U.S. Marine Corps

The U.S. Marine Corps (USMC) is the nation's expeditionary armed force, positioned and ready to respond to crises around the world. Marine units assigned aboard ships ("soldiers of the sea") or at bases abroad stand ready to project U.S. power into crisis areas. Marines also serve in a range of unique missions, from combat defense of U.S. embassies under attack abroad to operating the President's helicopter fleet.

Although Marines have a wide variety of individual assignments, the focus of every Marine is on combat: Every Marine is first a rifleman. The USMC has positioned itself for crisis response and has evolved its concepts to leverage its equipment more effectively to support operations in a heavily contested maritime environment such as the one found in the Western Pacific. Today, "there are over 34,000 Marines deployed around the globe to assure our allies and partners, to deter our adversaries, and to respond when our...citizens and interests are threatened."¹ In 2016, despite the drawdown of forces, "the Marine Corps executed over 210 operations, 20 amphibious operations, [and] 160 Theater Security Cooperation (TSC) events, and participated in 75 exercises" in addition to providing embassy security and short-term reinforcement of posts.2

Pursuant to the Defense Strategic Guidance (DSG), maintaining the Corps' crisis response capability is critical. Thus, given the fiscal constraints imposed, the Marines have prioritized "near-term readiness" at the expense of other areas, such as capacity, capability, modernization, home station readiness, and infrastructure.³ This trade-off is a short-term fix to meet immediate needs: Over the longer term, the degradation of investment in equipment will lead to lowered readiness.

Capacity

The Marine Corps has continuously prioritized readiness through managed reductions in capacity, including a drawdown of forces, and delays or reductions in planned procurement. Its measures of capacity are similar to the Army's: end strength and units (battalions for the Marines and brigades for the Army). In February 2015, Marine Corps Commandant General Joseph Dunford testified that:

Today, the Marine Corps continues to execute its end-strength reductions that began during FY12, reducing the Corps from a high of 202,000. The Marine Corps is adjusting its active duty end-strength to 182,000 Marines by 2017, emphasizing the enduring requirement to provide crisis response forces that meet today's demand. We can meet the DSG at this level, but with less than optimal time between deployments to train and allow Marines to be with their families.⁴

The Department of Defense (DOD) FY 2018 Defense Budget Overview reflects a slightly higher projected "Active Component End Strength" of 184,400 in 2017, a slight increase over previously projected levels due to President Trump's request for supplemental funding in FY 2017. President Trump's FY 2018 budget request would reverse planned drawdowns and support an end strength of 185,000 active personnel in FY 2018.⁵ The Marine Corps' basic combat unit is the infantry battalion. A battalion has about 900 Marines and includes three rifle companies, a weapons company, and a headquarters and service company. FY 2017 appropriations supported 24 infantry battalions,⁶ an increase from 2016 levels but still down from 27 in FY 2012.⁷ Although the President's FY 2018 budget request retains support for 24 battalions, under full sequestration, USMC end strength would be able to support only 21 infantry battalions,⁸ which, according to General Dunford, would leave the Corps "with fewer active duty battalions and squadrons than would be required for a single major contingency."⁹

Additionally, the current population of noncommissioned officers and staff noncommissioned officers does not meet USMC force structure requirements. This will pose readiness challenges for the Corps as the shortage of "small unit leaders with the right grade, experience, technical skills and leadership qualifications" grows.¹⁰

In 2010, the USMC determined that its ideal force size would be 186,800 in light of the requirements of the President's National Security Strategy at that time.¹¹ However, given the budget pressures from the Budget Control Act (BCA) of 2011 and the newer 2012 DSG, the Corps determined that a force of "182,100 active component Marines could still be afforded with reduced modernization and infrastructure support."¹²

One impact of reduced capacity is a strain on Marines' dwell time. The stated ideal deployment-to-dwell (D2D) time ratio is 1:3 (seven months deployed for every 21 months at home), which, given current demands, can be achieved with 186,000 troops.¹³ A force of 182,000, without a corresponding decrease in operational demand, would result in a lower D2D ratio of 1:2, which translates to roughly seven-month deployments separated by stretches of 14 months at home.¹⁴

Under current budget constraints, "Marine Corps operating forces are currently averaging less than a one-to-two deployment-to-dwell ratio."¹⁵ A return to BCA-level budget caps in FY 2018 could reduce capacity even further, and the dwell ratio for the Marine Corps could fall to 1:1.¹⁶ This increase in deployment frequency would exacerbate the degradation of readiness, because people and equipment would be used more frequently with less time to recover between deployments. The same problems are present across the Marine Corps' major weapons platforms, including its aviation and amphibious assets.

Marine aviation units have been particularly stressed by insufficient funding. Although operational requirements have not decreased, fewer Marine aircraft are available for tasking or training. For example, according to the Marine Corps' 2017 Marine Aviation Plan, the USMC currently fields 19 tactical fighter squadrons,¹⁷ compared to 20 in 2016 and around 28 during Desert Storm.¹⁸ This change reflects the retirement of one AV-8B squadron.¹⁹ However, this does not adequately capture the capacity challenges the Marine Corps faces, as the service has decreased the number of aircraft per squadron in order to compensate for shortages in the number of aircraft available, whether because of maintenance or procurement delays.²⁰ Although supplemental appropriations in 2017 provided some relief from BCA caps, the capacity challenges facing the Marine Corps will be fixed only by stable and predictable increases in the funding of both procurement and maintenance accounts.

The number of available aircraft continues to decline as procurement of the F-35B and MV-22 struggles to keep pace with the decommissioning of aging aircraft squadrons, high operational tempos, and maintenance backlogs that have limited the number of Ready Basic Aircraft (RBA) for training and operational requirements.²¹ According to the *2017 Marine Aviation Plan*, the transition to the Osprey is 75 percent complete, and it is expected that the active component transition will be completed in FY 2019. However, the procurement objective could increase to 380 aircraft pending the results of an ongoing requirements-based analysis.²² In 2016, "shortages in aircraft availability due to increased wear on aging aircraft and modernization delays" led the Marine Corps to reduce the requirement of aircraft per squadron for the F/A-18, CH-53E, and AV-8B temporarily in order to provide additional aircraft for home station training.²³ Approximately 80 percent of Marine Corps aviation units are still experiencing shortages below the minimum number of RBA needed to account for training and wartime requirements.²⁴ Any reduction in Marine aviation capability has a direct effect on overall combat capability, as the Corps usually fights with its ground and aviation forces integrated as Marine Air-Ground Task Forces (MAGTFs).

Additionally, due to a chronic shortfall in the Navy's requirement for 38 amphibious ships, the USMC has relied heavily on landbased Special Purpose Marine Air-Ground Task Forces (SPMAGTFs). While SPMAGTFs have enabled the Marine Corps to meet joint force requirements, land-based locations "lack the full capability, capacity and strategic and operational agility that results when Marine Air-Ground Task Forces (MAGTFs) are embarked aboard Navy amphibious ships."²⁵

The USMC continues to invest in the recapitalization of legacy platforms in order to extend platform service life and keep aircraft and amphibious vehicles in the fleet, but as these platforms age, they also become less relevant to the evolving modern operating environment. Thus, while helping to maintain capacity, programs to extend service life do not provide the capability enhancements of modernization programs and ultimately result in higher costs to maintain an older, less-capable fleet of equipment.

Capability

The nature of the Marine Corps' crisis response role requires capabilities that span all domains. The USMC ship requirement is managed by the Navy and is covered in the Navy's section of the *Index*. The Marine Corps is focusing on "essential modernization" and emphasizing programs that "underpin our core competencies," making the Amphibious Combat Vehicle (ACV) and the F-35 Joint Strike Fighter (JSF) programs its top two priorities.²⁶

Of the Marine Corps' current fleet of vehicles, its amphibious vehicles-specifically, the Assault Amphibious Vehicle (AAV-7A1) and Light Armored Vehicle (LAV)-are the oldest, with the AAV-7A1 averaging over 40 years old and the LAV averaging 26 years old.27 The AAV-7A1 is currently undergoing survivability upgrades, with the first round of upgrades (AAV SU) delivered to U.S. Marine Corps Base Quantico in 2016.28 These upgrades will help to bridge the capability gap until the fielding of the ACV and keep the AAV SU in service until 2035.²⁹ In the meantime, the Marine Corps will "continue to spend limited fiscal resources to sustain legacy systems as a result of deferred modernization, [and] risk steadily losing our capability advantage against potential adversaries."30 There is still no planned replacement for the LAV. Comparatively, the Corps' M1A1 Abrams inventory is 27 years old with an estimated 33-year life span,31 while the newest HMMWV variant has already consumed half of a projected 15-year service life.32

All of the Corps' main combat vehicles entered service in the 1970s and 1980s, and while service life extensions, upgrades, and new generations of designs have allowed the platforms to remain in service, these vehicles are quickly becoming poorly suited to the changing threat environment. For example, with the advent of improvised explosive devices (IEDs), the flatbottom hulls found on most legacy vehicles are ineffective compared to the more blastresistant V-shaped hulls incorporated in modern designs.

The age profiles of the Corps' aircraft are similar to those of the Navy's. As of 2017, the USMC had 273 F/A-18 A–Ds (including one reserve squadron) and 18 EA-6Bs in its primary mission aircraft inventory,³³ and both aircraft have already surpassed their originally intended life spans. The Marine Corps began to retire its EA-6B squadrons in FY 2016 with the decommissioning of Marine Tactical Electronic Warfare Squadron 1 and has stayed on track in decommissioning one per year through FY 2019.³⁴ Unlike the Navy, the Corps did not acquire the newer F/A-18 E/F Super Hornets; thus, the older F/A-18 Hornets are going through a service life extension program to extend their life span to 10,000 flight hours from the original 6,000 hours.³⁵ This was intended to bridge the gap to when the F-35Bs and F-35Cs enter service to replace the Harriers and most of the Hornets. However, delays in the service life extension program and "increased wear on aging aircraft" have further limited availability of the F/A-18 A-D and AV-8B.³⁶

The AV-8B Harrier, designed to take off from the LHA and LHD amphibious assault ships, will be retired from Marine Corps service by 2026.³⁷ The AV-8B received near-term capability upgrades in 2015, which continued in 2017 in order to maintain its lethality and interoperability until the F-35 transition is complete.³⁸ The Corps declared its first F-35B squadron operationally capable on July 31, 2015, after it passed an "Operational Readiness Inspection" test.³⁹ To date, three F-35B squadrons have been delivered to the Marine Corps, including two operational squadrons and one fleet replacement squadron, totaling 52 aircraft.⁴⁰

The Marine Corps has two Major Defense Acquisition (MDAP) vehicle programs: the Joint Light Tactical Vehicle (JLTV) and Amphibious Combat Vehicle (ACV).⁴¹ The JLTV is a joint program with the Army to acquire a more survivable light tactical vehicle to replace a percentage of the older HMMWV fleet, originally introduced in 1985. The Army retains overall responsibility for JLTV development through its Joint Program Office.⁴²

Following FY 2015 plans for the JLTV, the program awarded a low-rate initial production (LRIP) contract, which includes a future option of producing JLTVs for the Marine Corps, to defense contractor Oshkosh.⁴³ Congressional testimony indicates that if its budget permits it to do so, the USMC may be interested in procuring a larger quantity in the long term than originally intended. Despite a delay in the program's full-rate production decision and reduced procurement quantities in FY 2016 and FY 2017, the Corps still expects to complete its initial acquisition objective of 5,500 by FY 2023.⁴⁴ Reductions in annual procurement quantities reflect prioritization of the ACV within the USMC's ground force.⁴⁵

The President's budget request for FY 2018 would fund the final year of low-rate initial production for the JLTV, including 527 vehicles for the Marine Corps and limited procurement quantities for the Air Force.⁴⁶ Although the Marine Corps has indicated that the JLTV will not be a one-for-one replacement of the HMMWV, there are concerns that reduced procurement will create a battlefield mobility gap for some units.47 Program officials have reportedly discussed increasing the acquisition objective to 9,091 for the Marine Corps.48 While this will still only partially offset the inventory of 17,000 HMMWVs,49 the service is considering what percent of the fleet should be replaced by the JLTV and what percent of the requirement might be filled by lighter wheeled vehicles.50

The Corps has procured 317 JLTVs through FY 2017.⁵¹ The lack of operational detail in the Army's Tactical Wheeled Vehicle Strategy could affect future USMC JLTV procurement and modernization plans.⁵² The USMC expected the program to reach initial operational capability (IOC) in the fourth quarter of 2018, but IOC has been delayed because of Lockheed Martin's bid protest following the award of a low-rate initial production decision to Oshkosh.⁵³

The Marine Corps plans to replace the AAV-7A1 with the ACV, which completed its Milestone B requirements in November 2015 and will move into low-rate initial production in FY 2018.⁵⁴ The ACV, which took the place of the Expeditionary Fighting Vehicle (EFV), "has been structured to provide a phased, incremental capability."⁵⁵ The AAV-7A1 was to be replaced by the EFV, a follow-on to the cancelled Advanced AAV, but the EFV was also cancelled in 2011 due to technical obstacles and cost overruns. Similarly, the Corps planned to replace the LAV inventory with

FIGURE 8

American Tank Loses Traction in Modernization

When it was first introduced in 1980, the M1A1 Abrams arguably became the world's most formidable battle tank. However, since then several nations have introduced new or upgraded tanks, including Russia and China.



the Marine Personnel Carrier (MPC), which would serve as a Light Armored Vehicle with modest amphibious capabilities but would be designed primarily to provide enhanced survivability and mobility once ashore.⁵⁶ However, budgetary constraints led the Corps to shelve the program, leaving open the possibility that it might be resumed in the future.

After restructuring its ground modernization portfolio, the Marine Corps determined that it would combine its efforts by upgrading 392 of its legacy AAVs and continuing development of the ACV to replace part of the existing fleet and complement the upgraded AAVs.⁵⁷ This would help the Corps to meet its requirement of armored lift for 10 battalions of infantry.⁵⁸ As of March 2015, the USMC's acquisition objective for the ACV 1.1 was 204 vehicles for the first increment.⁵⁹ However, ACV program officials have since informed the U.S. Government Accountability Office "that only 180 AAVs would be replaced by the incoming 204 ACV 1.1s."⁶⁰ Brigadier General Joseph Shrader confirmed that this ACV 1.1 increment would not entirely replace the AAV, but rather would serve to "enhance that capability."⁶¹

The ACV 1.1 platform is notable in that it will be an amphibious wheeled vehicle instead of a tracked vehicle, capable of traversing open water only with the assistance of Navy shore

connectors such as Landing Craft, Air Cushion Vehicles (LCAC). The ACV 1.2 platform is being planned as a fully amphibious, tracked version.⁶² Development and procurement of the ACV program will be phased so that the new platforms can be fielded incrementally alongside a number of modernized AAVs.63 Plans call for a program of record of 694 vehicles (a combination of upgraded AAVs and ACVs), with the first battalion to reach IOC in FY 2020, and for modernizing enough of the current AAV fleet to outfit six additional battalions, two in the first increment and four in the second. The AAV survivability upgrade program will modernize the remaining four battalions, allowing the Corps to meet its armored lift requirement for 10 battalions.⁶⁴ In addition, the Corps will purchase new vehicles based on the MPC concept.

The F-35B remains the Marine Corps' largest investment program in FY 2017. The Corps announced IOC of the F-35B variant in July 2015.⁶⁵ Total procurement will consist of 420 F-35s (353 F-35Bs and 67 F-35Cs). The slight change in the balance of short take-off and vertical landing vehicle and carrier variants from FY 2016 to FY 2017 reportedly reflects "evolving circumstances" and operational requirements within the service. The AV-8Bs and F/A-18A-Ds will continue to receive interoperability and lethality enhancements in order to extend their useful service lives during the transition to the F-35, and the Corps continues to seek opportunities to accelerate procurement.⁶⁶

As the F-35 enters into service and legacy platforms reach the end of their service life, the Marine Corps expects a near-term inventory challenge due to a combination of reduced JSF procurement, increasing tactical aircraft utilization rates, and shortfalls in F/A-18A-D and AV-8B depot facility production.⁶⁷ In March 2016, Marine Corps Commandant General Robert Neller assessed that "[i]f these squadrons [in the F/A-18 community] were called on to fight today they would be forced to execute with 86 less jets than they need."⁶⁸ Like the F-35A, the F-35B and F-35C variants are subject to development delays, cost overruns, budget cuts, and production problems. The F-35B in particular was placed on probation in 2011 because of its technical challenges.⁶⁹ Probation has since been lifted, and the Corps declared IOC with its first F-35B squadron, VMFA-121, on July 31, 2015.⁷⁰

Today, the USMC MV-22 program is operating with few problems and nearing completion of the full acquisition objective of 360 aircraft.⁷¹ As of June 2017, the Corps had received 293 of the 360 aircraft included in the program of record.⁷² Currently, there are 14 fully operational capability squadrons in the active component to meet these needs, and two additional squadrons are transitioning from the reserve component.73 The MV-22's capabilities are in high demand from the Combatant Commanders (COCOMS), and the Corps is adding capabilities such as fuel delivery and use of precision-guided munitions to the MV-22 to enhance its value to the COCOMs. The Corps is struggling to sustain the Osprey's capability rates because of a shortfall in its "ability to train enlisted maintainers in the numbers and with the qualifications necessary to sustain the high demand signal."74

The USMC's heavy-lift replacement program, the CH-53K, conducted its first flight on October 27, 2015.75 The CH-53K will replace the Corps' CH-53E, which entered service in 1980. Although "unexpected redesigns to critical components" delayed a low-rate initial production decision,76 the program achieved Milestone C in April 2017, and the FY 2018 President's budget request authorizes \$756.4 million for the production of Lot 2 aircraft, "including Advanced Procurement and initial spares."77 The helicopter is predicted to reach IOC in 2019, almost four years later than initially anticipated.78 This is of increasing concern as the Marine Corps maintains only 146 CH-53Es.⁷⁹ Although the Corps began a reset of the CH-53E in 2016 to bridge the procurement gap, it will not have enough helicopters to meet its heavy-lift requirement without the transition to the CH-53K.⁸⁰ The FY 2018 request would continue to fund procurement totals of 194 aircraft.⁸¹

Readiness

The Marine Corps' first priority is to be the crisis response force for the military, which is why investment in readiness has been prioritized over capacity and capability. However, in order to invest in readiness in a time of downward fiscal pressure, the Corps has been forced to reduce end strength and delay investment in modernization.

Even though funding for near-term readiness has been relatively protected from cuts, future readiness is threatened by underinvestment in long-term modernization and infrastructure. As General Dunford has explained, extended or long-term imbalance among the USMC "pillars" of readiness, which address both operational and foundational readiness, "will hollow the force and create unacceptable risk for our national defense."⁸²

Already, modernization delays have begun to affect readiness as it becomes increasingly challenging to keep aging platforms in working order, and aircraft are retired before they can be replaced—leaving a smaller force available to meet operational requirements that in turn further increases use of the platforms that remain. According to a 2017 joint statement before the Senate Armed Services Committee, "Marine Corps operating forces are currently averaging, in the aggregate, less than 1:2 deployment-to-dwell ratio," and "[i]ndividual unit deployment tempo remains on par with the height of our commitments in Iraq and Afghanistan.⁸³

The DOD has prioritized funding for deployed and next-to-deploy units. As a result, the USMC has maintained support for current operations but "may not have the required capacity—the 'ready bench'—to respond to larger crises at the readiness levels and timeliness required" or to support sustained conflict.⁸⁴

Marine aviation in particular is experiencing significant readiness shortfalls. With a smaller force structure and fewer aircraft available for training, aviation units are having difficulty keeping up with demanding operational requirements. All of the Marine Corps' fixed-wing and tiltrotor aircraft are operating in excess of a 1:2 D2D ratio; this stress is increased by reduced procurement and workforce cuts, which contribute to readiness problems and leave fewer aircraft available for training or operations.⁸⁵ More than 92 percent of the Department of the Navy's F/A 18 A-D fleet has already surpassed the aircraft's service life expectancy of 6,000 flight hours, and "a portion of the [USMC's] existing inventory...will be flown through the mid-2030 timeframe."⁸⁶

As of December 31, 2016, only 41 percent of the Marine Corps' fixed-wing and rotary-wing aircraft were considered flyable. Readiness rates among the Hornet fleet are even more severe, with just over a quarter of the Corps' 280 aircraft considered flyable. As a result, the Corps is 150 airplanes short of the necessary requirement to meet its flight hour goals.⁸⁷ The combination of aging aircraft and flight hour reductions can raise the risk of flight accidents attributed to both human and mechanical error. However, according to a February 2017 statement by Lieutenant General Jon Davis, Deputy Commandant for Aviation, average flight hours for the Marine Corps is "about three hours per pilot per month better than we were" in May 2015.88

For FY 2018, the Department of the Navy continues to prioritize immediate readiness by accepting "risk in facilities [and] weapons capacity," "delay[ing] certain modernization programs,"⁸⁹ and "protect[ing] near-term operational readiness of its deployed and nextto-deploy units" while struggling to maintain a "ready bench."⁹⁰ According to Marine Corps Assistant Commandant General John M. Paxton, "[b]y degrading the readiness of these bench forces to support those forward deployed, we are forced to accept increased risk in our ability to respond to further contingencies, our ability to assure we are the most ready when the nation is least ready."⁹¹

The Marines' Ground Equipment Reset Strategy has been progressing and is expected to be completed by the end of FY 2017. All of the equipment in Afghanistan was withdrawn by February 2015. As of April 2017, the Marine Corps had reset approximately 90 percent of its ground equipment, compared to 78 percent in the prior year.⁹² Reconstituting equipment and ensuring that the Corps' inventory can meet operational requirements are critical aspects of readiness.

Scoring the U.S. Marine Corps

Capacity Score: Weak

Based on the deployment of Marines across major engagements since the Korean War, the Corps requires roughly 15 battalions for one MRC.⁹³ This translates to a force of around 30 battalions to fight two MRCs simultaneously. The government force-sizing documents that discuss Marine Corps composition support this. Though the documents that make such a recommendations count the Marines by divisions, not battalions, they are consistent in arguing for three Active Marine Corps divisions, which in turn requires roughly 30 battalions. With a 20 percent strategic reserve, the ideal USMC capacity for a two-MRC force-sizing construct is 36 battalions.

More than 33,000 Marines were deployed in Korea, and more than 44,000 were deployed in Vietnam. In the Persian Gulf, one of the largest Marine Corps missions in U.S. history, some 90,000 Marines were deployed, and approximately 66,000 were deployed for Operation Iraqi Freedom. As the Persian Gulf War is the most pertinent example for this construct, a force of 180,000 Marines is a reasonable benchmark for a two-MRC force, not counting Marines that would be unavailable for deployment (assigned to institutional portions of the Corps) or that are deployed elsewhere. This is supported by government documents that have advocated a force as low as 174,000 (1993 Bottom-Up Review) and as high as 202,000 (2010 Quadrennial Defense Review), with an average end strength of 185,000 being recommended.

- Two-MRC Level: 36 battalions.
- Actual 2017 Level: 24 battalions.

The Corps is operating with slightly less than 67 percent of the number of battalions

relative to the two-MRC benchmark. This is a slight increase in the capacity level as measured in the *2017 Index* but insufficient to justify an increase in the Corps' capacity score. Marine Corps capacity is therefore scored as "weak" again in 2018.

Capability Score: Marginal

The Corps receives scores of "weak" for "Capability of Equipment," "marginal" for "Age of Equipment" and "Health of Modernization Programs," but "strong" for "Size of Modernization Program." Therefore, the aggregate score for Marine Corps capability is "marginal." Excluded from the scoring are various ground vehicle programs that have been cancelled and are now being reprogrammed. This includes redesign of the MPC.

Readiness Score: Weak

In FY 2017, approximately half of USMC units experienced degraded readiness. As the nation's crisis response force, the Corps requires that all units, whether deployed or non-deployed, be ready. However, since most Marine Corps ground units are meeting readiness requirements only immediately before deployment and the Corps' "ready bench" would "not be as capable as necessary" if deployed on short notice, USMC readiness is only sufficient to meet ongoing commitments at reported deployment-to-dwell ratios of 1:2. This means that only a third of the force-the deployed forcecould be considered fully ready. Furthermore, as of December 2016, the USMC reported more specifically that only 41 percent of its fixed-wing and rotary-wing aircraft were considered flyable. Due to the lack of a "ready bench" and a further decline in readiness levels among the USMC aircraft fleet, the 2018 Index assesses Marine Corps readiness levels as "weak."

Overall U.S. Marine Corps Score: Weak

The Marine Corps is scored as "weak" overall in the *2018 Index*. This is a drop from "marginal" as assessed in the *2017 Index*. Absent a reduction in operational commitments and a significant increase in funding to clear backlogged maintenance and speed procurement of new platforms, the Corps will continue to struggle to improve its condition for the foreseeable future.

U.S. Military Power: Marine Corps

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity		 ✓ 			
Capability			 ✓ 		
Readiness		 ✓ 			
OVERALL		 Image: A second s			

Endnotes

- Lieutenant General Ronald L. Bailey, Deputy Commandant for Plans, Policies, and Operations; Lieutenant General Jon M. Davis, Deputy Commandant for Aviation; Lieutenant General Michael G. Dana, Deputy Commandant for Installations and Logistics, statement on "The Current State of the Marine Corps" before the Subcommittee on Readiness, Committee on Armed Services, U.S. House of Representatives, April 5, 2017, p. 5, http://docs.house.gov/meetings/AS/AS03/20170405/105768/HHRG-115-AS03-Wstate-BaileyUSMCR-20170405.pdf (accessed August 13, 2017).
- 2. Lieutenant General Robert S. Walsh, Deputy Commandant, Combat Development and Integration, and Commanding General, Marine Corps Combat Development Command; Brigadier General Joseph Shrader, Commander, Marine Corps Systems Command; and John Garner, Program Executive Officer, Land Systems Marine Corps, statement on "Marine Corps Ground Programs" before the Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, June 6, 2017, p. 2, https://www. armed-services.senate.gov/imo/media/doc/Walsh-Shrader-Garner_06-06-17,pdf (accessed August 13, 2017).
- General Joseph Dunford, Commandant, United States Marine Corps, statement on Marine Corps readiness before the Subcommittee on Defense, Committee on Appropriations, U.S. House of Representatives, February 26, 2015, p. 10, http://www. hqmc.marines.mil/Portals/142/Docs/CMC%20Testimony%202015/USMC%20FY16%20Written%20Posture%20Statement_FINAL. pdf (accessed August 29, 2016).
- 4. Ibid., p. 11.
- U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, United States Department of Defense Fiscal Year 2017 Budget Request: Defense Budget Overview, May 2017, p. A-2, http://comptroller.defense. gov/Portals/45/Documents/defbudget/fy2018/fy2018_Budget_Request_Overview_Book.pdf (accessed July 13, 2017).
- 6. U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *United States Department of Defense Fiscal Year 2017 Budget Request: Defense Budget Overview*, p. A-1.
- David Alexander, "Marines to Cut Four Battalions, 12 Air Squadrons," Reuters, March 14, 2012, http://www.reuters.com/article/us-usa-defense-marines-idUSBRE82E00Y20120315 (accessed August 17, 2016).
- U.S. Department of Defense, *Fiscal Year 2015 Budget Request: Estimated Impacts of Sequestration-Level Funding*, April 2014, p. 3-2, http://archive.defense.gov/pubs/2014_Estimated_Impacts_of_Sequestration-Level_Funding_April.pdf (accessed August 13, 2017).
- General Joseph F. Dunford, Jr., Commandant of the Marine Corps, statement in *Hearing to Receive Testimony on the Impact of the Budget Control Act of 2011 and Sequestration on National Security*, Committee on Armed Services, U.S. Senate, January 28, 2015, p. 32, http://www.armed-services.senate.gov/imo/media/doc/15-04%20-%201-28-15.pdf (accessed August 13, 2017).
- 10. General John Paxton, Assistant Commandant of the Marine Corps, statement on "U.S. Marine Corps Readiness" before the Subcommittee on Readiness, Committee on Armed Services, U.S. Senate, March 15, 2016, p. 3, http://www.armed-services.senate. gov/imo/media/doc/Paxton_03-15-16.pdf (accessed August 13, 2017).
- 11. Dunford, testimony in *Hearing to Receive Testimony on the Impact of the Budget Control Act of 2011 and Sequestration on National Security*, p. 100.
- 12. General James F. Amos, Commandant of the Marine Corps, "2014 Report to Congress on the Posture of the United States Marine Corps," statement before the Committee on Armed Services, U.S. House of Representatives, March 12, 2014, p. 12, http://www.hqmc.marines.mil/portals/142/docs/FY_2015_CMC_POSTURE_STATEMENT.pdf (accessed August 29, 2016).
- 13. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 8.
- 14. Dunford, statement on Marine Corps readiness, February 26, 2015, pp. 24–25.
- 15. General Robert B. Neller, Commandant, United States Marine Corps, statement on "Posture of the Department of the Navy" before the Committee on Armed Services, U.S. Senate, 115th Cong., 1st Sess., June 15, 2017, p. 9, https://www.armed-services. senate.gov/imo/media/doc/Neller_06-15-17.pdf (accessed August 13, 2017).
- 16. Dunford, testimony in *Hearing to Receive Testimony on the Impact of the Budget Control Act of 2011 and Sequestration on National Security*, p. 75.
- 17. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 54, www.aviation.marines.mil/Portals/11/2017%20MARINE%20AVIATIOIN%20 PLAN.pdf (accessed August 13, 2017).
- 18. Congressional Quarterly, "House Armed Services Committee Holds Hearing on Aviation Readiness," CQ Congressional Transcripts, July 6, 2016, http://www.cq.com/doc/congressionaltranscripts-4922435?3&search=IXd1KGHk (accessed August 17, 2017)
- 19. U.S. Marine Corps, *Marine Aviation Plan 2016*, p. 39, https://www.slideshare.net/robbinlaird/usmc-aviation-plan-2016 (accessed August 18, 2017); U.S. Marine Corps, *2017 Marine Aviation Plan*, p. 54.

- 20. Congressional Quarterly, "House Armed Services Committee Holds Hearing on Aviation Readiness," CQ Congressional Transcripts, July 6, 2016, http://www.cq.com/doc/congressionaltranscripts-4922435?3&search=IXd1KGHk (accessed August 29, 2016).
- 21. International Institute for Strategic Studies, *The Military Balance 2016: The Annual Assessment of Global Military Capabilities and Defence Economics* (London: Routledge, 2016), pp. 44–45. The prior year figure was not repeated in recent testimony. Since publication of the 2016 IISS *Military Balance*, one Prowler squadron has been decommissioned, and one *Harrier* squadron has been transitioned to an F-35B squadron. Factoring in these changes, there are 60 total squadrons in the Marine Corps active component, including all fixed-wing and rotary aircraft squadrons, training and transport squadrons, and one combat search and rescue squadron (which does not include the "VIP" transport squadron). Using the same metrics, the total for 2015 based on the IISS *Military Balance* would have been 64.
- 22. U.S. Marine Corps, 2017 Marine Aviation Plan, pp. 70 and 76.
- 23. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 9.
- 24. General Glenn Walters, Assistant Commandant of the Marine Corps, statement on "Marine Corps Readiness" before the Subcommittee on Readiness, Committee on Armed Services, U.S. Senate, February 8, 2017, p. 6, https://www.armed-services. senate.gov/imo/media/doc/Walters_02-08-17.pdf (accessed August 13, 2017).
- 25. Ibid., p. 5.
- 26. General John Paxton, Assistant Commandant, United States Marine Corps, statement on Marine Corps readiness and FY 2016 budget request before the Subcommittee on Readiness and Management Support, Committee on Armed Services, U.S. Senate, March 25, 2015, pp. 10–11, http://www.armed-services.senate.gov/imo/media/doc/Paxton_03-25-15.pdf (accessed August 13, 2017).
- General Robert B. Neller, Commandant of the Marine Corps, statement on "Navy and Marine Corps FY17 Budget Request" before the Committee on Armed Services, U.S. Senate, March 15, 2016, p. 16, http://www.armed-services.senate.gov/imo/media/doc/Neller_03-15-16.pdf (accessed August 29, 2016); Walters, statement on "Marine Corps Readiness," February 8, 2017, p. 7.
- News release, "SAIC Delivers First AAV SU to U.S. Marine Corps Ahead of Schedule," Science Applications International Corporation, March 11, 2016, http://investors.saic.com/press-release/saic-delivers-first-aav-su-us-marine-corps-ahead-schedule (accessed June 27, 2016).
- 29. Walsh, Shrader, and Garner, statement on "Marine Corps Ground Programs," June 6, 2017, p. 5.
- 30. Walters, statement on "Marine Corps Readiness," February 8, 2017, p. 7.
- 31. The average age of the M1A1 was 26 in 2016. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 15. No new M1A1 Abrams have been commissioned over the past year, so the average age is estimated as 27 in 2017.
- U.S. Marine Corps, Concepts & Programs, "Ground Equipment Age," last revised April 3, 2014, https:// marinecorpsconceptsandprograms.com/resources/ground-equipment-age (accessed August 18, 2017).
- 33. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 212.
- Lieutenant Colonel Ricky B. Johnson (Ret.), "The Military Will Need the Marines' Electronic Warfare Squadrons Beyond 2019," Marine Corps Times, May 28, 2016, http://www.marinecorpstimes.com/story/opinion/2016/05/28/military-need-marineselectronic-warfare-squadrons-beyond-2019/84623644/ (accessed August 29, 2016); U.S. Marine Corps, 2017 Marine Aviation Plan, p. 2.
- 35. U.S. Marine Corps, Concepts & Programs, "Legacy Aircraft," last revised March 3, 2015, https://marinecorpsconceptsandprograms. com/programs/aviation/legacy-aircraft (accessed July 27, 2017); Jeremiah Gertler, "Navy F/A-18E/F and EA-18G Aircraft Procurement and Strike Fighter Shortfall: Background and Issues for Congress," Congressional Research Service *Report for Congress*, December 22, 2009, p. 5, https://www.tag.org/con/csc/upagacoc/DL 20024 pdf (accessed July 27, 2017).

https://www.fas.org/sgp/crs/weapons/RL30624.pdf (accessed July 27, 2017).

- 36. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 9.
- 37. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 56.
- 38. Vice Admiral Paul Grosklags, Representing Assistant Secretary of the Navy (Research, Development and Acquisition); Lieutenant General Jon Davis, Deputy Commandant for Aviation; and Rear Admiral Michael C. Manazir, Director Air Warfare, statement on "Department of the Navy's Aviation Programs" before the Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, April 20, 2016, p. 3, http://www.armed-services.senate.gov/imo/media/doc/Grosklags-Davis-Manazir_04-20-16.pdf (accessed August 13, 2017).
- Megan Eckstein, "Marines Declare Initial Operational Capability on F-35B Joint Strike Fighter," USNI News, July 31, 2015, https:// news.usni.org/2015/07/31/marines-declare-initial-operational-capability-on-f-35b-joint-strike-fighter (accessed July 27, 2017).

- 40. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 232.
- U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, United States Department of Defense Fiscal Year 2018 Budget Request: Program Acquisition Cost by Weapon System, May 2017, pp. 3-2 and 3-9, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2018/fy2018_Weapons.pdf (accessed August 13, 2017).
- 42. Andrew Feickert, "Joint Light Tactical Vehicle (JLTV): Background and Issues for Congress," Congressional Research Service *Report for Members and Committees Congress*, May 31, 2017, pp. 1–2, https://fas.org/sgp/crs/weapons/RS22942.pdf (accessed July 27, 2017).
- Joe Gould, "Oshkosh Awaits Protest After JLTV Win," *Defense News*, August 29, 2015, http://www.defensenews.com/story/defense/land/vehicles/2015/08/29/oshkosh-awaits-protests-jltv-win/71325838 (accessed July 27, 2017).
- 44. Hearing, *Marine Corps Ground Modernization*, Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, 115th Cong., 1st Sess., June 6, 2017, p. 63, https://www.armed-services.senate.gov/imo/media/doc/17-56_06-06-17.pdf (accessed July 27, 2017).
- 45. U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *United States Department of Defense Fiscal Year 2018 Budget Request: Program Acquisition Cost by Weapon* System, p. 3-1.
- 46. Ibid., p. 3-2.
- 47. Feickert, "Joint Light Tactical Vehicle (JLTV)," p. 1; Congressional Quarterly, "Senate Armed Services Committee Holds Hearing on the Marine Corps," CQ Congressional Transcripts, June 6, 2017, http://www.cq.com/doc/congressionaltranscripts-5117362?2 (accessed July 28, 2017).
- 48. Feickert, "Joint Light Tactical Vehicle (JLTV)," p. 7.
- 49. Hearing, Marine Corps Ground Modernization, p. 63.
- 50. Congressional Quarterly, "Senate Armed Services Committee Holds Hearing on the Marine Corps."
- 51. U.S. Department of the Navy, *Department of Defense Fiscal Year (FY) 2018 Budget Estimates, Navy: Justification Book, Volume 1 of 1, Procurement, Marine Corps*, May 2017, p. 271, http://www.secnav.navy.mil/fmc/fmb/Documents/18pres/PMC_Book.pdf (accessed July 28, 2017).
- 52. Feickert, "Joint Light Tactical Vehicle (JLTV)," p. 9,
- 53. Dunford, statement on Marine Corps readiness, February 26, 2015, p. 13; Feickert, "Joint Light Tactical Vehicle (JLTV)," p. 6.
- 54. Andrew Feickert, "Marine Corps Amphibious Combat Vehicle (ACV) and Marine Personnel Carrier (MPC): Background and Issues for Congress," Congressional Research Service *Report for Members and Committees of Congress*, June 1, 2017, p. 7, https://www. fas.org/sgp/crs/weapons/R42723.pdf (accessed August 13, 2017); U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *United States Department of Defense Fiscal Year 2018 Budget Request: Program Acquisition Cost by Weapon System*, p. 3-9, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2018/fy2018_ Weapons.pdf (accessed July 27, 2017).
- 55. U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *United States Department of Defense Fiscal Year 2018 Budget Request: Program Acquisition Cost by Weapon System*, p. 3-9.
- 56. Feickert, "Marine Corps Amphibious Combat Vehicle (ACV) and Marine Personnel Carrier (MPC)," pp. 1–2.
- 57. Lieutenant General Kenneth J. Glueck Jr., Deputy Commandant, Combat Development and Integration, and Commanding General, Marine Corps Combat Development Command, and Thomas P. Dee, Deputy Assistant Secretary of the Navy, Expeditionary Programs and Logistics Management, statement on "Marine Corps Modernization" before the Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, March 11, 2015, pp. 8–9, https://www.armed-services.senate.gov/imo/media/doc/ Glueck-Dee_03-11-15.pdf (accessed August 18, 2017).
- 58. With regard to this overall requirement—armored lift for 10 battalions of infantry—the AAV Survivability Upgrade Program would provide for four battalions, and ACV 1.1 and ACV 1.2 would account for six battalions. Ibid., pp. 7–8.
- 59. Lieutenant General Robert Walsh, Deputy Commandant for Combat Development and Integration; Brigadier General Joseph Shrader, Commander, Marine Corps Systems Command; and William Taylor, Program Executive Officer, Marine Corps Land Systems, statement on "Marine Corps Ground Forces Modernization, Modernization Programs," before the Subcommittee on Tactical Air and Land Forces, Committee on Armed Services, U.S. House of Representatives, March 2, 2016, p. [4], http://docs.house.gov/meetings/AS/AS25/20160302/104554/HHRG-114-AS25-Wstate-WalshR-20160302.pdf (accessed August 13, 2017).
- 60. U.S. Government Accountability Office, *Amphibious Combat Vehicle Acquisition: Cost Estimate Meets Best Practices, but Concurrency Between Testing and Production Increases Risk*, GAO-17-401, April 2017, p. 12, http://www.gao.gov/assets/690/684145.pdf (accessed August 13, 2017).

- Sam LaGrone, "WEST: Marines Plan to Issue Amphibious Combat Vehicle Request for Proposal in March," USNI News, February 12, 2015, http://news.usni.org/2015/02/12/west-marines-plan-issue-amphibious-combat-vehicle-request-proposal-march (accessed August 23, 2016).
- 62. Feickert, "Marine Corps Amphibious Combat Vehicle (ACV) and Marine Personnel Carrier (MPC)," June 1, 2017, p. 7, https://fas.org/ sgp/crs/weapons/R42723.pdf (accessed August 17, 2017).
- 63. Dunford, statement on Marine Corps readiness, February 26, 2015, p. 28.
- 64. Walsh, Shrader, and Garner, statement on "Marine Corps Ground Programs," June 6, 2017, p. 5.
- 65. Grosklags, Davis, and Manazir, statement on "Department of the Navy's Aviation Programs," April 20, 2016, p. 7.
- 66. Vice Admiral Paul Grosklags, Representing Assistant Secretary of the Navy (Research, Development and Acquisition); Lieutenant General Jon Davis, Deputy Commandant for Aviation; and Rear Admiral DeWolfe H, Miller III, Director Air Warfare, statement on "Department of the Navy's Aviation Programs" before the Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, June 13, 2017, pp. 13–14, https://www.armed-services.senate.gov/imo/media/doc/Grosklags-Davis-Miller_06-13-17.pdf (accessed August 13, 2017).
- 67. Vice Admiral Paul Grosklags, Principal Military Deputy, Assistant Secretary of the Navy (Research, Development and Acquisition); Rear Admiral Michael C. Manazir, Director Air Warfare; and Lieutenant General Jon Davis, Deputy Commandant for Aviation, statement on "Department of the Navy's Aviation Programs" before the Subcommittee on Seapower, Committee on Armed Services, U.S. Senate, March 25, 2015, p. 10, http://www.armed-services.senate.gov/imo/media/doc/Grosklags_Manazir_ Davis_03-25-15.pdf (accessed August 13, 2017).
- 68. Neller, statement on "Navy and Marine Corps FY17 Budget Request," March 15, 2016, p. 8.
- Stephen Trimble, "US Military Unveils Possible F-35B Redesign in Sweeping Budget Reforms," FlightGlobal, January 6, 2011, https://www.flightglobal.com/news/articles/us-military-unveils-possible-f-35b-redesign-in-sweep-351600/ (accessed August 30, 2016).
- 70. Eckstein, "Marines Declare Initial Operational Capability on F-35B Joint Strike Fighter."
- U.S. Department of Defense, Selected Acquisition Report (SAR): V-22 Osprey Joint Services Advanced Vertical Lift Aircraft (V22) as of FY 2017 President's Budget, RCS: DD-A&T(Q&A)823-212, March 21, 2016, p. 61, http://www.dod.mil/pubs/foi/Reading_Room/ Selected_Acquisition_Reports/16-F-0402_DOC_64_V-22_DEC_2015_SAR.pdf (accessed August 30, 2016).
- 72. Grosklags, Davis, and Miller, statement on "Department of the Navy's Aviation Programs," June 13, 2017, p. 18.
- 73. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 70.
- 74. Grosklags, Manazir, and Davis, statement on "Department of the Navy's Aviation Programs," March 25, 2015, p. 16.
- 75. Grosklags, Davis, and Manazir, statement on "Department of the Navy's Aviation Programs," April 20, 2016, p. 21.
- 76. U.S. Government Accountability Office, *Defense Acquisitions: Assessments of Selected Weapons Programs*, GAO-16-329SP, March 2016, p. 93, http://www.gao.gov/assets/680/676281.pdf (accessed August 13, 2017).
- 77. Grosklags, Davis, and Miller, statement on "Department of the Navy's Aviation Programs," June 13, 2017, p. 20.
- 78. U.S. Government Accountability Office, Defense Acquisitions: Assessments of Selected Weapons Programs, p. 93.
- 79. U.S. Marine Corps, 2017 Marine Aviation Plan, p. 82.
- Lieutenant General Jon M. Davis, Deputy Commandant for Aviation, statement on "Aviation Readiness and Safety" before the Subcommittee on Readiness, Committee on Armed Services, U.S. House of Representatives, July 6, 2016, pp. [5] and [9], http:// docs.house.gov/meetings/AS/AS03/20160706/105159/HHRG-114-AS03-Wstate-DavisJ-20160706.pdf (accessed August 13, 2017).
- Another six aircraft will be procured with research and development funding, bringing the program of record to 200 aircraft. U.S. Department of Defense, Office of the Under Secretary of Defense (Comptroller)/Chief Financial Officer, *United States Department* of Defense Fiscal Year 2018 Budget Request: Program Acquisition Cost by Weapon System, p. 1-15, http://comptroller.defense.gov/Portals/45/Documents/defbudget/fy2017/FY2017 Weapons.pdf (accessed August 13, 2017).
- 82. Dunford, statement on Marine Corps readiness, February 26, 2015, p. 20.
- 83. Walsh, Shrader, and Garner, statement on "Marine Corps Ground Programs," June 6, 2017, p. 5.
- 84. Walters, statement on "Marine Corps Readiness," February 8, 2017, p. 9.
- 85. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 9.
- 86. Grosklags, Davis, and Miller, statement on "Department of the Navy's Aviation Programs," June 13, 2017, p. 4.
- 87. Jeff Schogol, "More Than Half of All Marine Aircraft Unflyable in December," *Marine Corps Times*, February 8, 2017, https://www.marinecorpstimes.com/articles/many-marine-aircraft-grounded (accessed August 13, 2017).

- Hope Hodge Seck, "Pilot Error Common Thread in Recent Marine Corps Crashes: General," Military.com, February 3, 2017, http:// www.military.com/daily-news/2017/02/03/pilot-error-common-thread-in-recent-marine-corps-crashes-general.html (accessed August 13, 2017).
- 89. U.S. Department of the Navy, *Highlights of the Department of the Navy FY 2018 Budget*, May 2017, p. 1-4, http://www.secnav.navy. mil/fmc/fmb/Documents/18pres/Highlights_book.pdf (accessed August 13, 2017).
- 90. Neller, statement on "Posture of the Department of the Navy," June 15, 2017, p. 9.
- 91. Paxton, statement on "U.S. Marine Corps Readiness," March 15, 2016, p. 7.
- 92. Bailey, Davis, and Dana, statement on "The Current State of the Marine Corps," April 5, 2017, p. 9.
- 93. This count is based on an average number of 1.5 divisions deployed to major wars (see Table 3, pp. 311–312) and an average of 10–11 battalions per division.