride for crisis response in a compressed timeframe, as articulated during EW13 game play.
- As discussed during EW13, explore an immediately deployable JTF-capable headquarters and MCWL's Fly-in Command Element (FICE) initiative, which seeks to provide an integrated blue/green staff – potentially employing alternative ship platforms such as T-AKE, T-AVB, JHSV and the Littoral Combat Ship – while aggregating forces greater than an ARG/MEU for crisis response. FICE will be part of MCWL's Advanced Warfighting Experiment, scheduled for execution during Exercise Rim of the Pacific (RIMPAC) 2014.
- Examine manning impacts of an integrated Navy and Marine Corps maritime component operational staff.

Intelligence/Information Sharing

- Examine/develop alternative tools and processes that can manage and facilitate information sharing, from embedded forces to regional HQs.
- Develop manning, training and equipping priorities to improve conventional forces' capabilities to solicit and analyze information, then distill and disseminate intelligence to provide context.
- Leverage ongoing Department of Defense-level C2 working groups to study information sharing options across a multinational force that can provide tiered access across CENTRIX/SIPRNET networks.
- Assess the benefits and limitations of cloud-based information/intelligence networks. Consider how off-the-shelf tools may enable a cloud-based regional network to connect embedded forces with potential elements of a maritime task force.
- Examine new and innovative ways to employ existing intelligence, surveillance and reconnaissance (ISR) capabilities, and ensure future ISR platforms are compatible with and, if appropriate, suitably integrated into, existing architectures.

Maneuver

- Use the 2013 Naval Services Game (NSG13) to wargame alternate methods to a forward-deployed ARG/MEU to meet geographic combatant commander operational requirements, as well as procedures and capabilities required for Single Naval Battle and littoral maneuver.

- Conduct modeling and simulation on mobility implications in a high-end A2/AD environment, and the integration of unmanned aerial capabilities (e.g., ISR and close air support) into assault support.
- In conjunction with the Navy, examine the tradeoffs between capital ships and high-speed, low-signature platforms.
- Explore the feasibility of affordable, internally transportable vehicles to provide ground forces with organic mobility.

Fires

- Establish a working group to establish kinetic and non-kinetic fire support procedures, target identification, rules of engagement, means for assessing results, and airspace deconfliction in complex operating environments featuring enemies, friendlies and neutrals in a small area.
- Determine naval surface fire support capability gaps for next-generation naval ships.
- Examine human dimension considerations and challenges associated with fires approval and deconfliction in complex, dynamic operational environments.

Logistics/Sustainment

- In conjunction with the Navy, conduct a detailed excursion that includes modeling and simulation of the logistics and sustainment challenges for an extended campaign in the future operating environment depicted in EW13, including how the Naval Logistics Integration (NLI) initiative can tie-in with the distributed approach postulated in the FMO paper.
- Examine/develop ways to make naval sustainment capabilities as useful for the Marine Corps Ground Combat Element as it is for the Aviation Combat Element.

Force Protection

- Participate in wargames and analysis efforts that examine employment of ships and unmanned undersea systems that minimize their exposure to A2/AD threats.
- Assess ballistic missile defense capabilities include Aegis, THAAD and their successors to enhance force protection of forward naval bases and enabling sites.
- Examine the use of unmanned systems and its role in force protection.

Conclusion

In order to be able to conduct joint and maritime operations in the manner described in the FMO draft concept and in view of current fiscal constraints, it will be necessary for the Marine Corps to conduct a realistic assessment of its concepts and develop a roadmap to connect current and planned resources and capabilities to tomorrow's vision. This may require a willingness to challenge existing assumptions, review and modify current organizational structures, and develop and test new operational concepts and approaches. This holistic approach should realistically assess future Marine Corps operational requirements and coherently link them with current capabilities. As an institution, the Marine Corps must work together with the Navy to examine potential ways to resolve and/or mitigate the challenges identified in EW13. This effort will require support from senior leadership, as well as the vision and iterative ideas of operators, concept developers and capabilities development specialists.

Expeditionary Warrior Series Way Ahead

EW13, which aimed to establish the principles of FMO, was the first of three wargames to explore the ideas postulated in the draft concept. EW14, which is scheduled for execution in February 2014, will further develop the concept's fundamental capabilities and EW15 will operationalize the concept.

EW13 Contacts

Dr. William Lademan
Director, Wargaming Division
Marine Corps Warfighting Laboratory
(703) 784-3276 DSN 278; william.lademan@usmc.mil

Maj Jody White
Operations Officer, Wargaming Division
Marine Corps Warfighting Laboratory
(703) 432-4513 DSN 278; jody.e.white@usmc.mil

Mr. Jeff Wong
Contractor Support to Expeditionary Warrior Series, Wargaming Division
Marine Corps Warfighting Laboratory
(703) 784-6884 DSN 278; jeffrey.w.wong.ctr@usmc.mil

Special thanks go to the following individuals who made significant contributions to the analysis and drafting of this report:

- Mr. John Berry, Concepts Branch, CD&I G3/G5
- Mr. John Caldwell, MCWL Wargaming Division
- Mr. J.D. Canty, MCWL Center for Emerging Threats and Opportunities
- LtCol Mike Chambers, USMC, HQMC/Strategic Initiatives Group
- Mr. Nicholas Iorio, MCWL Wargaming Division
- LT Joel Lakey, USN, MCWL Wargaming Division
- Mr. Joe Linehan, MCWL Wargaming Division
- Ms. Janelle Lor, MCWL Wargaming Division

Appendix A: EW13 Participating Organizations

U.S. Department of Defense

- U.S. Marine Corps
 - Headquarters Marine Corps
 - AVN
 - CD&I / MCCDC
 - I&L
 - PP&O
 - Strategic Initiatives Group
 - MARFORCOM
 - MARSOC
 - MCIA
 - MCWL
 - I MEF
 - II MEF
 - III MEF
- U.S. Navy
 - CVN-71
 - CVN-72
 - DUSN/PPOI
 - ESG-2
 - NAMDC
 - NECC
 - NEIC
 - NWDC
 - Office of Naval Research
 - OPNAV N3/N5
 - PHIBRON-6
 - U.S. Fleet Forces Command
- U.S. Army
 - ARCIC/FWD
 - SMDC
- U.S. Air Force
 - A5XS
 - A8XC

- U.S. Coast Guard
 - HQCG-532
- U.S. Special Operations Command
 - J-7/J-9
- Joint Staff
 - J-7
 - Joint ASB Office
- National Guard Bureau
- Defense Advanced Research Projects Agency
- Military Sealift Command
- Office of the Secretary of Defense
 - Office of Net Assessment

Multinational Partners

- Australia
- Brazil
- Canada
- France
- Germany
- India
- Italy
- Japan
- Korea
- New Zealand
- Singapore
- Spain
- United Kingdom

Think Tanks

- Potomac Institute for Policy Studies

Industry

- Maersk, Ltd.
- General Dynamics NASSCO

Appendix B: Future Maritime Operations for the 21st Century Operating Environment

Future Operating Environment

Current trends suggest a future operating environment of increasing complexity, especially in the littorals. Population growth in the developing world, migration to mega-cities, competition for natural resources and threats from unconventional power combine to create an uncertain landscape that will stress the operating limits of the joint force. The purpose of this document is to introduce a concept for Future Maritime Operations (FMO) that can provide the joint force with naval capabilities to responsively address a multitude of threats spanning the range of military operations (ROMO).

The world's population is expected to reach 8 billion by the 2030s, and 95% of that increase will occur in developing countries. Much of this migration is driven by people escaping for better lives in mega-cities (consisting of populations greater than 10 million), which may offer greater opportunities for jobs, health care and quality of life services than rural areas – but which may also overwhelm weak local governments and create undergoverned regions ruled by criminals, terrorists, pirates and shadow governments. The number of mega-cities is projected to increase from 26 today to 39 by 2030, including 28 located within 100 nautical miles of the sea. These factors, coupled with the developing world's youth bulge, may create a future operating environment in which Gen Charles Krulak's "Three Block War" – where combat, peacekeeping and humanitarian assistance happen simultaneously on three adjoining city blocks²¹ – would occur in the same urban slum by the sea.

Competition among nation-states for finite natural resources will also increase as consumption outstrips production. By the 2030s, demand is estimated to be nearly 50% greater than today. Outside of a major increase in the relative reliance on alternative energy sources, oil and coal will continue to form the backbone of consumption – fossil fuels will make up 80% of the energy capabilities in the 2030s, with oil and gas comprising upwards of 60%.²²

²¹ General Charles C. Krulak, "The Three-Block War: Fighting in Urban Areas," Speech to the National Press Club, *Vital Speeches of the Day*, 15 December 1997, pp. 139-141.

²² *Joint Operating Environment 2010 (JOE 2010)*, U.S. Joint Forces Command, 18 February 2010, p. 24.

Events of the past decade also reflect an increasing diffusion of power from conventional nation-states to unconventional, nonstate or trans-state actors. These organizations seek to operate beyond societal norms and acquire the capabilities and means to challenge states and use terrorism to achieve their aims. *Joint Operating Environment 2010* describes militias, such as modern day Hezbollah, which combine state-like technological and warfighting capabilities with political and social structures established within the formal state of Lebanon. Other hybrid threats cover a wide range of capabilities, including the drug ring Los Zetas in Mexico, Al Shabab in Somalia and the Movement for the Emancipation of the Niger Delta (MEND) in Nigeria. Pervasive information, made possible by the Internet, social media and other evolving technological innovations, has also allowed individuals and small groups to plan, coordinate and execute attacks disproportionate to their size and resources.²³

For both the hybrid and conventional threats, the Nation needs maritime forces with an expeditionary ethos that makes them responsive, adaptive and effective. These forces will operate seamlessly from a variety of U.S. military shipping and possess core competencies that ensure enduring relevance and utility to the Nation. With more than 20% of the nation's ground combat power and a standing mission to conduct forcible entry, the Marine Corps must be ready.

Relationships to Other Concepts

FMO seeks to connect and expand a number of joint, naval and Marine Corps concepts developed over the past several years. It was heavily informed by the *Littoral Distributed Operations* and *Free Form Operations* concepts developed by the Chief of Naval Operations Strategic Studies Group XXV, as well as the Marine Corps' *A Concept for Distributed Operations*. Additionally, the *Maritime Stability Operations* concept as well as the developing *Multi-Service Concept for Distributed Engagement and Crisis Response in the Maritime Environment* address key applications of forward forces developing both awareness and capacity.

Operational Maneuver From the Sea, *Expeditionary Maneuver Warfare*, *Ship to Objective Maneuver* and *Single Naval Battle* all provide key tenets to the maneuver of maritime forces and ideas of tempo as a weapon with which to unhinge and collapse the enemy, while

²³ *JOE 2010*, p. 52.

Enhanced MAGTF Operations will underpin how Marine forces operate, man, equip and train for FMO.

Among joint and other service concepts, FMO is complementary to the *Joint Operational Access Concept (JOAC)* and *Air-Sea Battle (ASB)*, with the latter two establishing the conditions in the joint operating area that make FMO possible.

The Military Problem

The 21st century security environment will feature different types of threats in different sizes. Social challenges caused by migration and urbanization will challenge the ability of militaries and security forces to be able to rapidly and adaptively respond to these contingencies in a timely fashion. As noted in *JOE 2010*:

*The future cannot be predicated upon a single or preclusive vision of conflict at one extreme or the other. We face an era of failed states, destabilized elements and high end asymmetric threats. We must be prepared to adapt rapidly to each specific threat, and not narrowly focus only on preferred modes of warfare.*²⁴

Currently, maritime forces are constrained by limits to scale in organization of forces and platforms. These constraints could preclude flexible response to address diverse, yet capable, threats. In order to address diverse and multiple threats, the maritime force will require greater awareness that can only be gained by dispersed forces. The nature of hybrid warfare will require naval forces, often augmented by stakeholders in the U.S. interagency community, to match the presence of local forces in order to build host nation capacity. The creation and application of this tailored force acting early to mitigate or forestall crisis is the essence of the Future Maritime Operations (FMO) concept.

The Central Idea

FMO is a warfighting concept that utilizes engagement to build **awareness**, emphasizes **early action** to preempt or prevent crises, and maintains **agility through scale** to address a myriad of threats of all sizes across the range of military operations to include major combat operations.

²⁴ *JOE 2010*, p. 66.

During the steady state, small, dispersed units can engage a host nation and set the conditions for awareness, capacity and influence. As the security situation begins to deteriorate, a maritime task force can be formed to quickly change crisis response capabilities by aggregating in theater other forward-deployed forces, many of which are already conducting operations elsewhere. A judicious use of force is derived from awareness and the speed with which the crisis response can be provided. This approach does prompt concerns about force protection for smaller, highly dispersed units. This risk is not mitigated by mass, but is diminished by awareness created by a persistent or recurring presence with knowledge of potential threats, the human and physical terrain, and the socioeconomic drivers of the burgeoning conflict. Consequently, risk is mitigated by a uniquely tailored force to address the crisis.

If the crisis erupts into a full-blown conflict, the maritime task force can readily leverage additional capabilities and capacity from both forward-deployed and CONUS-based forces. To address high-end ROMO threats, all U.S. national assets would be leveraged to offset persistent forward engagement – supplementing enduring presence forces with elements of cruising forces and the total fleet around the globe and based in CONUS.

- **Awareness.** Setting conditions during steady state activities enables forward forces to build awareness of cultural, political, environmental and military factors, while building partner capacity through training and exchange. This long-term, recurring engagement builds relationships that exert influence. As a necessity, forward force activities would be integrated with joint, interagency and regional partners to enhance awareness, capacity and influence – the foundation that enables early action in any crisis.
- **Early action.** Early action in a developing situation leads to a lower level of investment in blood and treasure because it preempts or prevents escalation and greater instability. This is valid across the ROMO. For disaster relief, early action allows the prepositioning of equipment and materiel, the marshalling of resources, and the evacuation of potential victims. For a failing state, early action allows a maritime task force to conduct stability operations in an environment that enjoys some residual rule of law and intact infrastructure, prior to societal disintegration from warring factions, criminals or an insurgency. If the security situation has eroded to open warfare, early action increases readiness and prompts changes in U.S. global posture that forestalls surprise, deters

hostile actions, disrupts adversary plans and shapes the operating environment for decisive maneuver.

- **Agility through scale.** Agility through scale is derived from economy of force and speed. The idea is to employ necessary capacity such that the synergistic effect exceeds the relative combat power of the individual resources committed. The combining of capabilities with respect to time results in a holistic solution tailored to the situation, requiring less capacity than a traditional, sequential response. This speed allows the maritime task force to outpace an adversary's tempo in a conflict or mitigate the loss of life and property in a humanitarian crisis. This is particularly poignant when the crisis could erupt into conflict. When the maritime task force is able to consistently seize the tempo by evolving its capabilities, it gives decision-makers more options to act and changes the conditions on the ground. The enemy is forced to react to the maritime task force's changing capabilities, pushing him to make a fool's choice in order to keep pace.

FMO employs **maritime task forces** and provides more scalable options in dealing with low- to mid-ROMO challenges such as piracy, humanitarian assistance/disaster relief (HA/DR), and counter-drug and counter-terrorism operations. Additionally, the use of the maritime task force to respond quickly to the crisis can create decision space for the geographic combatant commander and the National Command Authority, and potentially neutralize or eliminate the threat with an appropriately tailored force that acts early.

FMO calls for the **regionalization** of the Marine Corps Operating Forces – with each of the three Marine Expeditionary Forces (MEFs) focusing its planning efforts on potentially unstable regions of the world. Within the MEFs, major subordinate commands down to the regimental level focus their attention on specific sub-regions, where forces would be deployed on a rotational basis to support engagements – ranging in scale from small unit training of host nation security forces to large scale exercises. Additionally, regionalization and operationalizing the majority of Marine Corps component commands (e.g., Marine Corps Forces, Europe, Africa and South) for forward presence will enhance coordination with regional Special Operations Forces (SOF) commands already operating in the theater, supporting unity of effort and coherence of action.

Elements of the Maritime Task Force

B-5

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

A description of the forces available for the maritime task force is illustrative.²⁵

- **Embedded Forces.** Embedded forces live, train and operate together with host nation navies and coast guards. By doing so, they are able to build awareness and detect growing instability within a nation, or able to work together with the host nation to counter threats from inside or outside its borders. Embedded forces live off the local economy, are totally sustained through local husbanding arrangements, and are refueled by occasional visits from elements of the Total Fleet. Logistics services support is either formed on site through free form fabrication, or arranged through defense logistics and contracted service providers. Embedded forces are normally under the operational command of the resident U.S. Country Team, but they may be returned to the theater's naval component commander if necessary.
- **Enduring Presence Forces.** Some nations do not desire Embedded Forces. For these nations, Enduring Presence Forces either work out of global fleet stations (GFSs) or regional sub-stations (RSS). From these forward-deployed bases, U.S. naval forces operate various platforms dedicated to theater security cooperation (TSC) activities with the nations in their region. For some nations, U.S. naval forces would make frequent visits and spend prolonged periods of time in country. For other nations, U.S. naval forces would only occasionally conduct port visits and exercises. The goal is to maximize U.S. interaction with every nation in a region in order to build awareness and detect threats to the region's collective security. Nations afflicted with a worsening security environment would attract greater numbers of visits from U.S. naval forces.
- **Cruising Forces.** Cruising Forces operate globally and are operationally chopped to the naval component commander. Some cruising forces are positioned for maritime security operations, while others are in theater for deterrence. Their primary purpose is to operate with regional navies and coast guards to maintain security in the maritime commons. They are task organized and controlled from the regional Maritime Operations Center, and may report to other regional commands as appropriate. Cruising Forces may operate from a GFS for long periods of time, sustained and

²⁵ Organization of forces available for the maritime task force originated from CAPT Gordon E. Van Hook, USN, as part of SSG XXV's *Free Form Operations: Operational Agility for an Uncertain Future*, December 2006.

supported by refuelers. Personnel manning the cruising forces are either sea-swapped into theater or have their families co-located in the vicinity of the GFS. In some regions, cruising forces may be given TSC tasks in conjunction with enduring presence and embedded forces. Occasionally, cruising forces would work with the host nation security forces of the region to perform maritime interdiction missions (e.g., intercept ships suspected of engaging in drug smuggling, human trafficking). Other times, cruising forces will integrate with enduring presence forces and other coalition partners to form a maritime task force for a given contingency. One of the key functions of the cruising forces is to mitigate the force protection risks to which the embedded and enduring presence forces will be exposed. They will do this by repositioning themselves in a region as threat levels change, or as embedded or enduring presence forces are exposed to changing levels of risk, in order to more responsively react to sudden threats.

Capacity in an FMO construct is not immediately apparent, manifesting itself via the cruising forces that are positioned over the horizon to respond quickly to a crisis. For the host nation, its capacity is developed from the steady state efforts by the embedded and enduring presence forces to improve its ability to conduct maritime operations.

- **Total Fleet.** The total fleet is organized into a home surge and sustaining force, scalable adaptive forces, and forward forces. The home surge and sustaining force provides for U.S. homeland security, and mans, trains and equips the force for rapid forward aggregation as needed. Each person, piece of equipment and supply is coded by their readiness and capability through a greatly expanded Navy Mission Essential Task List (NMETL), tailored for the expanded functions listed above, and tethered to be able to rapidly deploy forward in scalable adaptive forces to form a maritime task force.

FMO is marked by nine defining characteristics that address the dynamics of crisis and conflict expected in the 21st century security environment. They are:

1. Appropriate force for proactive/preventive action enabled by awareness.
2. Organized from forward-deployed forces mitigating the tyranny of distance.
3. Intent-based/adaptive organizations enabling rapid aggregation.

B-7

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

4. Agility through scalability.
5. Seamless global integration of U.S. maritime, interagency, joint and partner nation capabilities.
6. Littoral maneuver, enabling maneuver from the blue water to objectives ashore.
7. Dedicated logistics enabling flexible response of aggregated forces.
8. Readily available kinetic and non-kinetic fires, mitigating risk of smaller forces.
9. Dedicated mobility enabling tactical and operational maneuver in multiple mediums.

Defining Characteristics

1. **Appropriate force for proactive/preventive action enabled by awareness.** To maintain flexibility, economy of force and minimize opportunity costs, FMO emphasizes using the smallest force possible to accomplish the task, within an acceptable level of risk. The task organization should be commensurate with the scale of the challenge, but capable of adapting as the task or threat evolves. The organizational scheme of maritime task forces must be adapted to the task at hand and potentially reduce the size of the forces committed. Smaller forces can more quickly aggregate, adapt their posture, coordinate capabilities, maneuver and disaggregate upon mission completion. In this concept, aggregation is maneuver – a rapidly changing force posture that places the enemy at a cognitive, as well as physical, disadvantage, unable to identify both the size of the force and its objective.
2. **Organized from forward-deployed forces mitigating the tyranny of distance.** To realize the need for adaptive and responsive capabilities, maritime task forces will be organized rapidly from forward-deployed forces, both ashore and afloat, while leveraging reach-back capabilities in the Continental United States (CONUS). These forces will pull together a wide variety of specialists, generalists and platforms without the luxury of extensive pre-deployment training akin to Marine Expeditionary Units (MEUs). All embedded forces, including the U.S. Country Team, in-country SOF and Marines

B-8

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

conducting engagements, will be building their situational awareness and cultural intelligence to share via a flattened collaborative network unhindered by traditional bureaucratic hierarchies. Eventually, this can inform the early action that would preempt or prevent crises.

3. **Intent-based/adaptive organizations enabling rapid aggregation.** With a common understanding and perspective of roles and responsibilities within the maritime task force, these organizations can task organize as a contingency unfolds. This flexibility sets it apart from current practice, which relies on frameworks established during a lengthy pre-deployment training period. Maritime task forces will be guided by a clearly defined intent – one that is deeper than the commander’s intent for the operation and that reflects the essence of how a maritime task force operates. The goal is to maximize the task force commander’s freedom on the methods chosen to accomplish the mission. The task force and its subordinate elements rely on a commonality of perspective gained through training, flexible organization structure, enabling technology and professional military education that emphasizes critical thinking and problem solving. Each member of the task force has a reasonable expectation of how each will respond to challenges across the ROMO. This ensures that the maritime task force is driven by intent and guided by standard operating procedures – and not vice versa.
4. **Agility through scalability.** This is a different manifestation of maneuver, one not measured by just time and distance. Instead, agility through scalability changes the maritime task force’s posture – forcing an adversary to address the change much as would be required to address bold maneuver. A maritime task force will be able to scale up for MCO or down for steady state engagements, leveraging plug-and-play personnel and platforms to round out the full capability. Agility through scalability applies across the landscape of military operations and the battlespace functions, providing for a much more rapidly organized and fitted force for the operation.
5. **Seamless global integration of U.S. maritime, interagency, joint and partner nation capabilities.** A maritime task force may incorporate an extensive array of capabilities not included in its normal regional organizations or within its conventional chain of command. As such, it may leverage established relationships to incorporate and leverage the capabilities of nongovernmental organizations (NGO) and international

organizations (IO) when appropriate. These capabilities may include, but are not limited to, specialized lift, medical services, communications and sustainment. Reception, staging, onward movement and integration are unnecessary – additional forces are integrated into the maritime task force in-stream during operations and minimizing impact to tempo. The application of dedicated assets responding to a task with exceptional responsiveness will mitigate man-made and natural disaster consequences with an effect akin to how complementary fires and maneuver create a synergistic effect in combined arms.

6. Littoral maneuver, enabling maneuver from the blue water to objectives ashore.

Under this mindset, the littorals are viewed as a single entity, requiring unity of effort across traditional blue-green-brown water boundaries to reach the objectives on land. Adaptive command elements would be called upon to control operations appropriate to their capabilities. They will have small systems with efficient power sources and access to a network with reach-back capabilities. Future technologies, doctrine and training must integrate to keep these systems and their supporting network infrastructure small, to ensure they can support a similarly small maritime task force.

7. Dedicated logistics enabling flexible response of aggregated forces. Regardless of the composition, disposition and size of a unit in an FMO construct, forces can leverage the equipment and sustainment required of their mission. Embedded forces dispersed across a wide geographic area can draw from the local economy for resources such as fuel, food and water. Enduring presence forces and cruising forces possess greater self-sustaining capacity for limited durations, but they can also leverage greater capacity from the Total Fleet as well as unique capabilities that can be identified and aggregated as a maritime task force to address the crisis.

8. Readily available kinetic and non-kinetic fires, mitigating risk of smaller forces.

Distributed operations by networked joint and combined forces will generate significant amounts of actionable information. Distributed units, including small units ashore, riverine forces and distributed combatants at sea, will exploit this intelligence by using both enhanced direct fire capabilities as well as fires from supporting arms, loitering munitions aboard unmanned aerial vehicles (UAVs) or over-the-horizon platforms to

B-10

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

neutralize or destroy hostile forces. Non-kinetic effects, including information and cyber operations, will be essential in preventive operations to avert crisis.

9. **Dedicated mobility enabling tactical and operational maneuver in multiple mediums.**

The ship is part of the maneuver conducted as part of FMO – not merely a base from which to maneuver. FMO emphasizes combined arms and maneuver bridging operational and tactical maneuver. Joint forcible entry operations (JFEO) may be conducted with distributed littoral penetration areas by disaggregated landing forces; massed amphibious assault with aggregated forces; ship-to-objective maneuver with vertical assault forces; and numerous other combinations. In overcoming the anti-access challenge, FMO considers all elements of the joint force and maritime task force in resolving these challenges, not merely with the use of technology, but also by maneuver and fires. Similarly, mobility when forces are disembarked will remain critical for maneuver.

Application of Warfighting Functions in FMO

- **Command and Control (C2).** C2 for vastly distributed forces will require intent-based adaptive organizations capitalizing on networked digital communications at the lowest tactical levels. As a natural by-product of such an arrangement, collaboration will surpass control, as the distributed force's awareness of the situation – while improving the awareness of higher headquarters – must be considered preeminent in the decision-making process. Regional MOCs will have integrated blue-green staffs that are fluent in FMO to effectively coordinate maritime task force requirements in theater and from CONUS.
- **Information/ISR.** The presence of Special Operations Forces and other forces conducting engagements in a given region will provide foundational intelligence for the operation of distributed general purpose forces ashore and afloat. Networked to the lowest level, distributed operations forces will use ground sensors, unmanned aerial vehicles and enhanced cultural awareness to collect, disseminate and act on intelligence. This information can be posted on regional virtual "clouds" that work to shatter stovepiping and level the field among organizations up and down the chain of command.

B-11

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

- **Maneuver.** Three elements relating to maneuver differentiate FMO. First is operational maneuver of maritime task forces from the blue water to objectives ashore in a single battle. Second is intent-based C2. Third is a maritime task force capable of utilizing combined arms. These three elements allow the maritime task force to gain the initiative by establishing an operational tempo to which the enemy cannot properly respond, leading to his defeat or capitulation. FMO expands on the Marine Corps' concept for distributed operations, extending maneuver from the blue water into the littorals and ashore, across all domains. Maneuver within the littorals is a central requirement for conducting FMO, necessitating low-signature platforms that have the ability to easily disperse and aggregate to form a maritime task force, as well as deliver forces ashore from greater distances.
- **Fires.** Fire support's differentiating conceptual characteristics as part of FMO has already been discussed. Here we discuss C2 of fires, which requires the integration of fires at the maritime task force level. The fire support coordinator will retain control of integration and allocation of fires. However, the enabling process will require a network that would identify availability of firing assets, retain targeting information, facilitating fire planning and disseminate fire orders. Battle captains closely collaborating with the ground maneuver commander will be proactive in allocating – “pushing” – fires assets to units, ships or maneuver groups in priority to the task at hand. To enable littoral distributed operations, fires must provide a potentially wide range of capabilities to the user. Not every weapon system must possess all of the capabilities required – but the array of littoral distributed weapons must be precise, capable of volume and suppression, responsive, and scalable.
- **Sustainment.** Sustainment is a significant challenge to distributed forces. It is imperative that this warfighting function be applied so that it does not constrain or limit operations. In order to retain the initiative provided by the flexibility, mobility and maneuverability of smaller distributed forces, sustainment cannot include stockpiling of assets. Each force – whether a ship, deployed Marines embedded in a friendly country or Marines maneuvering in hostile territory – will face a unique set of circumstances that will require tailored solutions with a scalable lift footprint, supporting a flexible inventory provided by redundant sources of supply.

B-12

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

- **Force Protection.** Force protection is provided by the standoff offered by ships' ability to maneuver within the waterspace and ships' ability to seabase capabilities offshore. There is an assumption of risk that is tied to littoral distributed operations that FMO requires, but that risk is offset by the awareness and responsiveness that distributed forces can provide. Just as knowledge of an IED network can serve as a form of force protection, so can information about potential adversaries in the operating environment.

FMO Campaign Structure

A successful campaign, whether kinetic or non-kinetic, requires the orchestration of many missions with many different forces and capabilities, coordinated to have a strong combined effect in order to defeat the enemy, restore social stability and mitigate disaster. Traditionally, U.S. campaign planning features sequential phases, recognizing that, in practice, some portions of these phases may overlap. The currently recognized phases associated with a major combat operation follows:²⁶

- Phase 0 – Shape
- Phase I – Deter
- Phase II – Seize Initiative
- Phase III – Dominate
- Phase IV – Stabilize
- Phase V – Enable Civil Authority

One of the key challenges of FMO is that real world operations require resources to be applied to tasks sequentially. Events occur – and are perceived – sequentially, in phases. The intent of FMO, however, is to create a holistic impact at both the local and global levels, both immediately and over an extended period of time. In FMO, maritime task forces operate across multiple lines of operation and achieve several possible “states,” which are analogous to phases but are more fluid – with opportunities to revert to earlier states (as an operation adapts to a fluid, changing situation). Traditional campaign plans feature some overlap between phases, while FMO is marked by large transitional overlaps across states. Unlike the traditional phasing

²⁶ *Joint Publication 5-0, Joint Operation Planning*, Joint Chiefs of Staff, 11 August 2011.

concept, which focuses on MCO or similar operations, FMO states are broadly applicable across the ROMO. The operational commander will be able to access capabilities that can adapt to changing operational needs, scaling up or down in capabilities or redesigning itself to operate across multiple domains. As the number of destabilizing activities in a region breaches a level acceptable within a steady state, embedded forces and the host nation may respond by increasing the intensity of its activities. Coalition capacity adapts in accordance with the threat situation. As threat capacity and actual threat activity drop to an acceptable level, the maritime task force will respond by disaggregating some – but not all – of its capacity.²⁷ For further amplification, FMO's states are:

- Steady State
 - Aggregation
 - Focused Action
 - Disaggregation²⁸
-
- **Steady State.** For the purposes of FMO, the world is viewed as a complex system consisting of a large number of interacting dynamic parts which are coupled in ways that make the system as a whole more than just the sum of its parts. Non-linear interactions between the world's major and minor actors could cause events disproportionate to their immediate, apparent effect. Because of this, the level of stability in any region will be in a constant state of flux. One of the challenges in applying FMO will be determining an acceptable range of limits on instability. Once a country team has perceived a significant increase in instability in a host nation – escalating the threat environment out of steady state conditions – then the ambassador may seek a maritime task force organized to address the local challenge or threat. Steady state operations are largely centered on awareness and influence. Awareness is an understanding of the situation and the factors contributing to the evolution of that situation, providing the foundation for decisions. This understanding goes beyond information gathering. Awareness used in the FMO context includes knowledge of the physical and human terrain, gained through interacting with local cultures, understanding the population's ideals and

²⁷ *Free Form Operations: Operational Agility for an Uncertain Future*, Chief of Naval Operations SSG XXV, December 2006, pp. 2-11.

²⁸ FMO's states originated from Martin J. Guyotte as part of SSG XXV's *Free Form Operations: Operational Agility for an Uncertain Future*, December 2006.

ambitions, and the needs of both the populace and regional leadership. Access to “word on the street” is critical. Coordinated information sharing between forward forces and the country team will facilitate awareness and help identify the point at which the security situation has escalated beyond local capacity and requires the formation of a maritime task force. An ambassador would initiate this request with the appropriate geographic combatant commander (GCC).

When a nation or region is in the steady state, the role of enduring presence forces, embedded forces and the country team will include the following functions:

- Support Host Nation Governance and Rule of Law
- Leverage Country Team Operations
- Establish Human Terrain Assessment Teams and Human Intelligence
- Build Social Networks
- Exercise Influence
 - Conduct Civil Affairs Operations
 - Enable NGOs
 - Facilitate Environmental Security Assistance
- **Aggregation.** When the decision is made to form a maritime task force, the process of aggregation begins and the following processes are initiated:
 - **Conduct GCC Joint Interagency Coordination Group (JIACG) Mission Analysis.** Based on objectives generated by the ambassador, the country team and the JIACG, mission analysis drives the top-level approach for the task force (e.g., primarily kinetic vs. primarily non-kinetic). It also sets the tone for the level of joint, interagency and NGO collaboration required.
 - **Consult Coordination and Collaboration Templates (CCTs).** The existence of a robust collaborative command environment (CCE) will be a key enabler for rapid decision-making. The CCE will produce a template for a particular crisis that features locally customized knowledge about likely areas of operations, as well as concepts for NGO and interagency involvement. These templates – coordination and collaboration templates (CCTs) – will also include cooperative security arrangements

B-15

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

- with other nations in the region, joint or interagency agreements, and points of potential collaboration with NGOs. This information will be updated as a matter of course and exercised through regular training with regional partners.
- **Handover to Maritime Task Force Commander.** Physical elements of the MTF will have to begin to deploy to the area of operations as soon as possible. It is expected that the "tyranny of distance" will always impose some level of delay in the MTF aggregation process. There are however, a number of possible ways to mitigate the time distance problem. First and most significantly, the aggregation of forward forces in the region affected will reduce response time. Second, the use of high speed surface and air connectors to move forces and special capabilities are necessary to enable rapid aggregation. The sea base may be included in the MTF to facilitate logistics for the rest of the force. Additionally, mission-oriented virtual training conducted en route to the theater of operations and in-stride rehearsal will minimize aggregation time for general purpose forces committed to a MTF.
 - **Converge Knowledge Base/C2 Adaptation.** As soon as possible in the formation of a maritime task force, the appropriate knowledge bases will be converged and the C2 system will be adapted to the mission. Assigned forces come under the control of the maritime task force commander as soon as possible, regardless of their location. This might include ships and aircraft in other regions of the world as well as reach-back elements inside CONUS. The command control network architecture for the MTF will therefore need to be structured simultaneously with the formation of the MTF.
 - **Begin Movement of External Forces to the Joint Operating Area.** Forces external to the theater begin moving to the area of employment via inter- or intra-theater lift (e.g., Joint High-Speed Vessel).
 - **Focused Action.** In this state, the maritime task force takes focused action to obtain the endstate of the commander's intent or adapts it to respond to changing conditions with the enemy or the environment. This state will overlap significantly with aggregation, since some assets will be capable of effective employment and will even be pre-

conditional to maneuver or other action. Focused action is the commander's bid to bring the situation under control, either to reduce violence, create order or defeat the enemy. Typically the action will take place across several lines of operation including information operations, governance support, civil support, health support, security and combat operations.

For HA/DR operations, this state may begin with arrival of initial capabilities to relieve suffering – possibly overlapping with aggregation. Logistics may be decisive in an HA/DR operation, considering the intricacies of distributing aid supplies in areas where the transportation infrastructure may be rudimentary or seriously damaged. Health operations – including disease control, emergency medical support and public health support – will take on varying degrees of importance as the maritime task force adapts to the changing situation and adjusts to the available capacities of the host nation, NGOs and IOs.

For irregular warfare, counterinsurgency and stability operations, security and combat may be of greater importance, but will remain only one of several lines of operation required to create a decisive effect. The continual refinement of operational priorities and coordination of military and civil action will allow the maritime task force to adapt faster than the adversary, using tempo to disrupt enemy operations. The aggregation of embedded forces with enduring presence forces, host nation forces and reach-back capabilities will create an adaptive force capable of winning the peace. The ability to proactively or preemptively address a crisis will be confounded at times by human error or desire for military conflict. In such cases, FMO allows the maritime task force to bring forces to bear for major combat operations using multi-domain combined arms operations to leverage lethal and non-lethal fires and maneuver from blue water through the green and brown water to objectives ashore, with smaller more mobile forces acting on intelligence gained from the awareness of forward forces.

- **Disaggregation.** Under FMO, disaggregation does not imply a complete removal of capabilities or an abandonment of an operating area. Instead, the maritime task force will conduct a deliberate transfer of capacity out of an area as the situation transitions to a new steady state that aligns with U.S. interests. As elements disaggregate from the maritime task force, they will aggregate with other task forces, re-deploy to enduring

presence or cruising force status, or withdraw from forward deployment as necessary for any longer term maintenance.

Training

The application of FMO has significant implications for training. Some of these are identified below.

- Large staff training conducted by simulation. This will be the norm in the future. Since much of the aggregation of a maritime task force will be guided by virtual tools and staff support through reach-back or virtual staffing, training will also be facilitated through simulation.
- Since a maritime task force will frequently incorporate multiple agencies and require collaboration with NGOs, key exercises (e.g., "JIATFEX") will be expected to incorporate all agencies and NGOs in aggregation.
- Specific emphasis on warfighting skills at the team level, where adaptive organizations are built.
- Exercises for FMO will have to become "free-form exercises" to (1) inject flexibility in what would otherwise be an overly rigid training and deployment cycle and (2) imbue the "free form" or "come as you are" nature of future operations.
- FMO will require high initiative and strategic/operational awareness at the tactical unit level. This will require more education at the individual level to broaden operational perspective.
- Cross-training at the lowest levels will be required to minimize manning and maximize the flexibility of naval forces.

Required Capabilities

B-18

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

- FMO is optimized for platforms of a scale between LPD-17 and the littoral combat ship (LCS), as well as a possible variant of LCS, that allows the embarkation of Marines or SOF units, provides direct support fires, operates long-range vertical assault aircraft to deliver forces deep into the landward portions of the littoral environment, embarks/disembarks small craft for amphibious operations, and can be fully networked. Smaller ships and landing craft would have the flexibility throughout the littorals, between the ship or intermediate base to objectives ashore – and back again – repeatedly exploiting maneuver to the maritime task force’s advantage.
- Enduring presence is optimized with platforms of medium (110 feet) and small (82 feet) scale coastal ships that can be matched with the capabilities of small coastal navies for use by embedded and enduring presence forces.
- In order to rapidly aggregate and disaggregate across various scales over thousands of miles, long-range heavy lift aircraft *that can land at sea* will be necessary for the intra-theater movement of troops and equipment. Cargo seaplanes already exist with varying amounts of lift capacity.
- High-speed surface connectors will be necessary for intra-theater transportation and logistics. Among the current platforms that can fulfill this requirement is the Joint High Speed Vessel (JHSV).
- Long-range medium-lift helicopters will be required to move units, their equipment and sustainment across a distributed operating environment. The MV-22 Osprey appears an optimal platform to suit this requirement.
- Ships, communications systems, vehicles, navigation aids and other technology will require smaller power sources, batteries and alternate fuel in order to eliminate constraints on operations and increase flexibility. Research conducted by the Marine Corps Warfighting Laboratory and the Expeditionary Energy Office over the past several years have been working toward potential solutions to these dilemmas.

B-19

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013

- Lightweight long-range communications devices are needed to allow dispersed units to talk to ships, aircraft and ground units. This portends a communications system that is persistent, high-altitude / space-based, locally controlled and dedicated.
- Training and professional military education (PME) underpin the concepts of FMO. Without a broad base of well trained and educated leaders, the basis for adaptation is limited. All naval – Marine Corps and Navy – officers must be fully trained and educated in integrated operations and FMO in order to develop a mutual understanding of each other’s philosophies, perspectives and operational mechanisms.
- FMO requires a C2 system that allows collaboration, coordination and planning. This concept must take video-conferencing to the next level and make accessible to the warfighter databases of lessons learned in real time.
- FMO requires a full suite of UAVs with varying levels of persistence, range and speed that are dedicated and controlled by the local unit.
- FMO envisions the regionalization of Marine forces down to the regimental level in order to facilitate building enduring regional relationships and the resultant awareness.

Summary

In order to meet the challenges of hybrid threats in a 21st century security environment, naval forces must have greater operational agility across the ROMO. A single force must be responsive, agile and scalable, while also be capable of integrating with joint, interagency, coalition, NGO/IO capabilities and capacity as required. The force must also be able to mitigate operational risk through the awareness of forward forces and leverage tempo in the maneuver of maritime forces across the blue, green and brown water, as well as across all domains. In the operating environment of the future, the force must have the awareness to enable early action, aggregation without RSO&I, leverage collaborative planning tools and operating in a single naval battle from the blue water to the objective. This would preclude the need for large forces and long campaigns in major combat, and mitigate the effects of man-made and natural disasters.

###

B-20

UNCLASSIFIED

Prepared by:

Col Tom Connally, USMC and Mr. Jeff Wong

Wargaming Division, Marine Corps Warfighting Laboratory, 6 February 2013