The Amphibious Assault Ship and the Dawn of a New Era.

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Abstract

Shrinking government budgets and sequestration have changed the nature of military spending throughout the Department of Defense and specifically the Navy. Restrictions on spending have begun to affect military readiness, maintenance, and growth projects. Despite limitations in defense spending, the threats continue to grow around the world. The Arab Spring has created instability throughout Northern Africa and the Middle East; non-state actors and insurgents prey on the weak and defenseless; terrorist continue to recruit and build strongholds in unstable countries; and piracy is rampant along Yemen, Oman, and Somalia.

To answer these threats the United States Navy has responded by deploying nuclear powered aircraft carriers and/or amphibious assault Ships. The aircraft carrier carries some 67 aircraft composed primarily of F/A-18 E/F Super Hornets with the ability to strike deep inside enemy territory; and additional rotary and propeller aircraft for logistical support. The amphibious assault ship has a compliment 31 Marine Corps aircraft from four different type/model/series that can perform a variety of missions. In addition to the aircraft, there are nearly 2,000 Marine Expeditionary Forces embarked and ready to deploy via air or sea on short notice. Both platforms provide the Navy with the flexibility to respond to any threat when deployed at the same time; however, shrinking budgets dictate that we will need to rely heavily on the platform that can produce the most flexibility on its own in world where conventional warfare is less likely.
Dedication

This thesis is dedicated to the gallant men and women of the USS Iwo Jima (LHD 7) with whom I have served with over the last two years. Fair winds and following seas…
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List of Terms, Abbreviations, or Symbols

A2/D2 – Anti-Access and Areal Denial
AAV – Assault Amphibious Vehicle
ACE – Air Combat Element
AMW – Amphibious Warfare
ARG – Amphibious Readiness Group
AOR – Area of Responsibility
AW – Air Warfare
CBO – Congressional Budget Office
CNO – Chief of Naval Operations
CSG – Carrier Strike Group
CVN – Carrier Fixed Wing Nuclear
DOD – Department of Defense
EW – Electronic Warfare
FRTP – Fleet Readiness Training Plan
FY – Fiscal Year
GAO – Government Accounting Office
HADR – Humanitarian Assistance Disaster Relief
LCAC – Landing Craft Air Cushion
LCU – Landing Craft Utility
LHA – Landing Helicopter Assault
LHD – Landing Helicopter Dock
LPD – Amphibious Transport Dock
LSD – Dock Landing Ship
MEU – Marine Expeditionary Unit
MIW – Mine Warfare
SUW – Surface Warfare
STW – Strike Warfare
TY – Then Year
USW – Undersea Warfare
VAMOSC – Visibility and Management of Operating and Support Costs.
Chapter 1

Introduction

The Changing Landscape

When considering new budget constraints and the changing strategic landscape, is the aircraft carrier still the most affordable and appropriate Naval capability; or could the “Big Deck” amphibious assault ship be a more cost efficient answer, providing air superiority and ground power to accomplish a variety of missions that meet global strategic challenges?

Budgetary battles during Fiscal Year (FY) 13 and the sequestration have forced the military to take a critical look at their budgets and begin making cuts that could affect military readiness and presence across the globe. Throughout the Cold War and even now, the Nimitz Class aircraft carrier has been a symbol of United States Naval superiority. For the last three decades the U.S. continues to rely on the carrier to answer threats overseas and influence international politics. However, budget constraints have called into question the usefulness and cost of deploying carriers. Recently, both the USS Truman’s deployment (Cahn, 2013) and the USS Lincoln’s refueling and maintenance availability were delayed (Knight, 2013) due to a lack of military funding. Additionally the U.S. Navy has decided to reduce the number of carriers in the Middle East to just one.

With carrier operations being reduced, a vacuum in capabilities remains to be filled and the Navy may be forced to rely heavily on the “Big Deck” amphibious assault ship. The “Big Deck” Amphib or “Gator” as those in its community affectionately call it, falls into three classes,
the Tarawa Class LHA, the Wasp Class LHD, and the new America Class LHA(R). All three have 850 ft flight decks capable of launching the AV-8 Harrier, the F-35 Joint Strike Fighter, and a variety of Naval and Marine Rotary and Tiltrotor aircraft like the brand new V-22 Osprey (Naval Operations Concept, 2010). In addition to aviation facilities, the LHD and LHA classes have well decks that can be flooded to launch amphibious assault craft like the Landing Craft Air Cushion (LCAC), the Landing Craft Utility (LCU), and the Assault Amphibious Vehicle (AAV) which can be loaded with Marines and ground vehicles like the M-1 Abrams Tank or High Mobility Multipurpose Wheeled Vehicle (HMMWV) to respond to any threat or contingency overseas. Although the first two LHA(R) class ships will not have well decks, subsequent ships will have them installed retaining this valuable capability.

The Navy already actively employs the LHA/LHD class ships in Amphibious Readiness Groups (ARG) that consist of other smaller amphibious assault ships that can carry Marines and their hardware. The ARG and the Marine Expeditionary Unit (MEU) embarked can respond to a variety of missions to include amphibious landings; humanitarian aide and disaster relief; anti-piracy; noncombatant evacuation operations; maritime interdiction operations; airborne strike; and air-to-air combat (Hutchins et al, 2012). Similar to an aircraft carrier and with a far more diverse response package, the Gator could be the affordable replacement the Navy requires. Although amphibious ships are not immune to the effects of sequestration, USS Kearsarge deployed on time this spring and the USS Boxer is still scheduled to replace it in eight months; however, the USS Bataan deployment in 2014 could be the first to be delayed or canceled (Hixenbough, 2013).
The objective of this thesis will be to show that the Gator is cheaper to deploy, cheaper to build, and can fulfill all the missions required by a carrier and beyond. The intension is to show that the strategic challenges posed by piracy, terrorism, rogue states, and non-state actors are better met by the amphib because of the adaptability it offers with the embarked MEU and an Air Combat Element (ACE) of 31 supporting aircraft.

Recent and ongoing events overseas and at home make this research extremely relevant to strategic security. Cancelling carrier deployments and vital maintenance due to funding constraints while threats continue to grow overseas necessitates we find cheaper capabilities in our existing military inventory.
Chapter 2

Literature Review

Developing a Framework

The National Security Strategy identifies the key strategic aims of the United States. This document is the driving force behind the National Defense Strategy and the National Military Strategy which ultimately lead to how the U.S. Navy shapes its force posture decisions and the documents like the Chief of Naval Operations (CNO) Position Report and Sailing Directions. Each document provides valuable insight on the focus of the Navy’s strategic goals and objectives.

Having identified the strategic objectives of the nation and the Navy, the research documents then focus specifically on the available capabilities and the proposed execution of that strategy. The Force Capabilities Handbook and the Naval Operations Concept provide information on the intended use of the aircraft carrier and the LHD/LHA amphibious assault ships and how the Navy uses these platforms to execute its strategic goals.

Execution comes at a cost. The Government Accounting Office (GAO) and the Congressional Budgetary Office (CBO) both add significant credibility to this research on military spending. Analysis by the CBO on the Navy’s shipbuilding cost in FY13, is a valuable resource by which to compare the significant cost to build a modern aircraft carrier against a modern “big deck” amphibious assault ship. The Naval office of Visibility and Management of Operational and Support Costs (VAMOSC) has provided the necessary data to illustrate the costs
to operate both classes. Shipbuilding and Operational and Maintenance costs for FY13 will ultimately show which platform and its accompanying capabilities are cheaper to employ.

The government research compiled is quite credible and provides a framework from which to base this argument. The remaining sources, news clippings from a variety of sources, help to illustrate the relevance of the research in real time.

The research is spread across three categories introduced below.

**Current Threats and Strategies:** Documents such as the *National Security Strategy*, the *Defense Strategy*, and the *CNO Sailing Directions* reveal what the President, DOD, and the Navy identify as the immediate threats and what their strategic objectives are in combating those threats.

**Naval Capabilities and Mission Execution:** This research covers items like the *Naval Operational Concept* and the *Joint Operations Handbook*, these documents reiterate the threats and the missions, and then explain what capabilities are available and how we can best utilize them to accomplish the mission. Under this category the research focuses on what the aircraft carrier and amphibious assault ship can do, what their primary missions are, and how they are best utilized to accomplish the Nation’s goals. This research will help to compare the two types of ships and determine if the amphib could substitute for a carrier using current examples of how each ship is executing the missions outlined by the governing strategic documentation.

**Cost:** The research in this category is an accumulation of data from the Congressional Budget Office, the Government Accounting Office, VAMOSC, and recent articles on sequestration that illustrate the cost to build, refuel, maintain, and deploy a carrier or an amphib. This data is important because it helps to determine if the costs are worth the utility of each ship. One of the
questions this report is trying to answer is if the amphib is not only capable of replacing the carrier but is also more affordable.

When organizing my research I wanted to show how each item of research built or overlapped with the other ultimately tying it together by analyzing the costs. Since part of my research question challenges the carrier’s ability to meet the current strategic challenges of today I began with the National Security Strategy, the National Defense Strategy (Sustaining Global Leadership, Priorities for the 21st Century), and the CNO’s Sailing Direction.

Our Strategy

The National Security Strategy is the President’s strategy for meeting the threats that face our nation. It is from this document that other strategic documents are formed. The National Security Strategy clearly recognizes today’s modern threats and states them best when it says,

Wars over ideology have given way to wars over religious, ethnic, and tribal identity; nuclear dangers have proliferated; inequality and economic instability have intensified; damage to our environment, food insecurity, and dangers to public health are increasingly shared; and the same tools that empower individuals to build enable them to destroy. (National Security Strategy, 2011).

Defeating al Qa’ida and its affiliates; maintaining conventional superiority as well as meeting asymmetrical threats; enforcing human rights; expedient humanitarian response; and free trade and economic prosperity are central tenants of our strategy and are echoed throughout the Department of Defense and the United States Navy.

The Department of Defense Strategy recognizes al Qa’ida is not as formidable as it once was; however, it also acknowledges that fundamental extremism continues to develop in regions like Yemen, Sudan, Pakistan, and Somalia. The instability of these regions requires strong
military presence and a variety of capabilities to ensure the free flow of commerce, stability, and peace (Department of Defense, 2012).

Global security and prosperity are increasingly dependent on the free flow of goods shipped by air or sea. State and non-state actors pose potential threats to access in the global commons, whether through opposition to existing norms or other anti-access approaches. (Department of Defense, 2012)

The DOD specifically states the following as primary missions of the U.S. military:

- Counter Terrorism and Irregular Warfare.
- Deter and Defeat Aggression.
- Project Power Despite Anti-Access/Area Denial Challenges.
- Counter Weapons of Mass Destruction.
- Provide a Stabilizing Presence.
- Conduct Stability and Counterinsurgency Operations.
- Conduct Humanitarian, Disaster Relief, and Other Operations

The United States Navy has taken on these challenges and the Chief of Naval Operations has directed a course by which the Navy can execute these missions. Forward presence; protecting trade routes; sustain a modern and capable fleet; project power; deter aggression; and contain conflict are objectives that have been ordered by the CNO and shape the nature of the Navy (CNO, 2012). Based on the Navy’s strategic objectives it has developed capabilities like the aircraft carrier and the LHA/LHD amphibious assault ships to execute the mission. Having established the strategic objectives of the nation, DOD, and the Navy, this report can look at how these two types of ships carry out those objectives and which one may or may not be doing it better.

**Executing the Strategy**

To execute the *Sailing Directions* of the CNO the Navy has developed a *Naval Operations Concept* that provides a framework of mission objectives, services provided, and
current and future capabilities for execution. The goal of the Naval Operations Concept is to distribute mission tailored Naval forces globally that enforce the Homeland, develop international relationships, and contain conflict before it spreads (USN, 2010). In order to accomplish this goal the Navy provides the Nation the following:

- Persistent Presence.
- Self-sustaining, sea-based expeditionary forces.
- Maritime domain expertise.
- Flexible force options.
- Expanded deterrence.
- Joint, multinational, and interagency enabling forces (USN, 2010).

In order to execute its mandate the Navy has implemented and relied upon the use of Aircraft Carrier Strike Groups (CSGs) and Expeditionary Strike Groups (ESGs). The CSG is comprised of a nuclear powered Nimitz class aircraft carrier (CVN), an Carrier Air Wing, surface combatants, logistical support, and a submarine; while an ESG is comprised of a “Big Deck” amphibious assault ship like the Tarawa class LHA, Wasp class LHD, or the new America class LHA(R). Joining the LHA/LHD class ship, is a new San Antonio class LPD, a Whidbey Island class LSD, an embarked Marine Expeditionary Unit (MEU), amphibious assault craft like the Landing Craft Air Cushion (LCAC), and smaller surface combatants (USN, 2010).

Both the CSG and ESG can be tailored to meet many mission specific demands, however, the ESG has the advantage of landing ground forces. The embarked MEU typically carries close to 2,000 Marines, various assault vehicles, and an Air Combat Element comprised of 31 logistical and combat aircraft. The addition of the MEU provides the ESG the ability to respond to conflict on the ground. However, due to the sizable force structure required to deploy an ESG, it has become more economic to deploy as an Amphibious Readiness Group (ARG), which is basically an ESG without the small surface combatants and the submarine. Additionally, the
carrying capacity of the LHA/LHD, LPD, and LSD allow the ARG to break up and operate in multiple locations in the area of responsibility (AOR).

Returning to the research questions, this report narrows the focus to the main component of the CSG and the ESG, the aircraft carrier and the “big deck” amphib. Part of the question is whether or not the carrier can meet the strategic challenges of today, can the amphib, and could the amphib replace the carrier?

The carrier by itself is a formidable asset. Its primary warfare missions are Air Warfare (AW), Electronic Warfare (EW), Undersea Warfare (USW), Surface Warfare (SUW), Strike Warfare (STW), and Mine Warfare (MIW) (War College, 2003). Embarked with 67 fixed wing aircraft and 7 helicopters, the carrier provides a dominant air package to support its primary roles. In addition to its primary mission it is utilized to foster security cooperation, counter-piracy, counter-terrorism, and other maritime security operations (USN, 2010). A carrier can make speeds of 30kts, increasing its ability to launch aircraft at any time, and can steam for 16 days providing 24/7 aviation fuel to embarked units (War College, 2003). In 2006, USS Ronald Regan executed 3,000 flight sorties over Iraq, conducted anti-piracy in the Gulf of Bal al Mandeb, security cooperation operations with Iraq, and maritime interdiction operations in the Arabian Sea (Fuentes, 2006).

The LHA/LHD amphibious assault ship is also a great asset. Their primary mission is Amphibious Warfare (AMW). The flat bottom nature of the ship allows it to get into shallow water and launch amphibious landing craft capable of carrying Marines and their equipment. Steam powered, they can make 25 knots for speedy response or to help launch fixed wing aircraft. The 31 embarked aircraft provide strike support for forces on the ground and can quickly insert or exfiltrate squads of Marines (War College, 2003). The LHA/LHD classes also
have the ability to conduct AW, EW, USW, SUW, STW, and MIW. Additionally, the amphib is well suited to execute cooperation support, counter-terrorism, counter piracy, and maritime security. Currently, the LHA/LHD is the primary unit utilized for humanitarian aide and disaster relief (HADR). In January 2010, the USS Bataan (LHD-5) was sent to the Haiti to assist in humanitarian aide and disaster relief where she provided medical treatment and launched MH-60S Knighthawk helicopters to conduct around the clock search and rescue and the transportation of supplies (Navy Times, 2010). Later in March of 2011, USS Bataan relieved the USS Kearsage (LHD-3) off the cost of Libya to continue airstrikes on Libyan air defenses and communication targets to enforce the United Nations (UN) no-fly zone (McMichael, 2011).

Both ships are closely matched in capability, with the carrier having a slight advantage in endurance due to nuclear power; however, the ESG has the edge of placing troops on the ground. The research suggests that the amphib could execute the same missions the carrier can and has the added advantage of having Marine Corps personnel. What will determine which unit is better suited for the future will be the costs.

The Costs

Over the next 30 years the United States Navy plans to purchase and build six aircraft carriers and 18 amphibious warfare ships. This will help the Navy maintain a force posture of 11 aircraft carriers and 32 amphibious ships at all times. Gradually, the new Ford class carrier will begin to replace the current Nimitz class; however, as the America class LHA begins production and deployment, the Navy will continue to lean on the Wasp class amphib for up to 45 years to help achieve the 32 ship goal. (Labs, 2012) Yet, the 600 billion dollar sequestration will affect
the Navy’s plans severely, by forcing radical cuts due to a lack of funds. In 2011, ADM Jonathan W. Greenert, the current CNO, stated:

“Sequestration” would cause “irreversible damage” to our nation’s naval forces. The U.S. Navy faces its smallest force since before World War I. Sequestration will cause irreparable damage to the Navy’s manpower and ship force structure. Aging ships in the fleet are already on overdue maintenance schedules, lacking the appropriate funding levels to conduct life-cycle maintenance and modernization work (Wittman, 2011).

The Congressional Budget Office (CBO) predicts that the construction and refueling of nuclear powered aircraft carriers will average close to 22 billion dollars per decade for the next 30 years (about 11 billion dollars per ship) (Lab, 2012). To ensure that the Navy maintains the 11 carrier requirement, they will plan to construct a new carrier every five years. The Navy has already recognized that the costs are too high, Rear Admiral Thomas J. Moore, Program Executive Officer for aircraft carriers, has told Newport New Shipbuilding it must reduce its labor costs to reduce the cost per carrier to about 9 billion dollars (Erwin, 2012). As the cost to construct CVN-78 continues to grow, and conventional threats begin to diminish, it may not be necessary to maintain the 11 carrier force posture. The development of unmanned aerial vehicles and a wide assortment of surface vessels with capabilities that reach miles inside enemy territory, as well as the amphib that can carry aircraft and is cheaper to produce, it may not be necessary to invest in CVN-78. Since its initial procurement in FY08, the cost overrun will have grown an estimated 23.4% for a total of about 11.3 billion dollars due to problems with construction, specifically, warping in the new steel plated decks, a shortage in valves for critical piping systems, and delays in government furnished equipment. Additionally, continued delays in producing the new Dual Band Radar (DBR) and the advanced arresting gear (AAG) have also slowed the ship’s progress (O’Rourke, 2013)
For the new LHA(R) amphibious ship, the CBO estimates that the average cost per ship from 2013 to 2042 will be 4.3 billion dollars and has already ordered six to be built. In order to meet its 32 ship goal the Navy will have to resist retiring any of the existing LHD’s due to the time it takes to construct the new LHA(R). The 32 ship goal will consist of 11 LHA/LHD’s, 11 LPDs, and 10 LSDs. To accomplish this, the Navy has ordered six LHA(R)s at a rate of one every four to seven years (Labs, 2012). However the usefulness of the LHA(R) may be diminished if the F-35B Joint Strike Fighter (JSF) cannot be built at lower costs. The JSF is the anticipated replacement of the AV-8 Harrier and of which much of the LHA(R) is built around. The F-35B would provide the amphibious force the striking ability that the carrier currently possesses, and would be one of the incentives for reducing the carrier fleet. Its ability to hover makes it ideal to take off from the shorter flight decks of the LHA/LHD classes. However, due to recent budgetary constraints, former Secretaries of Defense Gates and Panetta have contemplated the idea of cancelling the whole JSF program or canceling the F-35B variant (Defense News, 2011).
Chapter 3

Methodology

The Historical Approach

Missions and Capabilities

To collect the data necessary to prove the thesis from a mission and capabilities perspective, a historical analysis of the missions and operations conducted by the last four LHD and last four CVN class ships to deploy between 2010 to the present were performed. The data needed to be recent and encompass as many of the ongoing missions that were being executed in real time. The six to nine month deployment cycles of the two classes of ships, allowed each to deploy with enough frequency to determine what missions each were executing and providing the ability to compare and contrast if either platform could demonstrate the ability to execute the missions of the other.

All of the CVN’s that were studied in the analysis were Nimitz Class Aircraft Carriers. Although each may have minor differences in the embarked systems due to new variations of the ship, their capabilities should be almost identical. Additionally, all the LHD’s in the analysis are Wasp class LHD’s. Their systems and components are virtually the same, with the exception of the USS Makin Island, which uses the new electric-hybrid propulsion system. Never the less, their ability to execute the assigned mission is virtually the same.

To make sure that mission analysis was fair the following mission areas were pulled right out of the National Defense Strategy and described below:
- **Counter Terrorism and Irregular Warfare**: Acting in concert with other means of national power, U.S. military forces must continue to hold al-Qa’ida and its affiliates and adherents under constant pressure, where they may be. *Achieving our core goal of disrupting, dismantling, and defeating al-Qa’ida and preventing Afghanistan from ever being a safe haven again will be central to this effort.*

- **Deter and Defeat Aggression**: U.S. forces will be capable of deterring and defeating aggression by any potential adversary. *Credible deterrence results from both the capabilities to deny an aggressor the prospect of achieving his objective and from the complementary capability to impose unacceptable costs on the aggressor.*

- **Project Power Despite Anti-Access/Area Denial Challenges**: In order to credibly deter potential adversaries and to prevent them from achieving their objectives, the United States must maintain its ability to project power in areas in which our access and freedom to operate are challenged. *Accordingly, the U.S. military will invest as required to ensure its ability to operate effectively in anti-access and area denial (A2/D2) environments.*

- **Counter Weapons of Mass Destruction.** U.S. forces conduct a range of activities aimed at preventing the proliferation and use of nuclear, biological, and chemical weapons.

- **Provide a Stabilizing Presence**: U.S. forces will conduct a sustainable pace of presence operations abroad, including rotational deployments and bilateral and multilateral training exercises. These activities reinforce deterrence, help to build capacity and competence of U.S., allied, and partner forces for internal and external defense, strengthen alliance cohesion, and increase U.S. influence. *However, with reduced resources, thoughtful choices will need to be made regarding the location and frequency of these operations.*

- **Conduct Stability and Counterinsurgency Operations**: The U.S. will emphasize non-military means and military to military cooperation to address instability and reduce the demand for significant U.S. force commitments to stability operations. U.S. forces will nevertheless be ready to conduct limited counterinsurgency and other stability operations if required, operating alongside coalition forces wherever possible.

- **Conduct Humanitarian, Disaster Relief, and Other Operations**: DOD will continue to develop joint doctrine and military response options to prevent and, if necessary, respond to mass atrocities. U.S. forces will also remain capable of conducting non-combatant evacuation operations for American citizens overseas on an emergency basis.  

  *(Department of Defense, 2012)*

The ship’s chosen for the analysis are listed below as well as their deployment dates.

- **Amphibious Assault Ships, Wasp Class LHDs**
  - USS Bataan (LHD 5): 23 March 2011 – 7 February 2012
  - USS Makin Island (LHD 8): 14 November 2011 – 22 June 2012
- Nuclear Powered Aircraft Carriers, Nimitz Class
  - USS Ronald Reagan (CVN 76): 2 February 2011 – 9 September 2011
  - USS Abraham Lincoln (CVN 72): 7 December 2011 – 7 August 2012

Identifying mission performance and accomplishment is difficult. Most of the details regarding the execution of the above missions is classified and will remain that way for the next two decades, at least. To perform the analysis, this report relies heavily on open source media reporting. Other additional resources include the Battle “E” reports from each ship. The Battle “E” is awarded to one ship in class each year for operational, maintenance, and supply excellence. The award submissions include details of some of the exercises, flight ops, and missions that were accomplished.

Cost Analysis

Cost data was retrieved from two primary sources, the Naval Visibility and Management of Operational and Support Costs office (VAMOSC) and the CBO. VAMOSC compiles the Operating and Support cost of each class of ship and aircraft in the Naval inventory and can break it down into various subcomponents that include maintenance, operations, personnel, fuel, etc. Per the stipulations placed on the author by VAMOSC, this report is only authorized to share the average annual operational and support costs for the CVN-65, CVN-68, LHA-1, and LHD-1 class ships. Based on the data collected, this should be sufficient enough to answer the requirements of this thesis.

Average annual costs are illustrated in table 4-2 and are broken up in Then-Year Dollars (TY) and Fiscal Year Dollars (FY) for 2012 and 2013. TY dollars include the effects of inflation
or escalation and/or reflect the price levels expected to prevail during the year at issue. FY dollars cover the period from October 1 through September 30 for the U.S. government (Defense Acquisition University, 2013). Additionally, VAMOSC provided the average number of days each class steamed underway, when compared to the costs of operation we can deduce which ship is more cost effective to operate.

Shipboard Acquisition costs are another part of the argument and the data was retrieved from the CBO in their report *An Analysis of the Navy’s Fiscal Year 2013 Shipbuilding Plan*. From this document we have data that illustrates the estimated cost to produce the CVN-78 and LHA-6 out through 2042, in addition to the estimated Refueling and Overhaul costs for aircraft carriers.
Chapter 4

Data Discussion

Carrier and Amphibious Execution 2010-2012.

USS Kearsarge

Beginning with the USS Kearsarge (LHD 3), she began her nine-month deployment on August 27, 2010. Of the four LHDs studied for this report, she was probably the most active during the course of her deployment, responding to a variety of events that included no-fly zone enforcement, noncombatant evacuation operations, and counterinsurgency operations. The Kearsarge deployment is the best example of the potential and utility of the Amphibious Assault Ship.

First, beginning the deployment early, Kearsarge steamed directly to the coast of Pakistan where she provided HADR support in response to intense flooding in the region. Arriving in September, embarked MV-22s immediately began the aerial lift of much needed supplies into the region (Darius O. Jackson, 2010).

Second, demonstrating the ability to provide stability and to effectively counter insurgents in Afghanistan, on January 6, 2011 1000 Marines from the 26th MEU deployed into the Helmand providence to provide security and to help support the development of infrastructure (uscarrriers.net, 2013).

Third, on March 1, 2011, USS Kearsarge is ordered to return to the Mediterranean to provide humanitarian support for of the escalating civil war in Libya. Once off the coast, the ship stood by, again, to provide humanitarian assistance and to evacuate civilians (Daily Mail...
While they are there, AV-8s from the 26th MEU are employed in Operation Odyssey Dawn, projecting power into Libya, where they attack Qadhafi’s forces and air defenses and enforcing United Nations Resolution 1973 (US AFRICOM Public Affairs, 2011).

**USS Bataan**

In April of 2011, the USS Bataan arrived on station off the coast of Libya to relieve the USS Kearsarge and continue U.S. involvement in Operation Odyssey Dawn and then stood by to assist with Operation Unified Protector, the NATO lead campaign to uphold UN resolution 1973. In addition to their ability to project power with embarked AV-8s, and their ability to provide HADR and NEO support during the conflict, the ship provided a stabilizing presence by conducting bilateral exercises with coalition partners such as the Spanish, Greeks, French, Italians, and Romanians. They conducted joint well deck and air operations, maritime interdiction operations, and medical and NEO drills (Green, 2011).

After operations concluded in the Mediterranean, USS Bataan proceeded into the 5th Fleet AOR, the regions from the Suez Canal, into the Persian Gulf, and Pakistan where she continued to provide a stabilizing presence in the Red Sea, off Yemen and Oman, and into the Persian Gulf.

**USS Makin Island**

Departing in November 2011, this deployment was the first for the brand new LHD and would demonstrate to the Navy the use of its brand new electric-hybrid propulsion system that splits steam time between gas turbines and diesel electric motors for speeds below 12 knots. The new propulsion system saved the Navy $18 million in allotted funds for fuel (Tarantola, 2012).
Right off the back, the Makin Island demonstrated its ability to provide a stabilizing presence and a strong power projection capability during exercise Kilat Eagle. In December the 11th MEU deployed into the Malaysian jungles to train jointly with the Malaysian Army. While there they drilled in jungle combat, emphasizing jungle survival and helicopter air assaults (USS Makin Island Public Affairs, 2011). In January 2012 the Makin Island turned over with the USS Bataan and continued forward presence operations in the 5th Fleet AOR.

**USS Iwo Jima**

The USS Iwo Jima deployed in March and steamed directly to Morocco to begin exercise African Lion. Showing a stabilizing presence off West Africa, African Lion enabled to the 24th MEU to work jointly with the Moroccan armed forces and exercise their ability to conduct amphibious assaults to the beach and aerial logistics via the MV-22. Following their time in Morocco, the Iwo Jima then participated in Eager Lion upon entering the Red Sea. This exercise encouraged coalition partnerships with the Saudi Arabians and the Jordanians and drilled the Marines ability to provide humanitarian response and NEO along the Jordanian and Syrian boarder.

In addition to the two exercises, the Iwo Jima stood poised and ready to execute NEO on several occasions. Due to intense rioting in Pakistan, Yemen, and Sudan the Iwo Jima was sent to show presence, deter aggression, and be ready to execute NEO and project power into the country. Off the coast of Yemen, the Iwo additionally aided in counter piracy operations. Although not its primary mission, the two MH-60S Knighthawk helicopters embarked provided a quick response to the pirate threat.
**USS Ronald Reagan**

The first of the carrier case studies is the Ronald Reagan, who like the Kearsarge, demonstrated the most potential and capabilities of the carriers. The Ronald Reagan set sail for 5th Fleet on February 2, 2011 and almost immediately was needed off the coast of Japan to provide disaster relief in the wake of the devastating tsunami that ravaged the island. The Ronald Regan provided a refueling platform for Japanese helicopters and transported island troops to relief areas (CNN, 2011).

Concluding operations with Japan April 5, the USS Ronald Reagan began operating with the Indian Navy in a Pacific naval exercise, Malabar 2011. The main objective of the exercise was to strengthen bonds and bilateral relationships between personnel from each of the two Navies. The exercise enabled the U.S. and Indian navies to work on maritime security coordination in the region (Pineda, 2011).

After arriving in 5th Fleet, the Ronald Reagan relieved the USS Carl Vinson and began power projection operations by launching combat sorties in support of Operation Enduring Freedom (uscarriers.net, 2013).

**USS John C. Stennis**

The USS John C. Stennis deployed in July of 2011 and arrived in the 5th Fleet AOR in September of 2011. Primarily present in the region to provide forward presence and stabilizing presence, she also projected power ashore by launching combat sorties in Operation Enduring Freedom and also launched the last combat sortie into Iraq, beginning Operation New Dawn (John C. Stennis Public Affairs, 2011). While operating in the 5th Fleet AOR, the Stennis
executed anti-piracy operations when they led the rescue of Iranian hostages on the al Mulahi Fishing vessel. Responding to a distress call by the Bahamian vessel Sunshine, the Stennis dispatched embarked helicopters and the USS Kidd to respond. The pirates were captured and then led the USS Kidd to there mother ship the Iranian flagged al Mulahi which they were using to capture other vessels in the area (Chivers, 2012).

**USS Abraham Lincoln**

Like her predecessors, the Lincoln, deploying in December of 2011, also projected power ashore by conducting combat sorties in support of Operation Enduring Freedom. In addition to power projection, she provided a stabilizing presence and sent a helicopter detachment to the Royal Fleet Auxiliary Ship Fort Victoria to participate in an Operational Task Force. It was the first U.S. Navy asset to embark on a Combined Maritime Forces Asset (Combined Maritime Forces, 2012).

**USS Dwight D. Eisenhower**

Originally scheduled for a nine-month deployment, it was cut short when the ship was ordered home for flight deck repairs. In the time they were at sea, the ship flew 8,200 combat sorties in support of Operation Enduring Freedom (USS Dwight D. Eisenhower Public Affairs, 2012).
Analysis of Average Operating and Ship Building Costs for CVN’s and Amphibious Ships.

Based on the data collected from VAMOSC, in FY13 the average annual operations and support costs for CVN-68 class ships were 437,258,425 dollars; while LHD-1 class ships cost 159,768,158 dollars. Additionally, CVN-68 class ships spent average of 111 days steaming underway, while the LHD spent 136 days steaming underway. The LHD steamed 23 percent longer than the CVN, yet the CVN was almost three times the cost to operate and support. The only exception to this, was CVN-65, USS Enterprise, executing two major deployments is close to a year. She was decommissioned at the conclusion of her last deployment in December 2012.

The CBO reported the average estimated shipbuilding costs for the CVN-78 and LHA-6 from 2013-2042 and found that CVN-78 is estimated by the CBO to cost 13.0 billion dollars per ship, the LHA-6 is estimated to cost 4.3 billion dollars. Additionally, the CBO reported that the
Aircraft carriers will consume 12 percent of the average annual budget per year while amphibious ships will consume 7 percent.

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<tr>
<th>Cost Comparison of CVN and LHA/LHD Class Ships</th>
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<td>Average Annual Operating and Support Costs (1)</td>
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(1) (2013) Average Annual Operational and Support Cost. VAMOSC.
Table 4-2
Chapter 5

Summary

A New Era

While writing this thesis and analyzing the research to sum up the conclusions, one cannot help but be drawn to the news and the drama that is brewing in the Pacific. While writing this thesis and doing the research, we must continue to be aware of the last remaining conventional threats like China, Iran, and North Korea, and not pay them little attention despite remaining relatively dormant outside of the occasional report on nuclear proliferation or the occasional military break through. However, intense saber rattling from North Korea is a reminder that the era of the aircraft carrier has not closed.

The reports on North Korea and other states like it, remind us that there are still Cold War conventional threats in the world. For so long we have shifted our focus to non-state internal actors and it is overlooked, sometimes, that there are countries that are attempting to change the status quo and exert their intentions throughout the world. Although these threats still exist, it does not invalidate these findings, it only changes the nature of the strategy.

Capabilities Analysis

Project Power. Of all the cases I have researched the CVN was able to sustain continuous 24-hour power projection into enemy territory. The Carrier Air Wing and its 67 aircraft have the
The ability to provide close air support to troops on the ground and deliver ordinance around the clock. The carrier’s ability to dominate the air picture enabled ground forces to maintain stability and security in Afghanistan and Iraq.

The LHD is able to project power via air and land, its helicopters and tilt rotor aircraft can insert Marines, deliver logistics, provide close air support, and deliver ordinance; however, it is limited in scope. Helicopters are limited in range and endurance and do not carry the firepower of an F-18, the AV-8 is its closest counter part, but six aircraft and limited personnel hinder its ability to carry the fight for long periods of time. Most importantly, the LHA/LHD is not manned for 24-hour flight operations. The Air Department of an LHD is smaller and is only manned for a single 10 hour flight operations window per day. Operations in Libya demonstrate potential strike capability, but what the CVN can do on its own, the LHD requires a coalition.

What the CVN cannot do however is project power via ground forces. The LHD and its 2000 some embarked Marines can deploy at a moments notice to any beach head in the AOR and have sufficient air support for cover. A large part of our success in Operation Enduring Freedom and Iraq comes from our ability to combat insurgents on the ground and that is a capability that cannot be ignored.

**Provide a Stabilizing Presence.** Per the requirements set forth by the DOD, the LHD appears to provide more measurable stability through cooperative coalitions than the CVN. All of the Gators studied participated on a large-scale coalition exercises that drilled our abilities to fight in a joint environment. The USS Kearsarge and Bataan, put these doctrines into effect while in Libya. Operations Odyssey Dawn and Unified Protector are a clear demonstration of the
stability a LHD can provide in concert with a strong coalition. Lastly, it was the USS Iwo Jima that was tasked to provide presence during the riots in Sudan, Yemen, and Pakistan; and when tensions between the Israelis and Palestinians heated up in November of 2012, it was the Iwo Jima that was standing off in Crete, ready to provide NEO support to its allies.

The CVN in itself is a show of presence and could be argued that it is stabilizing. Additionally, mission priorities may have kept the carriers studied from participating in coalition exercises. Carrier assistance in Japan, MALABAR, and work with the RFA Victoria are evidence that the CVN can execute this requirement.

**Stability and Counter-Insurgency.** The CVN’s studied did not demonstrate an ability to put troops on the ground, but they do provide air cover and support to troops on the ground so therefore it could be concluded that it has some counter-insurgency capability. If we measure this capability based on the air picture, than the CVN is still unmatched.

Based on the research, the LHD is much stronger at defeating insurgents. The LHD has a robust MEU that has the capability to fight on the ground and provide the security and stability necessary to allow the growth of infrastructure and governments. That is something that the CVN cannot provide, but that’s because it’s a different piece of the over all strategic puzzle. Despite that fact, there is more usefulness in having an LHD positioned off the shores of an unstable government because it can insert Marines when necessary and bring order until the state can get back on its feet or is relieved by another platform.

**Humanitarian Aid Disaster Relief.** The research has shown that the LHD is better suited to execute this mission than the CVN, although we saw the Lincoln provide a refueling platform
and transportation services while off Japan. The LHD provided aid for Haiti in 2010, Pakistan in 2011, and Libya in 2012. The CH-53’s endurance and its heavy lift capacity makes it the prime mover of supplies during HADR support. The MV-22, with its speed and long range capability coupled with its ability to land in constrained conditions, is the best evacuation platform at sea. Outside of the air assets, the Marines are again available to provide security in a chaotic environment. Most recently, in the wake of Hurricane Sandy, it was the USS Wasp (LHD 1) and its 18 helicopters embarked and the Navy’s Mobile Construction Battalion that provided HADR support (Defense Media, 2012). Having a well deck and the ability to move construction equipment over water via LCAC is a huge advantage that the CVN does not have. We did see the CVN provide aid off Japan; however, the LHD could provide a refueling and transportation platform just as well as the CVN.

**Deter Aggression.** Although I do not have hard research that shows that presence of either warship deterred aggression in any specific region, I am confident that CVN’s continued presence in the Persian Gulf and the LHD’s presence off Pakistan, Yemen, Sudan, and Libya were significant factors in keeping the peace. The USS Iwo Jima was ordered to stand by off the coast of Yemen, Sudan, and Pakistan to protect the embassies from rioters during a volatile time in the Arab Spring; however, their support was never required. Whether or not their presence was a factor in the de-escalation of violence cannot be determined.

**Counterterrorism and Counter Weapons of Mass Destruction.** Although we did not see any of this in the open source documentation, this is not an indication that either platform is not executing this mission. However, because the research was unable to get open source reporting
on the execution of these mission sets, it cannot be concluded which platform is better suited. Based on the performance of both the CVN’s and the LHD’s studied the research suggests both could be used to execute either mission depending on the objectives. The CVN could launch airstrikes on terrorist and WMD targets; or the LHD could deploy a team of Marines to infiltrate targets on the ground as well as execute airstrikes with the AV-8 Harrier.

**Monetary Expenditures**

In Chapter 2 we discussed the literature on the Navy’s budget to construct new CVN’s and the new LHA(R). It will cost the Navy an estimated 12.8 billion dollars, on average, to build a new CVN and it will cost 4.3 billion dollars, on average, to build a LHA(R). In construction costs alone, there is a potential savings of 8.5 billion dollars if we focus on amphibious assault ships. Additionally, the refuel and overhaul of the Navy’s current carrier fleet will cost an average of 1.3 billion dollars a year, a cost not shared by the LHD, of which the Makin Island’s electric-hybrid engine has demonstrated the ability to save the Navy millions of dollars.

Operational and Support cost for the CVN are almost three times the cost of the LHA/LHD. At an average cost of 433,177,536 dollars (TY), the carrier primarily fulfilled the air dominance role. Granted its is designed for this purpose; however the LHD-1 CL fulfilled more mission sets at a third of the cost and was at sea 22 percent longer than the CVN-68 CL. Kearsarge and Bataan clearly demonstrated the ability to provide sufficient ground support during the Libya conflict and one could hypothesize that if the Navy were to fund the expansion of the Air Department onboard the LHD, and the F-35B proves to be a success at sea, the LHD could provide the same level of support as a carrier. Also, aviation centric design of LHA-6 could boost amphibious capabilities in air dominance.
Conclusion

This thesis poses three major questions; is the CVN still the most affordable Naval capability for today’s strategic landscape; can the LHA/LHD perform the same mission capabilities as the CVN; and is the amphibious assault ship cheaper to employ?

The CVN is a conventional weapon of the Cold War and is perfectly designed to counter conventional threats posed by states like North Korea, China, and Iran. However, today’s strategic threats are far more diverse and require increased flexibility. At close to 450 million dollars a year, the Navy is spending a lot of money on an asset that is primarily providing air dominance and presence. Although there were small cases in which the carrier demonstrated capabilities outside its primary purpose, they were limited in scope and they were missions that the amphibious assault ship could execute at a third of the annual cost. Additionally, the cost to produce two LHA-6 class ships is the cost for one CVN-78 class ship. The CVN is not the most affordable Navy asset for today’s strategic landscape.

This is not to say that there is no room for investing in the CVN. The amphib currently does not have the ability to provide 24 hours of air superiority. If war should break out in places like Iran, China, and North Korea, the CVN will be one of the most needed assets due to its ability to project air power on a continuous basis. We do need a carrier fleet, but how robust that fleet needs to be remains unanswered.

Currently, the Navy utilizes a Fleet Readiness Training Plan (FRTP) that times deployments, training, and maintenance on a 32 month cycle. The 32 month cycle is broken up into four phases, basic, integrated, sustainment, and maintenance with a readiness goal of
3+3+1+3(1); 3 deployed, 3 in sustainment for 30 day response, 1 in the basic or integrated phase for 90 day response, and three carriers in maintenance with an additional carrier in overhaul (York, 2008). To fulfill the requirement the Navy needs 11 carriers and is currently stretched with only 10 (due to the retirement of the USS Enterprise in December 2012). If we continue to draw down in Iraq and Afghanistan, the need for a Carrier in that region may not be required. The Navy could adopt a 2+2+1+3(1); 1 deployed between the Mediterranean and Middle Eastern AORs, 1 deployed in the Pacific, 2 in sustainment, 1 in basic, and 3 in maintenance with one in overhaul. The LHD/LHA has demonstrated the ability to fill in the gaps and show presence and provide quick response until a carrier could arrive on scene.

The gaps that will need to be filled are air dominance, deterrence, and presence. The LHD/LHA ships have demonstrated the ability to deter aggression, show presence, and provide stability; however, it is limited in its ability to provide overwhelming air dominance. The LHA/LHD ability to fulfill this capability hinges on a few factors: 1) the success of the F-35B; 2) an expansion of the Air Department manning to provide 24 hour air support; 3) reconfiguration of the ACE to fulfill the increased demand in fixed wing strike operations. With the right strategic mindset, and a reallocation of funds these factors can be met. Operations in Libya demonstrate the potential for an LHA/LHD to execute air dominance capabilities. Coupled with strong coalition support, the LHA/LHD can fulfill this requirement until a CVN arrived in the AOR. The LHA/LHD is limited in executing the air component of power projection capabilities, but the research clearly shows that it is capable of executing the remaining missions.

Lastly, the LHA/LHD is more cost effective than the CVN. It operates at almost a third of the cost and can be built at almost a third of the price. Despite its inability to completely execute the air dominance mission, the money it can save us allows the government the
flexibility to invest in projects that can expand the LHA/LHD’s ability to execute this mission.

Over the course of the last three years the LHD’s have executed more of the DOD’s strategic goals than the CVN. The Amphib has demonstrated the ability to perform all the tasks of a carrier until it becomes absolutely necessary for a carrier in combat. The diversity and flexibility of the amphibious assault ship is what is necessary in this new era, the CVN is a Cold War asset, it’s utility is limited and costly in the changing strategic landscape of non-state actors, terrorism, civic unrest, and disaster relief. The Navy should shift its focus to invest in the development and upkeep of “Big Deck” Amphib because there will greater requirements for them in the future.
References


