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JULY 2015

Advancing U.S.-Australian Combined Amphibious Capabilities

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A Report of the CSIS Harold Brown Chair in Defense Policy Studies and the Georgia Tech Research Institute

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ISBN: 978-1-4422-4114-5 (pb); 978-1-4422-4115-2 (eBook)

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Washington, DC 20036
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Contents

Acknowledgments	iv
Executive Summary	v
Introduction	vi
1. Australia's Amphibious Renaissance	1
2. The U.S. Marine Corps in the Pacific	5
3. The Potential for Greater Collaboration	10
4. Options for a Combined Amphibious Capability	18
5. Challenges to a Combined Amphibious Force	28
6. Summary and Recommendations	35
About the Authors	41

Acknowledgments

This report was, in every sense of the word, a team effort. That team included staff from the Center for Strategic and International Studies and Georgia Tech Research Institute, but many others as well. Ben FitzGerald and Kelley Saylor at the Center for a New American Security (CNAS) were instrumental in the early stages of the study, helping to flesh out scenarios and build bridges between the continents. CNAS's Commandant of the Marine Corps fellow, Lieutenant Colonel Brian Bruggeman, also brought his insights and experience to bear. CSIS was fortunate to host another of the Commandant's fellows, Lieutenant Colonel Drew Priddy, who was truly invaluable to this effort. His knowledge, experience, thoughtfulness, and great sense of humor both improved the overall quality of the effort and made it a lot more fun.

The true touchstone, however, was Marine Corps Major Ray Howard. Major Howard saw the value of this effort from the beginning, was tireless in his efforts to corral all the right players to get all the right inputs, and educated us all on the true value of combat cargo. He and his leadership in Headquarters U.S. Marine Corps (Plans, Policies and Operations) provided great support throughout the entire effort. We were fortunate to also have the strong backing of Paula Trimble from the Office of the Secretary of Defense (Acquisition, Technology, and Logistics). Paula consistently pointed us to relevant information and offered her unflinching support as the study plan evolved.

This study could not have gone forward without the critical support of numerous Australian interlocutors. Dr. Peter Dean at the Australian National University was particularly generous with his time and expertise. Gerry Bluett patiently translated for us, and guided us to all the right places and people. Numerous officials at the Australian embassy in Washington were extremely helpful, as were senior Australian military leaders during the study team's trip down under. While they did not always agree, their thoughtfulness and great hospitality were immensely important to the overall effort.

The study team also benefited from long conversations with the staffs at III Marine Expeditionary Force and its supporting units, as well as with the staffs of Pacific Command, Pacific Fleet and Marine Forces Pacific. The study team deeply appreciates the time they took to explain their activities and challenges, and to share their experiences. To all, we are profoundly grateful.

Executive Summary

The relationship between Australia and the United States is growing ever deeper. As the United States continues to adapt to the growing centrality of the Indo-Asia Pacific (IAP) region, Australia's role is pivotal. The long history of military collaboration between the two nations is likewise expanding, to include growing cooperation in the realm of amphibious capabilities. The future trajectory of that growth was the specific topic of interest to the study team. As a result of its examination, the study team concluded the following:

- While Australian and U.S. forces do conduct numerous combined activities, there is no shared vision within the U.S. defense establishment, and thus between the two nations, about the specific operational form of combined amphibious capability that would prove most useful;
- It is likely possible to better optimize the existing processes and forums aimed at facilitating combined collaboration;
- The risks associated with shortfalls in U.S. amphibious shipping could potentially be mitigated (at least to some extent) by pairing U.S. lift platforms with Australian amphibious ships;
- Fully realizing the potential for combined amphibious operations may require either adjusting the purpose of current combined training and exercises and/or expanding the amount conducted; and
- There are multiple areas where both nations are exploring new platforms, concepts, organizations, and technologies; expanded combined experimentation could help harness some of those investments to greater mutual benefit.

Based on these findings, the study team made a number of recommendations to clarify a shared sense of purpose and better align both nations' activities in support of that refined objective. As both nations continue to advance and expand their partnership, amphibious forces have the potential to play a major role in the security dimension of that relationship. Further charting the course for how those forces might best operate together will be an important element of progress, and a cornerstone for continued security in the region.

Introduction

Despite the vast geographic distance between them, Australia and the United States have a deep and broad partnership. Nowhere is this more evident than in the security realm, where the two countries' forces have fought side by side for over a century and have preserved a formal alliance for over six decades. Australian leaders have characterized the alliance with the United States as the country's "most important defence relationship,"¹ while the latest U.S. national security strategy calls out a modernized alliance with Australia as one aspect of realizing regional stability, security, and shared prosperity in the Asia-Pacific.²

The relationship is predicated on shared interests, values, language, and more. As the world evolves, those foundational tenets have remained a constant. Strategically, the Indo-Asia Pacific (IAP) region is increasingly central to both nations' security objectives. Since 1976, successive Australian strategy documents from different governments have emphasized the desire to play a greater role in the country's immediate neighborhood (though debates continue about how widely that neighborhood extends). The United States' plan to focus more intently on the Pacific has been more recent, but it is notable that President Barack Obama chose to unveil his administration's "rebalance" to the region in a 2011 speech to the Australian Parliament.³

Consistent with these aims, both nations' militaries are also adapting to better address shared security concerns in the region. The Australian Defence Force (ADF) is introducing a number of advanced capabilities across its military services, to include two *Canberra*-class landing helicopter dock (LHD) amphibious ships. Australia has also agreed to host rotational forces from both the U.S. Air Force and the U.S. Marine Corps (USMC),⁴ as well as pursue additional cooperation in cyber security and ballistic missile defense. Both nations' strategies reflect the shared expectation that their military forces would routinely operate together, and direct their defense establishments to ensure the greatest degree of interoperability. To help facilitate this, the two militaries have robust exchange and liaison

1. Australian Department of Defence, *2013 Defence White Paper* (Canberra: Department of Defence, 2013), 56, http://www.defence.gov.au/whitepaper/2013/docs/WP_2013_web.pdf.

2. President Barack Obama, *National Security Strategy* (Washington, DC: White House, February 2015), 24, https://www.whitehouse.gov/sites/default/files/docs/2015_national_security_strategy.pdf.

3. President Barack Obama, "Remarks to the Australian Parliament," November 17, 2011, <https://www.whitehouse.gov/the-press-office/2011/11/17/remarks-president-obama-australian-parliament>.

4. U.S. Department of Defense, "2013 Australia-U.S. Ministerial Consultations Joint Communiqué," 2, http://www.defense.gov/pubs/2013_Australia_US_Ministerial_Consultations_Joint_Communique.pdf.

programs, and routinely participate in bilateral and multilateral exercises. These activities support a compounding familiarity, compatibility, and trust.

Given developments in both nations, this interaction will continue and deepen. At the same time, there are two significant developments that suggest the time is ripe for considering the next steps in deepening the U.S.-ADF amphibious relationship in particular. First, in 2014 the two governments signed a Force Posture Agreement officially codifying the 2011 plan for enhanced air cooperation and a rotational deployment of 2,500 Marines to northern Australia.⁵ As U.S. presence matures and infrastructure investment projects get under way, the Marine Corps is evolving and refining its plans not only to work closely with the ADF but to maintain the proficiency of the Marine Rotational Force-Darwin (MRF-D) contingent in support of other U.S. priorities in Southeast Asia.

Second, after many years in development, the ADF is on the verge of certifying the operational capability of its new amphibious force, a “step change” for the ADF going forward. First envisioned in the *Defence 2000* White Paper,⁶ preparing for the introduction of the new amphibious ships and the Australian Army forces to embark on them has been a massive undertaking, requiring significant energy and attention from across the Australian defense establishment.

But while these two achievements represent important milestones in both nations’ security efforts, independently and in concert, they also raise some additional challenges. For Australia’s part, the 2017 certification of an amphibious ready group (ARG) is the central, but hardly the only, step toward realizing a modern amphibious capability. As the initial combination of forces and ships begins to actually be employed, additional supporting platforms (including vehicles, watercraft, and aircraft both already in the inventory and planned) will be integrated. Sustainable logistics, maintenance, infrastructure, and manning processes will also evolve as needs become more apparent and expected missions for the capability evolve and are refined. The pace and scope of these efforts will be largely determined by available budgets, at a time when Australian defense spending is competing with other domestic priorities. Progress will also be shaped by a process of trial and error, experimentation, and practical and cultural adjustments. Thus the ADF is at the beginning of an amphibious journey, one that will take time and patience to complete.

For the United States, and the USMC in particular, the combination of the national rebalance to the Pacific and the redistribution of Marines throughout the theater (to include the presence in Darwin) has forced a reconsideration of how the Corps can best meet its commitments to provide a crisis response force and ensure access through engagement. The challenge is particularly acute given the shortages of U.S. amphibious ships, which is especially problematic in the vast maritime expanses of the IAP region. In essence, the

5. Daniel Wasserbly and Jullian Kerr, “Update: US, Australia codify deal to rotate Marines through Darwin,” *IHS Jane’s 360*, August 12, 2014, <http://www.janes.com/article/41864/update-us-australia-codify-deal-to-rotate-marines-through-darwin>.

6. Australian Department of Defence, *Defence 2000: Our Future Defence Force* (Canberra: Department of Defence, 2000), 83–84, <http://www.defence.gov.au/publications/wpaper2000.pdf>.

rebalance strategy suggests consistent, if not increased, demand for Marine Corps forces in the IAP. Greater dispersal of Marine locations helps to meet these needs, but the lack of sufficient amphibious shipping from which these forces can engage is a significant limitation. This problem is well acknowledged, and the U.S. Chief of Naval Operations has committed to resource one additional U.S. ARG for the Pacific by the end of the decade.⁷ However, meeting this goal will require investments at a time when U.S. defense budgets are also highly uncertain. Further, it explicitly acknowledges that shortfalls will persist in the short term.

Both nations recognize the amphibious capability and capacity challenges they face and are developing plans to work their way through them, collaborating when and where they can. The question this study sought to explore, however, was whether there might be utility in a more deliberate approach to address some of these challenges as a *combined* force, rather than allowing this progression to occur in a somewhat ad hoc manner.⁸ On both the Australian and U.S. sides, there are multiple actors who would have interest in contributing to a shared effort, none of which have that objective as their sole focus or responsibility. Thus successfully articulating a detailed way ahead for combined activities is likely to require a significant amount of vision and effort internally and across national lines.

There are reasons on both sides to suggest such effort would be warranted, especially due to gaps over the next five to seven years in particular. From the U.S. perspective, its strategic interests in the IAP exceed the forces and platforms currently available to help advance them. For Australia's part, the timeline associated with fully developing its amphibious capability is likely longer than some of the short-term demands that could be levied upon it. Thus identifying a shared vision of potential combined amphibious operations and prioritizing efforts to advance it could be of great benefit to both nations. Specifically, such a strategy could help to mitigate some risks and expand the range, flexibility, and operational utility of ADF and USMC investments that have already been made.

To be clear, the pursuit of such a strategy would not and could not ever tie the hands of policymakers in either country. As is always the case, the operational application of combined forces would be subject to the specific circumstances at hand, which can never be anticipated in advance and would always be subject to the approval of both governments. However, *planning* for combined operations, and tailoring training and exercises to support them, helps to increase the likelihood that, should the command authorities in both capitals determine that operational collaboration is beneficial, it is efficient and effective.

There are numerous forms that such collaboration could take. This report neither identifies nor recommends a specific vision of future ADF/USMC combined amphibious capabilities. Instead, it offers some potential options for how the two nations' forces could

7. Admiral Jonathan Greenert, *CNO Navigation Plan 2014–2018* (Washington, DC: Department of the Navy, August 13, 2013), 3, http://www.navy.mil/cno/130813_CNO_Navigation_Plan.pdf.

8. For clarity, this report uses the term “joint” to connote activities across at least two military services of the same country, and the term “combined” to indicate activities between two military services of different countries (i.e., Australia and the United States).

be combined, and explores the strategic and operational utility of those options. The options are not prescriptive or exhaustive, but are intended to help frame some of the key considerations for leaders in both nations and identify considerations likely to affect the realization of shared goals. Even if the options described here are deemed undesirable by either side, the framework it employs should apply to other options as well.

It should be noted that while this study specifically examined the potential for combined ADF/USMC operations (as a subset of broader defense cooperation), nothing in it is intended to preclude pursuing such objectives in a multilateral, rather than bilateral, context. That is, it may well be that the greatest opportunities to enhance operational capabilities can be found in multilateral experimentation, exercises, and operations. Again, though the discussion herein focuses on the bilateral interaction, this is not an indication that the study team believes bilateral forums are the only, or even the optimal, way to advance shared interests.

This report proceeds in six chapters. Chapter 1 describes the evolution of the Australian Amphibious Force (AAF) and how it fits into currently articulated Australian security goals in the region. Chapter 2 summarizes the current and planned evolution of U.S. Marine Corps posture in the IAP. Chapter 3 describes, in greater detail, the capabilities that the ADF and USMC might contribute to a combined force. Chapter 4 offers an overview of potential missions a combined amphibious force might focus on, outlines two basic options for how ADF and USMC forces might work together at both the amphibious ready element (ARE) and ARG levels, and evaluates the operational, institutional, and strategic benefits a combined force could provide. Chapter 5 explores some of the challenges to greater combined collaboration. Finally, Chapter 6 summarizes the preceding analysis and offers supporting recommendations.

1 | Australia's Amphibious Renaissance

Over time, Australia's strategic policy has shifted between two main outlooks about how best to protect Australian security interests, of differing ambitions.¹ Australia's security sensibility was borne of the colonial legacy, and has become more self-assured with time. As Australia achieved its independence, it became accustomed to providing for its ultimate security indirectly underneath the umbrella provided by the British Empire. Demonstrations of the mutual commitment manifest themselves in colonial and then Federation contributions to British operations abroad, from Africa to China, and then World Wars I and II. This "expeditionary warfare" approach implies Australian military capabilities principally designed to contribute to operations as part of a larger force (initially the United Kingdom, and after World War II, the United States) in the expectation that, should the need arise, greater powers would mount an Australian defense at a scale unattainable domestically. While the calculations about which foreign operations Australia should support have evolved over time, evidence of the persistence of this mindset remains in Australian commitments to U.S.-led operations in the Middle East, including the recent return of Australian advisors to Iraq.

The other major school of thought, often described under the rubric of "the defence of Australia," argues that Australia should not risk depending on the will of others for its ultimate defense, but should instead pursue a greater degree of self-reliance. Though versions of the policy vary, in general it emphasizes continental defense and orients the Australian Defence Force (ADF) on capabilities to stave off potential adversaries in the air and sea to the country's north. These views were most clearly expressed in the 1987 Defence White Paper,² which acknowledged that while Australian forces might be employed abroad, their primary organizing construct should be local defense. The concept for how "local" local might be was almost immediately tested in Fiji, and later included operations in East Timor, the Solomon Islands, and Tonga. Thus this school of thought has come to encompass defense both on the continent of Australia itself as well as its immediate environs.

1. The description of Australian defense approaches here is largely drawn from Stephan Fruhling, "Australian Strategy and Strategic Policy," in *Australia's Defence: Toward a New Era?*, ed. Peter Dean, Stephan Fruhling, and Brendan Taylor (Melbourne: Melbourne University Press, 2014), 184–205.

2. Australian Department of Defence, *The Defence of Australia 1987: Presented to Parliament by the Minister for Defence the Honourable Kim C. Beazley M.P., March 1987* (Canberra: Australian Government Publishing Service, 1987).

Increasingly, Australian defense professionals have argued that the apparent dichotomy between continental defense (which has also been termed “sea-blindness”) and expeditionary operations is a false one, and that a maritime strategy represents a “third way” to unify the two.³ Calls for a maritime strategy are now commonplace, though many acknowledge that implementation may be lagging.⁴ It will be interesting to see how the upcoming 2015 Defence White Paper relates such a strategy to what scholar Stephan Fruhling has characterized as the “bi-partisan orthodoxy of Australian defence policy” that has existed since 2000.⁵ That framework sets the priorities of the ADF as follows: (1) the self-reliant defense of Australia; (2) the ability to lead efforts to ensure security in the Southwest Pacific and East Timor; (3) substantial contributions to coalition operations in the wider Indo-Pacific; and (4) contributions to operations elsewhere in the world.

However the new Defence White Paper might strike that balance, it is near certain that it will reflect the continued acknowledgment of a greater maritime imperative for Australia. Its growing amphibious capability is one of the cornerstones of that effort.

Amphibious Capabilities

Australia has a long and storied amphibious history.⁶ Its first independent amphibious operation involved the Australian Naval and Military Expeditionary Force, which, together with a range of Australian destroyers, submarines, and cruisers (one French), captured a German wireless station and occupied other territories in New Guinea and nearby islands in 1914. The failures of the Gallipoli campaign became national legend, though by the end of the war the Australian services no longer conducted joint operations. Separate service priorities governed until the exigencies of World War II, during which Australian forces conducted multiple amphibious landings. After the war, Australia’s strategic calculus gradually shifted to one of greater emphasis on continental defense accompanied by expeditionary deployments of service-unique elements that “plugged in” to coalition army, air, or naval operations. The decades between the 1950s and 1980s “saw a slow decline in cooperation between the services,”⁷ and the nation’s amphibious capabilities waned.

Australia’s amphibious “reawakening” was first prompted by Operation Morris Dance, the ADF’s response to the 1987 coup in Fiji. That operation revealed shortcomings in

3. See, for example, Michael Evans, “The third way: Towards an Australian maritime strategy for the twenty-first century,” Army Research Paper, no. 1 (Canberra: Australian Army, 2014). Part of the reason that implementation may be falling short is that while many agree such a strategy is desirable, there is much less consensus around the specific form it should take. Peter Layton, “Australia’s many ‘maritime strategies,’” *Strategist*, March 28, 2013, <http://www.aspistrategist.org.au/australias-many-maritime-strategies/>.

4. For example, in 2012 the chief of army noted that investments reflected more of a *naval*, rather than fully *maritime*, strategic approach. Lieutenant General David Morrison, AO, “Transcript,” Welcoming address, The Australian Army’s Role in a Maritime Strategy Exercise, October 29, 2012, <https://news.defence.gov.au/2012/10/29/chief-of-army-melbourne-29-october-2012/>.

5. Fruhling, “Australian Strategy and Strategic Policy,” 195–196.

6. This section is largely based on Russell Parkin, “A capability of first resort: Amphibious operations and Australian defence policy 1901–2001,” Working Paper No. 117 (Duntroon: Army of Australia, Land Warfare Studies Centre, 2002).

7. *Ibid.*, 35.

equipment, doctrine, and concepts, which by the early 1990s led to commitments to rebuild the country's amphibious capabilities.⁸ The importance of this commitment was further reinforced by 1999 ADF operations in East Timor, which, though successful, illuminated the need for the ADF to fully modernize its amphibious portfolio.⁹ The 2000 Defence White Paper explicitly stated that, based upon lessons learned from that operation, each of its then three major amphibious ships would be replaced by 2015, as would other support craft.¹⁰ Plans to do so were first put forth in the *Defence Capability Plan 2001–2010*, which laid out an amphibious deployment and sustainment capability through various phases of Joint Project 2048 (JP 2048).¹¹ As it has unfolded, JP 2048 programs have included the acquisition of a variety of new watercraft and the two *Canberra*-class amphibious ships; an additional program for replacement heavy landing craft has not yet been completed.¹² In addition, the Royal Australian Navy (RAN) successfully bid on an excess British *Bay*-class landing ship, commissioning it into the fleet in December 2011 as HMAS *Choules*.

As these capabilities have been pursued, elements of the ADF have also been developing supporting amphibious concepts, doctrine, and personnel models. Recent doctrine for the Australian Amphibious Force (AAF) describes a standing, tailorable joint task force built around one or more amphibious ships and a landing force. There are two baseline organizations: an amphibious ready element (ARE) of one ship (ideally a landing helicopter dock [LHD], but possibly a landing ship dock [LSD]¹³) or a three-ship amphibious ready group (ARG) comprising two LHDs and one LSD. While final organizational structures are not yet approved, the planned ARE/ARG organizations share common capability elements, though at different scales (approximately 640 personnel for a core ARE and 2,000+ for an ARG).¹⁴ Common elements include command and control; intelligence, surveillance, and reconnaissance (ISR); a ground combat force; rotary wing operations; logistics support; and a naval element that includes mine countermeasures, medical, and surface connectors (i.e., vessels that can transport personnel by water to the shore). Both the ARE and ARG forces would be able to conduct some level of offensive and defensive fires.

As the ADF has been building out organizational models and supporting documentation and processes for the AAF, it has also recognized that, as multiple interviewees who spoke

8. Peter Dean, "Australia's Emerging Amphibious Warfare Capabilities," *Diplomat*, August 22, 2014, <http://thediplomat.com/2014/08/australias-emerging-amphibious-warfare-capabilities/?allpages=yes>.

9. For example, the operation revealed limitations in ADF force protection, mobility, and logistics. Parkin, "A capability of first resort," 1.

10. Australian Department of Defence, *Defence 2000*, 83–84.

11. Australian Department of Defence, *Defence Capability Plan 2001–2010* (Canberra: Department of Defence, 2001), 101–108, <http://repository.jeffmalone.org/files/defence/dcp01.pdf>.

12. "JP 2048 Phase 5: Landing Craft Heavy Replacement," in *Defence Capability Plan 2012*, Australian Department of Defence (Canberra: Department of Defence, 2012), 109, <http://www.defence.gov.au/publications/capabilityplan2012.pdf>.

13. An LHD is a large amphibious ship with a dedicated flight deck and significant command and control, berthing, and medical facilities; an LSD is a mid-size amphibious ship with lesser support for air operations, as well as reduced berthing and command and control capabilities, but a large well deck from which landing craft and other surface connectors can launch. Australia's *Canberra*-class ships are LHDs, while the *Choules* is an LSD.

14. Colonel T. J. Dunne, USMC, "The Australian Amphibious Force," Presentation to the [Australian] Army to [U.S.] Marine Staff Talks, March 17–19, 2015.

ADF Amphibious Certification

Starting in 2015, the ADF will begin the process of certifying the capabilities of its ARE and ARG, culminating with full operational capability for the ARG during the Talisman Saber 2017 exercise. ADF's Headquarters Joint Operations Command (HQJOC) has developed a schedule that envisions four progressive events. The first certification will be for a one-ship "core" ARE, which will demonstrate its readiness for permissive non-combatant evacuation operations (NEOs) in late 2015. In the second, scheduled for spring 2016, an ARE embarked on HMAS *Adelaide* will be certified ready to conduct non-permissive NEO operations. Third, in late summer 2016 an ARE reinforced, or ARE+, comprised of a single amphibious ship and a core element augmented by an expanded landing force and aviation element, will be certified capable to conduct stability and support operations. Finally, the full ARG (two amphibious ships and associated personnel), along with a Joint Headquarters ADF Amphibious Force (JHQ AAF) will be certified capable of conducting the full range of missions, to include forcible entry operations, as part of Talisman Saber in mid-summer 2017.

with the study team put it, "we don't know what we don't know." Thus refining these organizations, as well as the many processes that must align to support them, will require further experimentation and use. It will also involve difficult determinations about things such as how much future equipment purchases should be dominated by an amphibious imperative. Plans exist to address some known friction points. In other instances, leaders acknowledge challenges but note that deciding upon solutions before the ADF has the opportunity to work with the newly commissioned LHDs would be inefficient and unwise. While perspectives differ on the likelihood that specific gaps will be overcome, there is widespread agreement that the anticipated certification in 2017 of final operational capability of the LHDs and the associated landing force represents a major, but not the final, step along the path toward a truly robust AAF.

While ARG certification will represent a major step forward for the ADF, the path forward for continued AAF development from there is less clear. Currently, the joint proponent for the AAF is the Joint Amphibious Capability Implementation Team (JACIT). For the last decade, the JACIT has developed AAF doctrine, as well as supporting training and experimentation plans. It has also served as an interlocutor for the U.S. Department of the Navy through the Expeditionary Warfare Working Group (EWWG), a combined forum to discuss shared amphibious issues and concerns. However, that organization's charter expires with ARG certification.

2 | The U.S. Marine Corps in the Pacific

For the United States, the 2011 “pivot” or “rebalance” to the Pacific represented an explicit recognition that the region would “largely define whether the century ahead will be marked by conflict or cooperation, needless suffering or human progress.”¹ With the desire to leave conflicts in the Middle East in the rear view mirror, the 2010 Quadrennial Defense Review and 2012 Defense Strategic Guidance reflected a reordering of defense priorities seeking greater balance between counterterrorism, deterring highly capable “near-peer competitors” (to include overcoming what the American defense community refers to as “anti-access/area denial,” or A2/AD, challenges), homeland defense, and other, more narrow missions such as countering proliferation of weapons of mass destruction or securing space assets. But the “rebalance” has remained at the center of U.S. strategic thinking, and has broad bipartisan support. (This consensus has largely held despite the continued elusiveness of some sort of stability in the Middle East and the resurgence of an aggressive Russia in Europe, though how long it will continue to do so remains an open question.)

The renewed U.S. emphasis on the Indo-Asia Pacific (IAP) represents a shift not only from the Middle East and Europe to Asia, but a shift *within* the region from an overwhelming post–World War II focus on Northeast Asia to a broader consideration of Oceania and Southeast Asia.² The United States maintains defense treaty commitments to Japan and Korea that remain a foundation of its force posture in the region, but its alliance with Australia and New Zealand offers another source of cooperation, partnership, and collaboration as tensions rise in the South and East China Seas and the role of India (and thus the importance of the Indian Ocean) grows.

Amphibious Capabilities

Increasing security concerns in the IAP have also increased recognition of the utility of maritime forces in general and amphibious ones in particular. All the U.S. military services are reexamining ways in which to develop new and expand existing partnerships throughout the region through basing, exercises, forward stationing of equipment, and

1. Obama, “Remarks to the Australian Parliament.”

2. *Quadrennial Defense Review 2014* (Washington, DC: Department of Defense, March 14, 2014), viii.

other exchanges. The Marine Corps' ability to operate in littoral environments to support sea control operations and to project force ashore, whether for the all too frequent human assistance and disaster relief (HA/DR) missions or to contest adversary strongholds or supply lines, is seen as particularly relevant for crisis response, as well as for broader, joint deterrence and reassurance activities. As the senior U.S. military commander in the region put it, the Corps is "uniquely suited for large archipelagos [and] sea spaces," and is a "cornerstone of the force structure that [the United States has] in the Pacific."³

That force structure is changing. After World War II, U.S. forces had been stationed across the Western Pacific. But in the decades after the Vietnam War they "departed from Vietnam, Thailand, Taiwan and the Philippines, and reduced their presence on Guam,"⁴ and today remain concentrated in Japan, Korea, Hawaii, and Alaska. The U.S. Marine Corps' (USMC) major presence in the region is concentrated on the Japanese island of Okinawa and in Hawaii, though efforts are under way to redistribute forces off of Okinawa to other locations. These efforts began well prior to the rebalance strategy, and were primarily focused on shifting a portion of the Marine force to Guam and the Northern Marianas. These efforts have proven fitful for a number of reasons, though the U.S. commitment to carry them out remains strong. Fortunately, a broader dispersal of Marine forces within Asia (what the USMC commander in the region has termed "balanced presence"⁵) aligns with U.S. strategic goals, goals that were further advanced when Australia agreed to host the Marine Rotational Force-Darwin (MRF-D) in the north.

Whether the USMC is able to successfully execute force moves exactly as is currently planned remains a complex political issue both within the United States and in Japan. However, at present, the Corps plans to have four "geographically distributed, politically sustainable and operationally resilient" Marine Air Ground Task Forces (MAGTFs) in Hawaii, Japan, Australia, and Guam by 2030.⁶ Achieving this goal will require substantial collaboration both within the U.S. government and with governments of other nations. Further, ensuring sufficient facilities and training for these forces is one of the USMC's primary concerns. As significant, however, is the sufficiency of amphibious shipping to enable those Marines to prepare for and conduct their full range of missions. Indeed, regional Marine commanders have stressed the need for "forward mobility," noting that forward-deployed Marines require "adequate air and sea lift to be a viable deterrent and stabilizing force."⁷

3. Admiral Samuel Locklear, *Transcript: Hearing of the United States Senate Armed Services Committee on U.S. Pacific Command and U.S. Forces Korea*, April 16, 2015, <http://www.pacom.mil/Media/Speeches/Testimony/tabid/6706/Article/585392/transcript-senate-armed-services-committee-hearing-on-the-us-pacific-command-us.aspx>.

4. David Berteau et al., *U.S. Force Posture Strategy in the Pacific Region: An Independent Assessment* (Washington, DC: Center for Strategic and International Studies, August 2012), 16.

5. Lieutenant General Terry Robling, *Campaign Plan FY13–20* (Honolulu: U.S. Marine Forces Pacific, n.d.), 13.

6. General Joseph Dunford, *Statement before the Senate Armed Services Committee* (Washington, DC: United States Senate, March 10, 2015), 8, http://www.armed-services.senate.gov/imo/media/doc/Dunford_03-10-15.pdf.

7. Robling, *Campaign Plan FY13–20*, 14.

Shipping shortages are a function of inventory, location, and availability. They are shared across the U.S. Navy fleet, but are particularly acute for amphibious ships. From an inventory perspective, in the years between 2001 and 2008 the size of the Navy fell from 316 to 278 ships, and is not expected to top 300 before the end of the decade.⁸ Over the same 2001–2008 period, amphibious ships fell from 36 to 32, and then to a low of 29 by 2011; 33 are expected by 2020.⁹ With respect to location, most Navy ships deploy on set rotational schedules from bases on the United States’ East or West coasts. However, when the United States is able to forward deploy its platforms, such as with the four amphibious ships in Sasebo, Japan, that support the permanent Pacific presence of one amphibious ready group (ARG), it increases the amount of operational availability by eliminating transit time, and thus lowers the total number of ships required to provide a given level of presence in the region.

That rationale underpins the U.S. Navy’s desire to seek additional basing options around Asia, to include rotational deployments of the littoral combat ship (LCS) to Singapore,¹⁰ and, though still subject to much greater discussion, the possibility of home porting of U.S. naval assets in Australia.¹¹ Availability of the inventory is also a major challenge. Supporting high levels of global demand with a shrinking fleet, in combination with other steps taken over the 2000s to enhance efficiencies without full appreciation of the system-wide effects, have resulted in a significant backlog of surface ship maintenance. This problem has been further compounded by budget reductions and funding uncertainty. The resulting impacts on surface ship readiness in general, and for amphibious ships in particular, have been severe, reducing the available fleet size by more than an additional 10 percent.¹²

The senior U.S. military commander in the Pacific has noted the shortfall, and acknowledged that the need to have Marines deployed despite it is forcing consideration of other types of platforms to accomplish some missions.¹³ The viability of so-called “alternative lift platforms” is not universal, however. The commander of U.S. Forces Korea, responsible for addressing one of the most potentially lethal challenges in the Pacific region, characterized amphibious ships and the Marines they carry as “a critical part of all of our [war] plans,” and said he was “very concerned” about current levels of available support.¹⁴

8. Secretary of the Navy Ray Mabus, *Testimony before the House Appropriations Committee Subcommittee on Defense*, February 26, 2015, 4, http://www.navy.mil/navydata/people/secnav/Mabus/Testimony/HAC-D_OralStatement_2015.pdf.

9. Maren Leed et al., *Amphibious Shipping Shortfalls* (Washington, DC: Center for Strategic and International Studies, September 2014), 9, http://csis.org/files/publication/140902_Leed_AmphibiousShipping_WEB.pdf; *Report to Congress on the Annual Long-range Plan for Construction of Naval Vessels for Fiscal Year 2016* (Washington, DC: Department of the Navy, March 2015), 6.

10. Agence France-Presse, “U.S. Navy: 4 LCSs to Operate Out of Singapore by 2018,” *DefenseNews.com*, February 18, 2015, <http://www.defensenews.com/story/defense/naval/navy/2015/02/18/us-navy-lcs-operate-singapore/23619799/>.

11. Jason Scott and David Tweed, “U.S. Navy Considers Setting Up Ship Base in Australia,” *BloombergBusiness.com*, February 10, 2015, <http://www.bloomberg.com/news/articles/2015-02-10/u-s-considering-basing-navy-ships-in-australia-greenert-says-i5yxouxp>.

12. Leed et al., *Amphibious Shipping Shortfalls*, 10.

13. Locklear, *Transcript*.

14. General Curtis Scapparotti, *Transcript: Hearing of the United States Senate Armed Services Committee on U.S. Pacific Command and U.S. Forces Korea*, April 16, 2015, <http://www.pacom.mil/Media/SpeechesTestimony>

Marine Rotational Force-Darwin (MRF-D)

In 2011, the U.S. and Australian governments signaled their intent to strengthen cooperative military engagement by announcing new force posture initiatives.¹ Under these initiatives, Australia would accept six-month deployments of U.S. Marines to the Northern Territories, beginning with a small company-sized element of 250 Marines in 2012. At the time, the stated goal was for Australia to eventually sponsor a 2,500 sized Marine Air Ground Task Force (MAGTF) on a continuous rotational basis. A MAGTF of this size would approximate a Marine Expeditionary Unit, and could respond to regional crises while also facilitating joint training initiatives with Australia and other Asian partners.

The force posture initiatives announced in 2011 were formalized in the U.S.–Australia Force Posture Agreement during the Australia-United States Ministerial Consultations in August 2014.² The agreement, set to expire after 25 years, reaffirmed the intent to build up to a full MAGTF capability, with substantial progress in the 2016–2017 timeframe.³ By early 2015, the rotational force had advanced to phase two, a reinforced infantry battalion of approximately 1,150 Marines. Phase three of the plan, which is still in its planning stages, envisions the eventual introduction of a battalion landing team with increased aviation and logistics elements to support joint training with the ADF, activities that will continue toward realization of the full MAGTF (phase four) at a yet-undetermined future date.

As the plan progresses, U.S. forces have been provided access to Northern Australia’s training ranges, facilities, and ports during the six dry months of the year.

1. Office of the Press Secretary, “Prime Minister Gillard and President Obama Announce Force Posture Initiatives” (press release, Washington, DC, November 16, 2011), <https://www.whitehouse.gov/the-press-office/2011/11/16/prime-minister-gillard-and-president-obama-announce-force-posture-init-0>.

2. “AUSMIN 2014 Joint Communiqué,” Communiqué, Australia-United States Ministerial Consultation, Sydney, August 12, 2014, http://www.defence.gov.au/Events/Ausmin/Docs/Final_AUSMIN_2014_Communicate.pdf.

3. Bates Gill and Tom Switzer, “The Pivot’s Progress Down Under,” *Wall Street Journal*, August 18, 2014, <http://www.wsj.com/articles/gill-switzer-the-pivots-progress-down-under-1408380234>.

Thus the USMC faces a conundrum. It offers one of the most relevant U.S. military capabilities across the Pacific region. It is beginning to reposition its forces to align more closely with growing U.S. interests in South and Southeast Asia. But it lacks sufficient amphibious shipping to support that new posture, at least in the short term. The Navy is actively exploring options to help support getting a greater proportion of the Marines to sea, which vastly

</tabid/6706/Article/585392/transcript-senate-armed-services-committee-hearing-on-the-us-pacific-command-us.aspx>.

enhances responsiveness.¹⁵ But many of those options are of limited duration. Further, if they are not amphibious ships, they lack the full suite of capabilities that maximize the effectiveness of the embarked Marine forces.

Overall, the USMC is increasingly relevant in the IAP, and its capabilities align well with U.S. strategic objectives in the region. The greater geographic dispersal of Marine forces enhances their responsiveness and ability to contribute to engagement, but not to the extent that would be true if more amphibious shipping were available.

15. Derrick Perkins, "Darwin Marines could move around the region on Navy ships," *Marine Corps Times*, April 19, 2015, <http://www.marinecorpstimes.com/story/military/2015/04/19/darwin-marines-could-move-around-region-on-navy-ships/25753633/>.

3 | The Potential for Greater Collaboration

There is clear evidence of a strategic consensus between Australia and the United States, both of which are placing increasing importance on the Indo-Asia Pacific (IAP) in general, and on South and Southeast Asia in particular. Both nations see stability and prosperity in the region as the key to broader global advancement. They both share a desire for Australia to play a lead role in its immediate neighborhood, and value Australian contributions to higher-end or larger coalition efforts that might occur, particularly in the Pacific. This strategic appreciation has also led both countries to increasingly emphasize maritime efforts, to which both nations' amphibious capabilities are seen as central.

Against that backdrop, the conditions seem ripe for greater amphibious collaboration. The question at hand, however, is not whether such collaboration should exist. It already does, in many forms. The question is whether, once the Australian capability has become fully operational in 2017, that collaboration would benefit from actions taken to further develop an explicitly *combined* amphibious capability package. Such a package would not represent the full scope or scale of either country's amphibious force responsibilities, but instead would offer additional capability and capacity that could be employed in the event both sides viewed it as advantageous.

There are multiple considerations that could affect decisions on the wisdom of such a course. For both parties, the most obvious might be opportunity costs. Time spent planning, training, certifying, and employing both nations' forces and platforms for one set of activities means it is not being spent somewhere else. For Australia, it may well be that furthering a joint capability within the Australian Amphibious Force (AAF), for example, is a higher priority than any additional interactions with the U.S. Marine Corps (USMC). Similarly, it might be a higher priority for the USMC to enhance its internal readiness than to increase the proportion of time spent with the AAF.

Broader policy concerns will also play a role. If Australia wishes to send a clear message that its leadership role in the region is self-sustainable and neutral, deliberately planning for combined amphibious activities (even if they are not necessarily undertaken) could be seen as contradictory. Similarly, if the United States wishes to ensure Australia is seen as a self-sufficient regional player, either for domestic or international audiences, it might also wish to refrain from deeper combined collaboration.

It may also be that such collaboration is seen as useful by both sides, but that the timing is not yet optimal. The Australian Defence Force (ADF) has much on its plate as it supports current operations while introducing a new major capability enhancement, one that requires significant levels of joint collaboration. The USMC, for its part, is also working its way through significant force repositionings and preparing for the continued expansion of the Marine Rotational Force-Darwin (MRF-D). Australia has also articulated that ADF preparedness and contingency operations from the north of Australia will always take priority.

That said, study team interviews confirmed that, at least unofficially, people in both Australia and the United States are pondering ways in which the broad collaboration between the two nations could be expanded, to include in the amphibious space. (Official discussions are already examining deeper cooperation in the areas of submarines, helicopters, and fixed wing aircraft.¹)

While the ADF is on its way to creating a modern amphibious capability, there are some gaps in the short term that the United States might be able to help mitigate. And while the USMC is adjusting to its new laydown, it lacks some capabilities that might make it even better able to support U.S. strategic objectives. These realities suggest that, sooner or later, there will likely be a broader conversation about amphibious collaboration; the framework set forth here is designed to serve as a point of departure whenever that conversation might occur.

Missions

How such a dialogue proceeds will be highly dependent on factors that cannot be reliably anticipated. That said, it would likely consider a number of issues, the first of which would be the purpose for which a combined amphibious force might be desired.

In an amphibious context, the USMC's stated mission is to conduct engagement activities, crisis response (which includes humanitarian assistance and disaster relief [HA/DR] as well as non-combatant evacuation operations [NEOs]), and power projection operations into highly contested environments to "ensure access" for follow-on forces.² Australia's 2013 Defence White Paper identifies these same missions for the ADF, though it states that the initial priority for Australia's amphibious capability will be security, stabilization, and HA/DR tasks.³ Recent ADF doctrine reportedly identifies three main mission sets for the amphibious force: strategic shaping missions (bilateral and multilateral exercises), crisis response (HA/DR and NEO), and contingency response, to include forced entry.

1. *Quadrennial Defense Review 2014*, 24.

2. *Expeditionary Force 21* (Quantico, VA: Marine Corps Combat Development Command, March 4, 2014), 5, http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21_USMC_Capstone_Concept.pdf.

3. Australian Department of Defence, *2013 Defence White Paper*, 77 and 84.

Like Australia, the United States expects to conduct most higher-end (i.e., power projection) operations in concert with allies. This is reflected in combined (both bilateral and multilateral) amphibious exercises, which often include some form of contested entry operation. Indeed, the event that will result in formal certification of full operational capability for the ADF's amphibious ready group (ARG) is Talisman Saber in 2017. A biennial U.S.-ADF exercise, Talisman Saber was first held in 2005. This exercise in particular is already geared toward helping build amphibious interoperability in multiple areas, and will no doubt continue to play a primary role in advancing combined thinking and capability for high-end operations. This venue is much needed, as both ADF and USMC leaders affirm that both sides are continuing to advance their thinking, training, and equipment, advances that suggest a potent *combined* capability will take even longer to mature.

Talisman Saber also has some inherent limitations. It is largely designed around a vertically integrated model—that is, ADF (now to include AAF) participation as part of a force that relies heavily on U.S. support. Achieving broader exercise objectives frequently requires certain exigencies such as substantial logistics support from U.S. forces. While this may be an accurate representation of how events might actually unfold in certain operations, it also may mask some interoperability issues should the AAF need or desire to be more self-sufficient. Finally, while the exercise addresses some combined force objectives, each nation also utilizes it to accomplish some of its own training and readiness goals. This reality may also limit the time available for more wide-ranging combined force experimentation.

Study team interviews suggested that neither the United States nor the ADF perceive that already busy training schedules might allow for many more additional combined exercises, with the exception of the already ongoing and active exploration of the potential to expand existing bilateral engagements to other nations. Thus it may be that multilateral forums offer the most promising venue for any additional combined training. Study team interviews also suggested that desired outcomes for existing events often exceed what is practical. However, there was not a shared understanding of exactly what existing exercises delivered to each nation's forces, nor to specific aspects of developing a more interoperable combined amphibious force.

The study interviews also made clear, however, that existing bilateral and multilateral training events are (rightly) focused on just that—training, for both national and shared purposes. Even events more explicitly focused on experimentation, such as the U.S.-sponsored Bold Alligator exercises, often utilize limited time to explore specific issues that are a combination of both national and coalition priorities. Should a more specific objective for AAF/USMC combined collaboration be identified, it may be that additional experimentation venues would be necessary, and/or that the content of events that already exist would need to be shifted.

Such experimentation could either increase the range of operations a combined force would be capable of performing, or accelerate the realization of such a force for a more circumscribed subset. But there are other opportunities as well. This study specifically

examined the potential for augmenting combined development that might occur through training, exercises, and experimentation with a force focused on conducting actual operations. U.S. and ADF doctrine both identify three main categories of amphibious operations that are more likely than higher-end forcible entry operations and could help advance interoperability for some amphibious “basics” such as logistics and maneuver in lower threat conditions. These include what the United States terms “engagement,” and what both countries refer to as HA/DR and NEOs. Given their prevalence, it may be that greater combined activity in these areas could help address shared objectives by both countries, while enhancing some areas of interoperability that would be relevant during higher-end conflicts as well.

Forces

Though vastly different in scale (there are 56,750 active duty personnel in the entire ADF,⁴ about one-third the size of the active duty USMC), both nations could make substantial contributions to a combined amphibious force. Broadly construed, a full amphibious capability consists of at least five main components:

1. amphibious ships, which offer command, control, communications, computers, and intelligence (C4I) capabilities, lift for both personnel and equipment, medical support, operating support for air and surface connectors, and fires;
2. a ground combat element to conduct operations ashore, as well as key enabling personnel to support ship operations, logistics, explosive ordnance disposal, etc., which may be ashore, afloat, or both;
3. air (fixed and/or rotary wing) and surface connectors to support the movement and sustainment of forces ashore;
4. force protection assets (air, sea, or undersea) to protect forces and equipment afloat and ashore; and
5. support vessels, which offer logistics support such as fuel or food to extend the range and duration inherent to amphibious ships.

Not all components are required for all missions. For example, connectors and the full range of force protection assets may not be necessary if a large enough port is available and conditions are relatively benign. A quick inventory reveals that both nations could provide almost any component of the capability, though in some cases those of the AAF will not come on line or be fully developed until later in the decade.

4. International Institute for Strategic Studies, *The Military Balance* (London: Routledge, February 2015), 207–302.

AMPHIBIOUS SHIPS

By 2017, both nations will have fully certified and highly capable amphibious ships. According to some analysts, the Royal Australian Navy (RAN) has developed a two-year sustainment plan for its three ships (two landing helicopter docks [LHDs] and one landing ship dock [LSD]) that aims to have one ship available for 90 days of operational use each year.⁵ For the United States, in the short term the U.S. Navy plans to deploy amphibious ships to Australia on a rotational basis, but the frequency and duration are not yet clear.⁶ The ultimate U.S. Navy objective is to provide two 90-day patrols each year for the forces in Darwin,⁷ though the composition of ship types and numbers that will provide the lift is not yet clear, and could potentially not include any amphibious ships, at least occasionally.

GROUND COMBAT ELEMENT AND KEY ENABLING PERSONNEL

Perhaps the most straightforward component of an amphibious force (other than the ships) is the ground combat element, or a maneuver force that goes ashore to conduct operational tasks. The unit can be task organized for the mission assigned, but typically includes some combination of infantry, armor, artillery or mortars, engineers, communication, explosive ordnance disposal, and civil affairs. Both the Australian Army and the USMC have multiple units that can fulfill these purposes.

For the Australian Army, one challenge may be how it integrates its 36-month force generation cycle outlined in Plan Beersheba with the 24-month cycle anticipated for Australia's amphibious ships. Plan Beersheba also designated 2nd Battalion, The Royal Australian Regiment (2RAR) as the "core" of the Army's future amphibious contributions.⁸ Depending on future decisions about how it will support the amphibious force going forward, the Army could also draw upon the assets within any one of three multi-role combat brigades (of which one is planned to be fully trained and ready at any given time). Of note, one Army concern is that much of its current equipment is not "marinized" to withstand long periods in a highly corrosive maritime environment.

From a personnel perspective, the question of logistics and other enablers is a more complex one for the AAF. Supporting the landing force once ashore is primarily the responsibility of the Army, much of whose support functions reside in the 6th Combat Support and 17th Combat Service Support brigades. These units are charged not only with supporting 2RAR in its amphibious capacity, but the remainder of the three multifunctional brigades as well. This represents a significant demand, and the skill sets required are not

5. Information based on a study team discussion hosted by Dr. Peter Dean with ADF retirees still active in defense matters that included two former RAN captains, one former commodore, and one Australian Army colonel. Study team discussion, Australian National University, Canberra, April 15, 2015.

6. Lance Bacon, "Newest big deck gator 'candidate' for Aussie trip," *Navy Times*, March 30, 2015, <http://www.navytimes.com/story/military/tech/2015/03/30/newest-amphib-america-will-lead-arg-to-australia/70435302/>.

7. Lieutenant General John Wissler, USMC, as quoted in Derrick Perkins, "Darwin Marines could move around region on Navy ships."

8. "Amphibious capability," Australian Army, <http://www.army.gov.au/Our-future/Projects/Plan-BEERSHEBA/Amphibious-capability>.

always identical. Further, the enabling brigades are on a tighter force generation cycle than the three-year version in place for the combat brigades.⁹

Shipboard logistics also pose challenges. ADF forces to load, unload, operate, sustain, and maintain forces and equipment on ship are also necessary, for which responsibilities are split between the RAN and Australian Army (as they are between the U.S. Navy [USN] and USMC). In some cases this requires very specific expertise; for example, beach teams must be sufficiently armed to protect themselves while identifying appropriate landing spots, and with the requisite oceanographic, logistics, and engineering expertise. The ADF is filling some of these gaps by offering lateral transfers to separating British Royal Marines, and sometimes to Marines from other nations as well (including U.S. Marines). However, there are some indications that those personnel are not always being employed in ways that best leverage those skills.¹⁰ More broadly, it is not clear that the ADF has yet had sufficient amphibious experience to identify the full range of required logistics expertise. For example, one study team interviewee noted that, while the ADF has contributed substantially to both operations and exercises, it frequently relies on the United States for sustained logistics support.¹¹ This may well continue in combined activities, but could prove more challenging in attaining the stated level of desired self-sufficiency.

The USMC has a range of organizations that could contribute ground combat or logistics support. These are not limited to those that are or will be resident in the MRF-D, particularly if (at least at present) they are only in Darwin for six months of the year.¹² Once the USMC provides a full MAGTF, that formation will include all of the elements of both ground and logistics combat elements. Those capabilities are currently resident in the MRF-D but in less depth than will eventually be the case.

In addition, Okinawa is home to the 3rd Marine Expeditionary Force, the 3rd Marine Division, the 3rd Marine Logistics Group, and most of the 1st Marine Air Wing. It also hosts the headquarters for the 31st Marine Expeditionary Unit, under which infantry and aviation units rotate, on a six-month basis, from the United States. There are additional air, ground, and logistics elements in Hawaii, as well as in California, which routinely deploy throughout the region. Though current USMC presence on Guam is limited to a rotational deployment of special operations forces,¹³ up to 8,000 Marines are expected to begin relocating to the island from Okinawa in 2020.¹⁴

9. Peter Dean and Jan K. Gleiman, "Australian Amphibious Warfare Capability 2017 and Beyond" (Canberra: Australian Strategic Policy Institute, June 2015), 9.

10. Study team interviews, Canberra, April 12–17, 2015.

11. Study team interview with advisor to the ADF, Canberra, April 17, 2015.

12. Making the training and housing areas viable for use during the wet season to enable "toe-to-toe" or continuous presence rotations would require substantial investment by the United States, Australia, or both. While this may come to pass, the immediate priority is on taking the steps necessary to support the full force of 2,500 Marines that is planned.

13. Hope Hedge Seck, "MARSOC bridging the divide between special ops and the Marine Corps, says outgoing commander," *Tennessean*, August 10, 2014, <http://www.tennessean.com/story/military/2014/08/10/marsoc-bridging-divide-between-special-ops-and-the-marine-corps-says-outgoing-commander/13860579/>.

14. Stephen Limtiaco, "General: No movement of Marines for at least six years," *Guampdn.com*, December 19, 2014, <http://www.guampdn.com/article/20141211/NEWS05/141219022/General-No-movement-Marines-least-6-years>.

From an equipment perspective, both nations require a more capable amphibious assault craft for littoral maneuvers, and are at various stages of pursuing one. Some in the ADF have also questioned whether the Australian Army requires additional riverine and watercraft capabilities to better support operations close to and on the mainland.¹⁵

FORCE PROTECTION

Amphibious forces are responsible for protecting elements afloat, in transit, and ashore, throughout any operation. That protection can be organic to any element of the force or provided externally.

The ADF design for the amphibious ready element (ARE) and ARG, as well as for its MAGTF, are well suited for this mission, though some AAF capabilities may take longer to materialize. For example, the challenges with air marinization could inhibit the ability of ADF helicopters to support forces moving or already ashore, particularly if those helicopters conduct sustained sea-based operations. In higher threat environments, both nations have a range of air and surface escorts that could be task organized as required, though doctrine for how to apply integrated fires between the two nations is not identical.

CONNECTORS

Connectors, whether by sea or by land, transport personnel, equipment, and supplies from the ship to the shore and sustain operations once they are under way. The RAN operates two types of surface landing craft: a new LHD landing craft (LLC) known as the LCM-1E as part of JP 2048, and the landing craft vehicle and personnel (LCVP). It also plans to procure replacement heavy landing craft that will expand the range of sea conditions in which the current fleet can operate. HMAS *Choules* also carries naval lighterage equipment that is similar to U.S. Navy lighterage. Finally, the Australian Army operates a small fleet of mechanized landing craft (LCM-8s) and amphibious cargo vehicles (LARC-Vs); it has proposed replacing the LCM-8s, though how this requirement might evolve is not yet clear.

The RAN's three amphibious ships support a range of ADF helicopters; maritime support will be principally provided by CH-47 Chinooks, the MRH-90, the MH-60R Seahawk, and the ARH Tiger. For the Australian Army's airborne connectors, as with some ground equipment, there are concerns that aviation assets are not sufficiently marinized. The MRH-90 fleet was not designed to withstand the significant corrosion that can occur in maritime environments. In addition, the MRH and Chinook fleets both lack automatically folding blades that increase storage options and operational tempo. The ADF recognizes these challenges, and will need to find work-arounds, as they will impact the speed and volume that ADF air bridges can support during amphibious operations.

15. See, for example, Captain Dean Clark, "Australia's Amphibious Ambition," *Australian Army Journal* 8, no. 1 (Autumn 2011): 89, <http://www.army.gov.au/Our-future/Publications/Australian-Army-Journal/Past-editions/~media/Files/Our%20future/LWSC%20Publications/AAJ/2011Autumn/08-AustraliasAmphibiousAmb.Pdf>.

Because of their design and history of continuous operations, U.S. forces maintain a robust suite of both surface and air connectors. On the sea side, U.S. forces operate a range of vessels, including the landing craft air cushion (LCAC), the landing craft utility (LCU), the improved navy lighterage system (INLS), and (like the Australian Army) the LARC-V, to move and maneuver from amphibious ships. The United States is in the process of acquiring a more capable LCAC. Air support operations are primarily conducted by CH-53 Super Stallions, UH-1Y Hueys, and the MV-22 Osprey, all of which are fully marinated.

SUPPORT VESSELS

Finally, each nation operates a range of additional ships to resupply their respective amphibious forces at sea, either when under way or conducting operations. This ability is critical when operations are either distant or of long duration in areas where adequate ports are unavailable.

The RAN operates two sustainment ships capable of providing fuel, ammunition, food, and other supplies at sea either via a cable system or helicopter. It also operates one landing ship, heavy (LSH), HMAS *Tobruk*. *Tobruk* is capable of carrying large, heavy cargo (up to 18 main battle tanks and 40 armored personnel carriers) as well as one or two helicopters, and is equipped with ramps that enable easy loading and unloading of the ship on a beach or pier. These capabilities have continued to prove useful, most recently in Australia's response to the March 2015 cyclone in Vanuatu. However, the ship has experienced a number of maintenance challenges that limit its availability; it also lacks military-level force protection so it requires external support in hostile environments. *Tobruk* is scheduled to be retired in mid-2015.

The U.S. Navy operates or funds a wide range of vessels that support U.S. amphibious ships, from oilers to multipurpose sustainment ships. In addition, the U.S. Navy maintains two Maritime Prepositioning Squadrons (MPSRONS) in the IAP, one in Guam and one in Diego Garcia, that contain prepositioned vehicles, equipment, and ammunition in order to speed response time. Each squadron contains six ships (seven by the end of 2015) that include vehicle cargo and container ships, as well as the newly introduced mobile landing platform (MLP) auxiliary support ship that is designed to operate as a seagoing pier.

In sum, both the ADF and U.S. forces (both USMC and USN) have or will shortly possess each of the key elements of a full amphibious capability, though both have areas where additional capabilities are seen as necessary. For example, larger scale or heavily contested operations could require augmentation from additional air, surface, or undersea platforms to complement inherent mine clearing or counter-submarine capabilities, and/or to conduct air attacks or longer-range ISR missions. Even for more benign activities, certification of the Australian ARG in 2017 will likely leave some issues not yet resolved, such as full logistics support for operations at greater distances. Given these realities, as the 2017 certification approaches, policymakers in both nations may now be able to consider what comes next, and specifically whether future evolution might be pursued, to mutual benefit, by a more explicit focus on developing specific combinations of the two amphibious forces.

4 | Options for a Combined Amphibious Capability

Given the range of amphibious forces both nations bring to the table, the potential combinations are numerous and offer a range of capability options. Based on interviews, the study team developed a framework for considering a few of those options. While this framework is by no means exhaustive, it could be modified to accommodate alternative visions of what might be desired while still maintaining a logic through which costs and benefits might be assessed.

Both Australian Defence Force (ADF) and U.S. Marine Corps (USMC) doctrine identify engagement, human assistance and disaster relief (HA/DR), and non-combatant evacuation operations (NEOs) as key amphibious missions. As noted earlier, they also include higher-end options, which are often the focus of existing exercises and planning. While there are a range of opportunities (especially related to experimentation) that might be further considered in this sphere, engagement and crisis response may represent the most likely operations to emerge in the near term. As a result, this study most thoroughly explores alternatives in this context.

For potential force combinations, the study team examined two basic options for U.S. forces that could supplement an amphibious ready element (ARE) or amphibious ready group (ARG): (1) a USMC detachment sized to be loaded on the Royal Australian Navy (RAN) landing helicopter docks (LHDs); and (2) a USMC detachment augmented by a USN Military Sealift Command (civilian operated) T-AKE dry cargo ship. The team did not explicitly consider an option involving the loading of ADF onto USN amphibious ships. Though this possibility certainly exists, given current U.S. amphibious shipping shortfalls doing so seems a more distant possibility. Further, to some degree this already occurs within the context of existing exercises. That said, expanding opportunities for ADF personnel to deploy on U.S. vessels may well be worthy of deeper consideration.

With respect to the USMC detachment associated with an ARE, the study team used a notional size of between 50 and 360 Marines as a basic planning factor. This is based on the study team's understanding that the structure of an ARE (both Australian Army and RAN personnel) would number approximately 640 personnel for a core element or 950 if reinforced, and that the Australian LHDs have a berthing capacity of 1,000.¹ In the case of a

1. Study team interviews, Canberra, April 14–19, 2015; and Dunne, “The Australian Amphibious Force.”

full ARG, the core ADF structure would number approximately 2,020, with berthing available for 2,300; this in theory would mean that a USMC force of up to 280 could potentially embark as well.

The addition of a T-AKE offers the potential to add up to 100 additional berthing spots.² (Indeed, Marine Rotational Force-Darwin [MRF-D] is planning to exercise with a T-AKE this year, though not as part of a combined formation.) The composition of a force (either Australian or U.S., or both) that might utilize a T-AKE's capacity for a combined mission would be determined by its purpose, relative to the composition of the remainder of the force that might be embarked upon an amphibious ship. The study team specifically considered the option of adding a T-AKE in recognition of the challenges associated with getting additional U.S. amphibious ships to the Indo-Asia Pacific (IAP) in general, and to South Asia in particular. As U.S. Navy amphibious shipping has become increasingly scarce, the U.S. Marine Corps has somewhat reluctantly begun to evaluate the degree to which "alternative" ships might be able to fulfill some subset of the USMC's needs.³ Some of that reluctance stems from the inherent limitations associated with employing support platforms for purposes for which they were not designed. While most have ample lift, they frequently lack one or more key capabilities such as command and control; force protection; medical support; berthing; connectors; or intelligence, surveillance, and reconnaissance (ISR). That said, the USMC is actively developing options for employing platforms such as the T-AKE in certain circumstances, accepting some level of degraded capability in lower threat environments. Many of those limitations are mitigated if the ship operates in tandem with a highly capable amphibious ship such as those of the RAN.

The study team then identified five primary attributes of each force option:

- **Range/duration.** Whether the core ARE is able to deploy with a RAN sustainment ship, which would affect either how far the LHD or landing ship dock (LSD) could deploy and/or how long it could remain on station, would depend on synchronized force generation cycles. This is much more predictable in an engagement scenario, but could prove problematic in a crisis response operation (either HA/DR or NEO). The addition of a U.S. T-AKE offers many of the same benefits of a RAN sustainment ship, to include significant storage capacity for both fuel and other stocks. Presumably, the ARG would routinely deploy with one or both of the RAN sustainment vessels; in this instance, the addition of a T-AKE merely expands sustainment capacity, which could extend the force's range, time on station, or both.
- **Responsiveness.** The capacity of the force to create and sustain sea or air bridges is a function of the number of connectors and sufficient personnel with the requisite expertise. While the ADF continues to build that expertise, some or all of a USMC detachment could assist with optimizing combat load and/or surface and

2. Data from Headquarters U.S. Marine Corps, summer 2014.

3. Megan Eckstein, "Marines Considering New Platforms to Extend Africa Reach, Including the Gulf of Guinea," *USNI News*, March 4, 2015, <http://news.usni.org/2015/03/04/marines-considering-new-platforms-to-extend-africa-reach-including-the-gulf-of-guinea>.



T-AKE

Lewis and Clark class

Purpose: Dry cargo/ammunition

Length: 689 feet

Beam: 105 feet 7 inches

Displacement: 42,416 tons

Speed: 20 knots

Draft: 29.8 feet

Crew: 64 (54 Civilian + 10 USMC)

Embarked Landing Force: 134

Medical: Sick-call

Potable Water: 50,488 gallons; 30,000 gallons per day

Flight Deck: 2 Spots (Level I, Class I)

1 Spot, sized and certified for all helicopters (excluding CH-53k)

MV-22 (Level I, Class 2/4)

Aircraft Parking (Hangar, etc): 2 MH-60s*/1 MV-22 (folded)

Hangar: 2,486 square feet

Crane: 4,000 ton capacity

Maintenance Capabilities: Landing area with support (service and organizational-level maintenance) facilities

USN-USMC Aircraft: H-46/H-60S

Class 2: Landing area with service facilities

USN-USMC Aircraft: H-1/H-3/H-53D/H-53E/H-60B/H-60R/MV-22

Class 2A: Landing area with limited service facility

USN Aircraft: H-60A

U.S. Army/Air Force Aircraft: H-1/H-6A/H-58/H-60A/AH-64/H-53/H-60/CV-22

USCG Aircraft: H-60/HH-65

Elevators (Cargo): (4) 8 short tons

(4) 6 short tons

Cargo Cube (Twenty-foot equivalent units): 953,700 cubic feet

Lift On/Lift Off: (4) Cranes (10 metric tons each)

Cargo Fuel (JP-5): 1,048,000 gallons

Command, control, communications and cyber capabilities:

(3) AN/USC-61(C)

(4) AN/RC-114(V)2

AN/PRC-117G(RT1949)

(4) AN/PRC-148(C)

(1) AN/USC-69(V)3

air operations. The addition of a T-AKE could further increase responsiveness by increasing the number of air platforms if it carried an Australian or U.S. helicopter. (The ship has one operating spot, and hangars sized to fit two H-46s.) It could also increase the number of expert personnel (whether ADF or USMC).

- **Scale.** The scale of operations a given force can support is a function of overall capacity. The baseline capacity of an ARE or ARG would not change substantially with the addition of a small USMC detachment. However, inclusion of a T-AKE in any given force package would significantly increase the amount of available fuel, water, equipment, ammunition, or other stores.
- **Breadth.** The Australian Amphibious Force (AAF) and the USMC/USN are able to draw upon highly similar capabilities. As noted above, however, there are instances in which U.S. forces have deep expertise in areas that the ADF is just beginning to employ (those specialties at the nexus of land and maritime operations), and that the USMC might be able to usefully augment in the short term. There are also some niche capabilities such as the USMC's Cyber Electronic Warfare Coordination Cell (CEWCC) that could inject additional tools into an AAF formation that would enhance its effectiveness. Finally, the addition of a T-AKE offers the potential to embark a larger force, which could either be deeper in certain capability areas or offer a greater range of capabilities (i.e., breadth). The personnel and load for the T-AKE could be U.S., Australian, or some combination of the two. Further, the deck of the T-AKE could potentially be used to support the operation of unmanned aerial vehicles, which could provide additional command and control, ISR, electronic warfare, or fires capabilities to a given formation.
- **Force protection.** Finally, U.S. personnel or equipment, either embarked on RAN amphibious ships or a T-AKE, could add additional force protection capability and capacity, for either the ships or the landing force. In some situations, however, the addition of the T-AKE might have a neutral, or even negative, effect on risks to the force. As a commercial ship, its self-protection capabilities are extremely limited. It could carry one helicopter to provide some airborne protection, but this would limit the utility of that helicopter to support other missions. On the other hand, the T-AKE could also embark personnel and/or equipment that could vastly increase the force protection capabilities of the force ashore. Some issues might arise in combining

Table 4.1 Force Option Attributes

		<i>Range/ Duration</i>	<i>Responsive- ness</i>	<i>Scale</i>	<i>Breadth</i>	<i>Force Protection</i>
ARE	ADF-only (baseline)					
	+ USMC detach		+	+	+	+
	++ T-AKE	++	++	++	++	+/-
ARG	ADF-only	+++	+++	++++	++++	++++
	+ USMC detach	+++	+++	+++++	+++++	++++
	++ T-AKE	++++	++++	+++++	+++++	++++

ADF = Australian Defence Force; ARE = amphibious ready element; ARG = amphibious ready group; T-AKE = U.S. dry cargo ship; USMC detach = U.S. Marine Corps detachment.

RAN amphibious ships and a U.S. T-AKE in a higher threat environment, as the T-AKE is not a designated warship and thus has a different status under international law. This could limit options, and/or require some dedicated focus if there were a desire to be able to pair the ships in uncertain or greater threat environments.

Table 4.1 summarizes the relative value of each force option relative to the AAF baseline ARE.

As Table 4.1 shows, relative to an ADF-“pure” ARE, in an ARE context the addition of a USMC detachment could add additional responsiveness, scale, breadth, and force protection. Further complemented by a T-AKE, the formation would have greater range and duration, and even greater responsiveness, scale, and breadth. The net force protection implications of adding a T-AKE are difficult to determine in the abstract.

An ARG is obviously much more capable in every dimension than an ARE of whatever composition. Here, the addition of USMC detachment would likely add the most value in scale and breadth; the T-AKE would increase the ARG’s overall range and/or duration, responsiveness, scale, and breadth, with a likely neutral effect on overall force protection.

Attributes and Mission Types

Not all of these attributes are equally meaningful in every operation. For example, responsiveness is critical in crisis response operations (both HA/DR and NEO), but less important in engagement activities. Table 4.2 offers a basic evaluation of the relative importance of each attribute in each of the three mission types (engagement, HA/DR, and NEO) upon which the study team focused its analysis.

While every operation is unique, some likely generalizations can be made. Assuming that a combined amphibious force would depart from Australia, for engagement missions range would be of medium importance. Both Australia and the United States have engagement priorities in Australia’s neighborhood. Some can be met with “out and back”

Table 4.2 Amphibious Attributes' Importance, by Mission Type

	<i>Range/ Duration</i>	<i>Responsiveness</i>	<i>Scale</i>	<i>Breadth</i>	<i>Force Protection</i>
Engagement	Medium	Low	Variable	Medium	Low
HA/DR	High	High	High	High	Variable
NEO	High	High	Variable	Low	Medium

HA/DR=human assistance/disaster relief; NEO=non-combatant evacuation operation.

deployments from Australian ports, with ranges further extended by overseas ports. But additional range inherent to the force package would expand engagement options and the types of deployments that could be undertaken. Range and duration, and particularly duration, is of even greater importance in HA/DR operations, especially when local infrastructure has been substantially damaged. The ability of an amphibious force to sea base for however long it might take for other assistance to become functional is of immense utility in these types of operations. Finally, for NEO operations, duration is less presumably less important (because evacuations should occur as quickly as possible once directed), but range is of great value. The ability of an amphibious force to extend its reach as far as possible means that national authorities have an increased suite of options should citizens be in danger, which is highly valuable.

The value of responsiveness also varies across operational type. Engagement activities are essentially voluntary, and are theoretically planned in ways that align available resources to objectives. Thus an increased ability to be responsive is not likely to add much additional value to these types of operations. The converse is true, however, for crisis response operations undertaken either in the aftermath of a disaster or when civilians require evacuation. Such operations are by definition unanticipated (though there can be some notice that a NEO might be necessary), which places a high premium on responsiveness.

The attribute of scale also has varied utility across operational types. Engagement activities can be planned to fit within expected scale constraints, but additional capacity offers the opportunity for a wider set of options. It is often very important in HA/DR operations, which can be extremely large and/or persist for long periods of time. It is difficult to determine a set value for how useful scale might be in a NEO. Some can be quite small and could be easily managed by a small force, while others could be substantially larger.

The study team judged breadth, or the range of capabilities intrinsic to a given force package, to be of medium utility in engagement activities. It is certainly possible to conduct engagement with a force with a relatively limited capability set; it results in similar limitations on the types of activities that can be undertaken. For example, the baseline ARE will have a sizeable medical element; thus an Australian ARE could easily conduct bilateral or multilateral training or exercises that included a medical component. However, the addition of larger numbers of amphibious logistics experts might enable training or exercises

to occur in a greater number of venues, and/or to incorporate amphibious-specific elements that might otherwise be precluded.

The ability to have a wide range of capabilities resident within a force is often of great value in HA/DR operations, which can involve a widely disparate set of tasks—from enabling and protecting food distribution, to restoring basic services, to disseminating information to ensure the actions of the force are known to the local population and well understood, to providing medical support, to ensuring potential adversaries are not intending to exploit the situation for malicious intent. Finally, while there may be some exceptions, the likely value of breadth for most NEOs is likely to be relatively low. These missions, though complex, tend to be narrowly tailored and rely more on depth than breadth.

Force protection concerns also vary by mission type. Engagement activities are typically undertaken in environments that are presumed to be benign, and would likely be foregone if risks were deemed too high. The threat environment is more variable in HA/DR situations. For example, if a humanitarian assistance operation was necessitated by internal unrest, there could be significant force protection needs. Similarly, if terrorist or local militias were active in an area where disaster relief was undertaken, risk levels would be higher. They would almost certainly be high in a NEO, which are triggered when governments feel their citizens are at risk. Thus, even though most NEOs are unopposed, any force engaged in such an operation must prepare to defend both itself and those whom it is extracting.

Force Options, Attributes, and Missions

Based on the analysis above, the study team compared the degree to which a given force option provided a specific attribute with the likely utility that attribute would add across the three mission types under examination. The results of that comparison are shown in Table 4.3.

Table 4.3 illustrates that every potential combined force combination would add operational value, though the greatest appears to be in HA/DR operations. It also shows that the greatest value would likely come from the planned addition of both personnel and a T-AKE to an ADF ARG. These findings, of course, relate only to the specific options put forth; other configurations are possible, as is consideration of a different set of operational types.

There are also other factors that deserve examination to fully appreciate the potential benefits of a combined force. Beyond the expected operational benefits, there are a number of other advantages that a more dedicated effort to develop a combined force for a specific mission set could offer, both at the institutional and strategic levels.

Table 4.3 Utility of Force Options by Mission Set, Relative to ADF Core ARE

	Engagement					Humanitarian Asst./Disaster Relief					Non-combatant Evacuations				
	Range/ Duration	Respon- siveness	Scale	Breadth	Protec- tion	Range/ Duration	Respon- siveness	Scale	Breadth	Protec- tion	Range/ Duration	Respon- siveness	Scale	Breadth	Protec- tion
ARE	+ USMC detach		+	+	+		+	+	+	+		+	+	+	+
	++T-AKE		++	++	++		++	++	++	++		++	++	++	+/-
ARG	ADF baseline		++++	++++	++++		++++	++++	++++	++++		++++	++++	++++	++++
	+ USMC detach		+++++	+++++	+++++		+++++	+++++	+++++	+++++		+++++	+++++	+++++	+++++
	++T-AKE		+++++	+++++	+++++		+++++	+++++	+++++	+++++		+++++	+++++	+++++	+++++

Italics indicate an attribute is of variable importance. **Bold** indicates an attribute is of high importance. All others are of medium importance. Attributes of low importance are omitted.

Institutional Level

Both Australia and the United States have challenges synchronizing the force generation cycles of their ships and embarked forces that a more deliberate plan for combined activities could help to alleviate. On the ADF side, the generation cycles of the ships, ground combat, and logistics elements are not yet aligned. For the USMC, it has ready ground and logistics combat elements in the MRF-D that may not align with available transport. Increasing the size of the solution space to include the full range of combined options suggests that both countries' forces could achieve higher levels of overall force readiness and execution.

As a further benefit, deliberately planning for combined formations would accrue the value not only of the destination but the journey. Both sides would further enhance interoperability at a more rapid pace, a high priority on both sides, and one that would extend to the force irrespective of the mission that might be undertaken. Further, the ADF would have the opportunity to accelerate its learning curve toward amphibious excellence by “trying out” a USMC model (potentially directly if it used Marines to fill short-term specialty gaps) to better inform the development of its own, Australia-unique model. And the USMC could potentially leverage ADF experts in areas that might not be yet be resident in the MRF-D force, rather than bring Marines in from elsewhere across the Corps.

Finally, a combined force, particularly one that involved ships capable of carrying cargo from outside Australia, could offer greater operational flexibility for force planners. Australia's stringent agricultural standards require any piece of equipment—ground or air—entering or re-entering Australia to undergo a very thorough and time-consuming inspection process. If ADF or USMC forces were able to “marry up” with equipment on a T-AKE or other ship that did not originate in Australia, utilize that equipment off the continent, and then return home, this would avoid a situation where equipment might be tied up and unavailable for training or other uses at the end of a deployment.

Strategic Level

The potential for routine, combined formations offers potential strategic value as well. If they were to be oriented toward combined engagement, the sum of the combined whole would likely be more than that of its component parts. While both countries' forces can and do conduct engagement activities, the ability to deploy a combined force offers leaders the opportunity to tailor that engagement to each countries' respective strengths. When the value is greatest in having the ADF and USMC arrive together, they can. Conversely, if political sensitivities suggest that one or the other force might be less welcome, the ADF could drop the USMC element in a given location, proceed elsewhere (either to conduct that event or to engage in some other), and then return. While these options also exist if both forces deploy separately and come together when and where it makes sense, the deployment of a combined force also sends a powerful strategic message of combined capability and commitment. The latter benefit would also accrue in a combined HA/DR or NEO force.

One final potential advantage of a combined force focused on engagement or crisis response may be its appeal to other nations. Both Australia and the United States have expressed a desire to expand multilateral engagement in the region, helping to build relationships and trust despite complex histories and overlapping territorial claims. Australia is uniquely positioned to help facilitate this goal, with U.S. participation when relevant but without it when that presence might be counterproductive. As noted above, a combined amphibious engagement force is another mechanism to tailor force composition such that multilateral interactions can regularly occur, at levels appropriate to the range of capabilities at hand.

Overall, this analysis suggests that there are a range of operational, institutional, and strategic advantages for both Australia and the United States that could result from a combined amphibious force. This proposition is to many both intuitive and obvious. Why, then, have plans to pursue such a force not already begun? In fact, they already have, to some degree. The clearest example is in the Pacific Partnership mission, an annual humanitarian and civic assistance deployment involving both ADF and U.S. amphibious forces. However, while “combined” at the highest levels—that is, both nations’ forces go out as part of an activity with a shared timeline and under the same name—the focus is on training host nations in the region, rather than on enhancing the interoperability of participating partner militaries. While multiple partners worked together to conduct medical training in Timor-Leste in 2014, in 2013 the forces were much more disparate. For example, an Australian LSD conducted operations in Papua New Guinea,⁴ while a U.S. LSD operated in Tonga, Samoa, and elsewhere.⁵ Whether opportunities exist for more fulsome interaction is not clear, but would need to overcome a number of challenges, the costs of which must be weighed against any expected benefit.

4. “Exercise Pacific Partnership 2013” (Canberra: Department of Defence, 2013), <http://www.defence.gov.au/exercises/pacificpartnership13/>.

5. “Pacific Partnership 2013” (Honolulu: Commander, U.S. Navy Pacific Fleet, 2013), <http://www.public.navy.mil/surfor/Pages/PacificPartnership2013.aspx#.VU0jtq3BzGc>.

5 | Challenges to a Combined Amphibious Force

There are a number of challenges that developing a more deliberate combined force capability would need to surpass. There are some issues associated with operating amphibiously out of Australia in general (especially with respect to where forces are positioned and the sufficiency of existing infrastructure). Australia is addressing these challenges on its own,¹ as well as in conjunction with the United States (primarily through the combined Naval Cooperative Study). While these issues are significant, they are not specific to combined amphibious operations per se, and thus fall outside the scope of this analysis.

Perhaps the greatest obstacle to arriving at a plan to develop a combined amphibious force is the lack of clarity about what might be desired. Study team interviews revealed that this ambiguity exists within each nation’s defense establishment, as well as across them, and extends from the types of missions, to mission priorities, to how operations might be conducted, to specific aspects of interoperability.

In fact, the term “interoperability” was raised throughout the course of this study, with varying meanings. (While some organizations did have defined terms, those were not shared across the full range of stakeholders.) To help clarify conversations conducted as part of this efforts, the study team developed a set of definitions offering greater specificity for how the Australian Defence Force (ADF) and U.S. Marine Corps (USMC) might interact. They are as follows:

- *Deconfliction*: Two forces conducting a common mission but engaging separately without interference from the other (e.g., Pacific Partnership 2013).
- *Interoperability*: Two forces conducting a common mission while operating in parallel with shared situational awareness, communications and equipment capabilities, and lack of interference. Forces from both nations may or may not be engaged as a whole (i.e., as a combined force).

1. See, for example, the ADF’s *Posture Review*, which specifically recommended adjustments to RAN posture both independently and in light of increased U.S. presence. Allan Hawke and Ric Smith, *Australian Defence Force Posture Review* (Canberra: Government of Australia, March 30, 2012), <http://www.defence.gov.au/Publications/Reviews/ADFPPosture/Docs/Report.pdf>; and Perkins, “Darwin Marines.”

- *Integration*: The arrangement of military forces from both nations and their actions to create a force that operates by engaging as a whole.
- *Interdependence*: The arrangement of military forces and their actions that rely on unique critical capabilities that must be provided by (or, put differently, cannot operate by engaging as a whole absent) contributions from both nations.
- *Interchangeability*: The arrangement of military forces and their actions to create a force that operates by engaging as a whole, with any element of the force potentially supplied by either nation (nation-agnostic). Interchangeability implies common equipment, organization, doctrine, etc., that allow for direct one-to-one replacements of people or units, irrespective of nationality.

These definitions were developed with an operational context in mind, but study team discussions made clear that they also hold, at least to some extent, at the strategic and tactical levels as well. That such differences exist is not surprising, nor is it necessarily inappropriate. However, the study team believes that greater clarity about what exactly is desired in (oftentimes) each nation’s national, and then in a combined, context would go a long way toward helping to guide progress.

Purpose and Mission Priorities

On the Australian side, one of the primary hurdles to advancing the country’s amphibious capability is the lack of a shared sense of purpose for the Australian Amphibious Force (AAF). At present, much hope is pinned on the upcoming Defence White Paper to help clarify the specific requirements the capability is expected to meet, and on what timelines. While defense professionals are clear that AAF is intended for uses well beyond human assistance and disaster relief (HA/DR) missions, the fact that numerous ADF leaders continue to publicly rebut the perception that this is their sole purpose (including as recently as March 2015) suggests that this vision is not yet uniformly accepted in Australia.²

Even if internal ADF views on the broad applicability of an amphibious capability are consistent, there is still a question of which of its potential uses is most important. Strategic guidance has been clear that initial priority should be given to HA/DR and crisis response, which is reflected in the evolutionary certification of the amphibious ready element (ARE) in 2015 leading to the full amphibious ready group (ARG) in 2017. Yet once a “full spectrum” capability is deemed prepared, the ADF will need to set further mission preparation priorities. Continuing to prepare for higher-end operations such as those exercised in the biennial Talisman Saber series seems likely; the question is whether additional time and space could be created for an additional focus directed at some other

2. Chief of Navy Vice Admiral Tim Barrett recently remarked that acquiring RAN LHDs principally for HA/DR “was not [the] government’s intent when the [procurement] decision was made,” and that once the ships enter service and prove their utility, HA/DR operations “will be an alternate mission” (though still of “great strategic importance”). Address by Vice Admiral Tim Barrett, AO, CSC, RAN, Chief of Navy, to the Australian Strategic Policy Institute Future Surface Fleet Conference, Canberra, March 31, 2015.

mission set in a combined context. Fundamentally, the long-standing tension between “expeditionary” and “amphibious” operations is not necessarily resolved with the arrival of ARG certification.

Interviews conducted by the study team found that the ADF is focused on meeting the very aggressive schedule for AAF certification, and that views are not yet clear about what might be desired by way of combined amphibious operations beyond the already anticipated ADF participation in a larger, U.S.-led operation that forms the basis for existing exercises. That participation largely aligns with the “interoperability” definition of ADF and USMC forces operating in parallel, without interference.

On the U.S. side, the USMC’s position and mission set within the U.S. military is well established. The larger issue is whether there is a shared vision within the U.S. defense establishment about the United States’ priorities for how it would like to engage and operate with the AAF. In conversations with numerous stakeholders responsible for setting U.S. policy with respect to the AAF, the study team found multiple disparate views about how it could best contribute to shared security goals. A March 2015 conference offered one example, where the incoming commander of U.S. Pacific Command (US PACOM) postulated that U.S. and Australian amphibious ships might work together in an amphibious operation, but a U.S. Pacific Fleet (i.e., the Navy subordinate command) leader suggested a less amphibious-unique combination of the new Australian landing helicopter docks (LHDs) and U.S. destroyers as part of “hunter-killer surface action groups.”³ Study team interviews with other key organizations that contribute to the setting of priorities for Marine Corps and Navy organizations and platforms indicated an even broader set of conceptions for how USMC/ADF amphibious forces might partner going forward, a reality confirmed by interviews with some of the ADF leaders with whom they interact.

Some interviewees felt that Australia’s primary utility was as a host to (largely) U.S.-focused security activities, be they Marine Rotational Force-Darwin (MRF-D) or the potential for future U.S. naval basing. To these people, the introduction of the AAF was fundamentally of little interest, except that it might offer some potential for the USMC to occasionally get lift to some locations in the theater for primarily U.S. purposes. This position could best be described by *operational deconfliction*: separate operations conducted on a non-interference basis.

Other interviewees saw the AAF as key to the ADF’s ability to relieve demand on U.S. forces in the Indo-Asia Pacific (IAP) by being able to handle many operations in the South

3. Rob Taylor, “China’s ‘Great Wall of Sand’ Raises U.S. Concerns,” *Wall Street Journal*, March 31, 2015, <http://www.wsj.com/articles/u-s-to-move-stealth-destroyers-to-pacific-region-1427784315>. The concept, though not expressed relative to the ADF, is explained more fully in an article that calls for, among other things, increasing the offensive capabilities of U.S. amphibious ships with surface-to-surface missiles and additional land attack weapons. The authors note that any additions would not be intended to compromise those ships’ primary mission of projecting Marine Corps power ashore, but do not explain how associated opportunity costs that might lead to such an effect could be avoided. Vice Admiral Thomas Rowden, Rear Admiral Peter Gumatao-*tao*, and Rear Admiral Peter Fanta, “Distributed Lethality,” U.S. Naval Institute *Proceedings*, January 2015, <http://www.usni.org/magazines/proceedings/2015-01/distributed-lethality>.

Pacific and Indian Ocean that might otherwise require U.S. involvement. Adherents to this view perceived that the greatest utility was in an increased ability to “split the theater,” allowing U.S. forces to further concentrate on the threats in Northeast Asia while Australia assumes greater responsibility for South Asia. This could be summarized as *subregionally based deconfliction*.

Still other interviewees felt that the potential for the U.S. and Australia to act in concert in Australia’s neighborhood represented a powerful strategic signal to regional capitals. Those from the first two schools of thought placed a relatively low priority on combined activities, while the latter saw those combined actions as the primary objective, one that most closely approximates ADF-USMC *operational integration*.

It may be that classified guidance unavailable to the study team offers greater clarity about U.S. goals relative to how the United States would like to interact with the AAF. If so, however, the study team’s interviews clearly indicated that this guidance is not widely understood across the U.S. defense community engaged in ADF interactions.

Combined (Vertical) vs. Joint (Horizontal) Integration

Within Australia, closely related to mission prioritization is what many Australian interviewees characterized as the tension between vertical and horizontal integration, with vertical integration being the ability of ADF forces to serve as part of a larger partner’s combined force and horizontal being greater inter-ADF jointness. Former Army Chief Lieutenant General David Morrison has acknowledged the degree to which existing service cultures are challenged by the greater horizontal integration a capable amphibious force requires, noting that throughout “much of history the three services developed much closer ties with the equivalent services of our allies than they did with the other elements of the ADF.”⁴ In another address he cited the Australian military services’ “preference for, and expertise at, training and operating with their Service equivalents” in other nations as one of two “pernicious trends” that has inhibited the full implementation of a maritime strategy.⁵ ADF leaders have pledged to foster a culture of greater jointness, an imperative reinforced by Australian policymakers and restated most recently in the *First Principles Review*.

There remains a clear emphasis on enhancing the ADF’s advanced capabilities, but in numbers that are small enough that they really would only be meaningful as part of a broader (likely U.S.-led) operation. For example, the ADF has recently purchased P-8s to conduct airborne anti-submarine warfare, F-35 Joint Strike Fighter aircraft, and very capable destroyers equipped with advanced Aegis missile defense systems. These efforts

4. Lieutenant General David Morrison, AO, “Address to Royal Australian Navy Maritime Conference,” January 31, 2012, 9, <http://www.army.gov.au/Our-work/News-and-media/News-and-media-2012/News-and-media-March-2012/Army-in-a-Maritime-Strategy>.

5. Morrison, “Transcript,” 9.

are welcomed by the United States as it seeks to encourage a broader, region-wide network of like-minded forces to counterbalance Chinese military modernization, but they reflect a continued need for Australia to clearly weigh the balance between forces designed to contribute to operations led by others and those it conducts itself.

In fact, the development of the AAF offers intriguing opportunities to do both, as even a relatively small amphibious fleet will provide Australian leadership with a significant amount of independent capability. Not surprisingly however, the AAF's inherently joint nature is forcing deeper consideration of technical interoperability issues, particularly for command, control, and communications systems. Like U.S. forces, the ADF needs to provide multilayer (i.e., different levels of classification) and cross-domain (air, land, space, and sea) security for data exchange. Achieving both would benefit both internal ADF and combined operations, especially in the areas of command and control; intelligence, surveillance, and reconnaissance (ISR); and integrated fires. AAF development is highlighting the need both to enhance these abilities for existing systems and take them into greater consideration for future acquisitions.

The USMC faces some of these same issues, particularly as it integrates new capabilities such as the F-35B. It is also actively exploring how the addition of unmanned air, sea, and undersea vessels might further complicate networked solutions. To address these challenges, the Corps is aggressively pursuing what it terms “digital interoperability,” to include the establishment of airborne gateways that translate digital information between disparate systems.⁶ While these efforts are primarily focused internally, because the different services within the ADF operate many of the same systems (but are just beginning, in many cases, to try to integrate them horizontally), this may be an area where deeper collaboration could help to accelerate AAF development.

Indeed, these kinds of opportunities are the specific focus of the Coalition Interoperability and Information Warfare Working Group, a standing ADF-USMC/USN body that convenes twice annually. This group represents what appears to be a consensus that both Australian and U.S. forces have a shared goal of *technical interoperability*. It may be possible, however, for that group to assist not only with working on shared bilateral objectives, but with providing additional expertise and experimentation support to internal ADF progress, especially in an AAF context.

Internal Differences in “Joint” Effects on the Combined Amphibious Relationship

For the Australians, the AAF represents one of the most profound forcing functions for increased jointness. The USMC, on the other hand, has the luxury of training, organizing, and equipping a “joint” amphibious formation, the Marine Air Ground Task Force (MAGTF)

6. Lieutenant General Jon Davis, “Forward to the fight: fully prepared to support Marine Forces,” *Marine Corps Gazette*, vol. 99, no. 5 (May 2015).

internally; when coupled with USN ships, it represents the U.S. “joint” capability. There are multiple practical implications of the “mismatch” between three services on the Australian side and two (of which only one is solely focused amphibiously) on the U.S. side. In recognition of its integration problem, the ADF has created a joint structure, led by the Joint Amphibious Capability Implementation Team (JACIT) to help guide AAF development. However, this organization is seen as lacking sufficient authority to ensure that a coherent amphibious capability advances despite competing service priorities.⁷ The recently issued *First Principles Review* prescribed some steps to enhance joint authority, which may help resolve this problem. However, the *Review* did not resolve concerns about which of the joint structures created to drive the AAF toward certification will remain, and in what form, after 2017.⁸ How this evolves will be important, as the Expeditionary Warfare Working Group (EWWG) is one of the primary U.S.-ADF forums currently charged with synchronizing the full range of U.S./Australian interactions in the amphibious space. It is co-chaired by a USMC general sitting on the Navy staff on the U.S. side and the commander of the Deployable Joint Force Headquarters (DJFHQ) on the Australian side. If key joint entities are dissolved post-ARG certification in 2017 as currently planned, it is not clear who might assume the EWWG’s function going forward.

To date, most of the USMC interaction has been with the Australian Army and Royal Australian Navy (RAN). However (as would be expected) both of those organizations continue to interact with their respective U.S. service counterparts (the U.S. Army and Navy) on other issues. These bilateral “vertical” stovepipes have their own sets of priorities, which can compete with (or at least confuse) AAF advancement. Thus while the USMC is the clear “bellybutton” for amphibious activities within the U.S. force, it is not the sole voice for U.S. priorities, a reality which can prove problematic for the Australians.⁹

In theory, this should not be a problem: the objectives and priorities for AAF collaboration would be clearly set by the Office of the Secretary of Defense, and executed by US PACOM through its component commands (U.S. Army Pacific Command [USARPAC], U.S. Navy Pacific Fleet [PACFLT], Pacific Air Forces [PACAF], and U.S. Marine Forces Pacific [MARFORPAC]). Study team interviews and a review of relevant unclassified documents indicate that there is a shared appreciation for the importance of the Australian-U.S. relationship and its importance to the overall rebalance strategy. PACOM has further designated MARFORPAC as the lead with respect to AAF development, and MARFORPAC has further designated I Marine Expeditionary Force (MEF) at Camp Pendleton as its overall lead, with III MEF in Okinawa in support.

7. Australian Ministry of Defence, *First Principles Review: Creating One Defence* (Canberra: Ministry of Defence, March 2015); and Dean and Gleiman, “Australian Amphibious Warfare Capability 2017 and Beyond.”

8. Dean and Gleiman, “Australian Amphibious Warfare Capability 2017 and Beyond.”

9. One ADF leader told the study team that to reduce confusion in a specific amphibious-related policy area the ADF had requested that communications with U.S. stakeholders be conducted through a single, joint office, though he acknowledged that that office likely lacked the ability to fully deliver on mutually agreed-upon objectives. Study team interview, Canberra, April 2015.

In execution, this guidance creates numerous problems. Because the ADF's amphibious capabilities draw from all three Australian military services, each of which maintains robust relationships with its U.S. counterparts, MARFORPAC's responsibility for AAF advancement exceeds its authority. Further, though both I MEF and III MEF interact with the ADF, III MEF's interactions are both more frequent and more substantial.

More fundamentally, and as discussed above, there is a lack of sufficiently specific guidance about overall objectives for the amphibious relationship. U.S. forces' interactions with other nations occur for a range of purposes, both strategic and operational. These include helping that nation's forces to build their own capacity, creating a forum through which combined interoperability challenges can be identified and resolved, serving as a venue for unilateral training to maintain U.S. force readiness, signaling a shared commitment, demonstrating combined capabilities, and increasing U.S. access to geographic areas that could be operationally relevant. Yet the relative importance of each is not established (or if established, study team interviews suggest it is not widely known). Thus interactions occur, sometimes at a volume that is difficult for the much smaller ADF to manage. But because the purpose of those interactions is expressed in general rather than specific terms, advancement is less efficient than if more precise objectives were set.

These challenges, while substantial, are by no means insurmountable. In fact, the strength of the Australia-U.S. relationship and the professionalism of both nations' security establishments mean that each issue will either be addressed or overcome, over time. However, there are some steps that the United States can take to accelerate this process, in ways that would strengthen the alliance's combined capabilities still further.

6 | Summary and Recommendations

This study began by asking how the United States and Australia might advance their combined amphibious capabilities. That question implicitly assumed that such an outcome would be desirable to both sides. Our research suggests that while this is likely true in the abstract, views on its utility vary substantially depending on what that combined capability might look like, and the purposes for which it would be designed.

At a general level, the two nations are already on their way to a combined amphibious capability, largely oriented around a basic model of operational interoperability in which the AAF would participate in a larger combined amphibious force as part of a U.S.-led, higher-end operation. This may well be perfectly sufficient in the eyes of one or both capitals. For the United States, the benefit of ADF contributions to a large-scale regional conflict may well be of greater utility to U.S. security goals than an ADF better prepared to either independently conduct or lead regional responses for lower-end operations in the South Pacific and beyond. For Australia, prioritizing the development of a capability that can contribute to larger allied operations may be seen as the best path to advance its strategic goals in the region relative to more contested operations, while delivering a substantial capability to conduct lower-end operations should those needs arise. It may also be that anything more than the current level of interaction, even if desirable, is not practical given the other demands on both nations' forces.

It may also be, however, that there is sufficient utility in developing a combined amphibious force tailored to engagement, HA/DR, or NEO to warrant additional focus and investment. Such a force offers the potential for Australia to accelerate its amphibious development for both its own and bilateral/multilateral purposes, and for the USMC to extend its operational reach despite persistent shortfalls in amphibious lift. It is also possible that such a force could be pursued even within the context of existing activities. Talisman Saber exercises, for example, will likely remain the “centerpiece of efforts to enhance [combined] military interoperability.”¹ Post-ARG certification (i.e., Talisman Saber 2019 and beyond), however, AAF participation could shift its focus from vertical integration into a U.S.-led high-end force to a different mission or objective. Alternatively, a strategy to tailor experimental engagements to higher-end operations, exercises to training as part of a vertically integrated force, and an operational force focused on lower-end

1. Australia–United States Ministerial Consultations Joint Communique 2014, <http://dfat.gov.au/geo/united-states-of-america/ausmin/Pages/ausmin-joint-communique-2014.aspx>.

operations could offer a robust path toward a broadly capable combined capability more quickly than might otherwise occur.

This study offers some basic contours for how such a combined force might be developed, and evaluates various options across a range of attributes. Other combinations are possible, as are other missions upon which such a force could focus. But the framework employed here can serve as a departure point for refinement that better reflects the particular interests of both Australian and U.S. policymakers.

Irrespective of how that conversation might evolve, the study revealed a number of steps that should be taken to further enhance the combined relationship. Because this study was sponsored by the USMC and Office of the Secretary of Defense (Acquisition, Technology, and Logistics) (OSD[AT&L]), our recommendations are focused on those organizations.

Clarifying the Purpose and Priority for Combined Collaboration

While the United States cannot set priorities for the ADF, it can clarify its own objectives for AAF engagement at the strategic, operational, and tactical levels. Visits to relevant U.S. military headquarters and to the Office of the Secretary of Defense made clear that much is being done to assist in the advancement of the development of the Australian amphibious capability. All these efforts are well intentioned, but are creating two effects: the ADF is being overwhelmed by multiple requests that have not been adequately coordinated, and the effort being expended is not always as effective or as efficient as is likely desired.

Recommendation: *MARFORPAC should engage with OSD(Policy), through US PACOM, to develop more explicit, enterprise-wide guidance about the desired form(s) of combined amphibious operational capability, both in terms of mission priority and specific level of interoperability (from deconfliction to interchangeable). This guidance should be reflected in a campaign plan that articulates a clear vision for the desired end state and identifies associated roles and responsibilities.*

Recommendation: *The Marine Corps should review its actions (policies, exercises, experimentation, exchange billets, etc.) to best support either a clarified objective from higher headquarters or, if lacking, from its own leadership. This clarified objective, whether internally or externally generated, should be explicitly captured in a bilaterally developed and approved training, exercise, and employment plan (TEEP) and supporting experimentation plan to explore the full range of combined amphibious operations, up to and including forcible entry.*

Recommendation: *Given an updated TEEP and experimentation plan, Headquarters U.S. Marine Corps should specifically review the division of labor within the Corps to support*

those plans, to ensure that internal capacities, capabilities, authority, and responsibility are aligned.

To help evaluate progress, the Corps should develop a more explicit framework for determining the degree to which existing ADF/Department of the Navy (DON) exercises and engagements achieve various ends, to include U.S. training and readiness goals, partner capacity building (for specified missions), and relationship building. While every bi- and multi-national event presumably includes some of each, the relative emphasis varies, leading to different rates of progress. This should be more clearly understood, and, with respect to AAF advancement in particular, revised if necessary.

Optimizing Collaboration Forums

Clarifying the substance of amphibious collaboration is key, but so too is developing a shared understanding of the processes that would implement it. From a practical perspective, if amphibious interoperability remains a shared objective then how this will be pursued must be clarified. At present, the mandates for the JACIT and other joint AAF organizations expire upon ARG certification in 2017. If future collaboration is expected to revert back to service-to-service channels, it is not clear who would serve as the USMC's primary interlocutor.

Recommendation: *In concert with US PACOM, which participates in a number of its own bilateral entities (some of which touch on amphibious issues), DON leaders should conduct an assessment of the utility of various forums for amphibious collaboration, to include the Expeditionary Warfare Working Group (EWWG). If they expect a continued need for some or all of the current bilateral information exchange, coordination, and planning functions that are currently conducted through organizations that will be disbanded after AAF certification in 2017, US PACOM and DON, together with their ADF interlocutors, should develop a migration plan for those efforts.*

There may also be additional venues that can capitalize upon the growing regional interest in amphibious capabilities. For example, MARFORPAC and USARPAC recently initiated the first Pacific Amphibious Leaders Summit; there may be complementary actions that Australia would be particularly well suited to lead.

Recommendation: *US PACOM should, with DON input, explore with Australia and other nations in the region whether there are actions Australia could take to further foster regional amphibious capacity building. For example, one recent study suggests that Australia could host a regional amphibious center of excellence.² If this idea takes hold, the DON should consider how it can best tailor its support to avoid overwhelming regional partners and allow for a range of perspectives and solutions, while at the same time offering full access to desired expertise.*

2. Dean and Gleiman, "Australian Amphibious Warfare Capability 2017 and Beyond."

Exploring the Potential for *Combined Alternative Lift*

From a U.S. perspective, shortfalls in amphibious ships are driving greater examination of the degree to which alternative lift options such as the T-AKE might help increase the responsiveness for USMC forces, especially for operations in what are expected to be benign environments. Some of the risks, as well as specific capacity constraints, associated with concepts currently under consideration (to include in support of the MRF-D) could be mitigated if the ADF were willing to consider pairing a U.S. non-warfighting ship with an Australian warship. If this option is deemed desirable, U.S. officials can initiate conversations with the ADF to determine whether expanded opportunities might be possible, even prior to ARG certification.

Recommendation: *DON should press US PACOM to explore whether, in the context of existing or updated guidance, the ADF might also perceive utility in combining RAN assets with so-called “alternative lift platforms” in ways that support U.S. strategic goals, help mitigate operational risks, and expand options available to regional command authorities. Similarly, the Marine Corps should examine whether the continued expansion of the MRF-D could be phased in ways that allow the ADF to leverage specific types of expertise, if desired. The annual Pacific Pathways event could provide a ready-made forum for exploring such a concept, if a higher degree of interoperability between partner nations could become a greater focus of the event without denuding the primary intent of training partner nations.*

Maximizing Collaboration Opportunities

Both U.S. and ADF leaders need to determine the bounds of shared interaction that is supportable given other demands. That said, recent changes on both sides that go beyond the introduction of major platforms suggest that a review to update focus areas and priorities may be warranted.

Recommendation: *The EWWG should review the RAN maritime strategy,³ the DON’s Cooperative Strategy for 21st Century Seapower,⁴ and Expeditionary Force 21⁵ to identify key areas of alignment and common focus, areas of shared priority, and an assessment of whether those areas are best pursued through exercises, experimentation, a combined operational force concept, or some combination.*

3. Either a classified version or as expressed in “The Maritime Strategy for the Australian Defence Force,” in *A Maritime School of Strategic Thought for Australia: Perspectives*, ed. Justin Jones (Canberra: Sea Power Centre, Royal Australian Navy) 183–193, 203.

4. *Cooperative Strategy for 21st Century Seapower* (Washington, DC: Department of the Navy, March 2015), <http://www.navy.mil/local/maritime/150227-CS21R-Final.pdf>.

5. *Expeditionary Force 21* (Washington, DC: Headquarters United States Marine Corps, March 4, 2014), http://www.mccdc.marines.mil/Portals/172/Docs/MCCDC/EF21/EF21_USMC_Capstone_Concept.pdf.

Recommendation: Based on that review, the EWWG should examine existing interactions and conduct an honest assessment of whether desired goals can be realistically achieved within the desired timeframes through existing events such as Talisman Saber, Bold Alligator, or Pacific Partnership, or whether these are likely to remain principally focused on other objectives. If so, then the EWWG should explore the viability of creating additional opportunities, in support of a broader US PACOM framework.

Experimentation

Ongoing USMC initiatives in software- and waveform-based approaches seem to offer potential near-term experimentation opportunities. Both countries are exploring multiple unmanned systems (above and below water), which suggest opportunities to explore new concepts in autonomy and ground station control, battle management, and visualization.

Recommendation: In coordination with US PACOM, USMC and OSD(AT&L) should explore opportunities to enhance sharing of information about USMC digital interoperability initiatives, as well as the inclusion of Australia in either ongoing or purpose-built experiments to enhance technical interoperability. Examples of potential experimentation in this area could include leveraging platform-deployed digital nodes and software-defined networks to extend or expand command and control, ISR, and integrated kinetic and non-kinetic fires. Additionally, both U.S. and Australian forces are interested in advancing state-of-the-art common and integrated battle management systems across their intelligence, operations, and communications communities, as well as big data analytics and visualization and artificial intelligence-assisted course-of-action generation and decision-making. These areas could represent further opportunity for combined experimentation.

Recommendation: USMC and OSD(AT&L) should explore opportunities to enhance combined unmanned systems initiatives, as well as the inclusion of Australia in either ongoing or purpose-built experiments to improve technical capabilities. Areas of potential experimentation could include development of a range of different payload types across a range of mission applications (for example, ISR, mine countermeasures, or electronic warfare), platform improvements (especially in the areas of size, weight, and power [SWaP], propulsion, and launch and recovery mechanisms), and improved command and control architectures that would allow multiple unmanned systems to be controlled by a single controller/station. Further variation could be added in exploration of different levels of autonomy, machine-machine collaboration, and human-machine interactions.

Recommendation: USMC and OSD(AT&L) should explore opportunities to enhance model-based systems engineering initiatives, as well as the inclusion of Australia in either ongoing or purpose-built experiments to improve combat cargo capabilities. Examples of potential initiatives in this area could include developing or improving modeling and simulation and systems engineering analysis and decision-support tools that provide operationally oriented trade space analysis and combat cargo recommendations based on user-provided amphibious mission requirements (inclusive of ship to objective maneuver

flow), environmental conditions, force composition, and the associate characteristics of SWaP, performance, optimal sequence, and distribution across the force (for both ships and air and surface connectors).

Conclusion

In sum, the partnership between Australia and the United States at the strategic, operational, and tactical level is strong and growing increasingly so. Australia's amphibious renaissance is a key pillar in its own strategic posture, and aligns with U.S. interests as well. While the AAF is rapidly approaching the culmination of years of planning and preparation, it is close enough to operationalizing its new capability that both sides may be approaching a point where they can consider how best to further advance shared interests in a way that maximizes both nations' investments and helps mitigate risks, especially in the next five to seven years.

Should both nations agree that realizing a broadly capable combined amphibious force rapidly is a high priority, adding greater clarity about its purpose and aligning the activities of all the stakeholders on both sides would likely better enable progress. Such clarity might also imply adjusting the content of existing interactions, and/or identifying new venues. Alternatively, both nations' leaders could determine that the significant amount of existing interaction is sufficient to satisfy common objectives in light of other demands. This study aimed to lay out a framework to advance such a conversation, as well as some options that might be considered. Finally, it offered recommendations aimed at advancing the amphibious relationship still further by:

- refining and prioritizing shared objectives;
- streamlining the processes through which collaboration can be developed, directed, and monitored;
- describing a particular force combination that would serve current objectives as well as build stronger ties; and
- suggesting specific areas of experimentation to harness and align amphibious innovation ongoing in both nations' forces.

About the Authors

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