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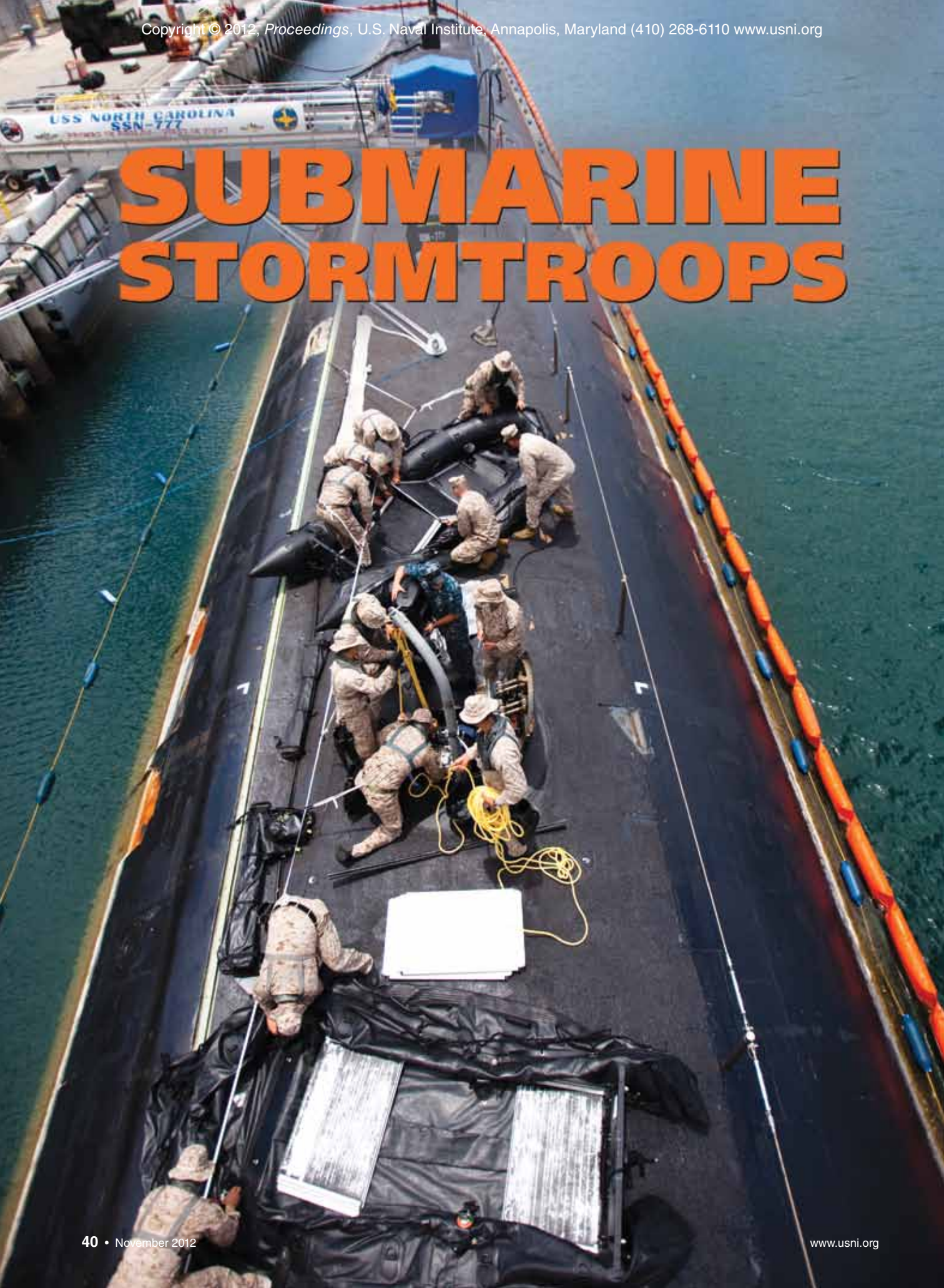
SUBMARINE STORMTROOPS



An unconventional spin on the Marine tradition of forcible amphibious entry could counter modern A2/AD threats—at little expense and with minimal training.

By Major Scott Cuomo, U.S. Marine Corps, and Billy Birdzell

The year is 2020. A country has attacked a U.S. ally and seized multiple islands. Simultaneously, it has flooded the area with guided rockets, artillery, mortars and missiles (G-RAMMs). Intelligence has identified three separate anti-ship cruise missile (ASCM) and anti-air (AA) locations on one island that must be destroyed before a U.S. aircraft carrier battle group or amphibious ready group (ARG) can aid our ally. Intelligence also suggests the enemy has hidden mobile ASCM and AA capabilities. All assets are protected by a dispersed, company-size enemy force. Through commercial and proprietary satellite coverage, the aggressor can locate and target U.S. Navy ships. That country does not know, however, where U.S. submarines are.

The President convenes the Joint Chiefs of Staff (JCS) and asks what can be done.

"We can execute precision-guided munition (PGM) strikes," the chairman responds, "but that cannot guarantee the destruction of all sites, nor can the destruction of sites we hit be confirmed. Nor can we guarantee destruction of the enemy's mobile weapons using PGMs alone."

The Chief of Naval Operations observes: "Until the ASCM and AA threat are destroyed, we can't move our $14 billion aircraft carrier (USS *Gerald R. Ford*) or $4 billion amphibious assault ship (USS *America)* within 300 miles of that island."

"Mr. President," notes the commander, Special Operations Command, "we have some ability to confirm the destruction of the sites, but limited manpower prevents us from securing terrain or destroying enemy garrisons."

Surprised by his lack of options, the President turns to the Commandant of the Marine Corps: "General, the National Security Act of 1947 tasks you with being capable of seizing advanced naval bases. Do you have an answer?"

"Mr. President," the Commandant responds, "I'm glad you asked—and glad this is a hypothetical scenario. Yes, I have just the concept that will allow us to accomplish the task in question. And If we act on this concept now, within the next few years the Joint Force will have the capability our nation requires."

U.S. MARINE CORPS (JAMES SAUTER)

Small-unit missions made from surfaced submarines are not new—here, Marines of the 3d Reconnaissance Battalion train with rubber craft on board the USS *North Carolina* (SSN-777) in Hawaii—but the authors see potential for something larger in scope. They make a case for using subsurface launches to land near-company-size Marine forces ashore in an A2/AD environment to seize lodgments.

Amphibious Forces in an A2/AD Environment

Historically, the Navy has been able to use the ocean's size to evade detection, to gain surprise and appear unexpectedly, and to distance itself from shore-launched threats. Unfortunately, anti-access/area-denial weapons (A2/AD) have changed the naval landscape: states and non-state actors that lack sophisticated ships or aircraft increasingly threaten the Navy's access. In July 2006, Hezbollah hit an Israeli navy frigate with an ASCM, likely a Chinese C-802, which has a range of 200-plus miles. Its less-capable predecessor, a C-801, in tests sank a ship nearly the size of the USS *Whidbey Island* (LSD-41).[1] The current C-805 has a range of 300 miles and an even larger payload. In other words, anywhere within 300 miles of an A2/AD objective area today is a potential "ambush alley."

In January 2012, JCS Chairman General Martin E. Dempsey released the *Joint Operational Access Concept* (*JOAC*)—guidance on how the joint force will conduct future entry operations. He wrote:

> *JOAC* describes in broad terms my vision for how joint forces will operate in response to emerging anti-access and area-denial security challenges. Its central thesis is *Cross-Domain Synergy*—the complementary vice merely additive employment of capabilities in different domains such that each enhances the effectiveness and compensates for the vulnerabilities of the others—to establish superiority in some combination of domains that will provide the freedom of action required by the mission.[2]

The Marine Corps and Army corollary to that document is *Gaining and Maintaining Access: An Army and Marine Corps Concept* (*GMAC*).[3] Like the *JOAC*, it envisions a threat environment in which, "adversaries can be expected to employ a range of area-denial capabilities . . . such tactics may include: hiding sophisticated weapon systems in complex terrain . . . and contesting air or maritime superiority to a degree with which U.S. forces have not contended for 70 years."[4] It is important to note that the *GMAC* focuses the Marine Corps and Army on shorter-range area-denial threats and ensuring freedom of maneuver within an area of operations. It assumes the Navy and Air Force will defeat longer-range, anti-access weapons, using concepts such as Air-

AP (YARON KAMINSKY)

"We should expect enemies with A2/AD capabilities to hide their weapons," the authors note, making their destruction (or confirmation of same) difficult. A force put ashore by submarine could locate and clear hidden or mobile G-RAMM positions. In 2006, Lebanese guerrillas often concealed rocket launchers in bunkers—this one being checked by an Israeli soldier in the aftermath of battle.

Sea Battle.[5] Further, *GMAC* asserts that succeeding against future enemy threats will require the joint force to:

• Conduct simultaneous force-projection and sustainment of numerous maneuver units via multiple, distributed, austere and unexpected penetration points and landing zones.
• Seize key terrain to deny it to the enemy or to facilitate the introduction of follow-on forces.
• Rapidly project follow-on forces that can be employed with minimal need for reception, staging, onward movement, and integration or dependence on local infrastructure.[6]

The Navy's 30-year ship building plan for Fiscal Year 2013 holds the number of amphibious ships between 31 and 34 until 2042.[7] According to Under Secretary of the Navy Robert O. Work, during this period the amphibious fleet will be able to transport only two Marine brigades to an objective.[8] (In World War II, the Navy had enough amphibious lift to move 15 percent of U.S. infantry divisions.) That said, the loss of a single U.S. amphibious ship would have an enormous impact on future operations. Cuts to the rest of the Fleet also reflect the realities of the current (and future) constrained fiscal environment. The number of attack submarines will drop 20 percent, to 43, by FY28—a year in which the last of four guided-missile submarines (SSGN) are also scheduled to be retired. The plan also notes the Navy has to design and build several new classes of ships to meet future threats. Therefore, the most successful strategies against A2/AD threats will be those that preserve capital investments and overcome enemies by combining existing platforms and capabilities in new ways—with minimal additional training and resources.

A Widened Stand-off Gap

In August 2010 Under Secretary Work said the Navy can defend itself against A2/AD technologies by using its sophisticated countermissile defenses. He contended that E-2D aircraft, networked with surface ships armed with AA missiles, could defeat incoming threats while launching landing forces within 25 miles of a beach.[9] However, no countermeasure system is perfect and a single missile can catastrophically damage a ship. During the Falklands War in 1982, a single Exocet missile sank Britain's HMS *Sheffield*. Given advancements in ASCMs, the future reality is that to protect the U.S. Fleet, amphibious ships will have to use hundreds of miles of stand-off as a primary means of defense until rockets, artillery, mortars, and missiles are neutralized.

Stand-off against surface threats does not prevent a combined ARG and Marine Expeditionary Unit (ARG/MEU) from deploying. The MV-22 Osprey allows vertical envelopment from hundreds of miles away, but if an adversary can threaten an ARG with ASCMs, it likely also has a comparable AA capability. Using stand-off weapons and aerial bombing to gain air supremacy, or even temporary dominance—as was done in the Gulf War, Bosnia, Kosovo, and Libya—only works if the sites can be located, and underground bunkers and tunnels let the enemy hide and protect mobile weapons.

Thus we should expect enemies with A2/AD capabilities to hide their weapons and radars, to move them, and to put them in locations with overhead protection. Also, passive systems such as infrared search and track, and broad-spectrum tracking technologies that incorporate cellular, television and radio emissions, can enable surface-to-air

missile batteries to wait before using their radar until it is too late for PGMs to effectively strike them.

If an ARG is too far off the coast to launch landing craft and the AA threat makes air operations too dangerous for non-stealth aircraft, how will the Joint Force, specifically the Marine Corps component, seize lodgments in support of other operations? The answer: through America's principal 21st-century naval advantage—submarines.

A Proposal for Breaching A2/AD

Our fast-attack (SSN) and guided-missile (SSGN) submarines are superior to those of any other nation. The G-RAMM threat to U.S. submarines is drastically lower than that for U.S. surface combatants. Submarines can move undetected to a threat area, engage targets with missiles, conduct intelligence, surveillance, and reconnaissance (ISR) and support amphibious forces. As such, submarines are platforms that facilitate the cross-domain synergy General Dempsey described in the *JOAC*.

The (current) amphibious capability of both SSNs and SSGNs revolves around the dry deck shelter (DDS)—a 38-foot long, 30-ton, C-5–transportable sphere that attaches to a submarine. An SSN can accommodate one shelter; an SSGN can carry two. Marines enter the DDS while the submarine is submerged. The shelter is then flooded and the water pressure inside equalized to the outside environment. The DDS then opens and the Marines surface.

The flood-and-drain process takes just minutes, accommodating several waves of Marines in a short time. The DDS can accommodate 20 troops and four combat rubber raiding craft wave when used for mass swimmer lockout (MSLO); it carries a single SEAL delivery vehicle when used to support special operations forces (SOF). For the purposes of the A2/AD breaching concept, an enhanced MSLO capability would be used.

The *Virginia*-class attack boat is the most recent addition to the submarine fleet. Because of its size, an SSN can accommodate a maximum of 40 troops in support of amphibious operations, making it most appropriate to support SOF. The SSGN, on the other hand, can support up to 100 Marines (for a limited duration) thus enabling a rifle company-minus force ashore to seize lodgments and support follow-on operations. Massing forces ashore sufficient in size to seize a lodgment is beyond the scope of SOF capabilities; this represents a new way to use submarines in amphibious operations.

Integrating SOF and Marine Corps capabilities is compatible with both the *GMAC* and *JOAC*, ensuring the Corps can still fulfill its mission under the National Security Act of 1947. Further, the A2/AD breaching concept assumes:

- The Navy and Air Force can strike enemy A2/AD weapons visible from the air;
- It cannot be confirmed from the air alone that U.S. stand-off weapons have destroyed all enemy G-RAMM capabilities;

U.S. NAVY (PAUL FARLEY)

Key to the authors' proposal for breaching A2/AD threats is the dry deck shelter, or DDS (here, on the USS *Dallas* (SSN-700), which can be mounted on attack submarines or guided-missile boats. Reconfigured DDSs, the authors assert, could be used to launch nearly a company of Marines ashore while the host vessel remained submerged in an A2/AD environment.

• A2/AD threats, at least at the start of conflict, require amphibious ships to operate beyond the range of organic landing craft;
• Anti-air threats at the onset of hostilities are too great to use non-stealth platforms, such as the $90 million MV-22 Osprey, to put Marines (or soldiers) ashore;
• Without confirmation that specific G-RAAM threats have been destroyed, assets such as *Nimitz*- or future *Gerald R. Ford*-class aircraft carriers or *America*-class amphibious assault ships will not be put in a potential A2/AD "kill zone."

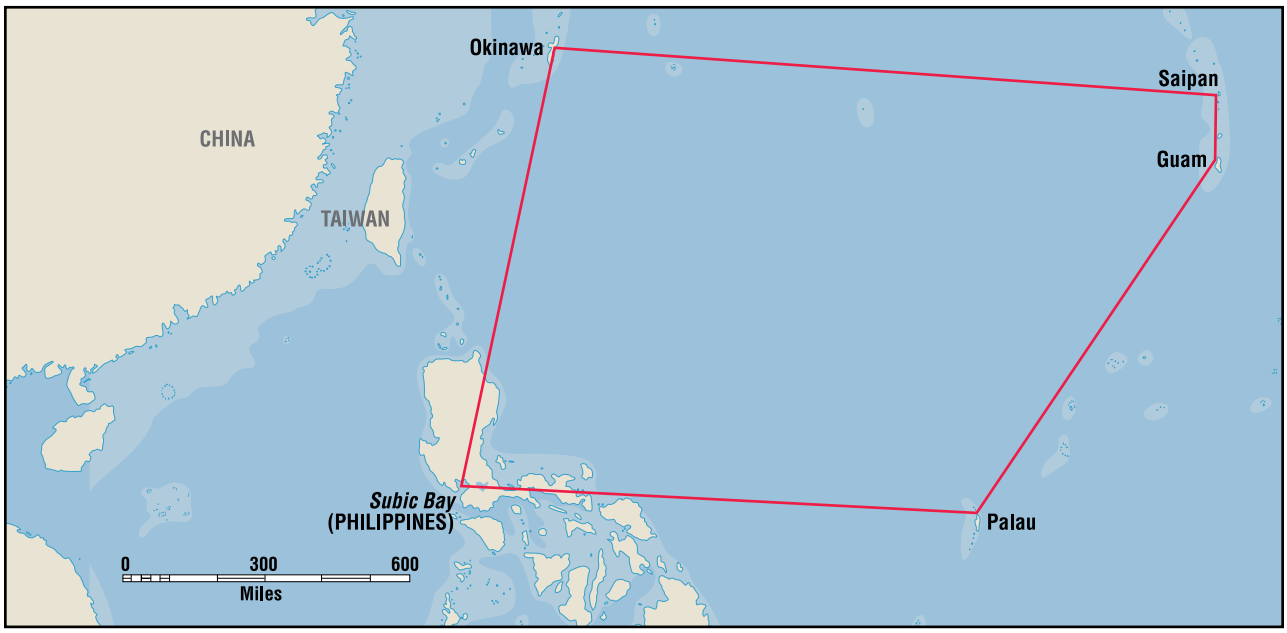
The first component of operating from submarines is transferring Marines from an ARG or an intermediate staging base to an SSGN. Using the MV-22, that transfer can be made at night, hundreds of miles from the objective, and with significant dispersion of ships and submarines. That ensures the secrecy of all aspects and actions of the operation. (While enemy or commercial-operated satellites can track a single ship, technology does not exist allowing real-time tracking the flights of multiple MV-22s over an area the size of the western half of the United States.) Further, putting Marines aboard submarines at sea reduces the time the amphibious force spends on board to days, rather than weeks or months. That point is key, as putting a large Marine force on an existing SSGN for an extended period is not practical in terms of logistics, security, and the risk of ground-combat skills atrophying.

Equipment and Training Tweaks

To deploy, Marines would execute SEAL-similar techniques and procedures for exiting a submerged submarine. The Navy-Marine Corps team will need to experiment with a DDS-like capability optimized for mass swimmer lock-out (MSLO) so that the maximum number of Marines and combat boats can disembark at once. That Marine-specific, optimized DDS-capability will allow significantly more Marines, at least an enhanced rifle company-minus unit—specifically trained for boat raid and assault operations—to lead the A2/AD breach force.

Ensuring enough Marines are capable of executing an underwater lock-out will be the largest training-and-equipment requirement in support of this concept. Naval Special Warfare Command owns and operates all existing DDSs. Because they were built around the SEAL delivery vehicle, each shelter embarked on a submarine has an SDV inside. For the A2/AD breaching concept, the Marine Corps would have to configure and buy its own DDSs. Given the Navy's extensive experience, however, that would cost just a fraction of the funds invested in other amphibious programs. To date, all Marines locking out of a submerged submarine have had to be combatant divers, but the combatant-diver curriculum is not needed for MSLO. Rather, the standard civilian scuba course is all that would be required. Additionally, because the Marines would require only a one-time-use capability, they could employ inexpensive, off-the-shelf commercial diving gear.

The last consideration for investing in submarine-launched amphibious forces is the service life of our four SSGNs. Because they were converted from the oldest *Ohio*-class submarines, their hull life will expire by FY28. The current 30-year ship building plan has not allocated vfunds to replace them—either by converting newer *Ohio*s or designing a new SSGN based on the next-generation ballistic-missile submarine, the SSBN(X). Within the context of using submarines to



From an amphibious ready group or an intermediate staging base, MV-22s could (with one refuel) transfer Marines to a submarine virtually anywhere within the 2 million-square-mile area outlined here, the authors contend, noting that the sheer size of such an arena would make detection by an enemy all but impossible, anywhere on the globe.

When [we lose] the ability to forcibly enter another's terrain, we've surrendered our influence in a world where that surrender won't play well.

— General James N. Mattis, U.S. Marine Corps, May 2010

support amphibious operations, then, prudence demands a reevaluation of the size of our amphibious and submarine fleets. Even if the services conclude that the current SSGNs will not be replaced, this breaching concept remains valid: it is relatively inexpensive and can be operationalized quickly, enabling the Joint Force to execute amphibious operations against the most significant threats for decades.

Enhanced Marine Actions Ashore

After maximizing the MV-22's range and speed and modifying submarine and enhanced DDS stealth capabilities for ship-to-shore movement, the Marines will transition to executing their core missions ashore. That Marine unit must have the capability to:

- Clear known, suspected and likely G-RAMM positions;
- Locate and clear, within specific sectors, mobile G-RAMM capabilities;
- Conduct battle-damage assessments of such positions;
- Establish tilt-rotor landing zones for follow-on forces;
- Seize or deny key terrain in specific sectors;
- Secure airfields for follow-on strike, bomber, and refueling aircraft.

Those missions are very different from those typically executed by SEALs operating from submarines. Sean Naylor's *Army Times* series, "The Secret War: How the U.S. Hunted Al Qaeda in Africa," describes submarines inserting SEALS into Somalia. According to Naylor, those forces consisted of fire-team-size elements that deployed sophisticated cameras. Seizing lodgments to enable carrier battle-group maneuver, follow-on amphibious operations, or aircraft strikes on additional targets at greater range requires a much larger force, however. Thus, the A2/AD breaching concept is not about strategic reconnaissance or direct action. On the inevitable loss of surprise—when the first G-RAMM site is struck—the task becomes locating, closing with, and destroying prepared enemy forces. That is precisely the mission at which Marines have always excelled, even when outnumbered, as they were at places such as Belleau Wood, Chosin Reservoir, and Khe Sanh.

Attacking Forward from Today

Operationalizing this concept will require the Department of Defense's experimentation cells to address the following areas:

- Enhanced Marine DDS-like capability;
- MV-22 and SSGN transfer of Marines at sea;
- Enhanced Marine boat raid and assault company capabilities and requirements—these units must be the premier light-infantry forces in the world;
- Precision-guided, aerial delivered, resupply of weapons, ammunition, and electronic jamming equipment capability.

All such experiments must seek to significantly enhance the U.S. Joint Force entry (and naval maneuver) capability, while simultaneously exploiting cross-domain synergy.

The A2/AD breaching concept is consistent with the *GMAC* guidance that "forward deployed and rapid response elements must execute forcible entry mainly with their organic capabilities and minimal reinforcement." Further, instead of requiring significant investment in new submarine, ship, or aircraft technologies, the approach simply enhances and maximizes naval platform capabilities that already exist—or those already forecast to become part of the Joint Force.

In short, the *JOAC* and *GMAC* concepts provide the framework for how we need to think about A2/AD threats. The A2/AD breaching concept offers a tangible way to break through enemy challenges. Now is the time to start experimenting so the concept can become a reality.

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