

# Marine Corps Transformation



**Expeditionary Maneuver Warfare**



## Executive Summary

The flexibility and persistence of the U.S. Navy in forward areas provides an ideal staging “ground” for a Marine Corps which is much more than simply an amphibious force. The Marine Corps’ new operational vision, *Expeditionary Maneuver Warfare (EMW)*, describes direct deployment from ship to inland objective, by air and by sea, with rapidly penetrating and self-sustaining assault forces as part of a joint force. It includes the more traditional doctrine associated with both the littoral battlespace and sustained operations ashore, and describes the synergies between operational concepts.

The *expeditionary* character stems from the historical purpose and orientation of the Marine Corps as an austere force in readiness. The *maneuver* qualities implement the objectives of Joint Vision 2020, with the unique attributes of Marine Corps amphibious and combined air capabilities. The Navy’s vision in *Sea Power 21* provides the essential context for this Marine vision, and underscores the power of the combined Navy/Marine emphasis on littoral warfare.

Recent operations in Afghanistan and Iraq have allowed the opportunity to put the concepts of *EMW* into practice. While limited - in some cases substantially - by currently deployed technology, Marines have proven their ability to operate at considerable distances from the sea base and to maneuver rapidly with decentralized command and control while employing combined arms.

Planned new technologies and platforms will transform today’s limited *EMW* into full operational reality within a decade. Programs such as the MV-22 Osprey, the Advanced Amphibious Assault Vehicle (AAAV), and the Navy’s amphibious landing assault ship LPD-17, will provide dramatic mobility improvements in the near-term. In the longer-term, the F-35 Joint Strike Fighter, the DD(X) destroyer and future prepositioning logistics ships will combine with the command and control architecture of ForceNet to provide the robust sea basing envisioned in *EMW*.

*EMW* is a revolutionary concept which will be implemented in an evolutionary way as new technologies and platforms join the force. It is a concept based on years of development and experimentation. Having embraced the concept of transformation, the Marine Corps and the Navy must now buy the capabilities to make it a reality.

The initial draft of this report was written by Myra S. McKittrick. All members of the Naval Strike Forum had an opportunity to review and modify the final report.

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# Marine Corps Transformation: Expeditionary Maneuver Warfare

One of the defining characteristics of the decade since the end of the Cold War has been the rapid advance of U.S. military technology, giving U.S. forces a capability far beyond that of any potential adversary — and indeed, most allies.



*A combination of stealth, advanced electronics, and high-speed agility will make F-35B the most survivable aircraft the Marine Corps has ever fielded.*

Under the rubric of a “revolution in military affairs,” and more recently “transformation,” these remarkable advances in technology have allowed the evolution of service operational concepts from the static notions of the Cold War to today’s emphasis on joint maneuver warfare. But just as our tools for and understanding of operational maneuver have grown, so has our need to launch any such maneuver from a strategic distance. Traditional, post-war notions of power projection and forward deployment have been increasingly challenged by a loss of overseas bases and the nature of coalition diplomacy in an era of fluid threats.

Today, all of the services acknowledge this reality and reflect it in their published visions of the future.

In their so-called “capstone concepts,” *Sea Power 21* (2002) and *Expeditionary Maneuver Warfare* (2001), the U.S. Navy and Marine Corps present the intellectual foundation for the manner in which the sea services will operate in the early 21st century. In particular, they strive to exploit America’s unique strategic advantages, one of the most important of which is control of the seas. From this vast space, maneuver warfare can be launched over the horizon deep into an adversary’s territory, with a combination of air, ground and amphibious forces.

*“We often cite asymmetric challenges when referring to enemy threats, virtually assuming such advantages belong only to our adversaries. “Sea Power 21” is built on a foundation of American asymmetric strengths that are powerful and uniquely ours.”*

— SEA POWER 21

## Evolution of Expeditionary Maneuver Warfare

The basic elements of today's Marine Corps operational vision were formulated by the late 1960's. The "Stingray" concept of that time envisioned small strike teams combined with long-range firepower and enhanced C3I. Along with advancing technology, the Navy's own shift in the late 1980's from a blue water to a littoral focus gave impetus to the Marine Corps' still-evolving operational concepts. This conceptual development shifted into high gear after newly-appointed Commandant General Charles C. Krulak created the Warfighting Laboratory in 1995. The first major experiment conducted by the lab, Hunter Warrior (1997), was designed to explore the implications of operations on an extended battlefield, using small, mobile units that were dispersed rather than moving from an established rear area. Key to the concept was a future command and control network integrating these units and allowing decentralized decision-making.

Meanwhile, the Navy had published its own new conceptual frameworks for sea operations. With "...From the Sea" (1992) and "Forward...From the Sea" (1994) the Navy established broad outlines within which the Marine Corps has subsequently developed a much more specific expeditionary concept, based on the operational themes developed in "Operational Maneuver from the Sea (OMFTS)," *Ship to Objective Maneuver (STOM)*, and *The MAGTF in Sustained Operations Ashore (SOA)*.

The first element of this concept was released early in 1996. *OMFTS* applied the principles of maneuver warfare to the areas in and around coastal waters, describing an environment in which an enemy would be forced to defend his entire coastline while the U.S. retained the ability to strike from the sea at a time and place of its own choosing.

The second — and most transformational — element of today's expeditionary concept was *STOM*, published in 1997. Intended to encourage further discussion of operational concepts and technology requirements, *STOM* emphasized the opportunities technology created for mobility and operational reach. The notion of an extended battlefield was described in *STOM* as "seamless maneuver from over the horizon directly against objectives deep inland."

The third and final operational piece of the expeditionary concept was completed in June 1998. *SOA* discusses the Marine Corps' role as part of a general purpose force in conventional joint operations ashore. It acknowledges that Marines must retain an ability to sustain operations from land bases (as they did in Operations Enduring Freedom and Iraqi Freedom), even as they create greater capabilities to operate from the sea.

Following the publication of a joint strategic agenda called *Joint Vision 2020* in June 2000, then-Commandant General James L. Jones issued *Marine Corps Strategy 21 (MC21)* in November 2000. This document established broad goals to enhance "strategic agility, operational reach, and tactical flexibility to enable joint, allied, and coalition operations and interagency coordination." *MC21* was remarkable for its emphasis on contributions to the joint community, and for prioritizing specific objectives.

The following year, *Expeditionary Maneuver Warfare* was completed. *EMW* is the synthesis of the new operational concepts. It bridges the strategic institutional vision of *Marine Corps Strategy 21* and the tactical application of *OMFTS*, *STOM* and *SOA*. General Jones described *EMW* as "the union of our core competencies; maneuver warfare philosophy; expeditionary heritage; and the concept by which we organize, deploy and employ forces." Three elements of *EMW* are key to understanding the philosophy and future requirements of expeditionary maneuver: expeditionary operations, maneuver warfare, and enhanced networked sea basing.

**Expeditionary Operations.** The Marine Corps has always been an expeditionary force, training, equipping and organizing to fight an entrenched, usually much larger opponent, a long way from home. Chartered by the Continental Congress in 1775 as an expeditionary arm of the Continental Navy, the Marine Corps honors its heritage as an austere land-force extension of the naval force. The new emphasis on expeditionary operations is not to suggest any departure from the traditional mission of the Marine Corps, but rather to embrace the way technology has revolutionized the capability of an expeditionary force.

The essence of an expeditionary force is that it is “come as you are.” Partially through improvements in maritime prepositioning and partially through advances in organic Marine Corps mobility, command and control, and logistics, today’s “come as you are” expeditionary force is flexible, sustainable and lethal, and will become even more so as new capabilities are fielded over the next few years. It is also the reflection of the Marine Corps “can do” attitude characterized by improvisation and aggressive adaptation. This unique combination of qualities will provide the future joint force commander with powerful tools to respond to the unexpected or short-notice requirements.

In *MC21*, this “total force in readiness” is called upon to respond “across the spectrum of conflict in the littorals and, as part of a joint force, in the execution of sustained land operations.” *EMW* further describes the role of expeditionary forces in joint and combined operations as “enablers.” Examples include establishing initial command and control for follow-on forces and seizing or creating forward operating bases (as was done successfully in Afghanistan and Iraq). Whether operating in the littoral or inland, as initial-entry forces or part of a joint force, Marine expeditionary forces must be able to move rapidly and decisively to gain the advantage over an entrenched adversary.

*“Truly expeditionary forces are those that can not only displace to distance environs and operate immediately upon arrival without host nation support or infrastructure, but also operate over a sustained period of time...”*

— MARINE CORPS CONCEPTS AND PROGRAMS (2003)

**Maneuver Warfare.** The “philosophical basis” of *EMW*, maneuver warfare is all about rapidly achieving the advantage, in both time and space, over the adversary. In *Joint Vision 2020*, “dominant maneuver” is defined as “the ability of joint forces to gain positional advantage with decisive speed and overwhelming operational tempo.” This is the essence of maneuver warfare, using our strength against identified enemy weaknesses. Successful execution requires capabilities Marines consider among their core competencies — dynamic, decentralized decision-making; aggressive action-oriented culture; and, fully integrated combined-arms capability. This is as much a matter of training and education as hardware. It was these qualities which allowed the 1st Marine Expeditionary Force to move into Iraq two days ahead of schedule with four hours warning and enter central Baghdad 20 days later during Operation Iraqi Freedom.



*The V-22 Osprey can lift artillery and vehicles over considerable distances, such as the Humvee pictured above.*

Reflecting the unique characteristics of naval and amphibious forces, the Marine Corps maneuver warfare concept links maneuver at sea to maneuver on land. The ideas discussed in *STOM* explain the application of *EMW* at the tactical level. Through identification of littoral penetration points, a landing force will move rapidly from positions well offshore to inland objectives. Relying on coordinated surface and vertical assaults, the commander aims to control the tempo of the battle, dilute the opposing forces by enlarging the battlespace, and ultimately overwhelm the adversary.

Combined arms provide the operational flexibility and power projection behind this concept. Fully integrated and organic air, ground and logistics teams, organized into Marine Air-Ground Task Forces (MAGTFs), are uniquely adaptable to a wide range of situations requiring forcible entry. Depending on the scale and intensity of the operation, MAGTFs can be organized into Marine Expeditionary Forces (MEFs), Brigades (MEBs) or Units (MEUs). Deploying from their sea base, all of these combined units are capable of moving through the littoral directly to where they are needed. This capability is the essence of operational maneuver. Enabled by technology, it is a striking transformation from the previous concept of phased amphibious operations.

**Enhanced Networked Sea Basing.** One of the cornerstone concepts of *Sea Power 21*, sea basing is the foundation of *EMW*. Projecting amphibious maneuver warfare forces ashore, and sustaining those forces over time, is made possible by the presence of the Navy off-shore providing a “sea base.” This is neither a new concept nor a new capability. But along with the evolution of *EMW* and supporting concepts such as *STOM*, the traditional notion of the sea base has taken on a dramatically new character. This new vision is called “enhanced networked” sea basing (ENSeabasing). Two emerging capabilities are at the center of this vision: integrated and distributed command, control and communications; and, maritime prepositioning technologies allowing flexible arrival and departure of Marines, their equipment and supplies.

Today’s sea base is described by the Navy as a “collection of platforms... independently developed, fielded, and matured over time.” ENSeabasing will combine these platforms with new capabilities as part of the Maritime Prepositioning Force (Future) to allow *phased at-sea assembly and arrival* and *selective offload*. Once in place, this will provide the opportunity to move Marines from anywhere in the world, via strategic lift, to theater staging areas, and from there directly to the sea base via intra-theater lift such as high-speed vessels or the MV-22. Self-deploying units aboard amphibious ships will join directly to the sea base. Once assembled at the sea base, selected offload will match units with the equipment and supplies needed for the particular mission. The elements of the “mobility triad,” discussed

below, will then deliver these combat-ready and sustainable units directly to their objective area. These combat “teeth” will subsequently be supported by the logistics “tail” which will remain at the sea base, along with offensive and defensive fire support, and command and control.

The “network” portion of ENSeabasing depends on the ForceNet architecture. ForceNet is the framework for Navy and Marine Corps C4 interoperability and the expression of naval network centric warfare. Marine Corps elements include the Navy-Marine Corps Intranet and the Tactical Data Network plan for increased wideband capability. Implementation of ForceNet will take place over time, as today’s Air-Ground Task Force network is expanded and enhanced with new equipment such as the Joint Tactical Radio System and UAVs providing long-range communications airborne relays. True network centric warfare as envisioned in ForceNet, however, requires more than new technology. Just as important will be the application of an architectural discipline to the integration of current and new systems with clearly defined data standards; and robust, continuous training in their use.

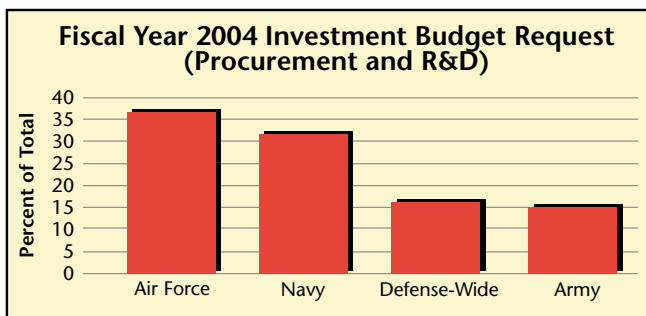
*“Because the Navy-Marine Corps team operates from the sea, we are less encumbered by the political constraints often encountered by forces tied to land-based infrastructure. The only invitation we require to move to a crisis area is a request from the geographic combatant commander and an order from the National Command Authorities.”*

– MARINE CORPS STRATEGY 21

ENSeabasing is a true integration of Navy and Marine Corps operational concepts. It responds to the challenge of addressing the growing problem of local access, identified in the Department of Defense's *Quadrennial Defense Review* as a particular operational issue. ENSeabasing builds on the core competencies of both services to provide a unique and powerful tool to the joint force. It exploits the vastness of the sea and the scope of Navy defensive capabilities from underwater to outer space to create a secure, survivable base for combat operations without diplomatic "strings attached." It is important to remember, however, that this will be an evolving capability.

## Key Programs

Like all the Services, Marine Corps acquisition had been challenged during the early 1990's by declining defense budgets, and — once budgets began to rise again — by rising costs of operations and a substantial maintenance backlog. Defense wide, procurement and R&D together are budgeted to increase five percent in fiscal year 2004 and another seven percent in fiscal year 2005, to \$144 billion. The Department of the Navy's (which includes the Marine Corps) share of this investment is about one-third.



While this trend in investment is promising, projections for increasing U.S. federal budget deficits suggest new challenges looming ahead. Yet the Marines, and their Navy partners, must move ahead with new programs in aviation, ground combat, amphibious shipping, and command and control if they are to successfully realize the operational vision of *EMW*. The most transformational of these are the LPD-17 landing assault ship, MV-22 Osprey, AAV Advanced Amphibious Assault Vehicle, and F-35 Joint Strike Fighter. In addition, several programs are vital to the Navy and Marine plan to recapitalize critical amphibious platform and capabilities, such as

the amphibious assault ships, landing craft, artillery and anti-armor weapons, and the advanced gun and missile systems on the DD(X) destroyer. Taken together, these programs are the vital enablers of key components of operational maneuver from the sea: prepositioning and lift, mobility and agility, and long-range fire support.

**Prepositioning and Lift.** Amphibious lift is provided by the Navy and funded in the shipbuilding account. This fleet is organized into Amphibious Ready Groups (ARGs), each with three ships. Despite a validated warfighting requirement for 14 ARGs, the current program allows for 12 ARGs — an objective that will not be fully met until 2014. In support of this goal, the Navy has one class currently under construction (LHD); one in the last stages of development (LPD-17); and one in the concept definition phase (LHA-R). The LHD — and its predecessor the LHA — amphibious assault ships are the centerpiece of the ARG. The last of the current Wasp-class LHD's is now under construction, leaving four older LHAs that will have to be replaced by a follow-on ship beginning early in the next decade. Although the first of those follow-on ships has been defined and is scheduled for a contract award in FY2007, the remaining ships are on an extended development, procurement and construction schedule that will stretch replacement out at least seven years past the planned retirement of the last LHA.



*The Advanced Amphibious Assault Vehicle will be far faster, more flexible and more versatile than the vehicles it replaces.*



Meanwhile, construction continues of the new LPD-17 landing assault ship. The lead ship of this class will be delivered in FY2005, followed by 11 more; one for each ARG. The LPD-17 replaces four classes of ships, and incorporates both a flight deck and a well deck to support the debarkation of landing craft. Thus, it carries all three elements of the so-called “mobility triad” of landing craft/air cushion (LCAC), AAV, and MV-22.

**Mobility and Agility.** The “mobility triad” of systems is central to expeditionary maneuver. Of the three systems, two — AAV and MV-22 — are just now on the verge of full scale production, and incorporate revolutionary technologies. The third, the LCAC, entered service in 1984. An LCAC service-life extension program began in 2001, and will continue at the rate of four-six per year until 73 craft are updated with service lives extended 10 years beyond the planned 20. With its air cushion technology, the LCAC is able to deliver personnel, supplies and heavy equipment over 70% of the world’s shoreline.



*The Advanced Amphibious Assault Vehicle will make coastal waters a maneuver space in littoral combat.*

Three AAVs are currently in developmental testing, with a low-rate production decision scheduled for 2005 and initial operating capability in 2008. Unlike its predecessor, the AAV will transport Marines directly from a ship over the visual horizon onto the beach where its armor, firepower and nuclear/biological/chemical protection will allow it to

immediately engage or continue on to the objective. The AAV range is 65nm at sea and 400 miles on land, with four times the speed over water of its predecessor, and land speed and maneuverability equal to the M1 tank. The AAV incorporates advanced command, control and navigational capabilities that will allow it to support decentralized operations during STOM and subsequent operations ashore.

*The AAV represents the signature mission of the United States Marine Corps... and will virtually revolutionize every facet of Marine Corps combat operations.*

– GENERAL KRULAK

The MV-22 Osprey is the Marine Corps version of the joint vertical/short take off and landing, tilt-rotor aircraft program. The Marine Corps is by far the largest customer for the aircraft, accounting for 80% of the planned program. Intended to replace the Vietnam-era CH-46 Sea Knight and CH-53D Sea Stallion helicopters, the MV-22 is far superior to these legacy systems in terms of speed, range and capacity. It takes just 12 seconds to convert from its helicopter hovering mode (where it can deploy Marines without touching the ground) to its forward airplane mode. Despite the program’s troubled history of cost growth and testing mishaps, the Marine Corps remains committed and optimistic, and outside experts continue to validate its “revolutionary” potential. Currently, the MV-22 is in low-rate production pending a full-rate production decision. The MV-22 training unit plans to resume training operations in December 2003, and an extensive operational evaluation of the aircraft is scheduled for 2004.

This discussion of mobility and agility would not be complete without mention of mine counter measures (MCM).

MCM are an essential enabler of forced-entry operations, and are an area of current weakness for the Navy and Marine Corps. This is especially true in the very shallow water (less than 10 feet) and surf zones of the littoral, as well as the beach itself. Current capabilities on land are slow and unreliable, while those in the surf zone are severely limited. During operations in Afghanistan, for example, the Marines relied on coalition mine detection capabilities. Several programs are in development, with operational capability planned for 2006 and beyond. The Marine Corps is continuing work on an MCM Master Plan to address deficiencies throughout the spectrum of combat operations.

**Long-Range Fire Support.** The kind of persistent, all-weather fire support required by the Marine Corps *EMW* can only be provided from sea-based platforms, at least for the foreseeable future. Unfortunately, the Navy's surface-fire capability is not adequate today in range, accuracy or volume to support Marine maneuver operations, nor is there a funded program to meet this requirement in the near-term. In the long-term, the new DD(X) destroyer will incorporate an Advanced Gun System and advanced land-attack missile designed specifically to meet the Marine Corps fire-support needs. Initial operating capability for DD(X) is currently scheduled for 2012.

In the meantime, the Navy is continuing with efforts to develop the Extended Range Guided Munition (ERGM) which will be combined with the modified 5-inch 62-caliber gun systems now being installed on the DDG-51 destroyers. The rocket-assisted, precision-guided ERGM will meet its objective range of 63 nautical miles, still falling short of the Marine's requirement of 200nm. The ERGM is scheduled to reach initial operating capability late in 2006 or 2007. Nevertheless, the Marine Corps acknowledges it must accept "considerable risk" in its ability to conduct expeditionary operations for at least another decade until multiple DD(X)s with enhanced naval surface fire support enter the fleet.

In 2010 the next-generation strike fighter, the F-35B version of the Joint Strike Fighter, will enter service with the Marine Corps. The great advantage of this short take-off and vertical landing aircraft will be its ability to operate from the decks of amphibious ships, austere sites and forward oper-

ating bases. Its primary missions will be close air support, interdiction and anti-air warfare. Essential to the future of Marine Corps combined arms operation, the F-35B will provide the reach, flexibility and reliability required by *EMW*. Since it will replace both the F/A-18C/D and the AV-8B currently in the inventory, the F-35B also supports the Marine's goal of "necking down" to a single aircraft to reduce support requirements and costs.

## Expeditionary Maneuver Warfare Today

The Marines of Task Force 58 employed basic elements of *EMW* for the first time in Operation Enduring Freedom. Operating from ships, the Marines of two separate MEUs deployed in the region (brought together into Task Force 58) were able to project power far beyond the limits envisioned by then-current doctrine. Using helicopters, and supported by Naval and Marine aircraft from these same ships and by the Air Force, Marines deployed to Taliban and al Qaeda positions up to 600 miles away. Once established, the forward operating base Rhino was rapidly reinforced to be used for further joint and combined attacks.

Like Afghanistan, Operation Iraqi Freedom did not involve a classic amphibious, over-the-beach assault. Instead of operating from the sea, most Marine land forces moved into Iraq from Kuwait, demonstrating a different kind of strategic mobility and the value of prepositioning. Thirty-four thousand Marines of the 1st MEF deployed to Kuwait aboard civilian and military aircraft in January 2003 met up with equipment from two different Maritime Prepositioning Ships, and unloaded 11 ships in 20 days.

During the first days of the operations against Iraq, fixed and rotary wing Marine aircraft supported ground forces from ships in the Persian Gulf. In less than two weeks, they were operating from austere forward air bases created in the sand of the Iraqi desert. These aircraft provided the logistics and fire-support crucial to the successful land race to Baghdad, which demonstrated the efficacy of the Marine approach to combined arms combat.

Both Operation Enduring Freedom in Afghanistan and Operation Iraqi Freedom relied on elements at the heart of

expeditionary maneuver — flexible, rapid movement over long distances, supported by combined arms and long-range fire and logistics support from distant sea bases and austere land bases. Both Operations also provide convincing evidence of the Marine Corps' ability to operate very effectively as part of a joint force.

Marines will continue to build on the experience of these two recent combat operations with near-term exercises and experiments. Acting on an innovation employed during Enduring Freedom, now codified in *Sea Power 21*, the Pacific Fleet will deploy a new "expeditionary strike group" (ESG) on a pilot basis later in 2003. This will be followed by an Atlantic Fleet deployment in 2004. The ESG adds strike-capable surface warships and submarines to existing ARGs and MEUs to provide a more integrated and powerful Navy/Marine operating group. Once fully implemented, the ESG will effectively double the number of independent operating groups the Navy can deploy, when combined with existing carrier battle groups and the missile-defense surface action groups which are built around cruisers.



*Future expeditionary warfare will be conducted by a comprehensively networked force effective in every medium, from beneath the seas to orbits in space.*

The Marine Corps Warfighting Laboratory is now in the midst of planning for Sea Viking 2004, an experimentation series designed specifically to further the implementation of the *STOM* concept. The focus will be on "on the move/over the horizon" command and control to match the command

and control capabilities of the maneuver force with its dramatically increased speed, mobility and operational reach. The series will conclude with a combined Navy/Marine live force experiment in the fall of 2004. This will be the focus the Lab's efforts for the next few years, as it continues to support near and longer-range opportunities as part of the Expeditionary Force development.

## Conclusion

Much of this discussion of *Expeditionary Maneuver Warfare* has been about the Marine Corps' future vision. To be fully realized, the concept depends on the future fielding of technologies, many of which have been discussed here. Although aspects of the concept exist today, some key elements are still in early phases of development. Therefore, it is important to remember that *EMW* is an evolving concept.

It is, however, a concept that has been combat-tested. In addition, near-term exercises and experiments are planned which will further improve its implementation over the next few years. The bottom line is that *EMW* is a doctrinal and operational reality — a leap ahead in capability that requires only the addition of next-generation technology to be fully realized.

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