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TITLE:

MEU CLB: Can it Sustain Like Advertised?

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Executive Summary

Title: MEU CLB: Can it Sustain Like Advertised?

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Thesis: In a contested environment the MEU CLB is not manned, equipped, or trained efficiently to provide the functions of logistics to a Battalion Landing Team (BLT). The MEU CLB's existence is to support the BLT's concept of operation, for a minimum of fifteen days ashore. The MEU CLB is not capable of this support, with only organic capabilities, especially if the MEU is operating in a distributed or disaggregated fashion, which would create an over reliance on contracted support.

Discussion: Since the beginning of war there has always been a need for logistics, no matter how rudimentary. Alexander the Great was a great warrior, but what led to his success was his understanding of the importance of logistics. Alexander the Great stated, "My Logisticians are humorless lots...They know if my campaign fails, they are the first ones I will slay."¹ Alexander the Great would think through forward placements of magazines, when to conduct campaigns that would best suit foraging, use of pack animals, how long his forces would stay stagnant in one location, and the close proximity to the littorals, which aided to the success of his armies.² Technology has changed, but the rudimentary functions of logistics remain of moving forces and sustaining them. Moving centuries ahead, the United States military is the most developed armed force, and its capability to project and sustain forces is unremarkable and unmatched within the world. A vast difference between today's logistical planning and Alexander the Great's is the ability to remain stagnant in an area. The United States military in the past thirty years has become accustomed to building large logistical mountains that sustain large forces. This is capable because of the uncontested movement via sea and air. These logistical sites are not expeditionary and not capable of picking up and moving quickly like Alexander the Great was able to. The United States Marine Corps needs to think in terms of Alexander the Great of creating a force that he could sustain through long movements and still be capable of having desired effects on the battlefield.

Conclusion: In closing, through the analysis of the MEU CLB it would have to be aggregated with the right equipment in order to support a BLT ashore, but it would still be a strain for the MEU CLB to sustain BLT for fifteen days only with organic assets. The MEU CLB must keep its organic capability as the primary support option but continue to incorporate contracted support into the sustainment plan. In future near-peer conflicts this support will be echeloned into the theater building small support nodes that are outside the enemy's threat rings.

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Preface

As a logistician, my experience on two deployments to Iraq and a nine-month MEU prompted my idea for this paper. I have experienced supporting units with organic capabilities, but the majority of support in combat situations has always been tied to a reliance on contracted support. I know the military is reliant on contracted support, but we as a fighting force must not lose our proficiency and capabilities of what is organic within the Marine Corps. I want to thank the leadership that has provided me with the knowledge and confidence that has developed me as a Marine and my family that pushes me to be a better a man.

INTRODUCTION AND THESIS

Since the beginning of war there has always been a need for logistics, no matter how rudimentary. Alexander the Great was a great warrior, but what led to his success was his understanding of the importance of logistics. Alexander the Great stated, “My Logisticians are humorless lots...They know if my campaign fails, they are the first ones I will slay.”³ Alexander the Great would think through forward placements of magazines, when to conduct campaigns that would best suit foraging, use of pack animals, how long his forces would stay stagnant in one location, and the close proximity to the littorals, which aided to the success of his armies.⁴ Technology has changed, but the rudimentary functions of logistics remain of moving forces and sustaining them. Moving centuries ahead, the United States military is the most developed military, and its capability to project and sustain forces is unmatched within the world. A vast difference between today’s logistical planning and Alexander the Great’s is the ability to remain stagnant in an area. The United States military in the past thirty years has become accustomed to building large logistical mountains that sustain large forces. This is capable because of the uncontested movement via sea and air. These logistical sites are not expeditionary, and not capable of picking up and moving quickly like Alexander the Great was able to. The United States Marine Corps needs to think in terms of Alexander the Great, of creating a force that can sustain through long movements and still be capable of having desired effects on the battlefield.

For the past thirty years the United States Marine Corps has been in and out of conflict but has not fought an enemy that is a near-peer competitor; this along with having the ability to build large depots, prior to crossing the line of departure, has resulted in the Marine Corps becoming over-reliant on contracting support. This reliance on contracting has created a Marine Corps that is not comfortable organically utilizing its assets to support and sustain a fighting

force. This is weakening the logistics community within the Marine Corps and creating an environment that is reliant on contractors. When the Marine Corps must fight to get to the enemy's theater, in an austere environment, and apply the six functions of logistics to support and sustain the fighting force, there will be a strain and challenge placed on logistics in ways not seen in today's environment. Looking at the most prominent Marine Air Ground Task Force (MAGTF), a Marine Expeditionary Unit (MEU), the focus of the analysis will be on the MEU Combat Logistics Battalion's (CLB) capabilities. In a contested environment the MEU CLB is not manned, equipped, or trained efficiently to provide the functions of logistics to a Battalion Landing Team (BLT). The MEU CLB's existence is to support the BLT's concept of operation, for a minimum of fifteen days ashore. The MEU CLB is not capable of this support, with only organic capabilities, especially if the MEU is operating in a distributed or disaggregated fashion, which creates an over-reliance on contracted support. To understand the MEU CLB's capabilities an analysis of the MEU CLB's table of organization and equipment, training / readiness / mission essential tasks, and consumption planning factors for critical classes of supply must occur. This analysis will show the requirement for the Marine Corps logistics community to reorganize back to functional battalions, to better support a BLT.

Transformation of the Logistics Community within the Marine Corps.

The Marine Corps logistic community's top priority is supporting the ground element's concept of operation. The community will structurally evolve or transform over time as technology and environments change to best support the ground combat elements. Within the Marine Corps there have been multiple command structures on how the logistics community has supported the ground combat elements. In 1971, the Force Service Support Group (FSSG) was first established and continued to develop over the next thirty-five years, but in 2006 the

Marine's logistics combat element transitioned from a FSSG to a Marine Logistics Group (MLG).⁵ The structure of the MLG is important to the MEU CLBs because as the higher headquarters evolves so do the subordinates. A look at how the MLG was previously structured, what initiated the change, whether the current construct is correct, and how this has impacted the MEU CLBs will shape the argument on the MEU CLB's ability to support.

In the 1990s, the FSSG was built around seven or eight functional battalions, depending if the motor transportation battalion and landing support battalions had already combined to form transportation support battalions. These battalions covered the six functions of logistics. Figure (1) is an example of a basic task organization of an FSSG. These battalions were structured on functional areas creating a battalion's worth of subject matter experts. When the FSSG had to create elements for contingency in support of the ground combat element's course of action, it would build Combat Service Support Detachments (CSSD) or Combat Service Support Groups (CSSG) depending on the size of support required. These CSSD/Gs would be up to a battalion-size element that were composited for a specific mission and would usually have elements from across all the functional battalions. This was more efficient during this period when continuous deployments were not the norm, which allowed the FSSG to source elements that would best support the ground combat element's requirements. The elements that would support the MEUs during this time were called MEU Service Support Groups (MSSG). The MEUs prior to the OIF and OEF were the desired deployable units.

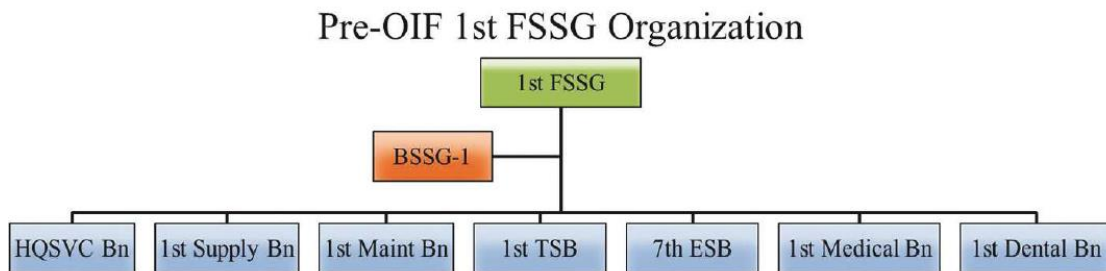


Figure (1) Pre-OIF 1st FSSG Organization

Source: Marin, Isabel, Megan Misencik, Clinton Jones, and Christine Hannigan. 2014. "Functionally Aligned Battalions." <https://search-proquest-com.lomc.idm.oclc.org/docview/1586075018?accountid=14746>.

The Marine Corps deploys and fights as a MAGTF and has four types of MAGTFs. As stated, the most prominent and smallest is the MEU, which a Marine Colonel commands and is made up of a BLT, a CLB, and an air squadron. The Marine Expeditionary Brigade (MEB) is the next largest deployable unit. A Marine Brigadier General commands the MEB and is made up of a regimental combat team, an aircraft group, and a combat logistics regiment. This unit ranges from 4,000 to 16,000 Marines. The final, traditional MAGTF is a Marine Expeditionary Force (MEF). A Lieutenant General commands a MEF and is made up of an infantry division, an air wing, and a logistics group. A MEF is a scalable unit that can build from 46,000 to 90,000 Marines.⁶ The final MAGTF is a Special Purpose MAGTF (SPMAGTF). The SPMAGTF is formed for a specific mission, which does not require the size of personnel or the amount of resources required of a traditional MAGTF. Upon the completion of the mission the SPMAGTF will be stood down and the Marines will return to their previous units.⁷ During OIF and OEF larger MAGTFs were deployed in order to support the large land war requirements. However, the MEU is the continuously deployed MAGTF, which has made it the most desired unit to be part of especially prior to OIF and OEF.

This desire would result in the MSSG being sourced to the requirement, and the manning was with the highest quality and trained Marines. A possible negative to this structure would be the unity of command prior to the MSSG being CHOP'd (Change of Operational Control) to the MEU. These elements would need to be formed no later than 210 days out and CHOP to the MEU 180 days from the deployment. Building an effective command environment within a forty-five-day period prior to pre-deployment exercises possesses its own difficulties.

Continuously having to form CSSGs, CSSDs, and MSSGs is one of the leading causes for the Marine Corps logistics community structurally changing the FSSG to an MLG.

In 2003, the 1st FSSG deployed under Brigadier General Usher during Operation Iraqi Freedom. General Usher did not believe the FSSG was task organized to provide timely and rapid support in a contested environment. This resulted in Brigadier General Usher developing CSSGs, which could provide direct support logistics to ground combat elements, resulting in more timely support, as figure (2) displays. Brigadier General Usher's intent was not only to create a task organization that would best support the ground combat element, but also to create a sound relationship between the command elements of the supporting and supported units. These shifts in support and new task organization were the initial steps in the organizational change from a FSSG to an MLG.⁸

1st FSSG Task Organized for OIF

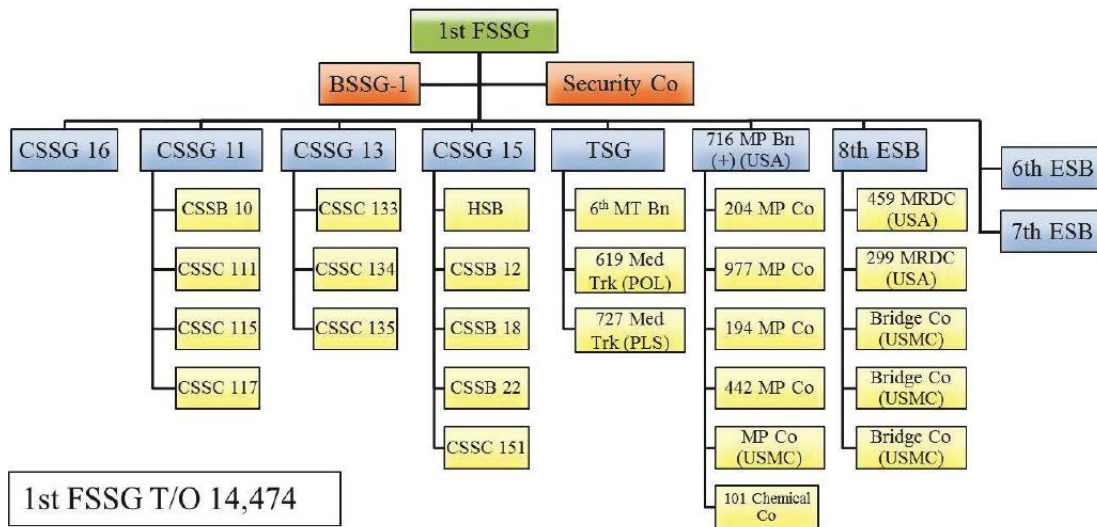


Figure (2) 1st FSSG Task Organization for OIF

Source: Marin, Isabel, Megan Misencik, Clinton Jones, and Christine Hannigan. 2014. "Functionally Aligned Battalions." <https://search-proquest-com.lomc.idm.oclc.org/docview/1586075018?accountid=14746>.

The reorganization to the MLG formally occurred in 2006, creating twelve CLBs and three regiments per MLG. This did create battalions and regiments that are aligned appropriately to support infantry regiments, but creating these commands does come at a cost of man power;

the creation of these CLBs resulted in the loss of 2,300 billets according to a RAND study.⁹ These changes in structure have produced permanently manned MEU CLBs that are sourced from Headquarters Marine Corps. This has formed continuity within the command and allowed the command environment to be established prior to being CHOP to the MEU. A negative aspect of the established MEU CLBs is the quality Marines with operational experience the CLBs are receiving; unlike the MSSGs receiving the best of the best, a MEU CLB is receiving Marines that may not be as trained as others, due to being sourced directly from Headquarters Marine Corps. This would not be as big of a concern, but when analyzing the T/O&E and the small number of Marines for low-density MOSs, junior Marines are not receiving the required training as they would with a unit that has greater numbers within that MOS. The MEU CLBs T/O&E will provide an analysis to determine if they are manned and equipped to sustain a BLT ashore.

MEU CLBs T/O&E

The table of organization for a MEU CLB is not balanced. A command that has twenty-one officers and 258 enlisted personnel that is spread across sixty-nine different military occupational specialties (MOS) makes it seem difficult to have specialties to be able to provide focused support to MEU elements.¹⁰ Such great diversity within MOSs, along with low numbers of personnel, and spreading these assets across three ships, which may not be collocated, creates additional friction points for the logistician to provide support across all functions of logistics to those MEU elements. Combat, Development and Integration conducted a study back in 2017 on the T/O&E of a MEU CLB. Its argument was that a MEU has three ways of employment – aggregate, disaggregated, and distributed – and that a MEU CLB was structured to support an aggregated MEU.¹¹ Analyzing the MEU CLB’s T/O, is it correct, is it being manned with the

importance that the MSSGs were, and if the MEUs are disaggregated or distributed are there enough specialty MOSs to support GCE's mission ashore?

CLB 26 Table of Organization

The data on the T/O, to review for this argument, is being pulled from the CLB 26 current structure. The first issue of concern is the leadership within the command structure. A MEU CLB is a command-screened battalion but does not have any company commanders within it. The command is made up of platoon commanders and OICs. The CLB is small and about the size of a reinforced rifle company. Having only the prescribed leadership will lead to a lack of control on the focus of effort. The lack of hierarchy between the battalion commander and the platoon commanders is going to cause a larger requirement on the executive officer or the operations officer. An additional billet for a Captain should be established. This Captain would be the company commander, under which all the platoon commanders will fall. This additional leadership position would create a more streamlined command structure and an environment that is more conducive for the junior officers leading the platoons. The development of junior officers during their first tour is crucial. The battalion commander is responsible for ensuring the development of his junior officers, but when looking at the majority command structures, junior officers have the oversight from a company commander. The Marine Corps must recognize these are trained Second Lieutenants, but the majority lack operational experience. This Captain would also reduce additional requirements on the operations officer and executive officer. As with the officers there are also issues with the enlisted manning. The amount of key personnel for specific billets and the MEU CLB being a standing battalion, it does not receive the same quality of personnel the MSSGs were obtaining; they lack operational experience.

A MEU CLB's personnel staffing is mostly junior Marines; out of the 239 enlisted billets that are specific to the Marine Corps 102 are Lance Corporals and below.¹² Just under fifty percent of the Marine population within the command are E3 and below. This would not be out of the norm for many ground elements; the majority of the Marine Corps is made up of junior Marines. With the standing MEU CLB the Marine Corps will source Marines to fill billets straight from the school house. These Marines have not received the training or the operational experience they require to be placed in the MEU CLB, which should be the most premier supporting element in the Marine Corps. The Marines are trained to the standard coming out of the required school houses but lack operational experience from the fleet. The quality of Marines that filled the MSSG were the top performers from their units and usually had to compete or sit on boards to be selected to fill these very sought-after billets.¹³ If the MSSG's commander did not think one of the Marines was at the caliber or could not complete the tasks, he could easily have the Marine replaced with another from that supporting unit. OIF and OEF have changed the Marine Corps mentality on what is the priority of effort, due to continuous deployments units were having to conduct. This resulted in the MEUs transitioning from the forefront of the Marine Corps to just another unit that can be sourced into a deployment cycle. The MEU CLBs are not manned with the appropriate low-density MOSs to support disaggregated or distributed operations.

Focusing on three classes of supply; Class I, III, and V, which are rations (specifically water), POLs (fuel), and munitions (ground) will illustrate that the MEU CLB is manned appropriately to support ground operations. From the T/O, if the MEU is not operating in an aggregated fashion, it will be difficult for the MEU CLB to support the above classes of supply. Viewing Class I, there are enough supply Marines to ensure distribution of MREs, but when

looking at producing potable water with the 1171s, hygiene equipment operator, the MEU CLB only has five Marines within this section. Class III has four 1391s, bulk fuel specialist, that are to support and provide storage and distribution points for fuel to the ground combat elements of the MEU. Finally, in Class V there are seven 2311s, ammunition technicians, who build ammo supply points once ashore to store and distribute ammo to the MEU ground combat elements.¹⁴ These sections are not built to operate in a disaggregated or distributed fashion, which will affect how the MEU CLB distributes personnel and equipment to support multiple operations. To conclude the MEU CLB's T/O, what are the effects on how HQ Marine Corps is sourcing MEU CLBs?

The MEU is not an excepted command and will not be staffed at 100% but does have a staffing goal of between 95% - 97%. That percentage would work, and the MEU CLB could operate off that, but with rotations and Marines possibly only being able to complete one MEU deployment the MEU CLB is losing continuity within the command on planning and operational experience within the specialty MOSs.¹⁵ The force generation model from the Marine Corps Manpower and Reserve affairs does not have to source personnel till 180 days prior to the command's deployment. This puts the MEU CLB in a predicament of not being composited or manned prior to the 210-day mark. All the other components of the MEU have to hit these requirements, so now it is an MLG issue to backfill the gaps.¹⁶ Even with the difficulties of manning the MEU CLB, it is a standing battalion that will have the capability and structure to deploy rapidly if required. Manning a battalion is key, but the Marines within that command must have the equipment to operate; an analysis of the MEU's CLB table of equipment must occur to see if the manning and equipment support each other. Personnel and Equipment are an

asset, and together they create the ability of the MEU CLB to provide the functions of logistics to sustain the MEU's ground combat elements ashore.

CLB 26 Table of Equipment

When observing the equipment, the focus will be on engineer equipment – specifically equipment that supports fuel and water storage and distribution. The reference for this material will be from CLB 26's table of equipment and Marine Corps Reference Publication 3-40B.5, formerly Marine Corps Warfighting Publication 4.11.6.

Water is key to life and therefore the key sustainment for the Marines. According to CLB 26's T/E, it does have the ability to purify, store, and distribute water through the use of six lightweight water purification systems (LWPS). The MEU CLB only has the ability to store potable water and distribute it through modular tanks SIXCONs and M149 water trailers. The MEU CLB has four SIXCONs, which hold 900 gallons per for a total of 3,600 gallons and two M149 water trailers that will provide a total of 800 gallons of storage.¹⁷ Having six LWPS seems that redundancy is built in; the problem is six LWPS do not produce enough potable water to sustain the BLT's requirement of 10,440 gallons of water a day. From this it seems that the Marine Corps has become too reliant on contracting for potable water. The next paragraph will discuss the capabilities organic to the Marine Corps to produce and sustain forces ashore with water.

The tactical water purification system (TWPS) is capable of operating in an expeditionary environment and has the ability to purify freshwater, brackish water, and saltwater. This purification system can produce 1,500 gallons an hour of potable water. Using a twelve-hour day for planning would produce 18,000-gallons a day; it would start to produce large enough stock piles to sustain a force.¹⁸ The MEU CLBs usually take LWPSs, which is not as capable

and can only produce 75 gallons of potable water an hour from salt water and 125 gallons from fresh water. The MEU CLB also has six 3,000-gallon fabric storage bladders to create water distribution sites. Along with all this equipment multiple hoses and generators would have to be available to ensure the proper running of the system. Below, figure (3) displays a visual of a LWPS for fresh water diesel generator setup. With only having five 1171s to operate this system over multiple sites, the logistics to man and support the system becomes difficult.¹⁹

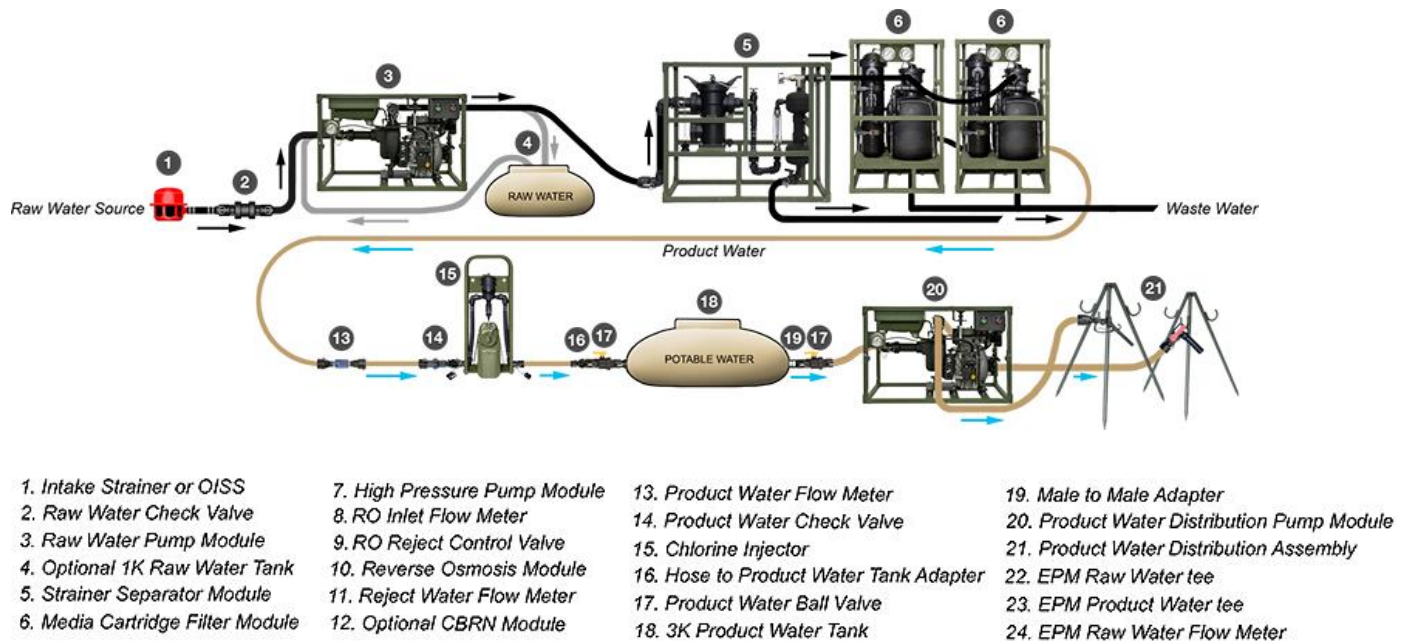


Figure (3) Lightweight water purification system
Terra Group, 2019 <http://www.marinecorpswater.com/LWPS-FAB-ILLUSwLinesT.html>

Analyzing Class III, specifically fuel, and keeping requirements focused on ground personnel, the MEU CLB has fuel SIXCONs and pods to push fuel out to the BLT log trains or straight to the units. The MEU CLB also has twelve collapsible fuel pods that hold 500 gallons of fuel per pod. These capabilities allow the MEU CLB to remain expeditionary. Using the 500-gallon pods along with generators, pumps, and hoses creates an expedient refueling system (ERS). Figure (4) below displays the footprint of an ERS, small and expeditionary, which is key. The MEU CLB will have to pull fuel from amphibious shipping or coordinate it through

contracting. The Marine Corps has the capability to build large fuel farms that can receive, store, and distribute fuel, but these are for established sites and usually are not built within fifteen days. One Amphibious Assault Fuel System (AAFS) would provide a MEU with a storage capacity of 128,000 gallons, but would require the support of an entire bulk fuel company to operate.²⁰ This level of sustainment would be for an established theater.



Figure (4) Expeditionary Refueling System

TM 12359 A-OD <https://www.marcorssyscom.marines.mil/Portals/105/pdmeps/docs/FUEL/B0036.pdf>

The logistical planning that will have to be scrutinized is the ability of the MEU CLB to sustain continuous operations and pull fuel to re-fill its storage capacity. For expeditionary operations the plan would not be to build large stockpiles of fuel in case operations, such as in the Pacific area of operation, may require establishing sustainment on multiple islands. The ability of a unit to break down its position, recover its assets, and be ready for follow-on operations in an environment that is everchanging is just as important in the planning to build up to the correct stockpiles. There has been a look at the MEU CLB's ability to support Class I and III to sustain the BLT. Now a look at the MEU CLB's ability to assist the BLT in bringing lethality to the enemy by sustaining the BLT with Class V.

Depending on the environment the requirement to have an ASP may not be validated, and the ammo is either moved from ship to shore by sea connectors or through air lift capability. Either course is going to require the ammo to be moved, resulting in inspections from the CLB. If it is moved via air it could incorporate a helicopter support team, in which case the MEU

CLB's T/O has a landing support platoon. Out of the three classes of supply the availability and redundancy of support to get ammunition to the warfighter make Class V the most supportable for the MEU CLB.

From observing the MEU CLB's T/O&E there are concerns with the level of manning for some of the low-density MOSs combined with the equipment to sustain a BLT. The MEU CLBs are not structured to operate in a distributed or disaggregated fashion. Taking a company-sized element that is already split among three ships, is limited with specialty support MOSs, and is then to operate independently is lessening the ability of the MEU CLB to support forces. This will create a larger demand for contracted support and lessen the operational training that is required of the Marines. Now having an understanding of the MEU CLB's T/O&E and the capabilities of what they can do, an analysis of the training must occur to ensure the MEU CLBs can execute assigned tasks.

MEU CLB Training and Readiness

The training and readiness of a battalion in a garrison environment is what makes a battalion effective in combat. The battalion commander is responsible for providing the direction and oversight on training standards, so, when the battalion deploys, it is successful in completing its assigned mission. As a unit gets slated, it will also receive additional tasks to complete and train towards in the work-up. Below are the MEU CLB's Mission Essential Tasks (MET). These METs are for all the MEU CLBs within the Marine Corps. These basic tasks are what it must be functional within, in order to support and sustain ground combat elements of the MEU and accomplish tasks when it's the main effort. The MEU CLBs are evaluated on the below tasks and are validated for deployment on their ability to perform in these areas. During

evaluation if they do not operate at the standard, they must remediate their performance to the standards or depending on the performance the leadership could be replaced.²¹

MCT 1.13.2.1 - Provide Evacuation Control Center (ECC)
MCT 1.15.1.2 - Facilitate Foreign Humanitarian Assistance
MCT 4.1.2 - Conduct Ground Supply Operations
MCT 4.2.2 - Conduct Ground Equipment Maintenance
MCT 4.3 - Conduct Transportation Operations
MCT 4.4 - Conduct General Engineering Operations
MCT 4.5 - Provide Health Services
MCT 4.6.1 - Provide Logistics Combat Element (LCE) Services Support
MCT 6.8 - Conduct Explosive Ordnance Disposal (EOD) Operations

The focus will remain on the training requirements for the MEU CLB to successfully sustain and support a Battalion Landing Team ashore for the duration of fifteen days. The three core METS that will be analyzed closer are MCT 4.1.2 – Conduct Ground Supply Operations, MCT 4.3 Conduct Transportation Operations, and MCT 4.4 – Conduct General Engineering Operations.

MCT 4.1.2 – Conduct Ground Supply Operations.

Within this MET there are eighteen additional supplemental tasks that the supply section must be able to complete. An output of one of the tasks is the days ashore that the ground supply elements can provide supply operations “15 days yes or no.” Another output for the supply section is it capable of building supply points, class (I-IX) for a MAGTF sized element.²² These are the two that stood out for supply operations to be able to operate across all classes of supply for a minimum of fifteen days ashore. The majority of the checklists are going to say that a MEU CLB is capable of doing this, but when is it exercised to prove this at a MAGTF level? The MEU does do workups, but there are no exercises that are moving from ship to shore and sustaining ashore for two weeks, so it is not being validated. There is another output that asks if the MEU CLB is capable of coordinating requests to higher headquarters for host nation, interagency, joint, or multinational support requirements. This output leads to the thought

process of using external assets to fulfill sustainment capabilities. This is not developing the mindset of a young supply officer to operate independently for a minimum of fifteen days.

MCT 4.3 Conduct Transportation Operations

Within this MET it covers convoy operations to beach, port, and rail operations. Similar to supply an output is the capability to operate fifteen days ashore providing transportation operations to a MAGTF element. Another output is the capability to provide transportation lift of personnel and distribution of bulk liquid and dry cargo.²³ With limited assets to store both potable water and fuel and then spread them across three ships, limits the MEU CLB's capability to provide the distribution of bulk liquids.

MCT 4.4 Conduct General Engineering Operations.

Within the General engineer operations section of the METs it covers water and fuel to horizontal and vertical engineering. According to the METs the MEU CLBs must be able to establish fuel and water points. Specifically, the MEU CLB is tasked to establish at least two water distribution points. CLB 26 has six LWPS, which are capable of producing 75 -125 gallons of water an hour, and the requirement of establishing two sites is a total of 225-375 gallons of water per hour for each site. Water production and storage is probably the hardest logistically to sustain and plan for organically within the MEU CLB and that is why this sustainment is mostly done through contractors. Another output from the METs specific to water is the ability to store 44,000 gallons of water. Another MET is the ability to produce greater than or equal to 40,000 gallons of potable water within 48 hours.²⁴ This not feasible for MEU CLBs unless they replace the LWPS with the TWPS. The MEU CLB has the responsibility to also conduct fuel storage; specifically according to the METs, they must be able to receive, store, and distribute 15,000 gallons of fuel. The MEU CLB is going to have to use

fuel bladders along with SIXCONs and fuel pods in order to maintain the 15,000 gallons requirement.

From reviewing the T/O&E and the METLs there is a lack of redundancy built into the planning; all gear must remain in 100% status, and for bulk fuel and water purification personnel must not attrit. The redundancy is not built in the capability to sustain operations. If pumps or generators go down, the ability to push fuel and water to the ground combat elements of the MEU will become limited, and at that point logistical failures will be slowing down the operational tempo of the ground combat elements. Another element that must be viewed is the MEU CLB's ability to support and sustain ground combat elements when the MEU is disaggregated or distributed. The MEU CLB's understanding of the ground elements that are being supported are smaller and more manageable, but when assets are spread across three ships the ability to mass sustainment is not supportable. The core METs of the MEU CLBs and the requirements it must fulfill must change, especially if the MEU's operational stance is not consistent. For the MEU CLB to be able to provide the best logistical support it must understand what it is supporting and how it operates. General Pagonis states, "Logisticians deal with unknown requirements. They attempt to eliminate unknowns, one by one, until they are confident that they have done away with the possibility of paralyzing surprise."²⁵ The MEU CLB will experience this, and is going to operate in unknowns, but it will structure capabilities that will best support the knowns. Having the MEU CLB operate separately versus being collocated will result in the MEU CLB and the MEU as a whole having to be more dependent on contracting, host nation, and joint support.

Influence of Contracting to Support Sustainment.

Contracting support within the Marine Corps is continuously rising and has become the norm more than utilizing organic support. Colonel Matthew Blackledge who was the G4 for I MEF states, “The combined contracting office of MarCent, I MEF, and FSSG contracting officers wrote over 3,000 contracts worth over \$260 million. With our increased reliance on host-nation support, I MEF needs additional officers and staff noncommissioned officers trained to perform this crucial mission. Their early deployment is critical to ensure effective and efficient contractor support for reception, staging, onward movement, and integration as well as sustaining the force for the duration of the deployment.”²⁶ Two hundred and sixty million dollars is no small amount to support and sustain a MEF through contracts. Figure (5) displays how over time dating back to the Revolutionary War there was an increase of contractors to service members, and it displays over the past thirty years the dependency on contractors has continued

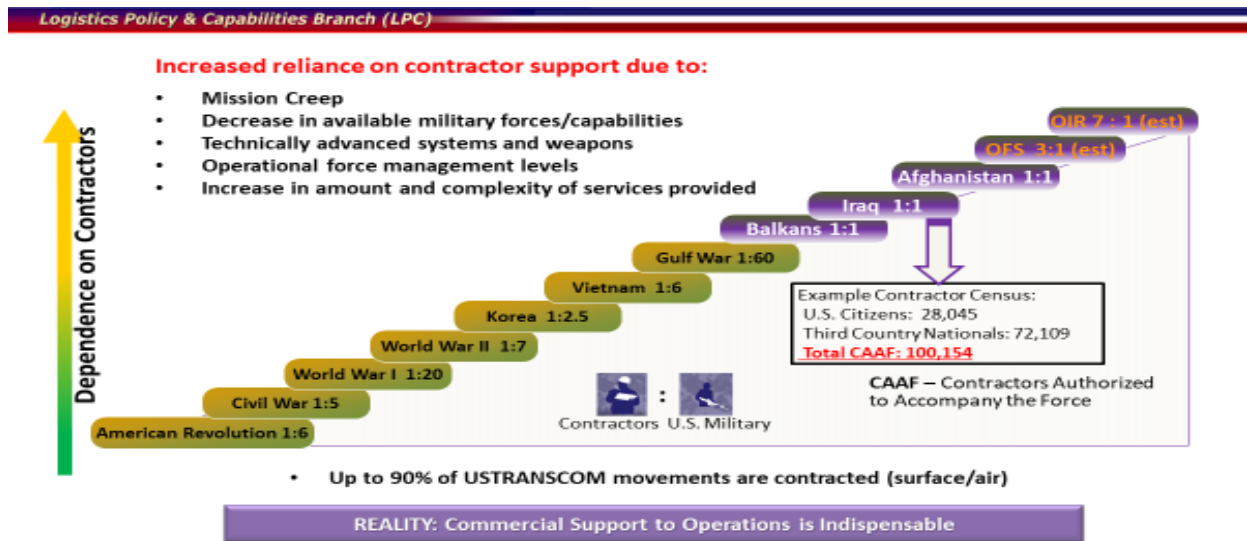


Figure (5) Contractor Dependence

Source: Operational Contract Support and Joint Logistics Enterprise Brief, 22 January 2019.
 Major Elena Vallely

to grow greater and greater. The focus will remain on Class I, III, and V for the Marines to be able to organically sustain. When looking at these wars or campaigns they are larger than what a MEU CLB would be able to sustain, but the reliance on contractors at higher levels has impacted

the way smaller elements operate and the way logisticians think to support ground combat elements.

The MEU CLB has the ability to organically produce, store, and distribute water; receive, store, and distribute fuel; and distribute ammo to forward combat elements. Commanders and logisticians' mind-sets have become overly reliant on contractors. This has led to the decision of contracting support versus using organic capability. Decisions to use contractors are the easy decisions and reduce the planning that has to occur. Yes, the logisticians must still account for individual and equipment daily usage, but it is still easier to contract. Contracting is degrading the ability for the MEU CLB to organically sustain a BLT ashore. This can be viewed through the MEU CLB's manning, equipment, and METs not supporting each other. An example is how six LWPS does not meet the requirement to produce and store 40,000 gallons of water or when looking at the minimum daily requirement of water per man for a BLT in an arid environment is 10,440 gallons of water a day which would require at least five of the LWPS to operate twenty-four hours nonstop to achieve this requirement. Since MEU CLBs are standing units, Marines composited and CHOP with less training and operational experience. This coupled with MEUs relying more on contracting results in Marines not receiving or experiencing training and a lack of operational experience. According to the National Defense Strategy (NDS), air, land, and sea are all going to be contested especially in the Pacific. The biggest threat the Marine Corps is going to be dealing with in a near-peer competitor conflict in the Pacific is the inability to contract and build large sustainment capabilities. A priority within the NDS is having resilient and agile logistics.²⁷ The Marine Corps has to look at small MAGTFs like MEUs and expect them to be capable of organically sustaining themselves for the minimum of fifteen days. This will allow the MEUs to be operational in an environment comparable to the Pacific that would

have some form of island hopping. As a theater develops there is going to be a requirement for host nation or contracted support especially for water and fuel.

Over the past thirty years the size of the military has fluctuated on a consistent basis. This fluctuation has created requirements for increased support from contractors. Contracting and organic support will have to be utilized for large-scale conflicts, but the Marine Corps cannot allow contracting to have adverse effects on the thinking of commanders and logisticians in training, developing METs, or assigning equipment. The right answer for sustainment cannot always be the easiest or least burden on the commands. When the United States is in its next conflict against a near-peer competitor and a contracted ship or aircraft is attacked and the contracts are not being filled as easily, the Marine Corps must revert to organically sustaining itself.

Focus on the Indo-PaCom Area of Responsibility

The 2018 National Security Strategy places a focus on the Indo-PaCom area, specifically revisionist powers like China and a rogue power like North Korea.²⁸ As a focus shifts towards the Indo-PaCom area of responsibility forces and resources will begin to shift and be acquired. The Indo-PaCom area of responsibility is large, vast, and built by island chains that prevent the buildup of large support depots, resulting in conditions the United States Military has not operated in the past thirty years. Figure (6) displays the scope of Indo-Pacom, which includes fifty percent of the world's population; two of the world's largest economies and up to fourteen of the world's smallest; ten of the world's largest sea ports; 3,000 different languages spoken within this region; seven of the world's largest militaries; and five of the world's nuclear capable countries.²⁹ The Marine Corps has been accustomed to building large storage depots and has had unimpeded ability to conduct Reception, Staging, Onward Movement, and Integration (RSOI)

operations. In a contested Indo-PaCom environment the Marine Corps is not going to have the ability to build mass supply depots or freely conduct RSOI operations in one central location. This is due to having to remain mobile with small footprints that can cover across multiple islands and countries if required, not a large land campaign that the military has become accustomed to. The Marine Corps is going to have to change its mindset of having free movement and be prepared to fight to get to the operating theater against a near-peer competitor. All elements within the Marine Corps are going to have difficulty within this environment, but the Logistics Combat Element will have to change common practices in order to support and sustain a force that will operate in a distributed fashion, across a large operational area. Contracting will be the greatest friction point for the Marine logisticians operating within this environment with a near-peer competitor similar to China, as it will create a bidding war for resources, a contested environment for contractors to operate in, and a mindset shift of the Marine logistician to rely on organic capabilities as the primary source of sustainment, but still incorporating the contractors. The Marine logistician must be comfortable operating in unknowns and continuously eliminating issues to ensure the fighting elements are sustained.



Figure (6) Indo-Pacom's Area of responsibility

Source: <https://www.pacom.mil/About-USINDOPACOM/USPACOM-Area-of-Responsibility/>

Contracting within the Indo-PaCom area of responsibility will escalate into a bidding war between near-peer competitors. As the United States is looking to build relationships and establish agreements with other nations, China is doing the same. Looking at China's One Belt One Road initiative, it is rebuilding its silk road in order to establish economic corridors through the Indo-PaCom area of responsibility. China is gaining energy, security, and markets from expanding its influence within the Indo-PaCom area.³⁰ This will result in the United States fighting for the availability of essential resources. China is growing its island chain network and investing in areas that will provide it security and energy. China is a large consumer of fuel but does not have the organic capability to produce enough fuel to sustain its country and will rely on external trade to remain relevant.³¹ As China gains more influence within the Indo-PaCom

area it will have effects on the agreements and contracts that the United States has already established with other countries. By investing in the development of other countries China will gain greater access within the region.

China is investing in countries and their port facilities within the Indo-PaCom area and beyond. China has invested in countries such as Bangladesh, Pakistan, and Sri Lanka, which stretch on the western outskirts of Indo-PaCom, but still affects the region.³² Investing and gaining access to these regions allows China to create secure sea / economic corridors within the region and allows it to protect its interest. The United States must remain engaged and continue to invest in this area to counter China's gains. This region will become more difficult for United States contractors to source material such as Class I and III while having to compete with a near-peer competitor.

For the United States to remain effective within this area and create an environment that will support operations it must invest politically and financially to create agreements that will secure resources for the country. The United States must secure these assets to be successful in a contested environment between the United States and China. These requirements are not only in the best interest of the United States, but also the world, by keeping the international sea lanes open and not compromised by a nation seeking to restrict access to international rights. The possibility of these sea lanes being restricted will create an issue for contractors' ability to move supplies in and around the Indo-PaCom area of responsibility. An environment that becomes restricted by movement will escalate and create a contested environment that will lead to conflict. The Marine logisticians and contractors must adapt to operating in an environment that is contested and will have to fight and sustain forces to get to the theater of conflict.

In a contested environment Marine logistical planning and the incorporation of contractors will be tested. Moving, sustaining, and producing the ability to project a force forward will be the responsibility of the DOD's Logistic Enterprise. The focus of the contractor support will be on Defense Logistics Agency (DLA), Civil Reserve Air Fleet (CRAFT), Voluntary Intermodal Sealift Agreement (VISA), and Maritime Preposition Forces (MPF). These contracting agencies provide sustained support to the warfighter, through lift, distribution, and supply, but they will become a greater target for the enemy while operating in this environment.

The logisticians within the MEU must know of the contracted support that is within their area of operation and how they can tap into the respective support nodes. DLA has three regional commands with six subordinate commands that annually provide upwards of thirty-five billion dollars in support to the DOD.³³ According to Joint Publication 4-0, "DLA is primarily responsible for DOD supply chain operations and manages the supply process to provide common commodities and services to joint forces."³⁴ With DLA being the main supply chain for the DOD, including the Marine Corps, it needs to ensure it is sourcing the material and assets now. Within Indo-PaCom's area DLA has seventeen support areas that have large to minimal support capabilities.³⁵ Having these static depots in a contested environment creates targets for the enemy, and when conflict occurs these countries that the United States has established agreements with may not continue to honor them. As there are threats for static areas there are also threats for CRAFT, MPF, and VISA for moving personnel and equipment.

An enemy that is a near-peer competitor has the capability to create a great threat to contracted movement of personnel and gear. CRAFT, MPF, and VISA all move vital equipment and personnel, and if an enemy has the ability to shoot down an aircraft or sink a large sea vessel

it will result in negative strategic effects of less capability for the United States within that theater. The Marines and contractors are going to have to figure out a way to create small mobile support nodes in a conflict within the Indo-PaCom area of responsibility; large logistical mountains will become a tactic of the past.

For the past thirty years the Marine Corps has not fought a near-peer competitor, has had the opportunity to build huge logistical mountains, and has occupied large areas for RSOI operations to build a large footprint of personnel. The mindset of the Marine logistician must become expeditionary and plan to remain mobile. The Marines along with other services will have to develop new ways of incorporating contracted support in sustaining the force. There is and always will be a requirement for contracted support, and the Marine Corps needs to be able to scale up or down on the requirements and build logistical sustainment plans that are not solely dependent on contracts.

A suggestion on the way forward and how the Marine Corps and DOD would have to operate in order to sustain the fighting force in a contested environment within Indo-PaCom's area of responsibility must be viewed. The Marine logistician must become more self-reliant and think of organic means of capability versus the easy choice of contracting. In this area of operation contracting will not be as timely and sourced in smaller volumes to ensure logistical mountains are not formed. Movement of personnel, equipment, and supplies will be echeloned into the theater and areas of conflict. This echelon of personnel and gear will require the creation of highly capable high-speed transport vessels. The Marine logisticians are not responsible for the development of these high-speed transport vessels, but they are required to identify a requirement. These high-speed transport vessels will be key in the planning for a Marine logistician to move personnel and gear in and around the area of operation in a timely manner.

This will keep the enemy unstable and lacking the ability to focus on large static areas as targets. The ability to move contracted support into areas that are outside of the enemy's threat rings and then echelon personnel, gear, and supplies in with the high-speed transport vessels will keep contractors providing the required support in a safe manner.

Recommendations / Conclusion

From analyzing the T/O&E and METs, it is recommended for the Marine Corps to change the structure of the LCE back to functional battalions. This will create MSSGs that are manned with an operationally experienced force and a force that has been exposed to greater training opportunities. This force will be composited with all personnel at the 210-day composite date requirement versus relying on the manpower model to source the required Marines. Going back to functional battalions will create the flexibility of the commands to be able to scale up or down in relation to the support or required task. Reverting to the functional battalions will also create more operational billets vice headquarters billets. The functional battalions will be the subject matter experts on the required equipment that supports and sustains a BLT ashore. These functional battalions will ensure the equipment sourced will be able to achieve the daily sustainment, and ensure the personnel and equipment are capable of achieving the assigned MET that the MEU MSSG would have to fulfill, which is currently not the case.

The future of support and sustainment must change from traditional tactics of large support nodes and personnel staging areas. The Marine logisticians are going to have to think of small and mobile sustainment capabilities that can deploy, build-up, and retrograde rapidly if needed. From the analysis of the MEU CLB's T/O&E and METs the MEU CLB will be strained to support a BLT ashore for the required fifteen days, and if the MEU is operating in a distributed or disaggregated fashion its ability to support becomes less. Organic capability must

become the primary source of sustainment for the MEU CLBs, but still incorporating contracted support. Contracted support is and will always remain in warfare, and the Marine Corps and DOD must incorporate them into the sustainment plan in a safe fashion. As the requirement to operate and support in a distributed fashion, as in the Indo-PaCom area, the technology in transporters will need to advance to support the rapid transport of material in and around an operational area. There is going to be a requirement for this capability, and resources and funds need to be allocated to support this. In closing, through the analysis of the MEU CLB it would have to remain aggregated with the right equipment in order to support a BLT ashore, but it would still be a strain for the MEU CLB to sustain BLT fifteen days only with organic assets. The MEU CLB must keep its organic capability as the primary support option but continue to incorporate contracted support into the sustainment plan. In future near-peer conflicts this support will be echeloned into the theater building small support nodes that are outside the enemy's threat rings.

¹Joe Lynch. Logistics Explained, Logistics Explained, October 2014

<https://www.thelogisticsoflogistics.com/my-logisticians-are-a-humorless-lot/>.

²Alexander the Great Donald Engle. *Alexander the Great and the Logistics of the Macedonian Army* (California: California Press, 1978), 27-52.

³Joe Lynch. Logistics Explained, Logistics Explained, October 2014

<https://www.thelogisticsoflogistics.com/my-logisticians-are-a-humorless-lot/>.

⁴Alexander the Great Donald Engle. *Alexander the Great and the Logistics of the Macedonian Army* (California: California Press, 1978), 27-52.

⁵Joslyn Fleming, Yuna Huh Wong, Walter L. Perry, and Austin Lewis, *Developing a Capacity Assessment Framework for Marine Logistics Groups*, (Santa Monica, CA: RAND Corporation, 2017),

https://www.rand.org/pubs/research_reports/RR1572.html, 1.

⁶<https://www.marines.com/what-we-do/air-ground-and-sea.html>.

⁷<https://www.globalsecurity.org/military/agency/usmc/spmagtf.htm>

⁸Joslyn Fleming, Yuna Huh Wong, Walter L. Perry, and Austin Lewis, *Developing a Capacity Assessment Framework for Marine Logistics Groups*, (Santa Monica, CA: RAND Corporation, 2017),

https://www.rand.org/pubs/research_reports/RR1572.html, 15.

⁹Joslyn Fleming, Yuna Huh Wong, Walter L. Perry, and Austin Lewis, *Developing a Capacity Assessment Framework for Marine Logistics Groups*, (Santa Monica, CA: RAND Corporation, 2017),

https://www.rand.org/pubs/research_reports/RR1572.html, 1.

¹⁰Headquarters US Marine Corps Total Force Structure Management System, *CLB26 T/O&E Report*, 2018, 17.

¹¹Combat Development & Integration, *Marine Expeditionary Unit Combat Logistics Battalion Table of Organization and Equipment Study*, (Quantico Va: Combat Development and Integration, March 2017), III.

-
- ¹² Headquarters US Marine Corps Total Force Structure Management System, *CLB26 T/O&E Report*, 2018, 12-17.
- ¹³ Jarred, Caola. "MEU CLB Standardization." *Marine Corps Gazette* 99, no. 1 (2015): 20-23. <https://search-proquest-com.lomc.idm.oclc.org/docview/1643339314?accountid=14746>.
- ¹⁴ Joslyn Fleming, Yuna Huh Wong, Walter L. Perry, and Austin Lewis, *Developing a Capacity Assessment Framework for Marine Logistics Groups*, (Santa Monica, CA: RAND Corporation, 2017), https://www.rand.org/pubs/research_reports/RR1572.html, 5-7.
- ¹⁵ Jarred, Caola. "MEU CLB Standardization." *Marine Corps Gazette* 99, no. 1 (2015): 20-23. <https://search-proquest-com.lomc.idm.oclc.org/docview/1643339314?accountid=14746>.
- ¹⁶ Jarred, Caola. "MEU CLB Standardization." *Marine Corps Gazette* 99, no. 1 (2015): 20-23. <https://search-proquest-com.lomc.idm.oclc.org/docview/1643339314?accountid=14746>.
- ¹⁷ Headquarters US Marine Corps Total Force Structure Management System, *CLB26 T/O&E Report*, 2018, 33-40.
- ¹⁸ Headquarters US Marine Corps, *Petroleum and Water Logistics Operation*, MCRP 3-40.5b (Washington DC: Headquarters US Marine Corps, May 2, 1016), 9.1. <https://www.marcorsyscom.marines.mil/Portals/105/pdmeps/docs/WATER/B0071.pdf>
- ¹⁹ Headquarters US Marine Corps, *Petroleum and Water Logistics Operation*, MCRP 3-40.5b (Washington DC: Headquarters US Marine Corps, May 2, 1016), 5.6.
- ²⁰ Headquarters US Marine Corps, *CLB26 Mission Essential Task Report*, 2018, 1.
- ²¹ Headquarters US Marine Corps, *CLB26 Mission Essential Task Report*, 2018, 7-8.
- ²² Headquarters US Marine Corps, *CLB26 Mission Essential Task Report*, 2018, 11-12.
- ²³ Headquarters US Marine Corps, *CLB26 Mission Essential Task Report*, 2018, 13-14.
- ²⁴ William, Pagonis and Jeffery Cruikshank. *Moving Mountains: Lessons in Leadership and logistics From the Gulf War* (United States of America: Harvard Business Review Press, 1992), 2.
- ²⁵ Blackledge, Matthew W. "Professionals Talk Logistics." *Marine Corps Gazette* 87, no. 8 (2003): 40. <https://search-proquest-com.lomc.idm.oclc.org/docview/221452950?accountid=14746>.
- ²⁶ US Department of Defense, National Defense Strategy (Washington, DC: Office of the Under Secretary of Defense 2018), 5-9.
- ²⁷ The White House, The National Security Strategy of the United States of America. (Washington, DC, 2017). 25. <http://www.whitehouse.gov/nsc/nss/2017/>.
- ²⁸ <https://www.pacom.mil/About-USINDOPACOM/USPACOM-Area-of-Responsibility/>
- ²⁹ Theresa, Fallon. "The New Silk Road: Xi Jinping's Grand Strategy for Eurasia." *American Foreign Policy Interests* 37, no. 3 (2015): 140. doi:10.1080/10803920.2015.1056682.
- ³⁰ Minghao, Zhao. "'March Westwards' and a New Look on China's Grand Strategy." *Mediterranean Quarterly* 26, no. 1 (2015): 99. doi:10.1215/10474552-2872999.
- ³¹ Warner, Fasslabend. "The Silk Road: A Political Marketing Concept for World Dominance." *European View* 14, no. 2 (2015): 298. doi:10.1007/s12290-015-0381-3.
- ³² DLA Overview Brief presented by Tom Adissi, January 24, 2019
- ³³ Headquarters Joint Staff, Joint Logistics, JP-04 (Washington, DC: Headquarters Joint Staff, October 16, 2013), II-3.
- ³⁴ DLA Overview Brief presented by Tom Adissi, January 24, 2019.

-
- Blackledge, Matthew W. "Professionals Talk Logistics." *Marine Corps Gazette* 87, no. 8 (2003): 40. <https://search-proquest-com.lomc.idm.oclc.org/docview/221452950?accountid=14746>.
- Brabham, James A. "Operational Logistics: Defining the Art of the Possible." *Marine Corps Gazette* 78, no. 4 (1994): 26-31. <https://search-proquest-com.lomc.idm.oclc.org/docview/221428241?accountid=14746>.
- Brill, Arthur P., Jr. "Marine Corps Plans to Revamp Outmoded Logistics System." *Sea Power* 47, no. 4 (2004): 12,14. <https://search-proquest-com.lomc.idm.oclc.org/docview/235931764?accountid=14746>.
- Caola, Jarrad. "MEU CLB Standardization." *Marine Corps Gazette* 99, no. 1 (2015): 20-23. <https://search-proquest-com.lomc.idm.oclc.org/docview/1643339314?accountid=14746>.
- Combat Development & Integration, *Marine Expeditionary Unit Combat Logistics Battalion Table of Organization and Equipment Study*. Quantico Va: Combat Development and Integration, March 2017.
- DLA Overview Brief presented by Tom Adissi, January 24, 2019.
- Fallon, Theresa. "The New Silk Road: Xi Jinping's Grand Strategy for Eurasia." *American Foreign Policy Interests* 37, no. 3 (2015): 140–147. doi:10.1080/10803920.2015.1056682.
- Fasslabend, Werner. "The Silk Road: A Political Marketing Concept for World Dominance." *European View* 14, no. 2 (2015): 293–302. doi:10.1007/s12290-015-0381-3.
- Faulkner, William M. "Marine Corps Logistics in the 21st Century." *Marine Corps Gazette* 97, no. 10 (2013a): 10-13. <https://search-proquest-com.lomc.idm.oclc.org/docview/1441520945?accountid=14746>.
- Fleming, Joslyn, Yuna Huh Wong, Walter L. Perry, and Austin Lewis, Developing a Capacity Assessment Framework for Marine Logistics Groups. Santa Monica, CA: RAND Corporation, 2017. https://www.rand.org/pubs/research_reports/RR1572.html.
- Headquarters Joint Staff, Joint Logistics, JP-04. Washington, DC: Headquarters Joint Staff, October 16, 2013.
- Kurz, Joseph R. Lieutenant Colonel. "Sustainment Essentials of the Persian Gulf War." *Army Sustainment* 44, no. 1 (2012): 56-57. <https://search-proquest-com.lomc.idm.oclc.org/docview/1023459253?accountid=14746>.
- Love, Robert E. "Operation IRAQI FREEDOM-Marine Corps Logistics at its Best?" *Marine Corps Gazette* 88, no. 1 (2004): 48-50. <https://search-proquest-com.lomc.idm.oclc.org/docview/221456128?accountid=14746>.

-
- Marin, Isabel, Megan Misencik, Clinton Jones, and Christine Hannigan. 2014. "Functionally Aligned Battalions." *Marine Corps Gazette* 98 (10): 24-27. <https://search-proquest-com.lomc.idm.oclc.org/docview/1586075018?accountid=14746>.
- "MSC Commander Outlines Transformation Plan, Close Partnership with Industry." *Defense Daily* (2002b): 1. <https://search-proquest-com.lomc.idm.oclc.org/docview/234088932?accountid=14746>.
- Pagonis, William, and Jeffery Cruikshank. *Moving Mountains: Lessons in Leadership and Logistics from the Gulf War*. United States of America: Harvard Business Review Press, 1992.
- Terino, John. "Sea Basing 'Preferred Method' for Operations, Official Says." *Aerospace Daily* 204, no. 21 (2002): 7. <https://search-proquest-com.lomc.idm.oclc.org/docview/231579729?accountid=14746>.
- The White House. *The National Security Strategy of the United States of America*. Washington, DC, 2017. <http://www.whitehouse.gov/nsc/nss/2017/>.
- Valley Eleana, Major United States Marine Corps, Operational Contract Support and Joint Logistics Enterprise Brief, 22 January 2019.
- Wissler, John E. and Peter F. Talleri. "Meeting the Mandate for Change in Marine Corps Logistics." *Marine Corps Gazette* 89, no. 8 (2005): 25-27. <https://search-proquest-com.lomc.idm.oclc.org/docview/221416856?accountid=14746>.
- Zhao, Minghao. "'March Westwards' and a New Look on China's Grand Strategy." *Mediterranean Quarterly* 26, no. 1 (2015): 97–116. doi:10.1215/10474552-2872999.