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**THE IMPORTANCE OF SUBMARINE TENDERS TO A MODERN NAVAL WAR:**  
**NAVAL COMBAT LOGISTICS AND SEABASING**

by

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A paper submitted to the Faculty of the Naval War College in partial satisfaction of the requirements of the Department of Joint Military Operations.

The contents of this paper reflect my own personal views and are not necessarily endorsed by the Naval War College or the Department of the Navy.

Signature: \_\_\_\_\_

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## **ABSTRACT**

The potential for the US Navy's adversaries to target its forward-projected ship maintenance depots, and the time required for ships to travel back to US based facilities presents major operational consequences to maritime commanders, and would pull ships out of the theatre for weeks at a time in the event of a high-end naval war. The Navy should invest in modern submarine tenders and dry dock platforms – capable of general maintenance, nuclear propulsion plant maintenance, battle-damage repair, and replenishment of weapons and stores. These tenders and dry docks, working within the seabasing construct, would offer ship repair and replenishment in protected harbors or at sea. With their mobility, the US' adversaries would not be able to target tenders with ballistic missiles as easily as they would static sites. Their mobility would also enhance the sea basing concept, as operational commanders could establish safe and secure maintenance depots anywhere in the world's oceans, with minimal concern of political risk or consequences of sovereignty.

## INTRODUCTION

Since the end of the Cold War, the United States Navy has enjoyed undisputed global command of the seas. This lack of competition has allowed the Navy to become complacent regarding the need to maintain maritime superiority in contested environments. The growing power of naval rivals, and their potential for the implementation of maritime anti-access/area-denial (A2AD) environments mandates that the Navy once again consider the need to sustain forces in distant and contested maritime theatres. Regarding ship sustainment, commanders and planners have allotted little emphasis to naval logistics beyond the basic peacetime considerations of food and fuel. If a maritime conflict occurs in a distant theatre, the Navy will find that it cannot maintain global force projection and combat employment of ships in a contested theatre unless plans and platforms can meet logistical constraints to include intra-theatre sustainment beyond the baseline of food and fuel. To support meeting this need, the Navy should invest in a modern fleet of submarine tenders and floating mobile dry docks – capable of at-sea maintenance on submarines and surface ships, including nuclear maintenance, battle-damage repair, replenishment, and missile and torpedo handling – and incorporate them into the seabasing concept.

The seabasing concept has been gaining traction in the US Navy and Marine Corps in recent years, as a possible solution to the restraints of a contested maritime environment. These environmental restraints could be tactical, such as an adversary denying access to a base with firepower, or political, wherein a foreign host nation no longer allows the US to use a port or basing facility which the US thought to be reliable, as has occurred recently in the Philippines. These restrictions could combine to greatly limit a force's access to a battlespace, particularly in distant theatres. Designers of the seabasing concept, however,

have not yet offered adequate consideration to the need to sustain the Navy's warships under the same restraints. Incorporating tenders into this concept would meet this need, improving the sustainability and flexibility of naval commander's operational plans.

## **DISCUSSION AND ANALYSIS**

Considering the prospect of a naval campaign in the Western Pacific, the need for intra-theatre logistics provided by submarine tenders and dry docks becomes apparent. There are currently three US sites in the Western Pacific theatre with the capability to conduct battle damage repair, nuclear maintenance, and weapons handling for US Navy warships, namely Yokosuka, Sasebo, and Guam. It is reasonable to expect that these static sites, particularly Yokosuka and Sasebo, as being the closest to rivals such as North Korea or China, would come under attack during the early phases of a naval conflict.

The value provided by Japanese naval bases is in their provision as enablers to US Navy force projection in the Western Pacific, and China, US' premier naval rival in the region, has recognized this. In "Japanese Bases and Chinese Missiles" Naval War College Professor Toshi Yoshihara analyzes several recent publications from the PLA, at the operational and strategic levels.<sup>1</sup> In this analysis, he points out that PLA strategists see Yokosuka and Sasebo as the operational lynchpins of US naval force projection from the Western Pacific to the Indian Ocean. Without these bases, most of the Navy's major combatants would be wholly reliant upon Pearl Harbor for sustainment.<sup>2</sup>

Yoshihara goes on to discuss the PLA's doctrine, built around the contingent of a naval war with the United States. Conducting in-depth studies of the US Navy's logistical needs and shortcomings, the PLA has developed the strategy, and the capabilities, to

eliminate the US' logistical and command and control centers in the Western Pacific, particularly the naval bases at Yokosuka and Sasebo.<sup>3</sup>

Alternatively, China has also published strategies suggesting that they would use missile coercion against the Japanese government as a tool to politically drive Japan to deny the US access to those bases.<sup>4</sup> Given recent difficulties in maintaining the Japan-US alliance, the near proximity to China, and Japan's growing cultural distrust of nuclear power after the Fukushima accident, the possibility of the US being politically denied the key bases there which have been enjoyed for over 70 years cannot be overlooked.

#### SCENARIO: LOSS OF FORWARD BASES IN THE PACIFIC

If Yokosuka and Sasebo become untenable, ships engaged in the East or South China Seas would have to transit to Guam for repair and replenishment, 1,300 NM one-way: six days for a damaged ship at ten knots (assumed speed of advance for a damaged or limited ship). Further, if Guam became untenable, ships would need to transit all the way to Pearl Harbor, 4,000 NM one-way: seventeen days at ten knots. Even for a ship undergoing basic repairs and replenishment, expected to turn back out in less than one week, the transit back to Pearl Harbor would pull a critical front-line combatant out of the theatre of war for nearly a month. This simple calculation also assumes that a damaged ship could make such a transit through open ocean.

Knowing that a weapons-reload or minor damage repair will pull critical warships from the theatre for weeks at a time while they are in high demand gives naval operational commanders apprehension to put their limited assets at risk. The inability to repair and replenish warships in a time-efficient manner not only reduces the number of ships available

to the commander in later stages of a naval operation or campaign, but limits how effectively the naval commanders can employ the warships in the initial stages of an operation.

Having submarine tenders and floating dry docks in the theatre would mitigate much of this danger. The battle-damage expected to occur to a submarine, and be survivable, is generally not drastic. Primary damage concerns in the Western Pacific environment include: fouling of propellers or depth-control planes by cables and fishing nets; damage to sail, planes, and masts from a periscope depth collision; and damage to rudder and sonar systems by grounding<sup>5</sup>. These examples are all within the capabilities of submarine tenders to repair, provided they are properly trained and resourced and have a dry dock in which to work.

#### CASE STUDY: THE USS SAN FRANCISCO GROUNDING AND REPAIRS

Even in instances of more catastrophic battle damage, above the capacity of a tender to fully repair, having a tender nearby with maintenance capability could make the difference between a ship and her crew surviving and returning to a navy yard for overhaul, or scuttling her at sea. An example of this is the USS San Francisco, a nuclear-powered attack submarine, which survived a high speed submerged collision in 2005. The collision smashed her bow, sonar dome, and forward ballast tanks, making her dangerously unseaworthy. She was unable to remain surfaced without constantly blowing the forward ballast tanks. She managed to surface and the USCG Cutter Galveston Island escorted her 350 NM to Guam. In Guam, a team led by engineers from Pearl Harbor Naval Shipyard, using the facilities and capabilities of the submarine tender USS Frank Cable, addressed the damage to the San Francisco. While the capability provided by the USS Frank Cable was not adequate to fully restore the San Francisco to mission readiness, they did complete sufficient repairs to the San Francisco, allowing her to safely complete the 5,600 NM voyage, unescorted, to Puget Sound

Naval Shipyard (PSNS) in Bremerton, Washington. At PSNS she underwent a full overhaul and bow replacement.<sup>6</sup> Were it not for the tender capability in Guam, it is doubtful that the San Francisco could have completed this open-ocean voyage to PSNS for major repair. Had the tender at Guam not been available and Navy unable to return her to PSNS, the expense of heavy lifting her to PSNS or the risk of towing her might have led to instant decommissioning. While this case highlights the value and capability of the Navy's current submarine tenders, it is apparent that the problem would become more pronounced in a naval conflict, with many battle-damaged ships returning from the front line in a contested environment. A single tender in the theatre would not alone be able to support multiple such occurrences.

#### SCENARIO: CRISIS IN THE PACIFIC

In the event of naval conflict in the Western Pacific, the threat to US Navy bases in the region is legitimate. North Korea and China both have the capability to strike US facilities in Yokosuka and Sasebo using long range air, ship, or land based cruise or ballistic missiles. North Korea is rapidly developing their intercontinental ballistic missile capability, and China has recently developed the CSS-3 missile capable of ranging Guam.<sup>7</sup> In this scenario, the static bases in Japan cannot be relied upon to provide consistent sustainment and repair of Navy warships, especially not in large numbers. One solution is to disperse maintenance and logistics capabilities throughout the theatre on survivable, mobile platforms.

The availability of tenders and floating dry docks to the theatre naval commander will enable this dispersal. Using Guam as an operational hub, for instance, the commander could establish mobile maintenance depots afloat throughout the theatre in harbors or, to a limited extent and dependent on weather and sea conditions, in deep water and open ocean. The

mobility of the platform will reduce an adversary's ability to scout and target naval assets and keep the critical combatant warships in theatre.<sup>8</sup>

The ability to establish maintenance depots afloat also offers the benefits of improving operational security and reducing the risk of sabotage. Keeping warships away from land based depots limits the ability of spies and informants to monitor the locations, movements, and level of damage to the Navy's ships, and report those to America's adversaries. Further, as the tenders are crewed by Navy personnel, with limited civilian technical experts, saboteurs outside of the service would not have access to the ships, preventing attempts to disable the ships in port.

#### HISTORICAL MODEL: TENDERS DURING WORLD WAR II IN THE PACIFIC

During World War II, the US Navy employed submarine tenders and floating dry docks throughout the Pacific in support of the Allied island hopping campaign. Their presence allowed Allied naval forces to proceed forward and establish logistics lines, which enabled the high tempo of naval operations critical to defeating Japan.

Before the attack of 7 December 1941, the US Navy had, in anticipation of war, deployed tenders in the Western Pacific. Of the eight submarine tenders in service at the time, the Navy had three stationed in the Western Pacific. The tender USS Canopus was in Tsingtao China, USS Holland at Cavite, Philippines, USS Otus at Bataan, Philippines, as well as the USS Seagull and USS Pelias at Pearl Harbor.<sup>9</sup>

After the Japanese attack at Pearl Harbor, the Philippines, and Dutch East Indies in December, the tenders came to demonstrate their inherent value. The tenders in theatre relocated to preserve their capability and keep the theatre open. Three tenders surged to

Pearl Harbor to meet the need left by the Japanese onslaught. The Holland and Otus relocated to Darwin, Australia.

At 1752 on 7 December, mere hours after the raid on Pearl Harbor, Rear Admiral Charles Lockwood, USN, Commander Submarines Southwest Pacific, received the order: "Execute against Japan unrestricted submarine and air warfare."<sup>10</sup> Having tenders in the area allowed his combat forces to immediately get on station, and sustain the mission throughout the long war. The Holland reported to Darwin, Australia by January 1942 and went straight to work, servicing as many as twelve boats at a time, as they came off their first war patrols.<sup>11</sup> The ability to establish a maintenance and logistics depot is undoubtedly a capability that made the US unrestricted warfare campaign so successful, from the first days of the war and onward. Had the ships needed to sail back to Pearl Harbor for maintenance and supplies after each patrol, their time on mission and the success of the campaign would have been severely limited. Lockwood could not have established and held the presence in theatre which made the campaign so effective.

The US Navy saw the value of tenders, and immediately raised production, in coordination with the procurement of warships. By 1945, the Navy had 16 submarine tenders in service, all deployed throughout the Pacific. Some naval bases saw consistent supplemental service provided by the tenders over most of the course of the war, such as Pearl Harbor, San Diego, and Fremantle, Australia.<sup>12</sup> The tenders themselves rarely kept still, however. As the war progressed and the Allied forces pushed west, the tenders proceeded to establish expeditionary naval bases across the entire Pacific Ocean.

In *Beans, Bullets and Black Oil*, Rear Admiral Worrall Carter, USN (RET), describes in detail the logistical plans and employment of the Allied naval forces in the Pacific Theatre.

He describes the battle for Guadalcanal and the seas surrounding it as the pivotal point of Allied momentum, based on the logistical capabilities employed to gain and hold the island, and to push forward, taking the war to Japan.<sup>13</sup>

Admiral Halsey, Commander of Service Squadron South Pacific during Guadalcanal, established expeditionary naval bases at Espiritu Santo, Vanuatu, and Noumea, New Caledonia in support of the Guadalcanal operation. Halsey centered these bases around the destroyer tenders USS Rigel, and USS Whitney and USS Argonne, respectively. From these bases, the tenders conducted repairs on cruisers and destroyers damaged in the naval battles in support of the operation. The tenders were less capable than the large shipyards and they could not return all ships straight to the front lines, but they proved their value once again by patching the ships they could not fully repair to make them at least seaworthy. Three examples given by Carter were the cruisers USS Salt Lake City, USS Farenholt, and USS Boise, each damaged by 8-inch shells, causing major damage including steam ruptures and flooding. The tenders at Noumea and Espiritu Santo patched the ships and cannibalized their munitions, enabling them to reach the navy yard at Sydney, Australia, and transferring crucial ammunition to the USS San Francisco.<sup>14</sup> Had this expeditionary maintenance capability not been forward in the theatre, it is doubtful the Allies could have saved these ships and returned them to the fight, and the ever-present need for ammunition would have grown dire.

## HISTORICAL MODEL: TENDERS DURING THE COLD WAR

During the Cold War, the US Navy structured itself around the seemingly likely contingent of a naval war against the Soviet Union. During this era, supplementing the Navy's high count of warships, each squadron of attack submarines had a tender and floating dry dock, which served as the intermediate maintenance activity, forward deployed in places like: Holy Loch, Scotland; Rota, Spain; Guam; Diego Garcia; and Naples, Italy. In addition to these forward deployed tenders, there were four more homeported in the US, ready to respond to a theatre in the event of war or crisis. Beyond their maintenance and sustainment capabilities, tenders also served as squadron headquarters afloat, allowing tactical squadron commanders to position themselves forward to best support their forces through command and control as well as logistics, and keep open communication with fleet and operational commanders.<sup>15</sup> The Navy understood the usefulness of these tenders at all levels of naval command. The Navy believed this construct was crucial to the successful conduct of a major naval campaign against the Soviet Union.

## THE FORWARD BASED TENDER ADVANTAGE

A submarine tender and floating dry dock provide fleet commanders with self-sufficient maintenance capabilities at anchor and in austere ports. They have the capability to perform expeditionary and intermediate level maintenance on nuclear submarines and surface ships.<sup>16</sup> In 2016, the USS Emory S. Land performed voyage repair and Continuous Maintenance Availability (CMAV) on 15 submarines, 17 surface ships, and sent fly-away teams to seven more. While she conducted most these repairs in her homeport of Guam, she also performed work in Diego Garcia, Singapore and Sasebo, as well as fly-away team repairs in Yokosuka and Bahrain.<sup>17</sup>

The Emory S. Land's record demonstrates the operational value of a submarine tender during peacetime. The number of ships repaired and the capability she employs are consistent with those of static maintenance intermediate maintenance activities. The mobility allows her to perform work in austere and poorly developed ports, at anchor in protected harbors, and, to a limited extent, in open-ocean. In 2015, the Emory S. Land performed anchored moorings in Phuket, Thailand and Puerto Princesa, Philippines.<sup>18</sup> In 2016, Emory S. Land demonstrated, as a proof of concept, that she could perform VLS reloads of Tomahawk and all standard missile (SM) variants on SSGNs and DDGs.<sup>19</sup> This capability, in addition to the established torpedo handling capability for SSNs would prove tremendously valuable to fleet commanders in a naval campaign.

Unfortunately, the lack of a floating dry dock limits the tender's capability in an expeditionary setting. Currently, for any ships requiring hull, exterior propulsion, or exterior steering and depth control work as expected in ships returning from battle, Emory S. Land is unable to support such maintenance without a dry dock facility. As the US Navy has scrapped all but one of the floating dry docks, the USS Arco in San Diego,<sup>20</sup> this is effectively a lost capability the tender force once had.

The two tenders the US Navy has in service today, the USS Emory S Land and the USS Frank Cable, could not by themselves support a theatre naval campaign, given the expected loss of shore-based maintenance depots such as Sasebo and Yokosuka. This calculus becomes more complex considering that to prevent America's adversaries from targeting them with ballistic missiles, these valuable and capable tenders, already challenged in capacity during peacetime, will need to spend a significant amount of time moving, further detracting from the amount of service they can provide.

## THE SEABASING CONCEPT: COMPLEMENTED BY TENDERS

Seabasing is a concept of modern warfare designed to enable options for power projection in either politically (the sea base can be established in international waters) or tactically (the sea base is mobile and can be protected by naval combatants) denied environments. The joint doctrine on amphibious warfare defines seabasing as “the deployment, assembly, command, projection, reconstitution, and re-employment of joint combat power from the sea without reliance on land bases within the Joint Operating Area.”<sup>21</sup> The design of the concept is to provide a scalable tactical logistics hub supporting amphibious forces ashore from international waters.

The primary architects of the design are the Navy and Marine Corps. Chiefly, the focus of the concept has been the projection, employment, and sustainment of ground combat forces from Navy and Military Sealift Command shipping. Working up from the ARG/MEU concept of tactical amphibious warfare, seabasing employs heavy logistics shipping through the Maritime Prepositioning Force (MPF) and ship-to-shore or ship-to-objective connector capabilities considerably larger in scale and scope than the organic ARG/MEU capabilities.<sup>22</sup>

The level of logistics capability and complexity of seabasing makes it feasible to project ashore, employ, and sustain entire divisions, even corps, from a mobile base in international waters. Unfortunately, it overlooks a critical component of joint warfare required to make this possible: employment and sustainment of the warships that establish sea control to enable and protect the sea base. It is unreasonable for campaign planners and commanders to expect that a large-scale naval contest over sea control would not precede a large-scale amphibious or ground fight that seabasing projects. The naval forces required to gain maritime superiority in the initial stages, particularly against a peer-level naval

adversary in the Western Pacific, will see major combat resulting in significant battle damage and great expenditure of weapons. In this fight, every available ship will need to be kept at maximum mission readiness and as close to the combat theatre as possible.

The two remaining tenders, USS Emory S. Land and USS Frank Cable commissioned in 1979 and 1980, respectively. While there is currently no plan to decommission them, they are coming up on 40 years and showing signs of their age. The US Navy had long kept a contingent of several decommissioned tenders in the ghost fleet, but over the last 12 years the Navy has scrapped these ships at an alarming rate, with the last of the tender ghost fleet assigned to scrap in 2017.<sup>23,24</sup> With this in mind, the Navy's latest 30-year shipbuilding plan makes no explicit expression of intent to replace or modernize these valuable assets. The plan does articulate the intent to build expeditionary transports and docks, fundamental to the seabasing concept, as it supports amphibious forces ashore from the sea.<sup>25</sup> The fact that the Navy and Marine Corps still emphasize the amphibious aspect of seabasing, but naval combat logistics continues to be ignored demonstrates that the Navy is still building its force structure on a phase zero construct, with the expectation that command of the seas will continue to be undisputed based on deterrence alone.

With a complement of tenders and floating dry docks into the seabasing design, the sea base will be able to sustain not only an amphibious conflict, but the naval conflict surrounding it, making it a fully capable maritime support system. The tenders would keep the escorts vessels, such as attack submarines and destroyers supplied, armed, and refitted, giving them more time on station to perform security to the amphibious force. This extra time on station for each of the escort vessels offers direct benefit as well to the naval conflict,

as front-line ships would not have to withdraw from the main engagement area to provide sea base security when the primary escorts must return to base for logistical needs.

#### NAVAL SUSTAINMENT: A FORGOTTEN CRITICAL CAPABILITY

While planners generally consider the need to fuel ships and aircraft and sustain the sailors, little planning effort goes beyond those simplest of needs. Planners give less attention and consideration to returning ships to the campaign when they have been battle-limited due to equipment failure, battle-damage, or expenditure of weapons, an oversight which is apparent at the strategic level based on the 30-Year Shipbuilding Plan.<sup>26</sup> This lack of attention could be the result of having several generations of naval officers with no direct experience at, and little consideration paid to operational level high-seas combat. Admiral Al Konetzni, Commander of Submarines, Pacific Fleet, recognized this in 2000, in a press interview. He suggested that more critical than the number of submarines available was the number of mission days each could assume. While concerned for the shrinking ship count of the submarine force, he was more concerned for the lack of submarine tenders he could employ to keep those submarines operating forward, particularly in combat.<sup>27</sup>

ADM Konetzni was unable to win the budget battle and to date, the USN has still not allotted appropriate resources to forward combat logistics. In 2000, at the time of that interview, the US Navy had just downsized to only two tenders, the two still in service today. 17 years later, these two ships, though still performing admirably, are the remnants of an atrophying capability as they approach their end of life with no planned replacement.<sup>28</sup> The Navy cannot afford to re-learn the importance of forward mobile basing and logistics first-hand at the outbreak of a naval war, and must consider how it will manage naval operational sustainment in future conflicts.

## COUNTER ARGUMENTS

In building the US Navy, planners try to consider what ships will the Navy will need decades ahead of time, to properly appropriate funds. An analyst can derive the purest understanding of Navy strategy regarding force structure and future employment from the “Report to Congress on the Annual Long-Range Plan for Construction of Naval Vessels,” also called the 30-Year Shipbuilding Plan. Architects of the Navy’s 2017 30-Year Shipbuilding Plan continue to place more value on warships as the source of combat power, but place little emphasis on sustainment of combat power. This comes from the presumption that overwhelming mass in the initial stages will decide a naval conflict quickly, and therefore is not likely to occur at all. Their design does not allot much credibility to the US’ potential adversaries’ ability to survive those initial stages and sustain their own combat power. This is an unrecognized assumption that the Navy cannot afford to make. In a naval campaign in a distant theatre such as the Western Pacific, the US’ ability to sustain and regenerate naval combat power will be the decisive factor, more so than just flowing force to the theatre quickly.

The expectation is that, given the firepower, speed, and endurance of modern US Navy nuclear powered submarines, they can get to theatre faster and perform longer than the World War II and Cold War era boats. This capability is true in peacetime, but will not continue to pass once a conflict becomes hot. In a situation which drive tactical commanders to take higher navigational risks, fire weapons, and sustain battle damage, the basic peacetime needs of food and fuel will no longer govern their endurance to remain on the front lines, and the Navy must be ready to allot greater logistical capability. If there is no

capability to sustain and repair these ships in the forward theatre, they will, as discussed above, need to retreat from the engagement, leaving the front lines weakened.

This type of thinking is the result of generations of naval officers who have not experienced a violent struggle for command of the seas. Sailors today have enjoyed undisputed access and naval dominance world-wide. Indeed, few of the Cold War era officers remain in the service today. Given the geopolitical climate in 2017 with Russia and China growing quickly in naval power, and rising military tensions everywhere, this undisputed naval dominance which the US has enjoyed cannot endure longer.

Continuing to exclusively build a navy of warships without consideration of the maintenance, sustainment, replenishment, battle-damage repair, and munitions they would require if ever actually employed will be like having a hammer without a haft. It could not be swung repeatedly but rather thrown only once, and if it misses, the results will be catastrophic.

## **CONCLUSIONS AND RECOMMENDATIONS**

The US Navy must immediately invest in a modern fleet of submarine tenders and floating dry docks. The Navy has let fall into decay what was once among the US' strongest and most valuable naval capabilities: the ability to not only project, but sustain combat power across the globe with mobile, survivable, and capable logistics and maintenance ships. This has happened because, at the strategic level, the Navy has become so strongly founded on deterrence, the phase zero mentality. The Navy expects that, by having high numbers of ships with massive combat power, such as aircraft carriers, attack and ballistic missile submarines, cruisers, and destroyers, there will be no need to employ them, as their existence has prevented potential adversaries from starting a naval war.

This mindset has, in a sense, worked for decades and the US Navy hasn't seen such a naval conflict since World War II. Recent geopolitical strategies taken by the US' rivals, such as Russia's annexation of Crimea and China's buildup and bullying in her surrounding seas, have demonstrated that this deterrence no longer has the same effect. These rivals have seen that, while the US may have vast naval combat power on paper, the Navy is unwilling to commit to conflict. Whether recognized or not, the Navy knows it could not sustain a hot naval conflict when it suffers heavy battle damage, weapons expenditure, and ship losses, and forward bases become questionable or untenable.

The architects of the 30-Year Shipbuilding Plan, with input from operational commanders, have been for years building the US Navy around the assumption, that deterrence will work. The architects must recognize this assumption, so they can begin to recognize the capability the Navy has lost through lack of focus in forward naval logistics. The next 30-Year Shipbuilding Plan must incorporate submarine tenders and floating dry docks, in the short and long-term, both to replace the two admirable but aging hulls in service currently, and to redevelop that capability into something truly viable and powerful.

### **FINAL REMARKS**

Unless the US Navy shifts its strategic focus to combat sustainment and forward wartime endurance, the service will continue to grow risk averse and hollow. Naval and civilian leadership must be held accountable for their budgeting strategies, and reestablish them with a wartime mindset, considering all aspects and complexities of war. If the US Navy continues to overlook theatre logistics and the vulnerability of forward bases, focusing only on presence and appearance of power, that war which it has deterred for so long will eventually happen, and the Navy will not have the ability to win.

## Notes

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<sup>1</sup> Yoshihara, Toshi (John A van Buren Chair of Asia Pacific Studies at US Naval War College), “Japanese Bases and Chinese missiles,” in *Rebalancing U.S. Forces: Basing and Forward Presence in the Asia-Pacific*, ed. Carnes Lorde and Andrew Erickson (Annapolis: Naval Institute Press, 2014), 45-46.

<sup>2</sup> Ibid, 44-45.

<sup>3</sup> Ibid, 45.

<sup>4</sup> Ibid, 38.

<sup>5</sup> Dr. William Bundy (Retired Submarine Officer, Director of Gravelly Naval Research Group and Professor of Strategic and Operational Research at US Naval War College) in discussion with the author, March 2017.

<sup>6</sup> U.S. Department of Defense Information, “USS San Francisco Undocks with New Bow,” *Federal Information and News Dispatch, Inc.* October 20, 2008.

<sup>7</sup> Erickson, Andrew and Mikolay, Justin, “Guam and American Security in the Pacific,” in *Rebalancing U.S. Forces: Basing and Forward Presence in the Asia-Pacific*, ed. Carnes Lord and Andrew Erickson (Annapolis: Naval Institute Press, 2014), 27.

<sup>8</sup> Ibid. 25.

<sup>9</sup> Guttery, Randy, “Time Line: The United States Navy Deployment of the Tenders,” last modified 2001, <http://www.tendertale.com>.

<sup>10</sup> Scott, James, *The War Below*, (New York, Simon and Schuster, 2013), 34.

<sup>11</sup> Ibid, 33.

<sup>12</sup> Guttery, Randy, “Time Line: The United States Navy Deployment of the Tenders.”

<sup>13</sup> Carter, Worrall, *Beans, Bullets and Black Oil*, (Newport, Naval War College Press, 1998), 38-39.

<sup>14</sup> Ibid, 40-41.

<sup>15</sup> Dr. William Bundy in discussion with the author, March 2017.

<sup>16</sup> Commanding Officer, USS Emory S Land (AS39), “2016 Department of Defense Maintenance Award (Phoenix Award) Nomination Package” (2017), 1.

<sup>17</sup> Ibid, Encl (1), 3-4

<sup>18</sup> Bradley Newsad, LT, USN (PAO USS Emory S. Land), e-mail message to the author, 26 March 2017.

<sup>19</sup> Commanding Officer, USS Emory S Land (AS39), “2016 Department of Defense Maintenance Award (Phoenix Award) Nomination Package” (2017), Encl (1) 4.

<sup>20</sup> USS Arco (ARDM 5), Submarine Squadron 5, Submarine Force Pacific, accessed 27 April 2017, <http://www.csp.navy.mil/arco/about>.

<sup>21</sup> Chairman, Joint Chiefs of Staff, *JP 3-02: Amphibious Operations*, (Washington, U.S. Department of Defense, 2014), III-38.

<sup>22</sup> Chief of Naval Operations, *Seabasing Logistics Enabling Concept*, (Washington, U.S. Department of Defense, 2006), 7-10.

<sup>23</sup> Guttery, Randy, “The History of Submarine Tenders – Part Two: Submarine Tender Deployments,” last modified 2011, <http://www.tendertale.com>.

<sup>24</sup> Storm, Christian, “Go aboard a fleet of military ghost ships decaying off the coast of San Francisco,” *Business Insider*, May 19, 2016, [www.businessinsider.com](http://www.businessinsider.com).

<sup>25</sup> Chief of Naval Operations, *Annual Long-Range Plan for Construction of Naval Vessels for Fiscal Year 2017*, (Washington, U.S. Department of Defense, 2016) 1-5.

<sup>26</sup> Ibid, 1-5.

<sup>27</sup> Chapman, Don, “Running Silent No More, an Interview with Rear Admiral Al Konetzni,” *MidWeek Magazine*, May 26, 2000. Accessed at <http://www.tendertale.com/ttp22.html>.

<sup>28</sup> The author researched, looking for any evidence of the Navy’s plan to restore this capability, and found none.

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