

# U.S. Marine Corps

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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. Over the past several decades, the Marine Corps has positioned itself for crisis response, but while sustaining its historical, institutional, and much of its doctrinal focus on its historical connection to operations in maritime environments, the majority of its operational experience over the past 20 years has been in sustained land operations. This has led to a dramatic decline in the familiarity of most Marines with conventional amphibious operations and other types of employment within a distinctly maritime setting. Recognizing this shortfall, the Corps' leadership has initiated efforts to reorient the service toward enabling and supporting the projection of naval power in heavily contested littoral environments with a particular focus on the Indo-Pacific region.

As reported in February 2020, the Corps had 36,100 Marines deployed to remain "engaged in joint, integrated operations around the globe, providing immediate response options, assuring allies and deterring our adversaries."

This included approximately one-third of the Corps' operational forces deployed to 60 countries and 11,000 Marines serving aboard ships.<sup>1</sup> During the year preceding its fiscal year (FY) 2021 budget request, "[T]he Marine Corps executed 249 operations, nine amphibious operations, [and] 151 theater security cooperation events, and participated in 68 exercises." Among these involvements were support for operations Inherent Resolve (Iraq and Syria) and Freedom's Sentinel (Afghanistan); operations across Africa and Latin America; and major exercises with many partner countries in Asia and Europe.<sup>2</sup>

Pursuant to the National Defense Strategy (NDS),<sup>3</sup> maintaining the Corps' crisis-response capability is critical. Thus, given the fiscal constraints imposed by the budget environment of the past several years, the Marines have prioritized near-term readiness at the expense of other areas such as capacity, capability, modernization, home station readiness, and infrastructure. Over the past two to three years, however, additional funding provided by Congress has enabled the Corps to make advances in readiness and turn to modernization at what USMC Commandant General David H. Berger has called "a significant scale."<sup>4</sup> As stated in DOD's FY 2019 *Defense Budget Overview*, the service elevated modernization as a means to improve readiness for combat.<sup>5</sup> This is consistent with and central to its readiness-recovery efforts and represents a shift to a longer-term perspective. Recapitalization and repair of legacy systems are no longer sufficient to sustain

current operational requirements. New equipment is necessary.

In general for the Joint Force, this *Index* focuses on the forces required to win two major wars as the baseline force-sizing metric for the Army, Navy, and Air Force, but it adopts a different paradigm—one war plus crisis response—for the Marine Corps. While the three large services are sized for global action in more than one theater at a time, the Marines, by virtue of overall size and most recently by direction of the Commandant, focus on one major conflict while ensuring that all Fleet Marine Forces are globally deployable for short-notice, smaller-scale actions.

In previous editions of the *Index*, the capacity of the Marine Corps was assessed against a two-war requirement of 36 battalions: a historical average of 15 battalions for a major conflict (30 for two major conflicts) and a 20 percent buffer, bringing the total to 36. The Corps has consistently maintained that it is a one-war force and has no intention of growing to the size needed to fight two wars. Its annual budget requests and top-level planning documents reflect this position.

Having assessed that the Indo-Pacific region will continue to be of central importance to the U.S., and noting that China is a more worrisome “pacing threat” than any other competitor and that the Joint Force lacks the ability to operate within the range of intensely weaponized, layered defenses featuring large numbers of precision-guided munitions, the Corps is reshaping itself to optimize its capabilities and organizational structures for this challenge. This *Index* concurs with this effort but assesses that the Corps will still need greater capacity to succeed in war in the very circumstances for which the Marines believe they must prepare.

## Capacity

The measures of Marine Corps capacity in this *Index* are similar to those used to assess the Army’s: end strength and units (battalions for the Marines and brigades for the Army). The Marine Corps’ basic combat unit is the

infantry battalion, which is composed of approximately 900 Marines and includes three rifle companies, a weapons company, and a headquarters and service company.<sup>6</sup>

In 2011, the Marine Corps maintained 27 infantry battalions in its active component at an authorized end strength of 202,100.<sup>7</sup> As budgets declined, the Corps prioritized readiness through managed reductions in capacity, including a drawdown of forces, and delays or reductions in planned procurement levels. After the Marine Corps fell to a low of 23 active component infantry battalions in FY 2015,<sup>8</sup> Congress began to fund gradual increases in end strength, returning the Corps to 24 infantry battalions.

The Corps operated with 186,200 Marines in FY 2020,<sup>9</sup> perhaps a high point for the foreseeable future as the service plans to shrink to 184,100 in FY 2021 to free funding so that it can be reapplied to experimentation, retooling, and reorganization as described in “Force Design 2030.”<sup>10</sup> The current size allows for 24 infantry battalions, but future plans will likely see the number shrink to 21 battalions.<sup>11</sup>

One impact of reduced capacity is a strain on Marines’ dwell time. Cuts in capacity—the number of units and individual Marines—enabled the Corps to disperse the resources it did receive among fewer units, thus maintaining higher readiness levels throughout a smaller force. However, without a corresponding decrease in operational requirements, demand for Marine Corps units and assets has resulted in grueling deployment rates, a situation largely unchanged since 2018.<sup>12</sup> High deployment frequency exacerbates the degradation of readiness as people and equipment are used more frequently with less time to recover between deployments.

The stated ideal deployment-to-dwell (D2D) time ratio is 1:3 (seven months deployed for every 21 months at home).<sup>13</sup> This leaves more time available for training and recovery and provides support for a ready bench, without which readiness investments are immediately consumed. The Corps is currently sustaining a 1:2 D2D ratio while working toward the more desirable 1:3 ratio.<sup>14</sup>

Infantry battalions serve as a surrogate measure for the Corps' total force. As the first to respond to many contingencies, the Marine Corps requires a large degree of flexibility and self-sufficiency, and this drives its approach to organization and deployment of operational formations that, although typically centered on infantry units, are composed of ground, air, and logistics elements. Each of these assets and capabilities is critical to effective deployment of the force, and any one of them can be a limiting factor in the conduct of training and operations.

**Aviation.** Despite being stressed consistently by insufficient funding, the Marine Corps has made significant progress in achieving its objective of 80 percent aviation readiness in FY 2020.<sup>15</sup> However, even though operational requirements have not decreased, fewer Marine aircraft have been available for tasking or training. For example, according to its *2019 Marine Corps Aviation Plan*, the USMC currently fields 16 tactical fighter squadrons,<sup>16</sup> compared to 19 in 2017<sup>17</sup> and around 28 during Desert Storm.<sup>18</sup> Though availability of legacy aircraft has slowly improved—the result of increased funding for spare parts and implementation of recommendations from independent readiness reviews—the Marine Corps “is still challenged with low readiness rates in specific communities” such as F/A-18 squadrons.<sup>19</sup>

While the Corps is introducing the F-35 platform into the fleet, F/A-18 Hornets remain “the primary bridging platform to F-35B/C” and will remain in the force until 2030.<sup>20</sup> This primary TACAIR capability has to be carefully managed as it is no longer in production. The Navy completed its divestment of F/A-18 A-D models during FY 2019, making them available to the Marines and thereby enabling the Marine Corps to replace its older aircraft with planes that are less old.<sup>21</sup> To further mitigate the aging of its fleet until full transition to the F-35, the Corps is also looking to acquire F/A-18s from other countries as opportunities arise.<sup>22</sup> The Corps will maintain five squadrons of AV-8B Harriers, introduced in 1985, until FY 2022.<sup>23</sup>

In its heavy-lift rotary-wing fleet, the Corps began a reset of the CH-53E in 2016 to bridge the procurement gap to the CH-53K and aimed to “reset...the entire 143-aircraft fleet by FY20,”<sup>24</sup> but recent reporting indicates that the Corps is only one-third of the way through the process.<sup>25</sup> Even when the reset is complete, the service will still be 57 aircraft short of the stated heavy-lift requirement of 200 airframes and will not have enough helicopters to meet its heavy-lift requirement without the transition to the CH-53K.<sup>26</sup>

According to the *2019 Marine Corps Aviation Plan*, the Corps completed its transition from the CH-46E to the MV-22 Osprey in 2019, with 18 fully operational squadrons in the active component.<sup>27</sup> However, the procurement objective could increase to 380 aircraft pending the results of an ongoing requirements-based analysis.<sup>28</sup> The Osprey has been called “our most in-demand aircraft,”<sup>29</sup> which means the Marine Corps has to reconcile high operational tempos (OPTEMPOs) with the objective of maintaining the platform in inventory “for at least the next 40 years.”<sup>30</sup> The Corps has committed to funding its Common Configuration–Readiness and Modernization (CC–RAM) and Nacelle Improvement (NI) programs to increase aircraft availability by 15 percent.<sup>31</sup>

Although amphibious ships are assessed as part of the Navy's fleet capacity, Marines operate and train aboard naval vessels, making “the shortage of amphibious ships...the quintessential challenge to amphibious training.”<sup>32</sup> As of July 28, 2020, the Navy was operating only 33 amphibious ships,<sup>33</sup> and it is projected to continue operating short of the 38 ships the Marine Corps held as the minimum requirement for many years,<sup>34</sup> thus limiting what the Corps can do in operational, training, and experimentation settings.<sup>35</sup>

Because of this chronic shortfall in amphibious ships, the USMC has relied partially on land-based Special Purpose Marine Air-Ground Task Forces (SPMAGTFs), but while SPMAGTFs have enabled the 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.”<sup>36</sup> The lack of variety in amphibious shipping, especially as the Corps considers the implications of evolving enemy capabilities, has combined with the service’s concerns about the shortage of amphibious lift in general to increase its sense of urgency to explore alternatives with the Navy.<sup>37</sup>

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, although they do help to maintain capacity, programs to extend service life do not provide the capability enhancements that modernization programs provide. The result is an older, less-capable fleet of equipment that costs more to maintain.

## 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 modernization and emphasizing programs such as the Amphibious Combat Vehicle (ACV) and F-35 JSF programs, its top two priorities.<sup>38</sup> The Corps has doubled its investment in modernization as a percentage of its budget from 14 percent in FY 2019 to 30 percent for FY 2020.<sup>39</sup> That a focus on readiness and planning for future operations continues to be a priority is seen in the service’s budget requests for FY 2021. The Department of the Navy decreased spending on procurement overall by 8.3 percent in order to increase funding for research and development and protect gains made in readiness over the past few years.<sup>40</sup>

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 41 years old and the LAV averaging 27 years old.<sup>41</sup> The Corps had moved to extend the service life of the AAV but abandoned that program as progress with the ACV accelerated.<sup>42</sup> The Corps has stated that:

We continue to make strategic choices in the divestiture of certain programs to reallocate funds toward building a more lethal, modern, multi-domain, expeditionary force. This has included accepting near-term capacity risk by reducing depot level maintenance for the legacy Amphibious Assault Vehicle (AAV) as we transition to the Amphibious Combat Vehicle (ACV).<sup>43</sup>

In addition, it decreased funding for maintenance of combat vehicles by 28 percent, or \$56 million, in FY 2020 compared with the preceding year.<sup>44</sup>

Though it is not yet in development, service testimony notes that the Marine Corps is “beginning to look at a replacement” for the LAV, which will “help accelerate movement to the acquisition phase within the next four to five years.”<sup>45</sup> As noted, the average age of the LAV is 27 years. Comparatively, the Corps’ M1A1 Abrams inventory is 28 years old with an estimated 33-year life span,<sup>46</sup> and the newest High Mobility Multi-Purpose Wheeled Vehicle (HMMWV) variant has already consumed half of a projected 15-year service life.<sup>47</sup> In short, the Corps’ fleet of vehicles is old.

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.<sup>48</sup> The FY 2020 budget provided \$2.99 billion for modernization of ground-related combat and combat-related systems that will extend the service utility of aging primary ground combat platforms.<sup>49</sup>

The age profiles of the Corps’ aircraft are similar to those of the Navy’s. In 2018, the



USMC had 251 F/A-18A-Ds (including one reserve squadron) and six EA-6Bs in its primary mission aircraft inventory,<sup>50</sup> and both aircraft had already surpassed their originally intended life spans. The Marine Corps completed retirement of its EA-6B squadrons in FY 2019.<sup>51</sup>

Unlike the Navy, the Corps did not acquire the newer F/A-18 E/F Super Hornets; thus, some of 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.<sup>52</sup> This is intended to bridge the gap until the F-35Bs and F-35Cs enter service to replace the Harriers and most of the Hornets.

As the Navy accelerated its transition to the Super Hornet, it transferred its “best of breed” aircraft from its F/A-18A-D inventory to the Marine Corps and scrapped the remaining for parts to help maintain the Corps’ legacy fleet through FY 2030.<sup>53</sup> 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.<sup>54</sup> The AV-8B received near-term capability upgrades in 2015, and they continued in 2017 in order to maintain its lethality and interoperability until the F-35 transition is completed in FY 2022.<sup>55</sup>

The Corps declared its first F-35B squadron operationally capable on July 31, 2015, after it passed an “Operational Readiness Inspection” test and has reported that the aircraft reached full operational capability in late 2018.<sup>56</sup> During FY 2019, VMFA-211, composed of F-35Bs, made the first full operational deployment with a Marine Expeditionary Unit (MEU) when it sailed with the 13th MEU from September 2018 to February 2019, supporting combat operations in Afghanistan, Iraq, and Syria.<sup>57</sup> To date, at least 174 aircraft (151 F-35Bs and at least 23 F-35Cs) have been procured.<sup>58</sup> In January 2020, Marine Fighter Attack Squadron 314 (VMFA-314) became the first USMC squadron to be equipped with the F-35C.<sup>59</sup>

The Marine Corps has two Major Defense Acquisition (MDAP) vehicle programs: the Joint Light Tactical Vehicle (JLTV) and Amphibious Combat Vehicle (ACV).<sup>60</sup> The JLTV

is a joint program with the Army to acquire a more survivable light tactical vehicle, originally intended to replace a percentage of the older HMMWV fleet, introduced in 1985, although that objective changed in 2019. The Army retains overall responsibility for JLTV development through its Joint Program Office.<sup>61</sup>

Following FY 2015 plans for the JLTV, the program awarded a low-rate initial production contract, which included a future option of producing JLTVs for the Marine Corps, to defense contractor Oshkosh.<sup>62</sup> As of June 2017, despite a delay in the program’s full-rate production decision and reduced procurement quantities in FY 2016 and FY 2017, the Corps expected to complete its prior acquisition objective of 5,500 by FY 2023.<sup>63</sup> In mid-August 2019, the Corps announced that it would increase its procurement of JLTVs to around 15,000, essentially enabling it to replace its HMMWV fleet of 15,390 vehicles.<sup>64</sup> In FY 2020, the Corps procured 1,264 vehicles at a cost of \$556 million.<sup>65</sup>

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 its AAVs.<sup>66</sup> This would help the Corps to meet its requirement of armored lift for 10 battalions of infantry.<sup>67</sup> In June 2018, BAE Systems won the contract award to build the ACV 1.1.<sup>68</sup> It delivered the first 30 vehicles during 2019. The Corps purchased 56 in FY 2020 and plans to buy another 72 in FY 2021.<sup>69</sup> The Marine Corps plans to field 204 vehicles in the first increment—enough to support lift requirements for two infantry battalions.<sup>70</sup>

The ACV 1.1 platform is notable because it is an amphibious wheeled vehicle instead of a tracked vehicle capable of traversing open water only with the assistance of Navy shore connectors (landing craft) such as Landing Craft, Air Cushion Vehicles (LCAC), that carry the ACV from ship to shore. Development and procurement of the ACV program are phased so that the new platforms are fielded

incrementally alongside a number of modernized AAVs.<sup>71</sup> Plans call for a 694-vehicle program of record (a combination of upgraded AAVs and ACVs), with the first battalion to reach initial operating capability (IOC) in FY 2020, and modernization of enough of the current AAV fleet to outfit six additional battalions, two in the first increment and four in the second. To this end, the Corps was allocated \$301 million in its FY 2020 budget to fund the “first full-rate production lot of 72 [ACV] vehicles (16 more than FY 2020).”<sup>72</sup> This is significantly higher than the almost \$167 million the Corps received for ACV in FY 2019, and substantially less than the almost \$479 million it has requested for FY 2021 to purchase an additional 72 vehicles.<sup>73</sup>

With regard to aviation, Lieutenant General Brian Beaudreault, then Marine Corps Deputy Commandant for Plans, Policies, and Operations, testified in 2018 that “[t]he single most effective way to meet our NDS responsibilities, improve overall readiness, and gain the competitive advantage required for combat against state threats is through the modernization of our aviation platforms.”<sup>74</sup> The F-35B remained the Marine Corps’ largest investment program in FY 2020. Total procurement will consist of 420 F-35s (353 F-35Bs and 67 F-35Cs), of which at least 174 have been acquired.<sup>75</sup> AV-8Bs and F/A-18A-Ds continue to receive interoperability and lethality enhancements in order to extend their useful service lives during the transition to the F-35.

Today, the USMC MV-22 Osprey program is operating with few problems and nearing completion of the full acquisition objective of 360 aircraft.<sup>76</sup> The Marine Corps now has 16 fully operational MV-22 squadrons in the active component.<sup>77</sup> The MV-22’s capabilities are in high demand from the Combatant Commanders (COCOMS), and the Corps is adding such capabilities as fuel delivery and use of precision-guided munitions to the MV-22 to enhance its value to the COCOMs.

The Corps has struggled with sustainment challenges in the Osprey fleet. In the years since procurement of the first MV-22 in 1999,

the fleet has developed more than 70 different configurations.<sup>78</sup> This has resulted in increased logistical requirements as maintainers had to be trained to each configuration and spare parts were not all shared. The Marine Corps has developed its Common Configuration–Reliability and Modernization program to consolidate the inventory to a common configuration at a rate of “2–23 aircraft installs per year.” The program was initiated in FY 2018.<sup>79</sup>

The USMC’s heavy-lift replacement program, the CH-53K, conducted its first flight on October 27, 2015.<sup>80</sup> The CH-53K will replace the Corps’ CH-53E, which is now 30 years old. Although “unexpected redesigns to critical components” delayed a low-rate initial production decision,<sup>81</sup> the program achieved Milestone C in April 2017. The Corps received \$1 billion in 2019 to purchase seven aircraft and continued this effort by purchasing another six in FY 2020 for \$848 million.<sup>82</sup> The helicopter is forecast to reach IOC in FY 2021.<sup>83</sup> This is of increasing concern because the Marine Corps maintains only 138 CH-53Es and will not have enough helicopters to meet its heavy-lift requirement of 220 aircraft without the transition to the CH-53K, which even when fully implemented will still fall short by 20 aircraft.<sup>84</sup>

## Readiness

The Marine Corps’ first priority is to be the crisis-response force for the military, which is why investment in immediate readiness has been prioritized over capacity and capability.<sup>85</sup> Although this is sustainable for a short time, issues about which concerns were expressed when the Budget Control Act was passed in 2011 have proved to be impediments to achieving and sustaining readiness at desired levels. That said, however, the Corps has reported notable increases in readiness over the past two to three years as a result of increased funding.

With respect to training, the Marine Corps continues to prioritize training for deploying and next-to-deploy units. Marine operating forces as a whole continue to average a 1:2 deployment-to-dwell ratio.<sup>86</sup>

Marine Corps guidance identifies multiple levels of readiness that can affect the ability to conduct operations:

Readiness is the synthesis of two distinct but interrelated levels. a. unit readiness—The ability to provide capabilities required by the combatant commanders to execute their assigned missions. This is derived from the ability of each unit to deliver the outputs for which it was designed. b. joint readiness—The combatant commander’s ability to integrate and synchronize ready combat and support forces to execute his or her assigned missions.<sup>87</sup>

As previously mentioned, the availability of amphibious ships, although funded through the Navy budget, has a direct impact on the Marine Corps’ joint readiness. For example, while shore-based MAGTFs can maintain unit-level readiness and conduct training for local contingencies, a shortfall in amphibious lift capabilities leaves these units without “the strategic flexibility and responsiveness of afloat forces and...constrained by host nation permissions.”<sup>88</sup>

In December 2017, a U.S. Government Accountability Office (GAO) official testified that while deploying units completed all necessary predeployment training for amphibious operations, the Marine Corps was “unable to fully accomplish...home-station unit training to support contingency requirements, service-level exercises, and experimentation and

concept development for amphibious operations.”<sup>89</sup> A shortage of available amphibious ships was identified as the primary factor in training limitations. Of the 32 amphibious ships currently in the U.S. fleet, only 16 were considered “available to support current or contingency operations” at that time.<sup>90</sup> Although infantry battalions can maintain unit-level readiness requirements, their utility depends equally on their ability to deploy in defense of U.S. interests.

Marine aviation in particular has experienced significant readiness shortfalls, but the Marines have reported better rates as a result of sustained funding for readiness in recent years. The *2018 Marine Aviation Plan* found that “[a]cross all of Marine aviation, readiness is below steady state requirements.”<sup>91</sup> However, in testimony before the House Armed Services Committee, General Berger reported that readiness for fixed-wing aviation had met the 80 percent goal established by former Secretary of Defense James N. Mattis in 2018.<sup>92</sup>

The Marines Corps’ Ground Equipment Reset Strategy, developed to recover from the strain of years of sustained operations in Iraq and Afghanistan, has had a positive impact after being delayed from the end of FY 2017 to FY 2019. During 2019, the Marine Corps reset approximately 99 percent of its ground equipment and “returned 72% of [its] ground equipment to the operating forces.”<sup>93</sup> 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: Marginal

Based on the deployment of Marines across major engagements since the Korean War, the Corps requires roughly 15 battalions for one major regional contingency (MRC).<sup>94</sup> This translates to a force of approximately 30 battalions to fight two MRCs simultaneously if we were to retain the metric used in previous

*Indexes.* The government force-sizing documents that discuss Marine Corps composition support the larger measure. Though the documents that make such a recommendation 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. However, the Corps has repeatedly made the case that it is a one-war force that must also have the ability to serve as the nation's crisis-response force.<sup>95</sup> It has just as consistently resisted growing in end strength even during the years of high operational demand associated with peak activities in Operation Iraqi Freedom (Iraq) and Operation Enduring Freedom (Afghanistan). Most recently, General Berger has stated flatly that the Corps will trade manpower for modernization and that he intends to shrink the Corps from its current 24 infantry battalions to 21 battalions in order both to free resources so that they can be applied to new formations and to maintain capability investments in other areas such as Marine Special Operations Command.<sup>96</sup>

Manpower is by far the biggest expense for the Marines. As allocated for the Corps' FY 2020 budget, the military personnel account was approximately \$14.2 billion,<sup>97</sup> dwarfing both the almost \$9.4 billion allocated for operation and maintenance<sup>98</sup> and the \$2.99 billion allocated for the procurement of new equipment.<sup>99</sup> Nevertheless, the historical record of the use of Marine Corps forces in a major contingency argues for the larger number. More than 33,000 Marines, for example, 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.

One could reasonably presume that in a war with China, the demand for forces would be similar to the demands in these historical instances of Marine Corps employment. China is the pacing threat for the Corps. It is developing new tools and operational concepts that will likely require that Marine Corps forces be distributed across a large, contested littoral battlespace. But because the Corps has not yet determined, much less revealed, what its envisioned formations will require,

we can only assess the service's current status against historical demand. Consequently, even a one-major-war Marine Corps should possess a larger end strength and more tactical units (infantry battalions as the surrogate measure for the total Corps) than it currently has.

As a one-war force that also needs the ability to provide crisis-response forces, to sustain operations in the face of combat losses, and to sustain its support to efforts that are not USMC-specific such as its service component contribution to U.S. Special Operations Command, the Corps should have a minimum of 30 battalions.

- **One-MRC-Plus Level:** 30 battalions.
- **Actual 2020 Level:** 24 battalions.

The Corps is operating with 80 percent of the number of battalions it should have relative to the revised benchmark set by this *Index* and has stated its intent to shrink from its current 24 battalions to 21 battalions. Marine Corps capacity is therefore scored as "marginal," an improvement from its *2020 Index* score of "weak" but only because the bar has been lowered. Reducing operational strength by three battalions, or 12.5 percent, would drive the Corps' capacity score down to "weak" again.

### 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."

### Readiness Score: Marginal

As in previous years, the Marine Corps again prioritized next-to-deploy units during FY 2020. As the nation's crisis-response force, the Corps requires that all units, whether deployed or non-deployed, must 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 sufficient to meet ongoing commitments only at reported deployment-to-dwell ratios of 1:2. This means that only a third of the force—the deployed force—could be considered fully ready. In testimony provided to various committees of the House and Senate and in its publicly available program documents, the Marine Corps has made gains in aviation unit readiness, but even 80 percent means four out of five planes are ready for action on its best day.

Marine Corps officials have emphasized a positive upward trend in general force readiness as a consequence of additional funding provided by Congress since FY 2018. The lack of a “ready bench” in depth (too few units and shortages of personnel in key maintenance fields) and lingering challenges in readiness levels among the USMC aircraft fleet perhaps offset some of the gains made by increased effort, funding, and focus, but the *2021 Index* assesses Marine Corps readiness levels

as “marginal,” an improvement over the *2019* score of “weak” and a reflection of the fact that the gains acknowledged in the *2020 Index* have been preserved.

**Overall U.S. Marine Corps Score: Marginal**

Marine Corps congressional testimony during FY 2020 was generally optimistic. Continued funding for readiness and an emphasis on modernization give strong support to the Corps’ readiness-recovery efforts, but it will take time for their effects to materialize across the force, especially in light of the Corps’ plans to shift its organizational and operational posture. Hence the need for continued attention and support from the Administration and Congress. Gains have been made and maintained over the past few years, and as a result, the Marine Corps has maintained its overall score of “marginal” in the *2021 Index*, which is in line with its sister services and a welcome return from its overall assessment of “weak” in 2018 and 2019.

**U.S. Military Power: Marine Corps**

	VERY WEAK	WEAK	MARGINAL	STRONG	VERY STRONG
Capacity			✓		
Capability			✓		
Readiness			✓		
<b>OVERALL</b>			✓		

# MARINE CORPS SCORES



Procurement and Spending ■ Through FY 2020 ■ Pending

## Main Battle Tank

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>M1A1 Abrams</b></p> <p>Inventory: <b>447</b> Fleet age: <b>17</b> Date: <b>1990</b></p> <p>The M1A1 Abrams is the main battle tank and provides the Marine Corps with heavy-armor direct fire capabilities. It is expected to remain in service beyond 2028. In FY 2020, the Commandant of the Marine Corps directed the service to divest its tank capability. The Corps began disestablishing its tank units in July 2020. All main battle tanks will be retired from the service by the end of FY 2021, transferred to the U.S. Army for future use.</p>	3	4	None		

## Light Wheeled Vehicle

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>HMMWV</b></p> <p>Inventory: <b>15,390</b> Fleet age: <b>22</b> Date: <b>1983</b></p> <p>The HMMWV is a light-wheeled vehicle used to transport troops with some protection against light arms, blast, and fragmentation. The expected life span of the HMMWV is 15 years. Some HMMWVs will be replaced by the Joint Light Tactical Vehicle (JLTV).</p>	2	1	<p><b>Joint Light Tactical Vehicle (JLTV)</b></p> <p>Timeline: <b>2017–2022</b></p> <p>The JLTV is a vehicle program meant to replace all of the HMMWVs and improve reliability, survivability, and strategic and operational transportability. This is a joint program with the Army. Full-rate production is scheduled for early 2019. JLTVs should be at full operational capability in FY 2022. The first set of JLTVs were fielded in March 2019. IOC was achieved in mid-summer 2019 with fielding at Camp Lejeune, N.C.</p>	5	5

<b>PROCUREMENT</b>	<b>SPENDING (\$ millions)</b>

**NOTES:** See page 457 for details on ages, dates, timelines, and procurement spending. JLTV spending figures reflect the full joint program spending.

# MARINE CORPS SCORES

1 2 3 4 5  
Weakest ← Strongest

Procurement and Spending ■ Through FY 2020 ■ Pending

## Amphibious Assault Vehicle

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>AAV</b> Inventory: <b>1,200</b> Fleet age: <b>42</b> Date: <b>1972</b></p> <p>The Amphibious Assault Vehicle transports troops and cargo from ship to shore. In September 2018, the USMC cancelled a survivability upgrade for this platform.</p>	1	1	<p><b>Amphibious Combat Vehicle (ACV)</b></p> <p>Timeline: <b>2018–2021</b></p> <p>The ACV is intended to replace the aging AAV. The first ACVs are expected to be fielded in 2020. Full operational capability is scheduled for 2023.</p>	3	5
<p><b>LAV-25</b> Inventory: <b>695</b> Fleet age: <b>38</b> Date: <b>1983</b></p> <p>The LAV is a wheeled light armor vehicle with modest amphibious capability used for armored reconnaissance and highly mobile fire support. It has undergone several service life extensions (most recently in 2012) and will be in service until 2035.</p>			<p><b>PROCUREMENT</b></p> <p>112 524</p> <p><b>SPENDING (\$ millions)</b></p> <p>\$624 \$3,034</p>		

## Attack Helicopters

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>AH-1W Super Cobra</b> Inventory: <b>20</b> Fleet age: <b>25</b> Date: <b>1986</b></p> <p>The Super Cobra is an attack helicopter that provides the Marines with close air support and armed reconnaissance. The Super Cobra will remain in service until 2021. It is being replaced by the AH-1Z.</p>	1	2	<p><b>AH-1Z</b></p> <p>Timeline: <b>2014–2022</b></p> <p>The new AH-1Z Viper program is part of a larger modification program to the H-1 platform. Replacing the AH-1W, the Z-Variant will serve as the next generation of attack aircraft. The new H-1 rotorcraft will have upgraded avionics, rotor blades, transmissions, landing gear, and structural modifications to enhance speed, maneuverability, and payload. It is scheduled for full operational capability in 2021.</p>	5	5
<p><b>AH-1Z Viper</b> Inventory: <b>125</b> Fleet age: <b>7</b> Date: <b>2010</b></p> <p>The AH-1Z Viper is the follow-on to the AH-1W Cobra attack helicopter. The Viper has greater speed, payload, and range, as well as a more advanced cockpit. It is gradually replacing the Cobra-variant and should do so fully by 2021. The expected operational life span of the Viper is 30 years.</p>			<p><b>PROCUREMENT</b></p> <p>189</p> <p><b>SPENDING (\$ millions)</b></p> <p>\$6,012 \$7</p>		

NOTE: See page 457 for details on ages, dates, timelines, and procurement spending.

# MARINE CORPS SCORES



Procurement and Spending ■ Through FY 2020 ■ Pending

## Airborne Electronic Attack Aircraft/ Ground Attack Aircraft

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>AV-8B</b> Inventory: <b>109</b> Fleet age: <b>29</b> Date: <b>1985</b></p> <p>The Harrier is a vertical/short takeoff and landing aircraft designed to fly from LHA/LHDs. It provides strike and reconnaissance capabilities. The aircraft is being replaced by the F-35B and will be fully retired around 2024.</p>	5	1	<p><b>F-35B/C</b> Timeline: <b>2007–2031</b></p> <p>The Marine Corps is purchasing 353 F-35Bs and 67 F-35Cs. The F-35B is the USMC version of the Joint Strike Fighter program. It is meant to replace the AV-8B Harrier, completing transition by 2030. The B-Variant achieved initial operational capability in July 2015. Full operational capability for both variants is expected in the late 2020s. The F-35C is the version built for employment on aircraft carriers. It is primarily for the U.S. Navy, but the Marines augment carrier operations and will use the F-35C for this purpose.</p>	4	4
<p><b>F-35B</b> Inventory: <b>83</b> Fleet age: <b>4</b> Date: <b>2015</b></p> <p>The F-35B is the Marine Corps' short takeoff and vertical landing variant replacing the AV-8B Harrier. Despite some development problems, the F-35B achieved IOC in July 2015.</p>	5	5	<p><b>PROCUREMENT</b></p> <p>124 245</p> <p><b>SPENDING (\$ millions)</b></p> <p>\$16,821 \$27,853</p>		
<p><b>F/A-18 A-D</b> Inventory: <b>224</b> Fleet age: <b>30</b> Date: <b>1978</b></p> <p>Many aircraft in the F/A-18 fleet have logged about 8,000 hours compared with the originally intended 6,000. However, the fleet life has been extended until 2030. This is necessary to bridge the gap to when the F-35Bs and F-35Cs are available.</p>	2	2			

NOTE: See page 457 for details on ages, dates, timelines, and procurement spending.



# MARINE CORPS SCORES



Procurement and Spending ■ Through FY 2020 ■ Pending

## Medium Lift

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>MV-22</b></p> <p>Inventory: <b>309</b> Fleet age: <b>14</b> Date: <b>2007</b></p> <p>The Osprey is a vertical takeoff and landing tilt-rotor platform designed to support expeditionary assault, cargo lift, and raid operations. The program is still in production. The life expectancy of the MV-22 is 23 years.</p>	4	5	<p><b>MV-22B</b></p> <p>Timeline: <b>2007-2019</b></p> <p>Fielding of the Osprey was completed in 2019 with the MV-22 replacing the CH-46E helicopter, and the platform is meeting performance requirements. The modernization program is not facing any serious issues.</p>	5	5
			<p><b>PROCUREMENT</b></p> <p>349 11</p>	<p><b>SPENDING (\$ millions)</b></p> <p>\$30,782 \$3,087</p>	

## Heavy Lift

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>CH-53E Super Stallion</b></p> <p>Inventory: <b>138</b> Fleet age: <b>29</b> Date: <b>1981</b></p> <p>The CH-53E is a heavy-lift rotorcraft. The aircraft will be replaced by the CH-53K, which will have a greater lift capacity. The program life of the CH-53E is 41 years.</p>	2	1	<p><b>CH-53K</b></p> <p>Timeline: <b>2017-2029</b></p> <p>The program is in development. It is meant to replace the CH-53E and provide increased range, survivability, and payload. The program still has not fully developed the critical technology necessary. The helicopter is scheduled to complete initial testing in 2021 and be fielded as early as 2023.</p>	5	3
			<p><b>PROCUREMENT</b></p> <p>20 176</p>	<p><b>SPENDING (\$ millions)</b></p> <p>\$3,030 \$18,026</p>	

## Tanker

PLATFORM	Age Score	Capability Score	REPLACEMENT PROGRAM	Size Score	Health Score
<p><b>KC-130J</b></p> <p>Inventory: <b>45</b> Fleet age: <b>9</b> Date: <b>2005</b></p> <p>The KC-130J is both a tanker and transport aircraft. It can transport troops, provide imagery reconnaissance, and perform tactical aerial refueling. This platform is currently in production. The airframe is expected to last 38 years.</p>	4	5	<p><b>KC-130J</b></p> <p>Timeline: <b>2005-2031</b></p> <p>The KC-130J is both a tanker and transport aircraft. The procurement program for the KC-130J is not facing acquisition problems.</p>	4	4
			<p><b>PROCUREMENT</b></p> <p>68 43</p>	<p><b>SPENDING (\$ millions)</b></p> <p>\$4,676 \$5,111</p>	

**NOTES:** See Methodology for descriptions of scores. Fleet age is the average between the last year of procurement and the first year of initial operational capability. The date is when the platform reached initial operational capability. The timeline is from start of the platform's program to its budgetary conclusion. Spending does not include advanced procurement or research, development, test, and evaluation (RDT&E). The total program dollar value reflects the full F-35 joint program, including engine procurement. As part of the F-35 program, the Navy is purchasing 67 F-35Cs for the U.S. Marine Corps that are included here. The MV-22B program also includes some costs from U.S. Air Force procurement. AH-1Z costs include costs of UH-1 procurement.

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32. Lieutenant General Brian D. Beaudreault, Deputy Commandant, Plans, Policies, and Operations, U.S. Marine Corps, statement on “Amphibious Warfare Readiness and Training—Interoperability, Shortfalls, and the Way Ahead” before the Subcommittee on Readiness, Committee on Armed Services, U.S. House of Representatives, December 1, 2017, p. 3, <https://docs.house.gov/meetings/AS/AS03/20171201/106681/HHRG-115-AS03-Wstate-BeaudreaultB-20171201.pdf> (accessed July 30, 2020).
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  41. As of March 2018, “Our AAVs [were] now more than four decades old. Additionally, the average age of LAV’s within our inventory [was] 26 years.” Lieutenant General Michael Dana, Deputy Commandant, Installations and Logistics, statement on “Marine Corps Readiness” before the Subcommittee on Readiness, Committee on Armed Services, U.S. House of Representatives, March 6, 2018, p. 3, <https://docs.house.gov/meetings/AS/AS03/20180306/106942/HHRG-115-AS03-Wstate-DanaM-20180306.pdf> (accessed July 31, 2020). Ages reported at that time have been increased to account for the passage of time.
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