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Are the U.S. Navy's current procedures for responding to homeland defense and security tasking adequately designed?

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THESIS

ARE THE U.S. NAVY'S CURRENT PROCEDURES FOR RESPONDING TO HOMELAND DEFENSE AND SECURITY TASKING ADEQUATELY DESIGNED?

by

Kevin McClellan

December 2009

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With the spectrum of the range of military operations broadening, the operational tempo of Department of Defense assets has substantially increased. Military leaders must look to innovative solutions to meet the increased demands placed on the armed forces. Doctrine and policy such as the National Security Strategy, National Military Strategy and the Strategy for Homeland Defense and Civil Support dictate the increased use of innovation and "jointness" by the military in order to meet the increasing demands of protecting the homeland. The question, *"Are the U.S. Navy's current procedures for responding to homeland defense and security tasking adequately designed?"* needs to be addressed to ensure our nation is fulfilling its most essential duty: providing safety and security for its citizens.

This thesis will discuss the establishment of NORTHCOM, analyze and detail the potential mission set the U.S. Navy can execute in homeland defense and security and examine the current command and control (C2) relationships that NORTHCOM has with the U.S. Navy compared to the other military services. The thesis will then provide alternate C2 options between NORTHCOM and the U.S. Navy as well as identify the advantages and disadvantages of those options and conclude with an analysis and recommendations.

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ABSTRACT

With the spectrum of the range of military operations broadening, the operational tempo of Department of Defense assets has substantially increased. Military leaders must look to innovative solutions to meet the increased demands placed on the armed forces. Doctrine and policy such as the National Security Strategy, National Military Strategy and the Strategy for Homeland Defense and Civil Support dictate the increased use of innovation and "jointness" by the military in order to meet the increasing demands of protecting the homeland. The question, *"Are the U.S. Navy's current procedures for responding to homeland defense and security tasking adequately designed?"* needs to be addressed to ensure our nation is fulfilling its most essential duty: providing safety and security for its citizens.

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LIST OF ACRONYMS AND ABBREVIATIONS

ACB	Amphibious Construction Battalion
AFNORTH	Air Force North
AFNSEP	Air Force National Security Emergency Preparedness
AFRCC	Air Force Rescue Coordination Center
AIS	Automatic Identification System
AOC	Air and Space Operations Center
AOR	Area of Responsibility
ARNORTH	Army North
ASCC	Army Service Component Command
ATFP	Anti-Terrorism Force Protection
BCT	Brigade Combat Team
BMD	Ballistic Missile Defense
CBRNE	Chemical, Biological, Radiological, Nuclear and High-yield Explosives
CENTCOM	U.S. Central Command
CG	Guided-Missile Cruiser
CJCSI	Chairman of Joint Chiefs of Staff Instruction
CLF	Commander Atlantic Fleet
COCOM	Combatant Command
COD	Carrier On-board Delivery
COMNAVSURFOR	Commander Naval Surface Forces
CS	Civil Support
CSG	Carrier Strike Group
CV	Aircraft Carrier
C2	Command and Control
C3F	Commander Third Fleet
C7F	Commander Seventh Fleet
DDG	Guided-Missile Destroyer
DoD	Department of Defense
DoDI	Department of Defense Instruction

DSCA	Defense Support of Civil Authorities
ECC	Evacuation Control Center
EHF	Extremely High Frequency
EOD	Explosive Ordnance Disposal
ESG	Expeditionary Strike Group
EUCOM	U.S. European Command
EXORD	Execute Order
FFG	Guided-Missile Frigate
FLIR	Forward-Looking Infrared
FRP	Fleet Response Plan
GAO	Government Accountability Office
GBS	Global Broadcast System
HA/DR	Humanitarian Assistance/Disaster Relief
HD	Homeland Defense
HDSG	Homeland Defense and Security Group
HF	High Frequency
HS	Homeland Security
HS	Helicopter Antisubmarine Squadron
HSL	Helicopter Antisubmarine Squadron Light
HSPD	Homeland Security Presidential Directive
ICBM	Intercontinental Ballistic Missile
ICU	Intensive Care Unit
JBECC	Joint Based Expeditionary Connectivity Center
JFACC	Joint Force Air Component Commander
JFC	Joint Force Commander
JFCOM	U.S. Joint Forces Command
JFLCC	Joint Force Land Component Commander
JFMCC	Joint Force Maritime Component Commander
JTF-CS	Joint Task Force Civil Support
LCAC	Landing Craft Air Cushion
LCM	Landing Craft Mechanized
LCS	Littoral Combat Ship

LCU	Landing Craft, Utility
LHA	Amphibious Assault Ship
LHD	Amphibious Assault Ship
LPD	Amphibious Transport Dock
LSD	Landing Ship Dock
MACA	Military Assistance to Civil Authorities
MAD	Magnetic Anomaly Detector
MARFORNORTH	Marine Forces North
MCA	Maritime Civil Affairs
MDA	Maritime Domain Awareness
MEDEVAC	Medical Evacuation
MIO	Maritime Interception Operations
MHD	Maritime Homeland Defense
MHS	Maritime Homeland Security
MMA	Multi-mission Maritime Aircraft
NAVELSG	Navy Expeditionary Logistics Support Group
NAVNORTH	Naval Forces Northern Command
NCB-VBSS	Non-Compliant Boarding capable Visit, Board, Search and Seizure Team
NCR	Naval Construction Regiment
NC/SJFHQ	Northern Command Standing Joint Force Headquarters
NECC	Navy Expeditionary Combat Command
NEO	Noncombatant Evacuation Operation
NIMS	National Incident Management System
NMCB	Naval Mobile Construction Battalion
NMS	National Military Strategy
NORTHCOM	U.S. Northern Command
NRF	National Response Framework
NSA	National Security Agency
NSC	National Security Cutter
NSMS	National Strategy for Maritime Security
NSS	National Security Strategy

OPCON	Operational Control
OPTEMPO	Operating Tempo
OSC	On-Scene Commander
PACOM	U.S. Pacific Command
PWCS	Ports, Waterways, and Coastal Security
RHIB	Rigid Hull Inflatable Boat
ROMO	Range of Military Operations
SAG	Surface Action Group
SAM	Surface-to-Air Missile
SAR	Search and Rescue
SFTM	Surface Forces Training Manual
SHF	Super High Frequency
SM	Standard Missile
SOCOM	U.S. Special Operations Command
SSN	Attack Submarine, Nuclear
STRATCOM	U.S. Strategic Command
SUW	Surface Warfare
TSC	Theater Security Cooperation
UCT	Underwater Construction Team
UHF	Ultra High Frequency
USFF	United States Fleet Forces Command
USTACS	United States Theater Air Control System
USW	Undersea Warfare
VHF	Very High Frequency
VTOL	Vertical Takeoff and Landing
VTS	Vessel Traffic Service
WMD	Weapons of Mass Destruction

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I. INTRODUCTION

A. MAJOR RESEARCH QUESTION

Due to the spectrum of the range of military operations (ROMO) broadening, the operating tempo (OPTEMPO) of Department of Defense (DoD) assets substantially increases. In order to provide defense and security to the homeland, military leaders must look to innovative solutions as an effective and sensible response. Doctrine and policy in the forms of the National Security Strategy (NSS), National Military Strategy (NMS) and the Strategy for Homeland Defense and Civil Support dictate the increased use of innovation and "jointness" by the military in order to meet the increasing demands of protecting the homeland. The question, *"Are the U.S. Navy's current procedures for responding to homeland defense and security tasking adequately designed?"* needs to be addressed in order to ensure our nation's military is fulfilling its most essential duty: providing safety and security for its citizens.

B. IMPORTANCE

In addressing the question, "Are the U.S. Navy's current procedures for responding to homeland defense and security tasking adequately designed?" one needs to understand the U.S. government's current policy and strategy. The National Military Strategy derives its goals and objectives from the National Security Strategy. One of the NMS's three priorities is transforming the military, and it states that the key principles for more effective joint operations are agility, decisiveness and decision superiority.[1] Both the NMS and the National Strategy for Maritime Security (NSMS) identify the importance of simultaneously sustaining multiple military operations. The NSMS

[1] Department of Defense, *The National Military Strategy of the United States of America*. Washington D.C., 2004.

discusses the growing concern for maritime domain awareness and the development of eight new plans that include: threat response, international outreach and coordination strategy, and a domestic outreach plan.[2]

The NSMS explains the need for an effective, layered maritime security in order to properly address the increasing concerns and threats in the maritime realm. This includes terrorist and non-state threats, transnational criminal and piracy threats, and illegal seaborne immigration.[3] The Strategy for Homeland Defense and Civil Support also emphasizes the importance of innovation, joint warfare and the transformation of military capabilities and functions. It calls for a "strategy (that) requires an active, layered defense,"[4] also known as defense in depth. This strategy focuses on the DoD in three roles; lead, support and enable. In the support role, one DoD mission is to "prevent, protect or recover from an attack or disaster."[5] Similar to the NSMS, the Strategy for Homeland Defense and Civil Support explains the importance of "balancing priorities due to scarce resources" and identifies goals in order to achieve better "jointness" through information sharing, increased intelligence, surveillance and reconnaissance. [6] These strategies as put forth by the government all act in concert with the identified need for defense in depth through a layered, joint force that is mobile and decisive as well as the need for innovation and transformation in order to ensure its success.

This issue is important on multiple levels. Becoming more effective and efficient when using DoD assets in the prevention of, or recovery from, a disaster could save tax dollars over time, preserve democracy, save lives and minimize damage. As a public service, the DoD is obligated to continually assess its abilities and make improvements when and where possible.

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[2] Department of Defense, *The National Strategy for Maritime Security*. Washington D.C., 2005.

[3] Ibid.

[4] Department of Defense, *Strategy for Homeland Defense and Civil Support.* Washington D.C., 2005.

[5] Ibid.

[6] Ibid.

C. PROBLEMS AND HYPOTHESES

In attempting to implement the previously mentioned strategies, the U.S. government has created Northern Command (NORTHCOM) as a unified command. NORTHCOM's responsibility is stated as: "(to) conduct operations to deter, prevent, and defeat threats and aggression aimed at the United States…provide military assistance to civil authorities, including consequence management operations."7 NORTHCOM is the first combatant command with homeland defense as its mission and the continental United States as its area of responsibility (AOR). NORTHCOM's mission is to anticipate and conduct Homeland Defense and Civil Support operations within the assigned area of responsibility to defend, protect, and secure the United States and its interests.8 The U.S. Army, U.S. Air Force, and the U.S. Marine Corps all have service component commands that report directly to NORTHCOM. The U.S. Navy, however, has no component command, and instead contributes a supporting command—Fleet Forces Command. Fleet Forces Command does not report directly to NORTHCOM until directed to do so by U.S. Joint Forces Command (JFCOM).9 The vision and strategy provided by the U.S. government to integrate and use DoD assets for military support to civil authorities has been mirrored in the structure of NORTHCOM and its subordinate commands. The minor exception is the role the U.S. Navy plays within that command structure. It does not align with the strategy's emphasis on integration and an increased joint ability. This thesis will argue that currently, the U.S. Navy is not maximizing its potential and capability to best support Northern Command in its mission to defend the homeland. While the U.S. Army, U.S. Air Force and the U.S. Marine Corps have established homeland defense support commands and have become more prepared through

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[7] Defense Science Board. *DOD Roles and Missions in Homeland Security*. Washington D.C.: Office of the Undersecretary of Defense for Acquisition, Technology, and Logistics, 2004.

[8] U.S. Northern Command, *About U.S. Northern Command*; available from http://www.northcom.mil/About/index.html.

[9] William Knight and Steve Bowman, *Homeland Security: Evolving Roles and Missions for United States Northern Command. CRS Report for Congress.* Washington D.C.: Congressional Research Service, 2007.

restructuring, conducting exercises and liaising with their civilian counterpart, this thesis will argue that the U.S. Navy has fallen behind despite the tremendous capabilities it could bring to a variety of scenarios.

D. LITERATURE REVIEW

There are many military assistance to civil authorities missions including (but not limited to) responses to floods, enemy attacks, tsunamis, tornados, space debris impact, mass imigration, biological/radiological incident, oil spills, postal work stoppage, counter-drug operations, and counter-terrorism.[10] These missions can be supported by the U.S. Navy through the supply of fixed and rotary-wing aircraft, transportation, shelter, food, medical support, security support, diver support, power generation, water transport, and communication support.[11] One must ask why the U.S. Navy does not provide a service component command to directly support NORTHCOM in its day-to-day mission.

The U.S. Navy does have the ability and ultimately, the tasking and mission to support NORTHCOM via the strategy and guidance provided from the President of the United States and the Secretary of Defense. With the continual transformation of the military, part of which is its new role in homeland defense, perhaps force levels and funding could be the explanation to the lack of the U.S. Navy involvement.

In Hooker's article, "Getting Transformation Right" he and his co-authors explain that effective transformation will expedite victories and reduce costs of military operations.[12] Erckenbrack, author of "The DoD Role in Homeland Security," agrees, suggesting that extra or additional funding is not what is required but a new way of thinking, for example not seeing the military as a whole but as a venue of assets and

[10] Tonya M. Brickhouse, *Homeland Defense: At Risk as a Result of Civil Support?* Research Report, Atlanta: Clark Atlanta University, 2003.

[11] Ibid.

[12] Richard Hooker Jr., H. R. McMaster, and Dave Grey, "Getting Transformation Right." *Joint Force Quarterly* 38, 2005: 20–27.

capabilities.[13] Meese's article, "Organizing for Victory," emphasizes the importance of the DHS implementing these changes in a "cost-effective manner."[14]

The Quadrennial Defense Review affirms the DoD as the largest bureaucracy in the world in terms of its budget. It clarifies the DoD's new planning system grounded in capability versus anticipated threat, and refers to it as capability-based planning. A variety of skill-sets and identified capabilities will lead to a more integrated and effective transformation.[15] Capability-based planning reduces any perceived cost influxes that may be associated with new DoD tasking. If properly managed, restructuring the organizational foundation of the DoD by focusing on capability would not create a heavy burden on the taxpayers. As the National Security Advisory Group points out, our military is under extreme strain and needs to balance its capabilities in order to minimize the negative impact of operating on multiple battlefronts.[16] The necessary transformation of the military, with respect to civil support, can be done by identifying unique DoD capabilities.

This is not a new mission. The U.S. military has "intervened in domestic affairs some 167 times…"[17] The proper legislation has been in place to help reduce any "red tape" such as the Stafford Act which authorizes the use of the military for disaster relief, the Posse Comitatus Act, and the Insurrection Act.[18] However, with the DoD's expanding role in homeland defense and civil support, increased effectiveness and efficiency are necessary in order to be able to sustain the multiple levels of tasking. One of the challenges involved with this transformation is the organization for homeland security.

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[13] Adrian A. Erckenbrack and Aaron Scholer, "The DOD Role in Homeland Security." *Joint Force Quarterly* 35, 2005: 34–41.

[14] Edwin Meese III, James Jay Carafano, Ph.D., and Richard Weitz, Ph.D. "Organizing for Victory: Proposals for Building a Regional Homeland Security Structure." The Heritage Foundation, 2005: 1–7.

[15] Ryan Henry, "Defense Transformation and the 2005 Quadrennial Defense Review," *Parameters* 35, 2005: 5–15.

[16] National Security Advisory Group, The U.S. Military: Under Stress and at Risk. Washington D.C.: National Security Advisor Group, 2006.

[17] Mackubin Owens, "Fighters, Not First Responders," *The Weekly Standard*, 2005: 28–31.

[18] Jennifer K. Elsea, "The Use of Federal Troops for Disaster Assistance: Legal Issues, CRS report for Congress, Washington D.C.: Congressional Research Service, 2005.

The federal government's organizational structure in preventing, preparing and responding to natural and man-made disasters needs to be revamped for a more efficient and effective approach to homeland security.[19] In Hillyard's article, "Organizing for Homeland Defense," he examines how the U.S. can increase its homeland defense efficiency through lessons learned from the DoD and operating and tasking through capability-based planning.[20] Consider the USS *Abraham Lincoln* Carrier Strike Group's response to the tsunami in 2004 where a U.S. Navy ship, USS *Benfold* (DDG 82), served as a floating gas station for aircraft and provided aid to victims while her crew was ashore conducting various manual labor-type jobs.[21] This destroyer is designed for multiple missions, none of which is humanitarian assistance. This use of innovation is an example of capability-based training. The U.S. Navy's performance following Hurricane Katrina also shows its immense capabilities. Seventeen ships were on station and treated over 1,000 patients, conducted 380 evacuations, delivered 68,900 pounds of food and over 110,000 pounds of fresh water, and provided more than 3,400 Seabees to clear roads, and to remove debris.[22] This support, while massive, came later than it might have. On August 29, 2005, President Bush issued a federal declaration of emergency and on the following day Joint Task Force Katrina (JTF Katrina), established by NORTHCOM, declared Katrina an incident of national significance. While USS *Bataan* (LHD 5) arrived at New Orleans on the August 31, it was not until five days later that USS *Iwo Jima* (LHD 7), USS *Harry S. Truman* (CVN 75) and other naval assets arrived.[23] Five days equates to massive unnecessary human suffering and exponential damage to critical infrastructure. Kochems, author of "Military Support to Civilian Authorities: An Assessment of the Response to Hurricane Katrina", asserts, "(W)hile the Department of Defense (DoD) has an adequate response mechanism for normal disasters, it is not

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[19] Charles R. Wise, "Organizing for Homeland Security," *Public Administration Review*, 2002: 131–145.

[20] Michael J. Hillyard, "Organizing for Homeland Security," *Parameters*, 2002: 75–86.

[21] James Pinsky, "Benfold's benevolence: a tsunami relief story." *All Hands*, 2005: 3–7.

[22] *Katrina and the U.S. Navy*; available from http://op-for.com/2006/09/katrina_and_the_us_navy.html.

[23] Bowman, Steve and James Crowhurst, Homeland Security: Evolving Roles and Missions for United States Northern Command. CRS report for Congress, Washington D.C.: Congressional Research Service, 2004.

adequately organized and prepared to respond to catastrophic disasters."[24] He further states, "Hurricane Katrina highlighted the absence of a comprehensive, all-hazards national system to respond to catastrophic events and the fact that the military is not properly configured to provide aid during such catastrophes."

The United States has defined its vision, with respect to homeland defense and civil support, passed the appropriate legislation, and developed the unified command post by the institution of NORTHCOM. The DoD has developed doctrine and incorporated capability-based planning in order to move forward with an "all-hazard approach." The U.S. Navy has the responsibility to make a transformation and integrate itself within the DHS through NORTHCOM. It has been clearly demonstrated that it has the capability to not only address, but to succeed in multiple civil support missions.

E. OVERVIEW

Chapter II will discuss applicable laws and legislation, the establishment of NORTHCOM, and subsequently analyze and elaborate the potential mission set the U.S. Navy can carry out in the homeland defense and security role. Chapter III will look at the current command and control (C2) relationship with NORTHCOM and the armed forces, paying particular attention to the differences between the U.S. Navy compared to the other services. Chapter IV will look at various command and control options for U.S. Navy asset utilization in the homeland defense and security role as well as identify the advantages and disadvantages of those options. Chapter V will examine NORTHCOM's maritime capability coupled with its likely increase in operations due to climate change and conclude with an analysis and recommendation of the options discussed in Chapter IV.

[24]Alan Kochems, *Military Support to Civilian Authorities: An Assessment of the Response to Hurricane Katrina*; available from http://www.heritage.org.

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II. LAWS AND LEGISLATION, CREATION OF NORTHCOM AND THE U.S. NAVY'S CAPABILITIES TO ASSIST THE COMBATANT COMMANDER

The Department of Defense is governed and guided by legislation, strategies, directives and regulations that define combatant commander roles and missions. A brief overview of this direction and guidance is required to understand how the newest regional combatant command, U.S. Northern Command, functions as it plans to meet its mission requirements and how its roles in both homeland defense and civil support are defined, supported, and regulated with regard to its participation in domestic events. This chapter will discuss the applicable laws and legislation that outline the Department of Defense role in Homeland Defense (HD) and Homeland Security (HS), followed by an introduction of U.S. Northern Command and its mission, and will conclude with a discussion of the capabilities of the U.S. Navy in support of the Northern Command mission.

A. DIRECTIVES, LAWS AND LEGISLATION

Homeland Security Presidential Directive (HSPD)-5, *Management of Domestic Incidents,*[25]

> (A)ssigns the Secretary of the Department of Homeland Security as the principal Federal official for domestic incident management to coordinate the Federal government's resources utilized in response to, or recover from terrorist attacks, major disasters, or other emergencies.[26]

HSPD-5 directs the Secretary of Defense to provide support to civil authorities for domestic incidents as directed by the President of the United States or when appropriate

[25] Homeland Security Presidential Directive 5 was signed February 28, 2003.

[26] Joint Publication 3-28, *Civil Support* (September 2007), 128.

pending circumstances and legislation exist. HSPD-5 also directs the development of the National Response Framework (NRF) and National Incident Management System (NIMS).[27]

HSPD-8, *National Preparedness*,[28] establishes policies in order to improve and support the preparedness of the United States to prevent and respond to natural and man-made disasters by "requiring a national domestic all-hazards preparedness goal, establishing mechanisms for improved delivery of federal preparedness assistance to state and local governments, and outlining actions to strengthen preparedness capabilities…"[29]

The Robert T. Stafford Disaster Relief and Emergency Assistance Act, which was signed into law November 23, 1988, "set the policy of the Federal government to provide an orderly and continuing means of…assistance to state and local governments…to alleviate the suffering and damage that results from…disaster." and serves as the "primary legal authority for federal participation in domestic disaster relief."[30] This Act allows the DoD to intervene and take action in "three different scenarios: a Presidential declaration of a major disaster, a Presidential order to perform emergency work for the preservation of life and property, or a Presidential declaration of emergency."[31]

The Posse Comitatus Act (Title 18 U.S. Code, Section 1385) places restraints on the use of DoD personnel with respect to law enforcement. It specifically prohibits "interdiction of a vehicle, vessel, aircraft, or similar activities; and use of military personnel for surveillance or pursuit of individuals, or as undercover agents, informants, investigators, or interrogators" with the exception of "military purpose doctrine" and "indirect assistance," which includes:

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[27] Department of Homeland Security, *Homeland Security Presidential Directive 5: Management of Domestic Incidents*; available from http://www.dhs.gov/xabout/laws/gc_1214592333605.shtm#1.

[28] Homeland Security Presidential Directive 8 was signed December 17, 2003.

[29] Department of Homeland Security, *Homeland Security Presidential Directive 5: Management of Domestic Incidents*; available from http://www.dhs.gov/xabout/laws/gc_1215444247124.shtm#1.

[30] Joint Publication 3-28, *Civil Support* (September 2007), 128.

[31] Ibid., 129.

> (1) Actions that are taken for the primary purpose of furthering a military or foreign affairs function of the United States, (2). Federal Troops acting pursuant to the President's Constitutional and statutory authority to respond to civil disorder, (3). Actions taken under express statutory authority to assist officials in executing the laws, subject to applicable limitations, (4). Counter-drug operations authorized by statute[32]

Title 10 U.S. Code (Armed Forces) provides guidance on the use of the armed forces with respect to military law in general and branch specifics (U.S. Army, U.S. Navy, U.S. Marine Corps and the U.S. Air Force) and governs military support for civilian lead agencies.[33] Most applicable to the homeland defense and security arena in Title 10 is chapter 15, *The Enforcement of the Laws to Restore Public Order*, formerly known as the Insurrection Act, which:

> Authorizes the President to employ the Armed Forces of the US, including the National Guard, within the United States to restore order or enforce federal law after a major public emergency…when requested by the state governor or when the President determines that the authorities of the state are incapable of maintaining public order.[34]

Title 32 USC (National Guard) authorizes the use of federal funding to train National Guard personnel while they remain responsible to their respective state and is more commonly known for authorizing the President to use the National Guard to perform operations funded at the federal level (i.e. border security or counter-drug missions).[35]

There are also a series of Department of Defense Instructions (DoDI) and Chairman of the Joint Chiefs of Staff Instructions (CJCSI) that are applicable to the civil support mission including, Military Capabilities, Assets, and Units for Chemical, Biological, Radiological, Nuclear, and High-Yield Explosive Consequence Management Operations; Standing Rules of Engagement/Standing Rules for the Use of Force for U.S. Forces; Military Assistance to Domestic Consequence Management Operations in

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[32] Joint Publication 3-28, *Civil Support* (September 2007), 129.

[33] Ibid., 129.

[34] Ibid., 53.

[35] Ibid., 130.

Response to a Chemical, Biological, Radiological, Nuclear, or High-Yield Explosive Situation; and DoD Counterdrug Operational Support.[36]

B. UNITED STATES NORTHERN COMMAND (USNORTHCOM)

NORTHCOM was established October 1, 2002, to provide command and control of Department of Defense homeland defense efforts and to coordinate defense support of civil authorities.[37] Defense Support of Civil Authorities (DSCA), which was previously known as Military Assistance to Civil Authorities (MACA), is DoD support for domestic emergencies.[38] DoD support includes anything from providing experts on chemical, biological, radiological, nuclear and high-yield explosives (CBRNE) to trained dogs (to smell and identify drugs, explosive materials and other items of interest) to amphibious helicopter assault ships (providing berthing, functioning flight deck and command and control functionality), all depending on the circumstances of the humanitarian assistance/disaster relief (HA/DR) mission assigned. Domestic emergencies include natural disasters such as wildland fires, tornadoes, earthquakes, floods, hurricanes, typhoons, cyclones, tidal waves, tsunamis, volcanic eruptions, landslides, mudslides, avalanches and blizzards, and also man-made disasters such as accidental or intentional releases of oil or other hazardous materials, power grid outages, terrorist attacks on critical infrastructure and virtually any other attack imaginable that could be carried out by enemies of the United States.[39]

C. U.S. NAVY CAPABILITY IN THE DSCA ROLE

The National Strategy for Maritime Security's objectives is: Prevent Terrorist Attacks and Criminal or Hostile Acts, Protect Maritime-Related Population Centers and Critical Infrastructures, Minimize Damage and Recovery and Safeguard the Ocean and

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[36] DoDI and CJCSI 3000 and 4000 series available at http://www.dtic.mil/whs/directives and http://www.dtic.mil/cjcs_directives/cjcs/instructions.htm.

[37] U.S. Northern Command, *About U.S. Northern Command*; available from http://www.northcom.mil/About/index.html.

[38] Department of Defense, *Strategy for Homeland Defense and Civil Support*: 5.

[39] Joint Publication 3-28, *Civil Support* (September 2007), 52.

Its Resources.[40] The third objective, Minimize Damage and Recovery, states: "The United States must be prepared to minimize damage and expedite recovery from a terrorist attack or other Incident of National Significance…"[41]

DSCA is most applicable in the humanitarian assistance and disaster relief roles; the U.S. Navy can support this particular "mission set" drawing assets from the surface and aviation forces and from the navy's new Navy Expeditionary Combat Command (NECC).

1. Surface Forces

For the scope of this thesis, surface forces will be limited to frigates (FFGs), destroyers (DDGs), cruisers (CGs), amphibious transport and landing ships (LSD/LPDs), amphibious helicopter assault ships (LHDs/LHAs) and aircraft carriers (CVNs). This is not to say that mine countermeasure ships, patrol craft and other naval surface forces cannot prove beneficial in the DSCA role in support of HA/DR, but that this thesis will focus on surface forces that have more regimented schedules due to increased capabilities which in turn makes them harder to obtain in the DSCA role.

With HA/DR tasking, the combatant ships (FFGs, DDGs and CGs) share similar capabilities and limitations. All FFGs, CGs and some DDGs have the ability to embark rotary wing aircraft (SH-60 B/F/R) whose capabilities and limitations will be discussed later in this chapter. The DDGs that do not have the ability to embark helicopters, do have the ability to land and launch, conduct air control operations and refuel the aircraft. These ships can serve as refueling/berthing stations for the aircraft, which can bring their capabilities closer to the scene of a disaster.[42]

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[40] Department of Defense, *The National Strategy for Maritime Security*: 11

[41] Recovery is defined by the *National Response Plan* as the development, coordination, and execution of service- and site-restoration plans for impacted communities and the reconstitution of government operations and services. An Incident of National Significance is based on the criteria established in Homeland Security Presidential Directive-5, Management of Domestic Incidents, February 2003.

[42] DDGs 51-78 can support helicopter operations but cannot embark helicopter detachments. For more information see *United States Navy Fact File*; available from http://www.navy.mil/navydata.

These combatants also bring manpower. The *Oliver Hazard Perry* class frigate has a crew complement of over 200, the *Arleigh Burke* Destroyer Flight I/II class (27 in class) has over 345, the *Arleigh Burke* Destroyer Flight IIA class (30 in class) has over 245 and the *Ticonderoga* class cruiser has over 355.[43] U.S. Navy personnel can be sent ashore via the ships' Rigid Hull Inflatable Boat (RHIB) and helicopters. Once ashore these personnel can be tasked as the on-scene commander (OSC) deems necessary. Besides delivering manpower through providing personnel, these ships can also deliver goods, such as water, food, medical supplies and generators. Through training, exercises and operations, these ships will develop new innovative ways to become even more capable in the HA/DR mission, as seen with USS *Benfold* (DDG 65) during the tsunami relief effort in Operation Unified Assistance.[44]

In the HA/DR role, the amphibious ships: LSDs, LPDs, LHDs and LHAs (and for the similarities within the HA/DR mission CVNs will be included) provide similar capabilities to the cruisers, destroyers and frigates but with greater impact. The LSD and LPD are very similar in capability and mission tasking. The *Whidbey Island* class LSD has twelve ships in service and has a crew complement of over 400 and can carry up to an additional 420 troops that can serve as manpower for relief efforts or if troops are not embarked, the ship can berth and feed relief workers.[45] Its well-deck can accommodate a variety of military lift vessels, including but not limited to, Landing Craft Air Cushions (LCACs), Landing Craft, Utility (LCUs) and Landing Craft, Mechanized (LCMs), all can be used to in shallow water to transport personnel and equipment.[46] Its flight deck can conduct flight operations with its two embarked CH-53 Sea Stallions (as well as lighter rotary aircraft such as the SH-60s) and the ship can hold up to 90 tons of aviation fuel.[47] There are five *San Antonio* class LPDs in service and four under construction with the last scheduled to be delivered by 2012. This ship class has a crew complement of 360 and

[43] Jane's Information Group, *Jane's Fighting Ships* 2006. Available from http://jfs.janes.com/public/jfs/index.shtml.

[44] Pinsky, "Benfolds benevolence: a tsunami relief story." *All Hands*, 2005: 3–7.

[45] Jane's Information Group, *Jane's Fighting Ships.*

[46] Ibid.

[47] Ibid.

can carry an additional 720 troops.[48] Its well deck can carry two LCACs and its flight deck can conduct flight operations identical to the *Whidbey Island* class with the addition of CH-46E Sea Knights and MV-22 Ospreys.[49] The *San Antonio* class also has a 24 medical-bed facility.[50] The second class of LPDs is the *Austin* class, with five ships in service and a crew compliment of over 500 and berthing for over 800 troops.[51] Its well deck can carry military lift vessels including two LCACs and fourteen Expeditionary Fighting Vehicles.[52] It operates CH-46 Sea Knight helicopters as well as smaller rotary-wing aircraft such as the Sea Hawk or Sea Cobra.[53] The remaining ships in the *Austin* class have been refitted to accommodate a staff, creating additional berthing, briefing rooms and an enhanced communications ability including a video teleconference call (VTC) capability.

There are two classes of amphibious helicopter assault ships in service, the *Tarawa* class and the *Wasp* class. Only two *Tarawa* class LHAs remain in service and their capabilities are similar to the *Wasp* class LHD.[54] As the follow-on to the *Tarawa* class, the *Wasp* class, with eight ships in service, has a crew complement of over 1,100 and can support an additional 1,800 troops. Its well decks can support up to three LCACs and the ship can hold over 1,200 tons of aviation fuel.[55] The *Wasp* class has a 64 bed capacity hospital and six operating rooms which can be a significant resource in the HA/DR role.[56] From its flight deck, it can launch and recover AV-8B Harriers, MV-22 Osprey, F-35 Joint Strike Fighters, CH-46 Sea Knights, AH-1W Super Cobras, CH-53 Super Stallions, UH-1N Twin Hueys, AH-1T Sea Cobras and SH-60 Seahawks.[57] This

[48] Jane's Information Group, *Jane's Fighting Ships.*

[49] Ibid.

[50] Ibid.

[51] Ibid.

[52] Ibid.

[53] Ibid.

[54] Ibid.

[55] Ibid.

[56] Ibid.

[57] Initial procurement of the JSF and MV-22 for the U.S. Navy begins in fiscal year 2010.

ship class brings a robust capability to the HA/DR mission as seen in the aftermath of Hurricane Katrina, when the USS *Bataan* (LHD 5) provided a number of critical services to the disaster relief effort ranging from communications to basic berthing and feeding of federal, state and local responders.

There are twelve aircraft carriers in service, eleven of them being of the *Nimitz* class.[58] The *Nimitz* class has a crew complement of over 5,500 (including the aircrew).[59] From its flight deck, it can launch and recover F/A-18 Hornets, EA-6B Prowlers, E-2C Hawkeyes, C-2 Greyhounds, SH-60Fs, HH-60H and SH-60 Seahawks.[60] The *Nimitz* class's surgical suite, intensive care unit (ICU), medical ward (50 hospital beds), doctors (typically 6, one of which is a surgeon) and medical corpsmen gives it a robust medical capability able to provide care for casualties ranging from heat stress to heart attacks. Its engineering plant is capable of producing up to 400,000 gallons of fresh water per day.[61] The *Nimitz* also has an impressive communication suite that consists of several WCS-3A (UHF DAMA), WSC-6/8 (SHF), USC-38 (EHF) and SSR-2A Global Broadcast System (GBS).[62]

2. Aviation Assets

The U.S. Navy rotary and fixed-wing aircraft have different capabilities that make them beneficial in the HA/DR role. Rotary aircraft typically refers to helicopters but also includes rotary-tilt aircraft such as the MV-22 Osprey. In a HA/DR role, rotary aircraft

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[58] Jane's Information Group, *Jane's Fighting Ships*.

[59] Ibid.

[60] Ibid.

[61] *Leveraging America's Aircraft Carrier Capabilities: Exploring New Combat and Noncombat Roles and Missions for the U.S. Carrier Fleet*; available from http://www.rand.org/pubs/monographs/2006/RAND_MG448.pdf. It is estimated that the average citizen residing in an industrialized country uses 10 gallons of water for domestic use per day, source, Feiss, Paul and John James William Rogers, "*People and the Earth,*" Cambridge University Press, United States of America, 133.

[62] These transceivers permit communication via line of sight (LOS) as well as the use of satellites, making the Nimitz class communication suite robust and redundant. These transceivers not only permit voice transmissions and receptions but are also a key component of data links (GCCS-M, JMCIS, TADIXS, OTCIXS and JTIDS) by transmitting and receiving data, which in turn allows units to share text messages and build common operating pictures via real and near-real time updates of symbols representing anything from roads and railways to enemy ships and aircraft.

are extremely beneficial in preventing human suffering. Their ability to take-off and land vertically, and their ability to hover in a stationary space, allow them to reach people and places that traditional vehicles and fixed-wing aircraft cannot.

The SH-60 Seahawk variants (B, F and R) have the ability to land and launch on all of the naval surface forces that were discussed above. The SH-60 is a twin-engine, medium lift aircraft, equipped with a communication suite that permits voice transmit and receive ability on Ultra-High Frequency (UHF) and High-Frequency (HF).[63] The SH-60 has an external cargo hook with a 6,000 lb capacity and a rescue hoist with a 600 lb capacity.[64] The external cargo hook capability allows the SH-60 the ability to provide medicine, food and water to people in hard to access areas and the rescue hoist affords the SH-60 the ability to conduct rescue missions and medical evacuations (MEDEVACs). The SH-60 can also be outfitted with extra fuel tanks to increase flight time. Depending on the variant, the SH-60 can also conduct personnel transfers of up to eight passengers.[65]

The MH-53 Sea Dragon has the same general maneuverability advantages of the SH-60 with the exception of landing on the combatant surface vessels. However, the MH-53 can transport up to 55 personnel or transfer up to 32,000 lbs of cargo.[66] The heavy lifting ability of the MH-53 significantly increases the value of having this particular asset in a HA/DR role. MV-22 Osprey procurement (48 for the U.S. Navy) is expected to begin in the 2010-2012 timeframe.[67] The rotary-tilt aircraft is a multi-mission, vertical take-off and landing (VTOL) asset that can transport "up to 24 combat-equipped troops…up to 12 litters plus medical attendants; or a 9,070 kg (20,000 lb) cargo load…external cargo carried by single and dual cargo hooks, with capability of lifting 4,500 kg (9,921 lb) and 6,800 kg (14,991 lb) respectively."[68]

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[63] Jane's Information Group, *Jane's All the World's Aircraft* 2006. Available from http://jawa.janes.com/public/jawa/index.shtml.

[64] Ibid.

[65] Ibid.

[66] Ibid.

[67] Ibid.

[68] Ibid.

U.S. Navy fixed-wing aircraft that could contribute to a HA/DR mission include the C-2A Greyhound and the P-8 Multi-mission Maritime Aircraft (MMA), Poseidon.[69] The C-2A Greyhound is used for Carrier On-board Delivery (COD) and can transport 28 passengers or 12 medical litters and attendants or up to 10,000 lbs in freight.[70] The U.S. Navy is procuring over 100 land-based P-8 Poseidons, and expects to reach full-rate production in 2012.[71] The P-8 has an advanced communication suite and has a range of over 1,200 nautical miles with an on station time of four hours.[72]

With the exception of the C-2A Greyhound, all the U.S. Navy aircraft discussed can operate using night-vision goggles and act as a communication relay platform, extending the range and thereby the effectiveness of C2.[73] These aircraft are also able to incorporate some variant of a forward-looking infra-red (FLIR) system; using thermal-imagery in recovery efforts could help locate citizens in danger thereby increasing success rates for SAR missions.[74] These aircraft are also outfitted with equipment designed for military missions that could prove useful with innovation as DSCA assets in the HA/DR role. For example, the SH-60B is equipped with the Magnetic Anomaly Detector (MAD), which detects magnetic variation underwater. It is designed to locate submerged submarines, however if the aircraft is being used for disaster relief MAD could be used to locate large submersed "debris" that may be impeding recovery efforts or even causing more damage. This is only one example, there are other systems, such as RADAR and dipping SONAR that with imagination and increased experienced might prove to have additional uses that could increase the effectiveness of equipment not necessarily designed for the HA/DR role.

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[69] The P-8 MMA Poseidon has an introduction operational capability dated for 2013. *United States Navy Fact File*; available from http://www.navy.mil/navydata.

[70] Jane's Information Group, *Jane's All the World's Aircraft.*

[71] Ibid.

[72] Ibid.

[73] Ibid.

[74] Ibid.

3. Navy Expeditionary Combat Command

In January 2006, the U.S. Navy established a new command - the Navy Expeditionary Combat Command. The NECC mission is to "organize, man, train, equip and maintain Navy expeditionary forces to meet the maritime security operations and joint contingency operations requirements" and be a "Global force provider of adaptive force, packages of naval expeditionary capabilities to warfighting commanders" in order to "extend maritime battlespace."[75] The missions of the NECC include "effective waterborne and ashore anti-terrorism force protection; theater security cooperation and engagement; and humanitarian assistance and disaster relief."[76] The capabilities within the NECC to carry out these missions include: Explosive Ordnance Disposal (EOD), Riverine, Naval Construction, Maritime Civil Affairs (MCA), Expeditionary Intelligence, Maritime Expeditionary Security, Expeditionary Diving and Salvage, Expeditionary Logistics, Expeditionary Training and Combat Camera.

Explosive Ordinance Disposal teams are trained in CBRNE threats and are the "only military EOD force that can both parachute from the air to reach distant targets or dive under the sea to disarm weapons" and EOD's "Mobile Diving and Salvage Units clear harbors of navigation hazards, engage in underwater search and recovery operations, and perform limited underwater repair on ships."[77] EOD's ability to conduct controlled demolitions coupled with their extensive mobility make them a valuable asset in the HA/DR role.

NECC's Riverine and Maritime Expeditionary Security forces are composed of several small surface vessels that have a tactically insignificant draft, allowing these vessels access to a flooded urban environment to conduct basic SAR missions. Their ability to gain this access also provides the capability to develop and maintain situational awareness in a disaster area providing the on-scene commander valuable information.

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[75] *Navy Expeditionary Combat Command*; available from http://www.necc.navy.mil.

[76] Ibid.

[77] Ibid.

Navy divers from the Expeditionary Diving and Salvage command can conduct "expeditionary salvage, search and recovery…, perform harbor clearance…, underwater cutting and welding, and limited demolition" and are also capable of, "construction, inspection and repair of ocean facilities such as wharves, piers, underwater pipelines, moorings and boat ramps."[78] These particular capabilities could prove useful in an array of disaster relief scenarios.

The Naval Construction command, more commonly referred to as "Seabees," have a unique capability in that they are a self-sufficient force (Seabees provide their own logistic and security needs) capable of construction on roads, bridges, bunkers, airfields - all of which are vital to the critical infrastructure of the United States.[79] The Naval Construction Force is comprised of: (1) Naval Construction Regiments (NCRs) that are capable of responsive, quality construction and disaster recovery in support of HA/DR, (2) Naval Mobile Construction Battalions (NMCBs) are trained and proficient with wood, steel, masonry and concrete construction and can also conduct specialized construction from battle damage repair to water well drilling, (3) Naval Amphibious Construction Battalions (ACBs) can transport equipment and materials through the use of barges and ferries and are able to construct floating piers, install fueling systems and build camps capable of housing 1300 personnel and (4) Underwater Construction Teams (UCTs), capable of inspecting and/or repairing maritime infrastructure; wharves, piers, underwater pipelines and moorings.[80]

The Navy Expeditionary Logistics Support Group (NAVELSG) is a scalable and flexible support force trained in conducting, "port and air cargo handling missions, customs inspections, contingency contracting capabilities, fuels distribution, freight terminal and warehouse operations, postal services, and ordnance reporting and handling."[81] In a DSCA role and HA/DR mission, NAVELSG could lead or coordinate

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[78] *Navy Expeditionary Combat Command*; available from http://www.necc.navy.mil.

[79] *U.S. Naval Construction Force*; available from https://*www*.seabee.navy.mil.

[80] Ibid.

[81] *Navy Expeditionary Combat Command*; available from http://www.necc.navy.mil.

with local agencies with its previously mentioned capabilities. The Maritime Civil Affairs command would oversee the integration between local and/or state efforts with NAVELSG and other NECC commands.

4. DSCA Utilization

DSCA is typically part of the recovery efforts as seen with HA/DR missions. NORTHCOM can (and has) accelerated recovery time and decreased casualties caused by the aftermath of a natural disaster by leveraging DoD capabilities as seen with Hurricane Katrina disaster relief efforts. The U.S. Navy provided transportation, medical support, food, water, shelter, SAR efforts and communication in support of relief efforts using surface forces, aviation assets and the Navy Expeditionary Combat Command. This effort resulted in the medical treatment of over 1,000 patients, over 380 evacuations, over 68,000 lbs of food and over 110,000 lbs of potable water delivered and over 3,400 Seabees that helped preserve and repair critical infrastructure.[82] Response to Hurricane Katrina from the U.S. Navy clearly demonstrates its capability with a HA/DR mission as a DoD asset supporting civil authorities.[83]

Natural disasters such as Hurricanes Katrina and Rita, the Northridge earthquake, and the 2008 Mississippi River floods, and man-made disasters such as the Minneapolis I-35 bridge collapse, the Anthrax threat, and the events on 9/11, all threatened the United States and required an extensive HA/DR response. The U.S. Navy's role in support of recovery efforts has been discussed above. However NORTHCOM's mission is two-fold; Defense Support to Civil Authorities *and* provide command and control of Department of Defense homeland defense efforts.

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[82] *Katrina and the U.S. Navy*; available from http://op-for.com/2006/09/katrina_and_the_us_navy.html.

[83] Among those assets were USS *Bataan* (LHD 5), USS *Truman* (CVN 75), USS *Iwo Jima* (LHD 7), USS *Whidbey Island* (LSD 41), USS *Arctic* (T-AOE 8) USS *Grapple* (ARS 53), USNS *Mercy* (T-AH 19) and USNS *Comfort* (T-AH 20).

D. U.S. NAVY CAPABILITY IN THE HOMELAND DEFENSE ROLE

Defending the homeland in the traditional sense has been the major role of the U.S. Navy since its inception. The U.S. Navy capability in homeland defense from a less traditional aspect needs to be explored. While the range of military operations will most likely continue to expand, innovation, efficiency and effectiveness within the military force is paramount in defending the homeland. The following missions, while more conventional in nature, have not been fully utilized or incorporated with respect to homeland defense. The U.S. Navy's sea-based ballistic missile defense (BMD), maritime interception operations (MIO) and maritime domain awareness (MDA) missions can and must be integrated into NORTHCOM's homeland defense mission.

1. Sea-Based Ballistic Missile Defense

As an integrated and joint approach to BMD, the DoD continues to modify DDGs and CGs to accommodate this complex and challenging mission. Aegis DDGs and CGs are distinct from other warships because of their Aegis weapon systems that are comprised of: The SPY-1 RADAR, a multi-functional, phased-array RADAR designed to detect, track and provide missile guidance for intercept missiles; a suite of computers that run fire-control and battle-management software; and the standard missile (SM), which serves as the U.S. Navy's primary surface-to-air missile (SAM).[84]

Currently, there are 21 BMD capable AEGIS ships in the fleet and the proposed defense budget for 2010 calls for six more ships receiving the necessary software upgrade.[85] The Aegis BMD midcourse system is currently configured and "designed to detect and track ballistic missiles of any range, including ICBMs, and intercept short- and medium-range ballistic missiles…above the atmosphere…during their midcourse phase of flight." When BMD ships are used in the capacity of detecting and tracking ICBMs,

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[84] Thomas O'Rourke, "*Sea-Based Ballistic Missile Defense –Background and Issues for Congress*," Congressional Research Service, 20 July 2009. For more on the AEGIS system and its principal components as originally deployed, see CRS Report 84–180, *The AEGIS Anti-Air Warfare System: Its Principal Components, Its Installation on the CG-47 and DDG-51 Class Ships, and its Effectiveness,* by Ronald O'Rourke. (October 24, 1984) This report is out of print and is available directly from the author.

[85] Ibid., 2. The proposed 2010 defense budget also requests $168.7 million USD for procurement of the required SM-3 that works in concert with the AEGIS software upgrade.

they provide fire-control quality data to the integrated U.S. BMD architecture.[86] Besides the Aegis BMD midcourse system, BMD ships also serve the capability referred to as the "sea-based terminal capability" that provides a sea-based capability "for intercepting (theater ballistic missiles) in the final, or descent, phase of flight, after the missiles have reentered the atmosphere, so as to provide local-area defense of U.S. ships as well as friendly forces, ports, airfields, and other critical assets ashore."[87] This particular feature of the BMD capability provides defense in depth and could prove useful in protecting the homeland closer to the shores of the United States. The ability to integrate within the U.S. BMD architecture coupled with the mobility of sea-based BMD assets expands the capability and range to protect the United States from ballistic missiles.[88] The current U.S. Navy record of accomplishment with successful BMD intercepts as of July 31, 2009, is 18 out of 22.[89] U.S. Navy officials expect that as time passes and resources and experience continues to grow, both the U.S. Navy BMD capability *and* performance will improve, furthering overall BMD effectiveness for the United States.

2. Maritime Interception Operations

Another U.S. Navy capability that is traditionally practiced in waters far from the shores of the United States is maritime interception operations. Maritime interception operations consist of intercepting a sea-going vessel and if necessary boarding, searching and possibly seizing. These operations are typically conducted in the search of illegal cargo such as drugs, slaves, weapons of mass destruction and for intelligence gathering through crew interviews and reviewing of vessel documents. The vast majority of U.S.

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[86] O'Rourke, "*Sea-Based Ballistic Missile Defense –Background and Issues for Congress*," 3.

[87] Ibid., 9, 10.

[88] "TBMs include, in ascending order of range, short-range ballistic missiles (SRBMs), which generally fly up to about 600 kilometers (about 324 nautical miles), medium-range ballistic missiles (MRBMs), which generally fly up to about 1,300 kilometers (about 702 nm), and intermediate-range ballistic missiles (IRBMs), which generally fly up to about 5,500 kilometers (about 2,970 nm). Intercontinental ballistic missiles (ICBMs) are longer-ranged missiles that can fly 10,000 kilometers (about 5,400 nm) or more. Although ICBMs can be used to attack targets within their own military theater, they are not referred to as TBMs." O'Rourke, Thomas. "*Sea-Based Ballistic Missile Defense –Background and Issues for Congress*," Congressional Research Service, 20 July 2009.

[89] Ibid., 1 and Navy Times; available from http://www.navytimes.com/news/2009/07/navy_DN073109_AegisBMD_web.

Navy ships are capable of conducting maritime interception operations. This mission can be a contingency operation or a planned operation working in concert with a U.S. Coast Guard detachment or from a singular combatant and its Non-Compliant Boarding capable Visit, Board, Search and Seizure (NCB-VBSS) team. The NCB-VBSS team consists of twelve to eighteen crewmembers that are trained to verify ship's documents, bills of lading, and crew manifests and to search for contraband (especially in hidden compartments and/or tanks). They are also trained to conduct interrogations that include the use of biometric equipment that makes significant contributions to multiple intelligence and law enforcement databases; and if necessary, through the ship's master, the NCB-VBSS team can reposition the ship to a designated location for further processing.

NCB-VBSS teams and riverine and coastal security units from NECC all provide the MIO capability that can be not only employed around the world, but also off the coast of the United States, and complements an assortment of maritime homeland defense (MHD) and maritime homeland security (MHS) missions.

3. Maritime Domain Awareness

Today's maritime domain is susceptible to a variety of threats, including but not limited to nation-states, terrorists, transnational criminals and pirates. The maritime domain is defined as:

> All areas and things of, on, under, relating to, adjacent to, or bordering on a sea, ocean, or other navigable waterway, including maritime-related activities, infrastructure, people, cargo, and vessels and other conveyances[90]

Maritime domain awareness is the "effective understanding of anything associated with the maritime domain that could impact the security, safety, economy, or environment of a nation."[91] The knowledge of a specific merchant vessel, its flag, port of origin and cargo onboard and final destination is an example of MDA. The National

[90] Department of Defense, *The National Strategy for Maritime Security*.

[91] Joint Publication 1–02, *Department of Defense Dictionary of Military and Associated Terms* (August 2009), 331.

Strategy for Maritime Security is a strategy designed to meet the standards laid out in the National Security Strategy. The NSMS states, "More than 80 percent of the world's trade travels by water and forges a global maritime link. About half the world's trade by value, and 90 percent of the general cargo, are transported in containers" and further states, "(There) are 30 megaports/cities that constitute the world's primary, independent trading web…(and a) handful of international straits and canals pass 75 percent of the world's maritime trade and half its daily oil consumption."[92] These staggering numbers help illustrate the significance of providing security to the maritime domain and the challenges within the mission of maintaining maritime domain awareness.

The maritime domain offers a new means to transport WMD or other various threats and contraband.[93] The probability of a hostile state using WMD is expected to increase during the next decade.[94] Such an attack, however, does not necessarily have to be conducted by a hostile state; it could be conducted by state-sponsored terrorists. Delivery of a WMD to the U.S. would most likely occur via the maritime domain because of the opportunity to remain undetected that the sea lanes of communication offer and the current lack of security throughout the waters.

The maritime domain offers an opportunity for terrorists:

> Today's terrorists are increasing their effectiveness and reach by establishing links with other like-minded organizations around the globe. Some terrorist groups have used shipping as a means of conveyance for positioning their agents, logistical support, and generating revenue. Terrorists have also taken advantage of criminal smuggling networks to circumvent border security measures[95]

Terrorists are wise to exploit weaknesses in maritime security when and where they exist. Terrorist capabilities are adapting to this relatively new battlespace:

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[92] Department of Defense, *The National Strategy for Maritime Security*.

[93] An alternative danger is that a foreign state will provide critical advanced conventional weaponry, WMD components, delivery systems and related materials, technologies, and weapons expertise to another rogue state or a terrorist organization that is willing to conduct WMD attacks, Department of Defense, *The National Strategy for Maritime Security*.

[94] National Intelligence Council. *Mapping the Global Future*. Washington D.C.: 2004.

[95] Department of Defense, *The National Strategy for Maritime Security*.

> Terrorists…develop effective attack capabilities…using a variety of platforms, including explosives-laden suicide boats and light aircraft; merchant and cruise ships as kinetic weapons to ram another vessel, warship, port facility, or offshore platform; commercial vessels as launch platforms for missile attacks; underwater swimmers to infiltrate ports; and unmanned underwater explosive delivery vehicles[96]

The large number of merchant shipping vessels around the world, coupled with the enormous size of the oceans, provides terrorists with a wide range of opportunities for exploitation ranging from illegal seaborne immigration to WMD placement. The key to all of these opportunities is the maritime domain: terrorists have identified this domain as one of the United States' greatest vulnerabilities, and they are learning how to best exploit it.

The transnational criminal and piracy threat poses challenges similar to those posed by terrorists. Smuggling people, drugs, and weapons, as well as acts of piracy and armed robbery against vessels, pose a threat to maritime security.[97] Just as the oceans have provided a lucrative avenue for commerce, they have, at the same time, afforded increased opportunity to illegal activities. Maritime drug trafficking generates vast amounts of money for international organized crime syndicates and terrorist organizations.[98] This revenue can be used for a variety of purposes, such as terrorist financing or even WMD purchases. Drug money, especially on the international level, can further challenge and complicate the complexity of tracing the funds.

With increasing border security, the susceptible coastline offers a safer alternative for illegal immigration, referred to as "illegal seaborne immigration." Illegal seaborne immigration is an emerging threat that needs attention in the early, more developmental stage before it evolves into a problem with a solution that is exponential more difficult as time goes on. The NSMS states, "International migration is a long-standing issue that will remain a major challenge to regional stability, and it will be one of the most important

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[96] Department of Defense, *The National Strategy for Maritime Security*.

[97] Ibid.

[98] Ibid. On October 14, 2009, USS *Anzio* (CG 68) seized four tons of hashish onboard a small vessel off the coast of Oman with a street value of roughly 28 million dollars.

factors affecting maritime security through the next ten years."[99] With a world-wide economic crisis, instability and political unrest will increase, thereby increasing illegal seaborne immigration.[100] As legislation (i.e., terrorist watch lists) and technology (i.e., biometrics) improve, terrorists may look to illegal seaborne immigration as a more effective means to achieve their goals.

One NSMS objective is to protect maritime-related populated centers, critical infrastructure, key resources, transportation systems, borders, harbors, ports, and coastal approaches in the maritime domain.[101] Critical infrastructure is defined by the USA PATRIOT Act as:

> Systems and assets, whether physical or virtual, so vital to the United States that the incapacity or destruction of such systems and assets would have a debilitating impact on security, national economic security, national public health or safety, or any combination of those matters.[102]

Nuclear power plants, oil refineries, levees, passenger terminals, fuel tanks, pipelines, chemical plants, tunnels, cargo terminals and bridges are all common attributes to ports and can be considered as critical infrastructure.[103] Ports are also very susceptible and vulnerable to attacks because they are "sprawling, easily accessible by water and land, close to crowded metropolitan areas, and interwoven with complex transportation networks."[104] Port security is a responsibility shared by the public and private sector but ultimately the DHS is the lead agency charged with the responsibility to protect and defend the nation's critical infrastructure and key resources.[105]

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[99]Department of Defense, *The National Strategy for Maritime Security*.

[100] Ibid.

[101] Ibid.

[102] *USA PATRIOT Act*, 2001; available from http://www.fincen.gov/statutes_regs/patriot

[103] Department of Defense, *The National Strategy for Maritime Security*.

[104] Ibid.

[105] Ibid.

The NSMS identifies five strategic actions to meet its objectives. These are to enhance international cooperation, maximize domain awareness, embed security into commercial practices, deploy layered security and assure continuity of the marine transportation system.

The NSMS identifies these five strategic actions as imperative in order to achieve its objectives. Maritime security is a complex mission that requires effort from multiple sources. The NSMS states, "Maritime security is best achieved by blending public and private maritime security activities on a global scale into a comprehensive, integrated effort that addresses all maritime threats."[106] It further states that:

> Maritime security crosses disciplines, builds upon current and future efforts, and depends on scalable layers of security to prevent a single point of failure…coordination, cooperation, and intelligence and information sharing…are required to protect and secure the maritime domain.[107]

Involving the public and private sector, coupled with coordination, cooperation and intelligence/information sharing, demonstrates the complexity involved with providing security to the maritime domain. The NSMS acknowledges that the five strategic actions are not single solutions but are multiple, necessary actions that complement each other. Of these five strategic actions, MDA has a heightened significance; the NSMS identifies domain awareness as the critical enabler for all of the strategic actions.[108]

Awareness within all domains, air, land, sea, space and cyberspace is required in order to assure safety and security for the United States.[109] Not only is gathering and processing information to build an effective MDA essential, but also "knowledge of an adversary's capabilities, intentions, methods, objectives, goals, ideology …structure…(and) behavior" are required to best assess and address issues that exist

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[106] Department of Defense, *The National Strategy for Maritime Security*.

[107] Ibid.

[108] Ibid.

[109] Ibid.

within the maritime domain.[110] Effective MDA provides time, a vital commodity in any warfighters arsenal. The ability to identify a potential threat prior to having effective weapons release range affords authorities the opportunity to confirm the identity and/or intentions of the threat through further analysis and also allows time to decide for the best possible solution for the threat, whether it be interception, boarding and/or elimination. The NSMS states, "Such knowledge is essential to supporting decision-making for planning, identifying requirements, prioritizing resource allocation, and implementing maritime security operations."[111] The knowledge referenced from the NSMS is the product of an effective MDA.

The U.S. Coast Guard's approach to MDA is the Nationwide Automatic Identification System (AIS) Project via providing vessel identification and tracking capabilities to support maritime domain awareness.[112] The AIS Project was developed in response to the requirements of the Maritime Transportation Security Act, emerging homeland security requirements, and the ongoing need to improve vessel traffic services (VTS).[113] AIS is "(A)n international standard for ship-to-ship, ship-to-shore, and shore-to-ship communication of information, including vessel identity, position, speed, course, destination and other data."[114] Figure 1 helps show how the U.S. Coast Guard is utilizing multiple resources in support of building and maintaining a MDA.

[110] Department of Defense, *The National Strategy for Maritime Security*.

[111] Ibid.

[112]United States Coast Guard, *Nationwide Automatic Identification System Project*, Washington DC.

[113] Ibid.

[114] Ibid.

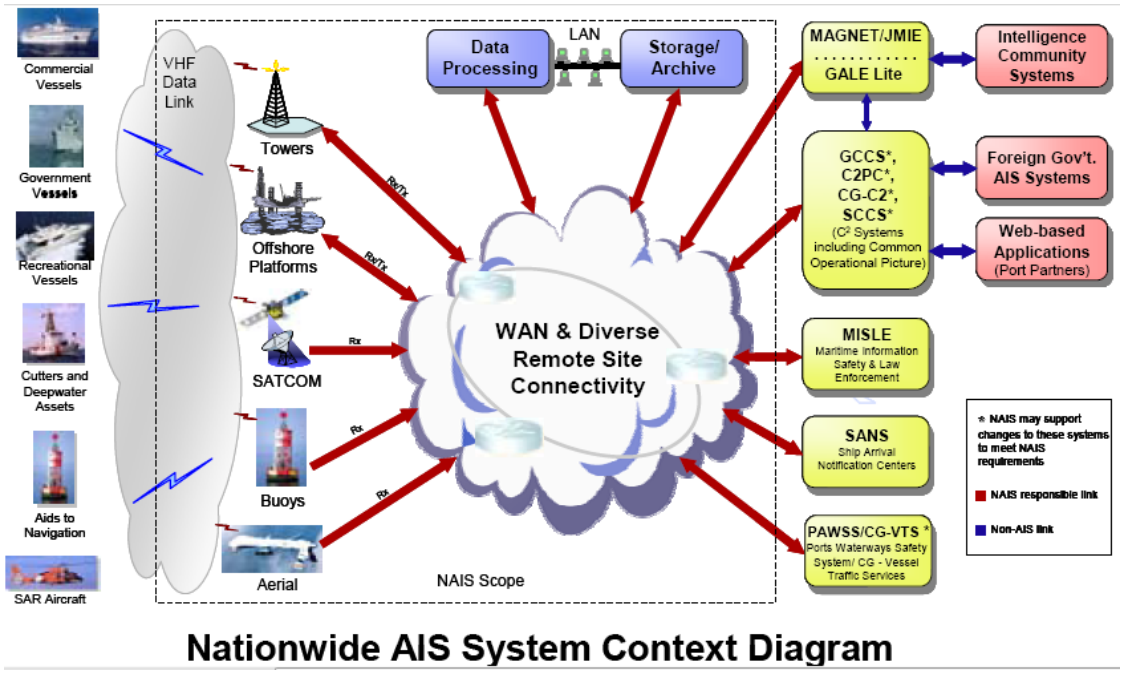

Figure 1. Nationwide AIS System.[115]

Nationwide Automatic Identification System uses a very high frequency (VHF) data link to transmit and receive data from AIS equipped vessels, navigation aids and search and rescue aircraft and leverage other platforms as receive only units, such as satellites, buoys and aircraft.[116] The International Maritime Organization requires all vessels over three hundred tons to be equipped with AIS.

Maritime domain awareness is a challenging complex and evolving issue that requires attention, concern and effort from joint, interagency and multinational members in order to address the overwhelming threats in the maritime domain. The U.S. Navy has been and continues to increase the quantity and quality of MDA, particularly far from the shores of the United States in more common operating areas. The U.S. Navy could be developing and building a more effective MDA in concert with the USCG in support of maritime HS and HD.

[115] United States Coast Guard, *Nationwide Automatic Identification System Project*.

[116] Ibid.

III. COMMAND AND CONTROL (C2) RELATIONSHIPS BETWEEN NORTHCOM AND THE ARMED FORCES

The current command and control relationship between NORTHCOM and the U.S. Navy will be examined in this chapter. This discussion will include the complexity of the current structure, clarification of key terms and a comparison of the command and control relationships of the other branches of the military.

Joint Publication 1-02, The Department of Defense Dictionary of Military and Associated Terms, defines command and control as:

> The exercise of authority and direction by a properly designated commander over assigned and attached forces in the accomplishment of the mission. Command and control functions are performed through an arrangement of personnel, equipment, communications, facilities, and procedures employed by a commander in planning, directing, coordinating, and controlling forces and operations in the accomplishment of the mission.[117]

NORTHCOM has C2 over joint forces, joint task forces and some service components. Joint Publication 3-27, *Homeland Defense*, identifies six subordinate commands: Joint Task Force Civil Support (JTF-CS), Joint Task Force North (JTF North), Standing Joint Force Headquarters (NC/SJFHQ), Army North, Air Force North, and Marine Forces

[117] Joint Publication 1-02, *Department of Defense Dictionary of Military and Associated Terms* (August 2009), 103.

North (MARFORNORTH).[118] The U.S. Navy is the only service component that does not provide a *subordinate* command but a *supporting* command; the U.S. Fleet Forces Command (USFF) (see Figure 2).[119]

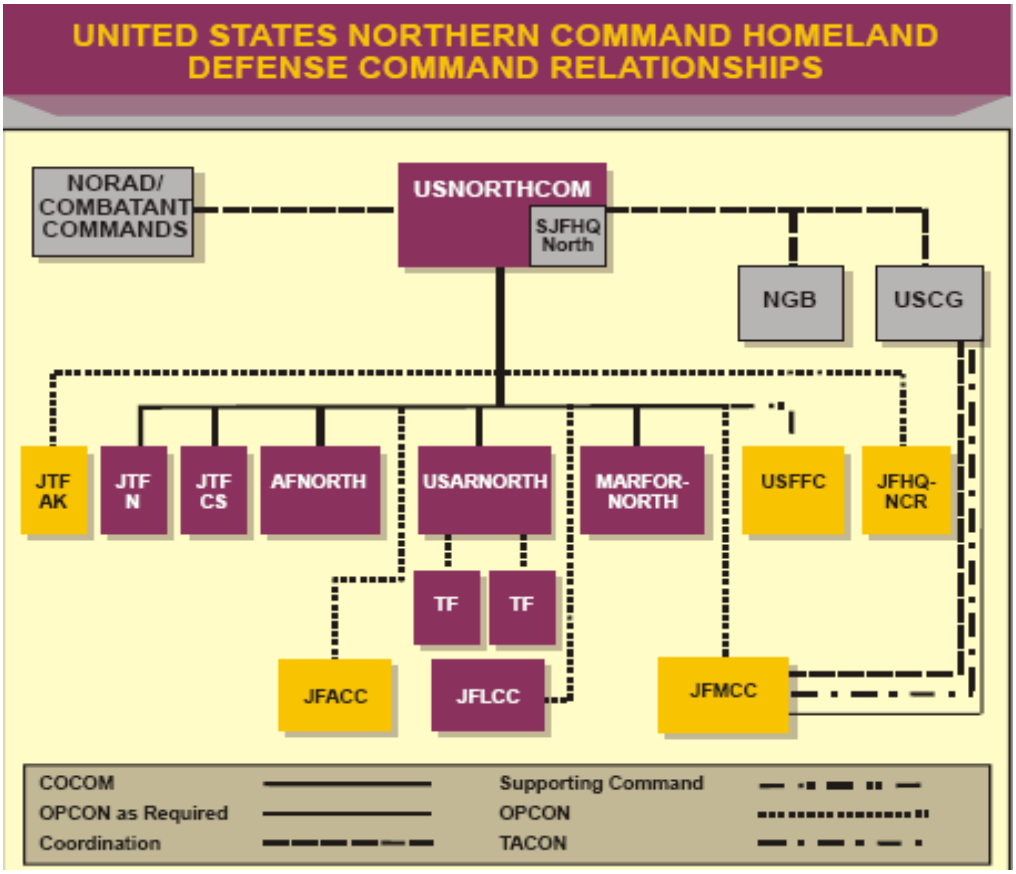

Figure 2. NORTHCOM Command Relationships.[120]

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[118] "JTF Alaska's mission is to, in coordination with other government agencies, deter, detect, prevent and defeat threats within the Alaska Joint Operations Area (AK JOA) in order to protect U.S. territory, citizens, and interests, and as directed, conduct Civil Support. Joint Force Headquarters National Capital Region (JFHQ-NCR), based at Fort McNair, Washington, D.C. is responsible for land-based (HD), (DSCA) and incident management in the National Capital Region. U.S. Northern Command Standing Joint Force Headquarters' mission is to provide Commander, USNORTHCOM with the scalable capability to form the core of a Joint Task Force or to augment multiple organizations in order to anticipate and conduct Homeland Defense and Civil Support missions anywhere in the USNORTHCOM Area of Responsibility during planned or crisis operations." U.S. Northern Command, *About U.S. Northern Command*; available from http://www.northcom.mil/About/index.html.

[119] Joint Publication 1-02 defines subordinate command as, "A command consisting of the commander and all those individuals, units, detachments, organizations, or installations that have been placed *under the command* by the authority establishing the subordinate command" (emphasis added by author), 528.

[120] Figure 2 available in Joint Publication 3-27, *Homeland Defense* (July 2007), II–5.

A. JOINT FORCE COMMANDERS

NORTHCOM's area of responsibility "includes air, land and sea approaches and encompasses the continental United States, Alaska, Canada, Mexico and the surrounding water out to approximately 500 nautical miles."[121] As a geographic combatant commander, NORTHCOM's command structure consequently has three functional component commanders under its operational control (OPCON) for mission accomplishment in its AOR: joint force land component commander (JFLCC), joint force air component commander (JFACC) and joint force maritime component commander (JFMCC).[122]

1. Joint Force Land Component Commander

Joint Publication 3-31, *Command and Control for Joint Land Operations*, defines a joint force land component commander as:

> The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking land forces; planning and coordinating land operations; or accomplishing such operational missions as may be assigned. The (JFLCC) is given the authority necessary to accomplish missions and tasks assigned by the establishing commander.[123]

NORTHCOM's joint force land component commander is the Army's Service Component Command (ASCC), U.S. Army North. ARNORTH defines its role as "The Joint Land Force Component Command (JFLCC) and the Army Service Component Command (ASCC) to U.S. Northern Command." Within that role, ARNORTH "conducts

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[121] U.S. Northern Command, *About U.S. Northern Command*; available from http://www.northcom.mil/About/index.html. NORTHCOM's AOR also includes the Gulf of Mexico and the Straits of Florida.

[122] Joint Publication 3-33, *Joint Task Force Headquarters* (February 2007), defines joint force commander as a general term applied to a combatant commander, subunified commander, or joint task force commander authorized to exercise combatant command (command authority) or operational control over a joint force. GL-14.

[123] Joint Publication 3-31, *Command and Control for Joint Land Operation* (March 2004), GL-10.

Homeland Defense (HD), Civil Support (CS) operations and Theater Security Cooperation (TSC) activities in order to protect the American people and our way of life."[124]

In October 2008, ARNORTH was given command of Third Infantry Division's (3rd ID) First Brigade Combat Team (1st BCT) specifically to accomplish assigned JFLCC duties. 1st BCT has been referred to as a response force that:

> (I)s (a) scalable, dedicated force that is prepared to reinforce state and local responders when they request federal assistance. The force's alignment under U.S. NORTHCOM shortens the line of command to increase readiness and responsiveness.[125]

1st BCT units consist of: 3rd Battalion 69th Armor Regiment, 2nd Battalion 7th Infantry Regiment, 5th Squadron 7th U.S. Cavalry, 1st Battalion 41st Field Artillery, 1-3 Brigade Special Troops Battalion and the 3rd Brigade Support Battalion.[126]

2. Joint Force Air Component Commander

Joint Publication 3-30, *Command and Control for Joint Air Operations*, defines a joint force air component commander as:

> The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking air forces; planning and coordinating air operations; or accomplishing such operational missions as may be assigned. The (JFACC) is given the authority necessary to accomplish missions and tasks assigned by the establishing commander.[127]

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[124] United States Army North, *Mission*; available from http://www.arnorth.army.mil/. Joint Publication 1-02 defines Army Service Component Command as "Command responsible for recommendations to the joint force commander on the allocation and employment of Army forces within a combatant command.

[125] *Consequence Management Response Force to join Army Northern Command* September 15, 2008; available from http://www.army.mil/-news/2008/09/15/12422-consequence-management-response-force-to-join-army-northern-command/.

[126] *Third Infantry Division*; available from http://www.stewart.army.mil/units/1BCT/home.asp.

[127] Joint Publication 3-30 *Command and Control for Joint Air Operations* (June 2003), GL-6.

AFNORTH serves as the JFACC, subordinate to NORTHCOM. AFNORTH is responsible for ensuring air superiority (including air sovereignty and defense) of the United States and conducts homeland defense and DSCA operations under NORTHCOM.[128]

AFNORTH has over 2,300 personnel assigned and when United States Theater Air Control System (USTACS) is mobilized grows to over 11,000 members and consists of over 180 aircraft. AFNORTH's assets include as many as 30 Air National Guard fighter wings, nine aligned air force fighter wings, the 101st Information Operations Flight, Air Force Rescue Coordination Center (AFRCC), 601st Air and Space Operations Center (AOC), 1st AF National Security Emergency Preparedness (AFNSEP), Joint Based Expeditionary Connectivity Center (JBECC), 702nd Computer Systems Squadron and Support Facility and the 254th Combat Communications Group.[129] The U.S. Air Force clearly has a wide array of various commands dedicated to complete myriad of missions assigned.

3. Joint Forces Maritime Component Commander

Joint Publication 3-32, *Command and Control for Joint Maritime Operations*, defines a joint force maritime component commander as:

> The commander within a unified command, subordinate unified command, or joint task force responsible to the establishing commander for making recommendations on the proper employment of assigned, attached, and/or made available for tasking maritime forces and assets; planning and coordinating maritime operations; or accomplishing such operational missions as may be assigned. The (JFMCC) is given authority necessary to accomplish missions and tasks assigned by the establishing command.[130]

NORTHCOM's JFMCC is Naval Forces Northern Command (NAVNORTH), which also serves as Commander Atlantic Fleet (CLF) and U.S. Fleet Forces Command, meaning

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[128] *CONR-1AF (AFNORTH)*; available from http://www.1af.acc.af.mil/library/factsheets/factsheet.asp?id=4107.

[129] *CONR-1AF (AFNORTH).*. Aligned fighter wings: 119th, 120th, 125th, 142nd, 144th, 147th, 148th, 158th and the 177th.

[130] Join Publication 3-32 *Command and Control for Joint Maritime Operations* (August 2006), GL-9.

that USFF wears "three hats." USFF has four missions: Navy Readiness, Navy Anti-Terrorism/Force Protection (ATFP), Navy Warfighting Capability Requirements and Joint Operational and Planning Support.[131] Of USFF's identified four missions, only one involves supporting NORTHCOM: "Joint Operational and Planning Support" which is defined as, "(To) provide operational planning and support to Combatant Commanders." This vague definition of a broad mission, allows USFF latitude to determine how it will fill the role of NAVNORTH. Unlike AFNORTH and ARNORTH, NAVNORTH does not have dedicated assets to support tasking from NORTHCOM. Because U.S. Fleet Forces Command is subordinate to multiple combatant commanders, it may find that a series of incidents requiring naval support may very well overwhelm their capacity to effectively manage all tasks (see Figure 3).[132] USFF is the naval component commander to JFCOM and is the supporting naval commander to NORTHCOM, STRATCOM and the National Security Agency (NSA).[133] It is of significance to note that NORTHCOM's official Web site identifies USFF only as a *subordinate* command.[134]

[131] United States Fleet Forces 2009 Annual Plan, *A Framework for Action* 2009.

[132] United States Fleet Forces 2009 Annual Plan, *A Framework for Action* 2009. 8.

[133] Ibid., 8, 9. As a component command to JFCOM, USFF is a subordinate command. As a supporting command to NORTHCOM, STRATCOM and the NSA, USFF determines the forces, tactics, methods, procedures, and communications to be employed in providing the support (Joint Publication 1-02).

[134] U.S. Northern Command, *About U.S. Northern Command*; available from http://www.northcom.mil/About/index.html.

Figure 3. USFF Command Relationships.

Unity of command is a principle of joint operations "to ensure unity of effort under one responsible commander for every objective."[135] A common, fundamental and crucial attribute in any military organization is a clear chain-of-command. The military is not designed to function within ambiguous command and control arrangements and it appears this may be the case with respect to the relationship between NORTHCOM and USFF. One approach to this argument may be that NORTHCOM places a lower priority on threats in the maritime domain. However, General Renuart, commander of NORTHCOM, states:

[135] Joint Publication 3-0, *Joint Operations* (February 2008), A-2.

> In any given month, our Command tracks… (and) takes appropriate measures to ensure these potential threats do not reach our shores: 40 foreign flag vessels with potential for intelligence gathering, 25 vessels of interest to law enforcement (potential contraband), 8 foreign nation warships entering USNORTHCOM's AOR, 100 regulatory vessels (containing hazardous materials or other dangerous cargo) and 7 vessels of interest to our national security.[136]

Based on the general's statement coupled with previous statements and objectives provided from multiple strategies it appears that marginalizing the maritime threat is not a contributor to an ambiguous command and control relationship between NORTHCOM and USFF. NORTHCOM's standing execute order (EXORD) for DSCA may help further the argument that there is ambiguity within the command structure. The DSCA EXORD identifies six phases (Shape, Anticipate, Respond, Operate, Stabilize and Enable Civil Authorities) and defines the required status (deploy or place on alert) for assets under the joint force commander's OPCON based and structured on four categories (category 1 being most ready for tasking with category 4, the least ready). Section three (execution) of the EXORD defines tasks for each *subordinate* command, one of which is USFF, which further illustrates the ambiguity of whether USFF is a subordinate or supporting command to NORTHCOM. USFF, acting as the Commander Atlantic Fleet, has OPCON of all naval assets in the Second Fleet, that is to say it commands, directs and tasks all naval assets in the Second Fleet operating area.[137] However, USFF does not have OPCON of Third Fleet assets.[138] Third Fleet assets are assigned forces under Commander Third Fleet's (C3F) OPCON who, operationally reports to Commander U.S. Pacific Fleet and subsequently to the unified command, U.S. Pacific Command

[136] Statement of General Victor E. Renuart, Jr. USAF before the Senate Armed Services Committee. March 6, 2008.

[137] Joint Publication 1-02 defines OPCON as, "Command authority that may be exercised by commanders at any echelon at or below the level of combatant command. Operational control is inherent in combatant command (command authority) and may be delegated within the command. Operational control is the authority to perform those functions of command over subordinate forces involving organizing and employing commands and forces, assigning tasks, designating objectives, and giving authoritative direction necessary to accomplish the mission. In respect to NORTHCOM's AOR, C2F's AOR overlaps on the Eastern coast of North America.

[138] USFF does have administrative control (ADCON) of Third Fleet assets.

(PACOM).[139] NORTHCOM's EXORD does have an execution subsection titled, "TASKS TO SUPPORTING COMBATANT COMMANDS." In this section, JFCOM and PACOM are separately and specifically instructed as to what their responsibilities in support of this EXORD consist of.[140] NORTHCOM clarifies needs and expectations for JFCOM and PACOM in order to ensure cooperation and support by the respective Fleet Commanders.[141]

B. CONCLUSION

U.S. Navy assets in Third Fleet under PACOM's operational control could suggest that USFF, as the JFMCC, may not have the legitimate, or the necessary, command and control of these assets to effectively and efficiently support NORTHCOM with a well-executed and timely response.

In joint publications and on NORTHCOM's official Web site and its DSCA EXORD, the relationship between NORTHCOM and its naval component (JFMCC, NAVNORTH and USFF), and in particular whether it is in a subordinate or supporting role, appears to be at minimum confusing. This would lead a reasonable person to believe that if there are inconsistencies between joint publications and NORTHCOM's Web site and EXORD then there will most likely be confusion once these forces are called into action when responding to a crisis. When immediate response is required in support of civil authorities, naval forces can little afford to spend time determining command relationships.

Beyond the ambiguous C2 and the role of the U.S. Navy, one should also look at the U.S. Navy's commitment in contrast to the other service components. The U.S. Army and U.S. Air Force have commands established (ARNORTH and AFNORTH) with the

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[139] USPACOM's AOR overlaps with NORTHCOM's AOR on the Western coast of North America.

[140] NORTHCOM's DSCA EXORD tasks to CDRUSJFCOM and CDRUSPACOM include: When requested…identify pre-approved category 2 or category 3 DSCA forces and provide CDRUSNORTHCOM via USNORTHCOM command center the following information: Unit Designation, Unit Identification Code (UIC), Home Station Unit, 24 hour contact information for the specific unit/capability, GCCS (data link) input; for more see NORTHCOM DSCA EXORD.

[141] For amplifying information regarding requirements see CJCS Standing DSCA EXORD and DoD Directives 3025.1 and 3025.15.

sole purpose and a clear mission to support NORTHCOM and both have dedicated assets allowing them to be immediate and effective contributors to the NORTHCOM mission. However, the U.S. Navy treats this support mission as a contingency mission and has assigned NAVNORTH as an additional duty to USFF which already has multiple missions and lacks OPCON of U.S. Navy assets in the Third Fleet AOR. NAVNORTH being treated as an additional and collateral duty for USFF coupled with the fact that there are no dedicated U.S. Navy assets to support NORTHCOM tasking suggests that the U.S. Navy may not be supporting NORTHCOM in the most effective and efficient manner.

IV. NORTHCOM COMMAND AND CONTROL ALTERNATIVES FOR U.S. NAVAL FORCES

Chapter II discussed the establishment and missions of NORTHCOM and the U.S. Navy capabilities that exist to best support the COCOM. Chapter III illustrated the current C2 relationship between NORTHCOM and the U.S. Navy and the ambiguity that lies within that construct. This chapter examines alternative options on how the U.S. Navy can best support NORTHCOM in carrying out their missions as well as the associated advantages and disadvantages of those options. The options to be examined are (from least to most drastic changes): Option A: Additional mission requirement, Option B: Forces assigned to NORTHCOM, Option C: Homeland Defense and Security Group, Option D: National Security Cutter acquisition and Option E: Restructure surface forces.

A. OPTION A: ADDITIONAL MISSION REQUIREMENT

The additional mission requirement would entail surface ships in the U.S. Navy becoming "HS certified." Each ship, based on class, would have specific criteria to meet in order to achieve and maintain HS certification. The HS certification would become another mission requirement governed by the Surface Forces Training Manual (SFTM).

The mission for Naval Surface Forces Command is to "(P)rovide operational commanders with well trained, highly effective, and technologically relevant Surface Forces that are certified across the full spectrum of warfare areas."[142] Commander Naval Surface Forces (COMNAVSURFOR) maintains and distributes the SFTM. This manual "(P)rovides guidance for the conduct of Surface Force unit level training for all ships and units of the Naval Surface Force."[143] The SFTM defines the criteria and requirements for U.S. Navy surface ships based on ship class; Figure 4 depicts the required unit-level

[142] *CNSF Mission Statement*; available from http://www.surfaceforces.surfor.navy.mil/site%20pages/Mission.aspx. Commander, Naval Surface Forces is a Type Commander subordinate to USFF.

[143] COMNAVSURFOR INSTRUCTION 3502.1D, Department of the Navy, 01 July 2007:1.

certifications of each class of ship.[144] This certification criterion varies on each mission depending on the ship class. For example, a destroyer has to meet more requirements in order to certify for surface warfare than does an amphibious ship.

REQUIRED BASIC PHASE AND UNIT LEVEL TRAINING CERTIFICATIONS	CG47	DDG51	FFG7	LCC	LHA	LHD	LPD4	LPD17	LSD41/49	MCM	MHC51	PC
TAB A: AVIATION	X	X	X	X	X	X	X	X	X			
TAB B: AMPHIBIOUS WARFARE					X	X	X	X	X			
TAB C: AT/FP	X	X	X	X	X	X	X	X	X	X	X	X
TAB D: AIR WARFARE	X	X	X	X	X	X	X	X	X			
TAB E: COMMUNICATIONS	X	X	X	X	X	X	X	X	X	X	X	X
TAB F: CRYPTOLOGY	X	X			X	X						
TAB G: ELECTRONIC WARFARE	X	X	X	X	X	X	X	X	X			
TAB H: MEDICAL	X	X	X	X	X	X	X	X	X	X	X	X
TAB I: INTELLIGENCE	X	X	X	X	X	X	X	X	X	X	X	X
TAB J: MINE WARFARE										X	X	
TAB K: DAMAGE CONTROL	X	X	X	X	X	X	X	X	X	X	X	X
TAB L: ENGINEERING	X	X	X	X	X	X	X	X	X	X	X	X
TAB M: NAVIGATION	X	X	X	X	X	X	X	X	X	X	X	X
TAB N: SEAMANSHIP	X	X	X	X	X	X	X	X	X	X	X	X
TAB O: STRIKE WARFARE	X	X										
TAB P: SURFACE WARFARE	X	X	X	X	X	X	X	X	X	X	X	X
TAB Q: UNDERSEA WARFARE	X	X	X	X	X	X	X	X	X			
TAB R: NC-VBSS	X	X	X				X	X	X			X
TAB S: 3M	X	X	X	X	X	X	X	X	X	X	X	X
TAB T: SEARCH and RESCUE	X	X	X	X	X	X	X	X	X	X	X	X
TAB U: BMD	X	X										
TAB V: FORCE SUPPLY MGMT	X	X	X	X	X	X	X	X	X	X	X	
TAB W: METOC					X	X						

Figure 4. Unit Level Certifications.

[144] Because ships have different missions and thereby have different capabilities, requirements vary from class to class. For example, a DDG and CG have to be proficient in the strike mission, whereas this is non-applicable for an amphibious ship. These requirements are constantly monitored and are effected from equipment casualties to failing certifications. Figure 4 available in SFTM: 3–3.

The additional mission requirement would need to be defined and have certain certification requirements developed. This equates to adding HS to the certification criteria in the SFTM. The new criteria would follow the same format as the other existing certifications. Combatant ships would be required to have their entire crews advanced first aid qualified in order to better support the HA/DR mission. The U.S. Navy currently has medical training requirements in place such as CPR and basic first aid for all crew members and more advanced training and certification for personnel with unique responsibilities, such as members of an at-sea fire party. While most commanding officers encourage crew members to pursue qualifications above the minimum required, the HS certification would raise that minimum making advanced first aid qualification a mandatory requirement for all crewmembers.

Amphibious ships would have the same advanced first aid requirement in addition to a non-combatant evacuation operation (NEO) capability geared specifically towards domestic HA/DR. The functions would be similar to those in NEO; the HS certification would have requirements that include running periodic drills that demonstrate the ability to provide shelter and basic health care to a predetermined number of evacuees, comparable to a NEO. Joint Publication 3-68, *Noncombatant Evacuation Operations* defines NEO as:

> Operations directed by the Department of state or other appropriate authority, in conjunction with the (DoD), whereby noncombatants are evacuated from foreign countries when their lives are endangered by war, civil unrest, or natural disaster to safe havens or the United States.[145]

Because NEO is more often conducted due to political reasons (war and civil unrest), the ambassador of the country having American citizens evacuated is afforded certain indicators that a NEO may be necessary and will typically "drawdown and then evacuate." If the environment permits, an evacuation control center (ECC) that is responsible for the processing, screening and logistical functions in support of the evacuees will be established on land. However, if this is not an option then the U.S. Navy

[145] Joint Publication 3-68, *Noncombatant Evacuation Operations* (January 2007), GL-7.

ship operating in support of a NEO must be prepared to establish an ECC.[146] Because the U.S. Navy ship is a secondary option and an unlikely location for the ECC most NEO training scenarios and drills place the ECC on shore, however; in a domestic HA/DR operation that may require similar functions of a NEO; the ECC would almost be guaranteed to be onboard the ship.

The HS certification on an amphibious ship would include passing a graded drill that involves a scenario where the ship establishes an ECC and conducts evacuation operations in support of HA/DR. This particular example only serves to show how the SFTM could incorporate a HS certification by using drills and training. As with all certifications listed in the SFTM, the HS certification would evolve over time through training, real-world operations and lessons learned.

1. Advantages

Implementing a HS certification requirement in the SFTM would require the surface fleet to accept the HS certification as an operational requirement, thereby improving the U.S. Navy's abilities to contribute to NORTHCOM's civil support mission. Another advantage of this option is that it does not place a significant additional burden on the ships, most importantly, the overworked combatants. Having the ships' crews certify in first aid requires very little additional effort and also increases the relative value of each member onboard and could help alleviate stress placed on the handful of hospital corpsmen onboard in particular situations. In the case of amphibious ships, the mission aligns with their NEO capability and would only make them more proficient with one of their existing missions. The last advantage to this option is that the HS certification can be applied on a global level; ships required to certify in HS could easily apply those skills and capabilities to relief efforts across the globe.

[146] Joint Publication 3-68, *Noncombatant Evacuation Operations*.

2. Disadvantages

One could argue that this is not enough change; ambiguity with the C2 relationship between NORTHCOM and USFF is still not resolved, so a HS certified ship in port would remain in port until directed to support NORTHCOM via its fleet commander. Another disadvantage is that this option increases training and reporting requirements on a navy arguably already administratively overburdened.

B. OPTION B: FORCES ASSIGNED TO NORTHCOM

Although NORTHCOM is a geographical COCOM with an AOR it does not have U.S. Navy assets "chop in" or "chop out." Typically, as U.S. Navy ships crosses into different AORs, their OPCON shifts to the respective COCOM. That is to say that as USS *Example* leaves the Pacific Ocean and enters the Indian Ocean there are specific geographic coordinates where OPCON shifts from PACOM to Central Command (CENTCOM); USS *Exampl*e has "chopped in" to Commander Fifth Fleet's area of operations. To best illustrate this option, PACOM will serve as an example: Commander, Third Fleet and Commander, Seventh Fleet (C7F) report to U.S. Pacific Fleet, which is the navy service component of PACOM.[147] This option proposes that NORTHCOM assumes OPCON of surface assets in NORTHCOM's AOR. Commander, U.S. Pacific Fleet would operationally report to NORTHCOM concerning Third Fleet assets in NORTHCOM's AOR. The same principle would be applied on the east coast. In other words, the U.S. Navy would have forces from Second Fleet assigned to NORTHCOM.[148]

1. Advantages

If NORTHCOM has forces assigned then by definition they exercise OPCON over those forces. Having OPCON of naval assets in its AOR would streamline the chain-

[147] U.S. Pacific Fleet, *U.S. Pacific Fleet Organization* (accessed October 3, 2009); available from http://www.cpf.navy.mil/organization.shtml.

[148] Joint Publication 5-0 *Joint Operation Planning* defines assigned forces as, "Combatant commanders exercise combatant command (command authority) over assigned forces. Forces are assigned or reassigned when the transfer of forces will be permanent or for an unknown period of time, or when the broadest level of command authority is required or desired."

of-command thereby significantly decreasing response time. This process would not only reduce the number of commands involved in a NORTHCOM mission, but would also alleviate any conflicts of interests between COCOMs. There would be no ambiguity when determining who is required to do what and by whose request. U.S. Navy and NORTHCOM direct interaction would significantly increase and in turn build a more effective and efficient relationship.

2. Disadvantages

A change of this magnitude could receive a lot of pushback from naval traditionalists as well as anyone not comfortable with change. This option would require a minor shift in cultural behaviors. Again using the west coast as an example; U.S. Pacific Fleet reports to PACOM on operational matters. This particular option requires that U.S. Pacific Fleet report to PACOM *and* NORTHCOM. Currently, U.S. Pacific Fleet does not identify NORTHCOM as "force user"; U.S. Pacific Fleet identifies itself as a force provider for PACOM, CENTCOM, STRATCOM, EUCOM and SOCOM.[149] This further illustrates the lack of a clearly defined supported/supporting relationship between U.S. Pacific Fleet and NORTHCOM. In addition, this could suggest that if U.S. Pacific Fleet does not even acknowledge NORTHCOM as a force user it may struggle to consider itself as a subordinate command if designated as one.

C. OPTION C: HOMELAND DEFENSE AND SECURITY GROUP (HDSG)

The U.S. Navy conducts the majority of its operations using carrier strike groups and expeditionary strike groups (ESGs). For simplicity the CSG will serve as a comparative example to illustrate the idea of the HDSG. The navy instruction on the policy for composition and mission capabilities of strike forces, strike groups, and other major deployable elements defines a typical CSG composition to be one carrier strike group command staff/element, one destroyer squadron command staff/element, one CV/CVN, one carrier air wing, five surface combatants, one cruise missile land

[149] U.S. Pacific Fleet, *U.S. Pacific Fleet Organization*; available from http://www.cpf.navy.mil/organization.shtml.

attack/undersea warfare submarine (SSN) and one or two multi-product logistic support ships.[150] The HDSG would follow a similar construct using capability-based planning in concert with the U.S. Navy's fleet response plan (FRP).

An HDSG would consist of identified U.S. Navy ships and aircraft assigned a mission set to include: humanitarian assistance and disaster relief, maritime interception operations, undersea warfare (USW), counter-narcoterrorism operations, counter-piracy operations and ballistic missile defense.

Navy management calls for expanding the ability of carrier and expeditionary strike groups by identifying points in time during a training cycle where a ship could be considered deployable and available for tasking. USFF has implemented the FRP that complements and coincides with the proposed HDSG concept. The FRP is a transformation in management of fleet assets. Prior to September 11, 2001, the U. S. Navy deployed ships and aircraft squadrons with a designated carrier for a nominal period of six months which followed a "work-up cycle" consisting of ship qualifications, certifications and crew readiness with the intent of having ships deploy upon obtaining the highest practical level of readiness available. Upon returning from a deployment, a ship would have a brief stand-down, a 30-day period to allow the crew the opportunity to take leave. Following the completion of the stand-down, the ship would then enter a maintenance phase for repairs or major routine maintenance. For example, Aegis destroyers and cruisers conduct periodic system grooms where civilian technicians come on board the warship and run diagnostic tests, install new software and troubleshoot or repair hardware and software related casualties starting from the most significant down to minute cosmetic details. This Aegis groom is a required maintenance action assigned a specific periodicity that requires the ship to be in port. Due to the nature of the maintenance, the ship's ability to get underway is reduced and for this particular example, the ship's air warfare certification is no longer valid eliminating its ability to launch standard missiles and consequently not allowing the ship to conduct air warfare

[150] OPNAV Instruction –3501.316A. –*Policy for composition and mission capabilities of strike forces, strike groups, and other major deployable elements.* 6 September 2007. Of note, there are no longer any CVs remaining in the active U.S. Fleet.

operations. After the maintenance period the ship and her crew began the work-up cycle in preparation for another deployment. This training period consisted of the "unit-level phase" followed by the "integrated phase" and lastly, the "sustainment phase."

Following the terrorists attacks on September 11, 2001 the U.S. Navy incorporated the idea of ships being "surge ready" or operationally deployable based on the ship's level of readiness in relation to the ship's progression within the training cycle (see Figure 5). Ships in the unit-level phase are considered surge-ready to deploy within 90 days while ships in the sustainment phase are surge-ready to deploy within 30 days.

The FRP also introduced a three-month sustainment period following deployment prior to the maintenance phase. The U.S. Navy can modify its surge capability schedule in order to incorporate the HDSG by introducing a third category of surge ready ships capable of deploying within little to no notice in response to homeland defense and security tasking. Ships would be attached to a HDSG during the sustainment period following deployment.

As a force assigned to NORTHCOM, the HDSG would develop and maintain new, positive and long-lasting relationships with other homeland defense and security agencies at the federal, regional and local level.[151] These relationships would build social networks through communications that would allow the U.S. Navy to be a more proactive and effective player in the homeland defense and security arena and include the naval forces in more homeland defense and security exercises while increasing the U.S. Navy's efficiency and effectiveness in HS.

[151] Joint Publication 5-0, *Joint Operation Planning* defines assigned forces as, "Combatant commanders exercise combatant command (command authority) over assigned forces. Forces are assigned or reassigned when the transfer of forces will be permanent or for an unknown period of time, or when the broadest level of command authority is required or desired. Assigned forces are listed in the Forces for Unified Command Memorandum or as the SecDef designates. A force assigned to a combatant command may be transferred from that command only as directed by the SecDef.

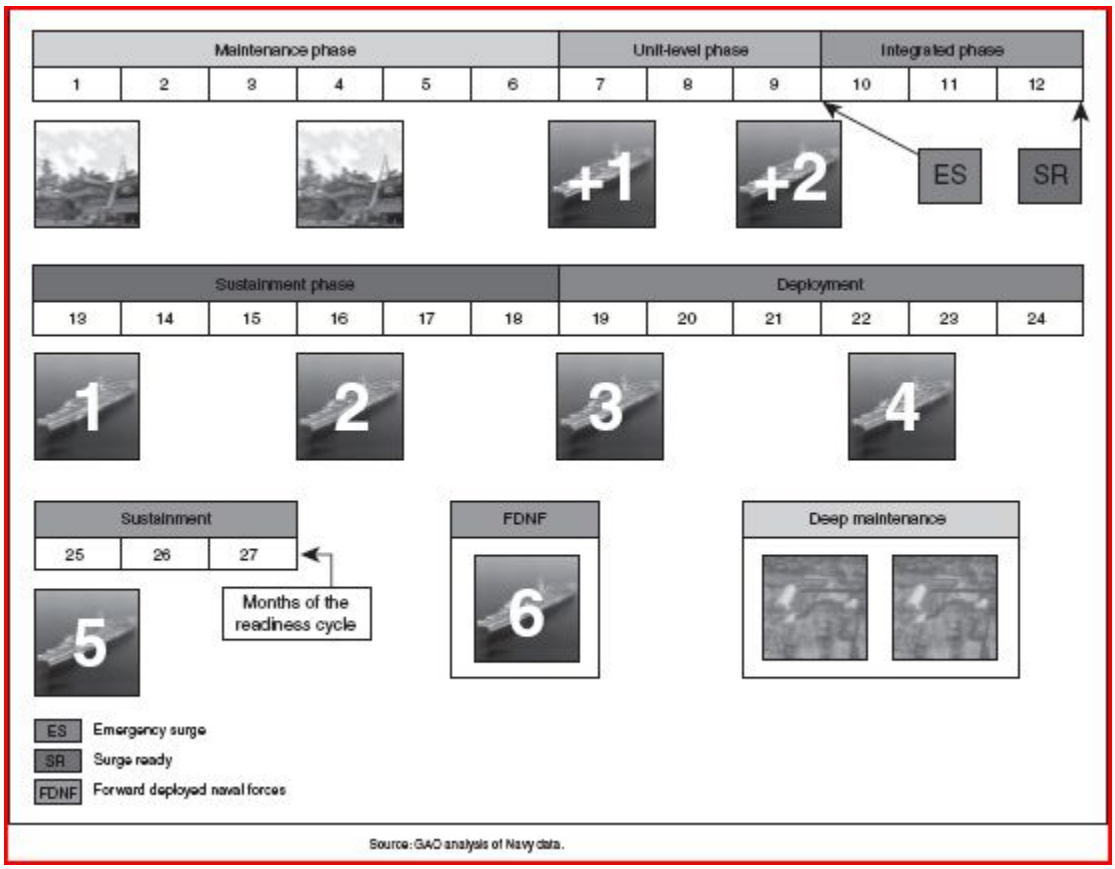

Figure 5. Fleet Response Plan.[152]

This option would establish two HDSGs. One HDSG would be composed of four ships from the Pacific Fleet and the other would have three ships from the Atlantic Fleet. Each HDSG will be assigned one rotary-wing aircraft and one fixed-wing patrol aircraft (Either a P-3, P-8 or E-2). The HDSG program would identify ships returning from deployment and following post-deployment stand-down, shift their OPCON to NORTHCOM during the previously discussed sustainment period (prior to the maintenance phase) making the HDSG an assigned force.

Two HDSGs would be developed, one on each coast that utilizes assets already stationed in that geographical area of responsibility. HDSG-1 would utilize Pacific Fleet assets and its headquarters would be based out of Naval Station, San Diego. In addition to

[152] United States Government Accountability Office, *Military Readiness: Navy's Fleet Response Plan Would Benefit from a Comprehensive Management Approach and Rigorous Testing.* November 2005: 8.

two aircraft and a shore detachment, HDSG-1 would consist of three combatant ships (DDG, CG and/or a FFG) and one amphibious ship, either a dock landing ship (LSD), amphibious transport dock (LPD), or an amphibious assault ship (LHA/LHD).[153] All Pacific Fleet amphibious ships are stationed at Naval Station, San Diego. Ships for HDSG-1 would be designated from assets homeported in various naval stations such as San Diego, Pearl Harbor and Everett.[154]

The makeup of HDSG-2 would be consistent with HDSG-1 minus one combatant. Its assets would be provided from the Atlantic Fleet and its headquarters would be based out of Naval Station, Norfolk. Ships in HDSG-2 would be designated from assets homeported in the east coast naval stations, Mayport, Little Creek and Norfolk.[155]

Due to the inherent mobility of military aircraft and their ability to refuel once on station, there is no need to constrain them to a specific location, only to require them to be on station within 24 hours. The aircraft only need to be an apportioned force in the appropriate HDSG.[156]

Each HDSG would have a shore detachment that would act as a support unit, an experienced "resident expert" and act in a supervisory role. A shore detachment would be made up of one mid-grade and one junior commissioned officer, one senior enlisted personnel and a small enlisted staff for administrative work. Because the personnel assigned to the shore detachment would not have a turnover rate as high as the ships that rotate through the HDSGs, the shore detachment would become more experienced through lessons learned and gradually evolve into subject matter experts on how the HDSGs operate, what is expected of them and what they can expect in the way of tasking. The shore detachment will be charged with assisting in the turnover process for

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[153] From this point forward, the term amphibious ship will be defined as a LSD, LPD, LHA or LHD unless otherwise specified.

[154] Naval Station Everett is located in Everett, Washington, 25 miles north of Seattle.

[155] Naval Station Mayport is located in Jacksonville, Florida and Naval Station Little Creek is located in Virginia Beach, Virginia.

[156] Joint Publication 5-0, *Joint Operation Planning*, defines apportionment as, "Apportionment is the distribution for planning of limited resources among competing requirements. Specific apportionments (such as air sorties and forces for planning) are described as apportionment of air sorties and forces for planning, and so forth," 198.

ships joining and leaving the HDSG. The detachment will brief ships on their duties and responsibilities as a member of the HDSG, on lessons learned from off-going HDSG ships and about upcoming events and exercises to ensure a smooth transition when a ship's OPCON shifts to NORTHCOM.

The shore detachment will also create professional relationships with local, state and regional counterparts that will increase proficiency and foster an interagency network. These relationships will help the evolution of the HDSGs. Increased participation in NORTHCOM exercises would increase HDSGs future performance by obtaining accurate self-assessments, using lessons-learned and would also serve to improve interagency relations. The shore detachments would be responsible for the oversight and management of "strategic stockpiles" located on station at Naval Station, San Diego and Naval Station, Norfolk. The strategic stockpile would consist of items most likely needed in the humanitarian assistance/disaster relief mission such as generators, medical kits, clothing, tents, water and food. These items will be ready to be distributed to ships within a moment's notice based on humanitarian assistance/disaster relief tasking.

1. Advantages

As an assigned force to NORTHCOM, the HDSG would have an optimum response time due to the clear and quick communication required in that C2 relationship. HDSG's shore detachment would build bridges with other HS/HD organizations and agencies and over time would integrate itself within the HS/HD construct at the federal, state and local levels ultimately becoming a reliable and dependable broker of the capabilities that the U.S. Navy brings in support of mission accomplishment. This option not only provides NORTHCOM with assigned naval forces but also has the ships only operating within the HS role, thereby encouraging ships to focus less on traditional naval missions and place more emphasis on becoming more effective and efficient within the HS mission.

2. Disadvantages

The range of military operations and increasing tempo of those operations has placed a significant strain on U.S. Navy assets over the years. "Surge ready" ships have been getting underway more and more and the fleet definition of surge ready is slowly becoming synonymous with deploying. Increased use and reliance on surge ready ships could make the HDSG another burden for U.S. Navy planners and/or personnel.

D. OPTION D: NATIONAL SECURITY CUTTER ACQUISITION

Due to the approaching end of the life cycles of the *Oliver Hazard Perry* Class Guided-Missile Frigate, *Avenger* MCM-1 Mine-Countermeasure ship, *Hamilton* Class High-Endurance Cutter, *Bear* Class Medium-Endurance Cutter and *Reliance* Class Medium-Endurance Cutter; the U.S. Navy and U.S. Coast Guard are both in the process of acquiring new small combatant vessels.[157] The U.S. Navy has responded to this problem with the production of the Littoral Combat Ship (LCS) and the U.S. Coast Guard responded by budgeting for six *Legend* Class high-endurance cutters commonly referred to as "National Security Cutters (NSCs)."[158]

The LCS applies a new concept that entails having the ship act as a shell and loading modules based on the mission.[159] The LCS has three different modules that make it mission capable for surface warfare, undersea warfare and countermine warfare operations. A Congressional Budget Office's report, *Options for Combining the Navy's and the Coast Guard's Small Combatant Programs* states, "the Navy may develop and

[157] The U.S. Coast Guard's Deepwater program is intended to obtain assets that can operate further than 50 nautical miles from U.S. shores where the waters are more rough on ships. *A Cooperative Strategy for 21st Century Seapower* calls on the U.S. Navy to play a larger role in maritime security and humanitarian operations.

[158] The U.S. Navy's 2009 shipbuilding plan calls for the production of 53 LCSs between 2009 and 2019; source, Congressional Budget Office, "*Options for Combining the Navy's and the Coast Guard's Small Combatant Programs*," July 2009: 7.

[159] The LCS is currently available in two different variants made by different companies. In order to present accurate data and factual claims, the Freedom Class LCS constructed by Lockheed Martin will be the Class specifications used when referring to the "LCS"; however, when referencing any monetary claims, the assumption will be that the U.S. Navy purchases 28 Freedom Class and 27 Independence Class produced by General Dynamics.

then procure other mission packages for other types of missions."[160] This suggests that the LCS could eventually find it is in a similar situation as that of the U.S. Navy's DDGs, where the ship loses efficiency (and arguably proficiency) by becoming more of a "multi-tool." For example, in Operation Iraqi Freedom Aegis destroyers and cruisers were tasked with protecting Iraqi oil platforms in the North Arabian Gulf due to the large role oil plays in Iraq's gross domestic product. However, one could argue that much less expensive platforms could accomplish this mission. A ship with capabilities more aligned to the HD/HS mission will be more suited to perform those missions, whereas ships with broader capabilities will consequently have broader tasking thereby decreasing crew proficiency in their primary warfare areas and making them less available due to increased demand. While the NSC shares some similarities with the LCS it also has some differences that make it not only more aligned with *A Cooperative Strategy for 21st Century Seapower* but also more capable in the HD/HS role (see Figure 6).[161]

This option suggests reducing LCS acquisition from 53 to 28 and purchasing 20 naval variants of the NSC.[162] The acquisition costs would decrease from $33.1 to $27.8 billion and despite the NSC having a longer life-cycle of five years, the total life-cycle costs would be reduced from $65.9 to 60.3 billion.[163]

1. Advantages

The endurance and range of the NSC significantly reduces its dependency on refueling demands, which enables it to operate with less of a logistical tether to a supply ship (see Figure 7).[164] Because of the reduced dependency on refueling and endurance of 60 days, the NSC is a more capable platform for maritime security and humanitarian

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[160] Congressional Budget Office, *"Options for Combining the Navy's and the Coast Guard's Small Combatant Programs,"* July 2009: 8.

[161] Ibid., 15

[162] The cost of a naval variant NSC was determined by adding additional anti-ship missile defense systems (SeaRAM Mk-15 Close-In Weapons System and Evolved Sea Sparrow Missiles), source: Congressional Budget Office, *"Options for Combining the Navy's and the Coast Guard's Small Combatant Programs*": 18.

[163] Congressional Budget Office, *"Options for Combining the Navy's and the Coast Guard's Small Combatant Programs*": 3.

[164] Ibid., 19

operations. The NSC is also capable of providing berthing for an additional 30 personnel, allowing it to house other members of a joint task force, sea-borne immigrants and evacuees in an HA/DR operation.

2. Disadvantages

The U.S. Navy is partially comprised of a surface fleet of warships. Not only do warships need to be able to possess an offensive capability, they must also be able to defend themselves which includes being able to absorb an attack from the enemy. Although the specific actions taken are classified, the U.S. Navy "has designed (the LCS) to sustain some degree of damage during combat…and still remain afloat."[165] Although one could argue that the Close-in Weapon System and Evolved Sea Sparrow Missile provide an effective defense of the naval variant NCS *and* that because the naval variant of the NCS has the same surface warfare capability as the LCS it can serve as a warship in the right role. Because the LCS has a shallower draft, it can go further inland than the NCS and because it can operate at faster speeds its response time is reduced and time is often a critical and decisive factor in emergency situations.[166]

[165] Congressional Budget Office, *"Options for Combining the Navy's and the Coast Guard's Small Combatant Programs*": 11.

[166] The draft difference between the LCS and NSC of eight feet is increased in shallow waters proportionally to speed due to the effect of squat.

Characteristics and Capabilities of the Coast Guard's New and Notional Small Combatants

	NSC	OPC		LCS
	(Legend Class)	(Requirement)[a]	(Range of Acceptable Submissions)	(Coast Guard Variant)[b]
Length (Feet)	418	N.A.	300 to 390	378
Beam (Feet)	54	N.A.	N.A.	57
Draft (Feet)	22	N.A.	up to 18	14
Full-Load Displacement (Long tons)	4,300	~3,700[c]	N.A.	3,500
Maximum Speed (Knots)	28	25	30	~30
Endurance (Days)	60	45	30 to 50	21[d]
Range (Nautical miles)	12,000	7,500[e]	5,500 to 9,000	6,300[e]
Operating Environment	SS5	SS5	SS5	SS4
Number of Helicopters	2	1	1	2
Constructed to Naval Vessel Rules	No	Yes	Yes	Yes
Bow Thruster	Yes	Yes	N.A.	No
Service Life (Years)	30	30	25 to 40	25
Number of Berthing Racks	148	120	90 to 130	120[f]

Source: Congressional Budget Office.

Notes: NSC = national security cutter; OPC = offshore patrol cutter; LCS = littoral combat ship; N.A. = not available; SS4 = sea state 4; SS5 = sea state 5.

Beam indicates the width of the ship. Draft indicates the depth to which the ship is immersed. Full-load displacement includes the weight of the ship plus its crew, cargo, weapons, and fuel.

Sea state refers to the condition of the seas, such as wind speed and wave height. The higher the sea state the rougher the seas. Sea state 4 is characterized by winds of 18 to 20 knots and waves of 6 to 7.5 feet. Sea state 5 is characterized by winds of 21 to 25 knots and waves of 8 to 12 feet.

a. Specifications for the OPC are based on a request for information that the Coast Guard submitted to the industry in October 2008 when soliciting designs for a new ship.

b. This comparison is based on the assumption that the Coast Guard would use the semiplaning monohull variant of the Navy's LCS.

c. The ship's displacement is based on notional design specifications proposed for the OPC under the Coast Guard's Deepwater plan.

d. According to industry officials, endurance could be expanded either by airlifting supplies to the ship or by adding more refrigeration to the mission-package spaces on the LCS.

e. Assumes a fuel reserve of 30 percent.

f. Expanding the number of berths from 100 to 120 would require using space in the mission bay.

Figure 6. NSC and LCS Characteristics and Capabilities.

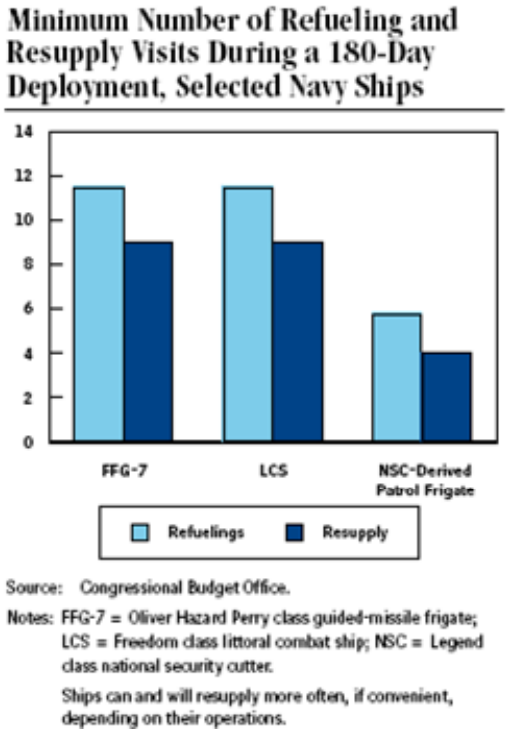

Figure 7. Fuel Constraints: NSC vs. LCS.

E. OPTION E: RESTRUCTURE SURFACE FORCES

The U.S. Navy currently operates in a construct that places great emphasis as well as some reliance on the use of CSGs. Although the need to research the vulnerability of the CVN is for another study, this option suggests decreasing the quantity of required escorts for CVNs and establishing HD and HS surface action groups (SAGs). That is to say, that this option proposes that the U.S. Navy increase the use of, and reliance on, ships typically filling the role of CVN escort employing them in smaller groups of two and three, thereby maximizing their capabilities while simultaneously reducing the requirements for escorting the CVN. *A Cooperative Strategy for 21st Century Seapower* places more emphasis on maritime security, humanitarian assistance and disaster response and the U.S. Navy can best answer that "call for duty" with HD and HS SAGs.

Two main types of SAGs would be used. HS SAGs for the notional "home game" and HD SAGs for the more conventional "away game." The HD SAG would need to be capable of strike missions, BMD, HA/DR, SUW and USW. The HS SAG would have more emphasis placed on HA/DR and MIO capability in support of maritime security as defined in *A Cooperative Strategy for 21st Century Seapower*.

The HD SAG would require two or three DDGs or CGs, one of which must be BMD capable. The HD SAG would also have one helicopter squadron detachment assigned, which provides the HD SAG SH-60B and SH-60Fs. The SH-60's increase the SAG's SUW capability by allowing the SAG to engage targets from a distance outside of the enemy's weapons release range. The SH-60s would also help build and maintain a recognized maritime picture thereby increasing the SAGs MDA. By having both variants of the SH-60, the SAG's USW capability is increased through the use of sonobuoys, magnetic anomaly detector, dipping sonar and could serve as a delivery vehicle for torpedoes.

By not being tasked as CVN escort ships, the HD SAG would be able to operate more freely without having to dedicate the resources required to provide screening support for the CVN. This will not only make the ships more proficient with more fundamental and traditional surface navy operations but also could increase the operating range of assets in the SAG providing more freedom of maneuver, which is not only vital in combat, but also in other missions and tasking.

The HS SAG would consist of two to three combatants and one amphibious ship. The HS SAG could include a U.S. Coast Guard cutter to reduce law enforcement restrictions when the HS SAG is conducting maritime security operations such as boarding and searching ships not in international waters. If a U.S. Coast Guard cutter is unavailable, the U.S. Navy ships can provide the logistical requirements needed to berth a U.S. Coast Guard boarding team.[167]The HS SAG would require one rotary wing detachment to serve as a SAR asset in the HA/DR role and to build and maintain a recognized maritime picture improving the SAG's MDA thereby making the SAG more

[167] U.S. Coast Guard boarding team detachments embarking on U.S. Navy ships is a common practice and is most commonly used when conducting counter -narcoterrorism (CNT) operations in South America.

effective when patrolling in support of maritime security. While most amphibious ships have a boarding capability, the ship's main purpose in the HS SAG is to support displaced persons or refugees in the event of a HA/DR mission.

1. Advantages

Reducing CVN escort requirements would enable ships to either remain in port, saving money through a reduction in operating expenses and would allow more time for ship maintenance, or availability for tasking in a HS or HD SAG. This would expand the U.S. Navy's range of operations, geographically and in quantity, which is vital for success with the current range of military operations. Ultimately, this option could reduce costs and would increase the U.S. Navy's HS capability.

2. Disadvantages

Navy traditionalists may consider this particular option a drastic change in the U.S. Navy's task force organization. Carrier Strike Group commanders and naval traditionalists would more than likely not welcome an idea that involves a reduction in assigned escort ships. Nominally a CVN has five escort ships to combat threats against the CVN; however one must ask, "is there really a threat?" A legitimate threat has to have capability, opportunity and *intent*. Currently, there is no credible intent to harm a U.S. Navy aircraft carrier. Regardless, it is sound to anticipate pushback on an idea that drifts from the norm.

3. Conclusion

From least to most drastic, five options or alternatives have been discussed in this section. All of the options remain flexible and could be modified in order to eliminate specific shortcomings to more general concerns such as cost, C2 ability, mission burden, feasibility and capability. The options can also be merged to create new alternatives, option A and C for example. Adding a homeland security certification in the SFTM could very well work hand in hand with the establishment of a HDSG.

V. CONCLUSION AND FINDINGS

A. NORTHCOM DEMAND FOR MARITIME CAPABILITY

Critical infrastructure in the United States continues to age and degrade and incidents like the Minneapolis I-35 bridge collapse will likely occur more often. Disasters involving nuclear power plants, oil refineries, power grids, dams and other susceptible infrastructure could very well occur more frequently. Terrorists continue to plot against the United States and climate change continues to cultivate weather irregularities. All of these challenges make it more likely that the DoD entity in place to respond to these threats and to help manage the consequences of these events, NORTHCOM, will be called to action. An undeniable increase of events occurring in NORTHCOM's area of responsibility requires a capability-based response. For the maritime domain, this response will be shared by the U.S. Coast Guard and the U.S. Navy.

To a great extent, NORTHCOM relies on the U.S. Coast Guard for maritime defense of the homeland. The U.S. Coast Guard has eleven missions which are divided between homeland security statutory missions: ports, waterways, and coastal security (PWCS), defense readiness and migrant interdiction; and non-homeland security statutory missions: drug interdiction, aids to navigation, search and rescue, living marine sources, marine safety, marine environmental protection, law enforcement and ice operations.[168]

As a result of the *Homeland and Security Act of 2002*, the Commandant of the U.S. Coast Guard designated Ports, Waterways and Coastal Security (PWCS) as the Coast Guard's primary focus coupled with search and rescue.[169] The PWCS mission involves:

> (T)he protection of the U.S. Maritime Domain and the U.S. Marine Transportation System (MTS) and those who live, work or recreate near them; the prevention and disruption of terrorist attacks, sabotage,

[168] United States Government Accountability Office, *COAST GUARD: Observations on the Fiscal Year 2010 Budget and Related Performance and Management Challenges*. July 2009: 6.

[169] United States Coast Guard, *Office of Counterterrorism and Defense Operations*; available from http://www.uscg.mil/hq/cg5/cg532/pwcs.asp.

> espionage, or subversive acts; and response to and recovery from those that do occur. Conducting PWCS deters terrorists from using or exploiting the MTS as a means for attacks on U.S. territory, population centers, vessels, critical infrastructure, and key resources. PWCS includes the employment of awareness activities; counterterrorism, antiterrorism, preparedness and response operations; and the establishment and oversight of a maritime security regime. PWCS also includes the national defense role of protecting military outload operations.[170]

However, as more emphasis has been placed on PWCS, the defense readiness mission has been neglected. The Coast Guard considers defense readiness as "participating with the Department of Defense in global military operations (and) deploying cutters and other boats in and around harbors to protect (DoD) force mobilization operations."[171] A 2009 Government Accountability Office report on the Coast Guard states, "(T)he Coast Guard reported falling substantially short of its performance target for only one mission – defense readiness."[172] The report further states, "(I)t has been noted by Congress and supported by our past reviews that the Coast Guard faces significant challenges in assessing personnel needs and providing a workforce to meet the increased tempo of maritime security missions."[173] This suggests that the U.S. Coast Guard is struggling to operate with its current missions and tasking and would most likely fail to perform at optimum standards with an increased operational tempo. The likely solution will be to look to the U.S. Navy as the capable alternative and in turn increase naval operational tempo as needed.

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[170] United States Government Accountability Office, *COAST GUARD: Observations on the Fiscal Year 2010 Budget and Related Performance and Management Challenges*. July 2009: 6.

[171] Ibid., 6.

[172] Ibid., 15. Defense readiness for the Coast Guard was 76% in 2004 and has steadily declined to this date: 27.

[173] Ibid., 18.

B. NORTHCOM'S INCREASED ROLE AS A RESULT OF CLIMATE CHANGE

Regardless of the cause, the idea of climate change has become generally accepted in the world of academia. Changes in humidity, precipitation, winds, seasons and temperature create an environment that causes more dangerous and frequent weather patterns that can result in more intense and therefore more destructive hurricanes. The fact that over one half of the United States' population currently resides in coastal counties (and growing) coupled with over 80 percent of the world's trade being conducted by the maritime domain combine to make the United States' 95,000 mile coastline vulnerable not only to man-made disasters but violent acts of nature as well.[174] In September 2009, the weather in the Pacific Ocean produced a deadly combination of tropical cyclones, earthquakes and tsunamis, some of which occurred in close succession within a 24-hour period. One might ask, how well could the local, state and federal government respond if California experienced its feared "great quake" in the north while experiencing a hurricane in the south?

Climate change is not only affecting the United States' coastline, it is also creating a dilemma for the DoD in the Arctic region. The Arctic region is of significance because as the continental ice shelf *continues* to melt (see Figure 8) more resources become available. It is estimated that up to 30 percent of the world's undiscovered gas and 13 percent of oil, as well as other natural minerals, lie in the Arctic. As the waters continue to warm, fish will migrate to the Arctic furthering the value of the region. Natural and biological resources as well as maritime shipping routes make the Arctic region a lucrative prospect that appeals to a number of nation states. There are five countries surrounding the Arctic: the United States (via Alaska), Canada, Russia, Norway and Denmark (via Greenland). The United States, Canada and the western side of Greenland fall into NORTHCOM's AOR (see Figure 9). Currently, there are two ocean straits in the Arctic region, one of which is in NORTHCOM's AOR. Besides "ownership" of the Bering Strait, NORTHCOM also has the Northern Nares Strait in its

[174]Department of Defense, *The National Strategy for Maritime Security* and *National Oceanic Service*; available from http://oceanservice.noaa.gov/programs/mb/supp_cstl_population.html.

AOR. The Northern Nares Strait is anticipated to evolve into a third entrance/exit to the Arctic, charging NORTHCOM with oversight of two-thirds of the critical oceanic chokepoints in the region. The potential USA continental shelf lies within NORTHCOM's AOR (see Figure 10). The shelf is the most important geographic space with respect to natural resources, oil, natural gas, methane hydrate, minerals and marine species and is clearly physically located within NORTHCOM's AOR.

The Arctic region will likely become at minimum, a rich resource area of strategic importance to the U.S. and at worst a potential area of conflict. NORTHCOM could very well find the Arctic added to its AOR increasing their geographic responsibilities and mission requirements. The problems that come with the benefits of the Arctic are just around the corner. These particular challenges will place a significant stress on the NORTHCOM's maritime ability and these challenges added to the others discussed in this study would only further strengthen the argument that NORTHCOM have a full-time naval component commander assigned.

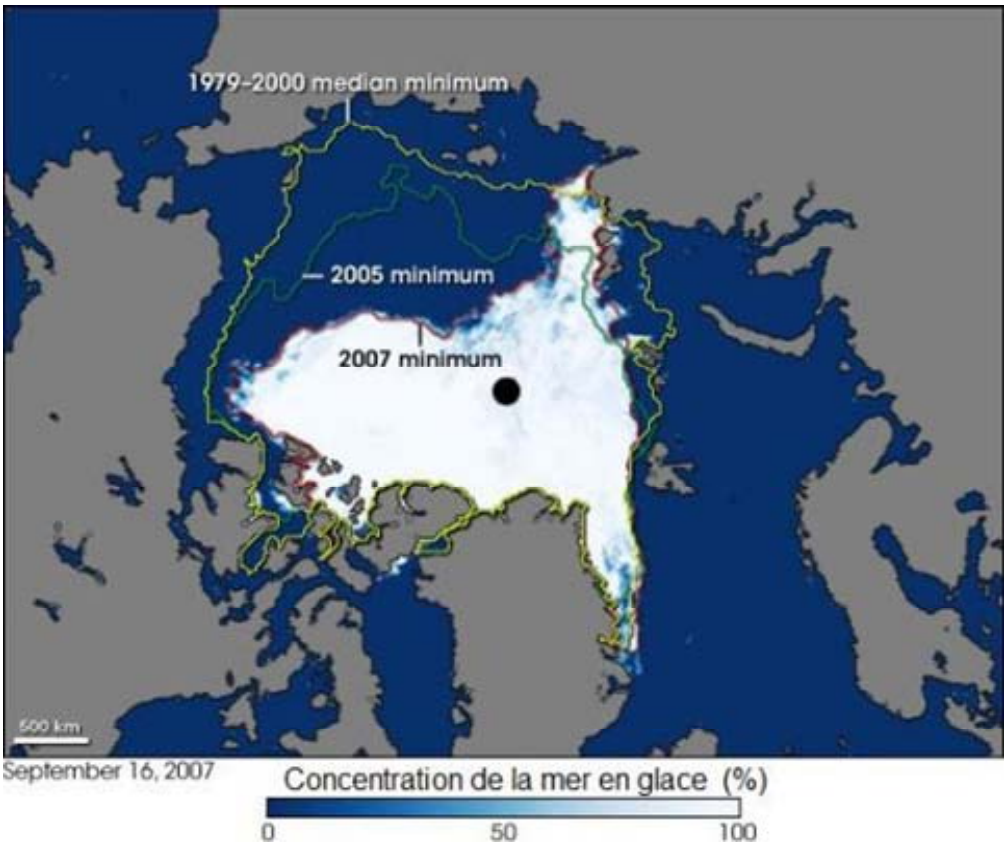

Figure 8. Melting Continental Ice Shelf.[175]

[175] *More polar bear are going hungry — but is that the biggest concern?* January 13, 2009, *Larvatus Prodeo*; available from http://larvatusprodeo.net/2009/01/13/more-polar-bears-are-going-hungry-but-is-that-the-biggest-concern/.

Figure 9. NORTHCOM AOR in the Arctic.[176]

[176] *The World With Commander's Area of Responsibility*; available from http://www.dtic.mil/cgi-bin/GetTRDoc?AD=ADA502246&Location=U2&doc=GetTRDoc.pdf.

Figure 10. Potential U.S. Continental Shelf.[177]

C. RECOMMENDATION

Maritime activity in NORTHCOM's AOR will most likely increase in the future and the U.S. Coast Guard may not be able to effectively handle the tasking. It is imperative that the U.S. Navy provide the most efficient, effective and competent means available to NORTHCOM in order to support this increased tasking in order to maximize security and minimize suffering to the American people.

In Chapter IV, five alternative options to the current construct were discussed along with their relative advantages and disadvantages. Figure 11 illustrates each option's

[177] *Maritime jurisdiction and boundaries in the Arctic region* December 13, 2008, *Durham University*; available from http://www.dur.ac.uk/ibru/resources/arctic/.

effectiveness in five categories: cost, mission burden, C2, feasibility and capability. Each option was compared to current means and received an "effectiveness score" (1: less effective, 2: indifferent and 3: more effective) for each category based on that comparison.[178] When assigning an effectiveness score the following questions were asked:

- Cost: How significant would the financial burden be with the implementation of this option (the less expensive the more effective)?
- Mission burden: How much additional burden would be placed on surface forces (the less burden the more effective the option)?
- C2 Ability: How much quicker would the potential response time be based on a streamlined chain of command and how well does this option afford NORTHCOM to effectively execute C2 with minimal interference from additional commands (the better the C2 and quicker the time response the more effective the option)?
- Feasibility: How feasible is the implementation of this option (the more feasible the more effective the option)?
- Capability: How capable is this option in providing support to the Homeland Security mission (the more capable the more effective the option)?

Each category was given a relative weight in order to place the appropriate amount of emphasis on that category. For numerical simplicity, each category was given a value in one-fifth increments. Cost received a weight of one-fifth based on a cost/benefit analysis; preventing damage and minimizing human suffering largely outweighs a relatively small price tag. Mission burden received two-fifths relative weight because ultimately, good leaders and managers who practice effective planning are capable of taking on more tasks and if a burden too large was placed on the U.S. Navy it could adapt via an increase in ships and personnel. C2 was assigned a relative weight of three-fifths because it places particular emphasis on the timely response of U.S. Navy assets and the ability to control those assets once on station; effective C2 can make or break the success of an operation. Feasibility received a relative weight of four-fifths because it is important to identify if a

[178] An intercoder reliability analysis was conducted by a retired U.S. Navy captain from the surface warfare community with a background in operational research. Captain Jeffery Kline was not familiar with my thesis, only the options provided in Chapter IV. The result of the analysis suggests that my assessments avoided any potential bias and analysis of the options can be considered as generally sound.

particular option is even possible, the more difficult to implement an option the less likely it would be put into practice. Capability received a weight of one because, ultimately, the effectiveness of the option is the most important attribute against which other categories must be compared.

	Cost (.2)	Mission Burden (.4)	C2 (.6)	Feasibility (.8)	Capability (1.0)	Overall Score
Option A	3	3	2	3	2	7.4
Option B	2	1	3	3	3	8
Option C	1	1	3	2	3	7
Option D	3	2	3	1	3	7
Option E	2	2	3	2	3	7.6

Figure 11. Analysis of Options.

Option B, "Assets assigned to NORTHCOM" received an overall score of 8, which was the highest score of the five options.[179] This is not to say that assigning assets to NORTHCOM will make the U.S. Navy the most proficient or effective military branch in the HS arena, but that by assigning assets to NORTHCOM there would be minimal financial impact, improved C2 is achievable, and overall it would provide an improved capability compared to current means.

It is interesting to note that Option D, "National Security Cutter (NSC) acquisition" only received one "less effective" grade, which prevented it from receiving the highest computed score as well as the overall recommendation. The fact that the mark of less effective was in the feasibility category suggests that issues with resistance and change may outweigh concerns of performance and capability in the U.S. Navy.

[179] For example: Option B (.2 x 2(cost) + .4 x 1(mission burden) + .6 x 3 (C2) + .8 x 3 (feasibility) + 1 x 3 (capability) = 8).

D. FURTHER RESEARCH

As time continues to advance so does NORTHCOM's operational tempo. This will inevitably lead to looking at ways NORTHCOM can become more effective which in turn will require analysis of its subordinate and supporting commands. The increase in challenges will have to be addressed by more complex and innovative solutions due to the uncertainty and unique challenges that comes with the passing of time. Further research should be conducted that explores variations or hybrids of the options discussed in Chapter IV. For example, Option A and B could potentially be merged and would produce HS certified assets assigned to NORTHCOM. Other avenues that could be explored include considering new options or alternatives, such as the establishment of a U.S. Navy National Guard with surface and aviation assets. Analysis of previous or new options using different categories than the ones posed in Figure 11 could provide additional insight and potentially lead to improved options or variations of the previously identified missions.

This thesis clarifies the significance and the likely growing dependency on NORTHCOM and it identifies weaknesses with its relationship with the U.S. Navy followed by proposing some alternatives that could potentially better serve the COCOM in support of accomplishment of their missions. Ultimately, to achieve some sort of solution, U.S. Navy leadership would have to acknowledge that deficiencies do exist and be willing to alter or modify the current method and means employed. While the exact solution may not be clearly identifiable, one key component of it for certain is the need for *change*.

Change is the law of life.
And those who look only to the past or present are certain to miss the future.
— John F. Kennedy

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