The Deepwater Program:
*A Case Study in Organizational Transformation Inspired by the Parallel
Interaction of Internal and External Core Groups*

by

Vikram Mansharamani

B.A. East Asian Studies; Ethics, Politics, & Economics
Yale University, 1996

SUBMITTED TO THE DEPARTMENT OF POLITICAL SCIENCE IN PARTIAL
FULFILLMENT OF THE REQUIREMENTS FOR THE DEGREE OF
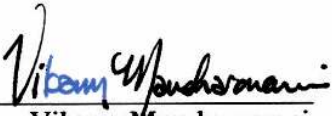
Master of Science in Political Science

at the

MASSACHUSETTS INSTITUTE OF TECHNOLOGY

February 2004

© 2004 Vikram Mansharamani

*The author hereby grants to MIT permission to reproduce and to distribute publicly paper and
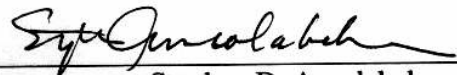electronic copies of this thesis document in whole or in part.*

Signature of Author: _____

Vikram Mansharamani
December 15, 2003

Certified by: _____

Harvey M. Sapolsky
Professor of Public Policy and Organization
Director, MIT Security Studies Program
Thesis Supervisor

Accepted by: _____

Stephen D. Ansolabehere
Professor of Political Science
Chairman, Graduate Program Committee

The Deepwater Program:
A Case Study in Organizational Transformation Inspired by the Parallel Interaction of Internal and External Core Groups

by

Vikram Mansharamani

Submitted to the Department of Political Science on December 15, 2003 in Partial Fulfillment of the Requirements for the Degree of Master of Science in Political Science

ABSTRACT

This paper attempts to explain why the United States Coast Guard decided to undertake its most recent major capital asset replacement effort—the Deepwater Program—through the use of a systems approach. Several explanations are considered, but a series of interviews and a review of events during the 1996-2003 timeframe yield an explanation that points to bureaucratic politics and status dynamics as the most likely cause. In particular, the paper finds that the Coast Guard's low status (vis-à-vis other organizations within the Department of Transportation) combined with the Deepwater community's high status (vis-à-vis other communities within the Coast Guard) to produce a political environment that made the use of a systems approach almost inevitable. The paper closes by considering the policy ramifications of systems approaches used by relative weak organizations.

Thesis Supervisor: **Harvey M. Sapolsky**
Title: *Professor of Public Policy and Organization*

ACKNOWLEDGEMENTS

ABOUT THE AUTHOR

Vikram Mansharamani spent three years in the venture capital business before enrolling at MIT to pursue his graduate education. During his three years with Boston-based Great Hill Partners, he was responsible for the firm's investments in the for-profit education, marketing services, and IT services industries. He was a member of the Board of Directors of Interelate, Inc. and ManagedOps.com. Prior to his position in venture capital, Mr. Mansharamani was in the Mergers & Acquisitions Group at Merrill Lynch and was a Consultant with Booz-Allen & Hamilton. His other experiences include positions at the American Enterprise Institute, the US Embassy in Beijing, The White House, and Bear Stearns. Mr. Mansharamani is a graduate of Yale University, where he was the recipient of the Marshall-Allison Prize and was elected to *Phi Beta Kappa*. He lives in Boston.

The Deepwater Program:
A Case Study in Organizational Transformation Inspired by the Parallel Interaction of Internal and External Core Groups

The goal of this effort is not to replace ships, aircraft and sensors with more ships, aircraft and sensors, but to provide the Coast Guard with the functional capabilities required to achieve mission success safely…It is critical that the Deepwater system be viewed in its totality to develop a unified, strategic overview, ensure asset comparability and interoperability, and provide the most affordable solution for the taxpayer.

(Integrated Deepwater System Mission Need Statement)

Table of Contents

Introduction

WMEC 39, USCGC Alex Haley
An Edenton Class Medium Endurance Cutter to be replaced with an Offshore Patrol Cutter
(Constructed 1971; Home Port: Kodiak, AK)

Introduction

The United States Coast Guard is a multi-mission organization with a broad maritime and military mandate. In addition to conducting scientific experiments and ice-breaking missions on the polar caps, it also protects natural resources within US national waters. It assures maritime safety and is the provider and maintainer of most aides to navigation. It protects maritime mobility and is responsible for search and rescue on the nation's lakes, rivers, and coasts. Finally, it is a law enforcement agency with respect to drug smuggling and alien migration, as well as a military force focused on homeland security and helping the US Navy in times of need. Despite conducting missions critical to United States interests, the Coast Guard ranks 40th out of 42 coast guard fleets around the world in terms of age—only Mexico and the Philippines are older.[1] Many current Coast Guard vessels have antiquated communications systems; several participated in combat service during WWII, and many aircraft are older than the men and women who fly them (Anderson and Winterstine 2003).

Although the modernization problem is most severe among the deepwater assets—assets employed more than 50 miles from the coast—budgetary pressures exist throughout the Coast Guard. From 1996-2001, maintenance funding had fallen 12% in constant dollars, lack of spare parts kept many aircraft grounded, operational funding for shore facilities had dropped by more than 50%, and overall readiness had dropped by more than 20% (Thorsen 2001b). Morale was low: following the John Kennedy Jr. search and rescue effort, 50% of the command center staff resigned from the Service (Anderson 2000).

---

[1] This study, based upon a thorough review of *Jane's Fighting Ships*, included maritime fleets of 10 or more ships of similar size, similar missions, etc. (Winnick, Seth. 2003. Telephone Interview of Seth Winnick (Deepwater Communications Specialist) by Vikram Mansharamani on April 30, 2003.)

The tragic events of September 11, 2001 led to an increased focus on homeland security, and the Coast Guard was a primary beneficiary of newly-injected funding. Well before 9/11, however, the Coast Guard had begun a major recapitalization effort to modernize its deepwater infrastructure. The project, known as the Integrated Deepwater System program ("IDS" or "Deepwater"), formally began in 1996. Deepwater represents a major departure from past practices of the Coast Guard and the practices of the U.S. military forces in one specific respect: instead of contracting for individual assets or platforms which are built singularly or in series, the Deepwater program has contracted for an integrated system of platforms that links all relevant assets through common technologies, logistics systems, and operational concepts. Approaching the project through a systems approach means that rather than contracting for modernized equipment by specifying *asset* performance metrics, the Coast Guard has provided its contractors with *mission* performance requirements. Although operational effectiveness remains the primary objective, total cost of ownership is a major factor.

The Deepwater program was structured in two phases. Phase I, conceptual and functional design, included three industry teams led by Avondale, Lockheed Martin, and SAIC and ran from 1998-2002. The Coast Guard then awarded the Phase II contract for implementation to Integrated Coast Guard Systems ("ICGS"), a joint venture between Lockheed Martin and Northrop Grumman. ICGS is the sole systems integrator for the Deepwater Program and is responsible for coordinating and integrating all modernization activities.

Although the systems approach has been lauded by many systems theorists (Bertalanffy 1976; Forrester 1999; Laszlo 1996; Ramo 1969), scholars with a focus on bureaucratic politics and weapons procurement (Peck and Scherer 1962; Rosen 1984; Sapolsky 2004 (forthcoming)) have argued the approach is inherently limited. These critics note that systems theory

overemphasizes quantifiable considerations, thereby underweighting social and political considerations. Further, given that tradeoffs in bureaucratic organizations are inevitably made through political processes, a systems approach likely confounds decisions (by consistently over-promising and under-delivering) and leads to suboptimal outcomes.

Further, recent work by University of Kentucky Professor Eugene Gholz has enhanced understanding of the levels at which systems thinking has been applied. In particular, he articulates a landscape in which systems integration efforts are utilized at the component, platform, and architectural levels (Gholz 2004 (forthcoming)). Given this framework, the Coast Guard made an extremely big leap in jumping from the use of component and platform systems integrators for future asset purchases to using an architectural systems integrator (that happens to have a role—and possibly a conflict—as a component and platform integrator) for the management of legacy asset modernization, present purchase fulfillment, and future system design.

Given these considerations, the Coast Guard decision to employ a systems approach in the Deepwater Program is quite curious and merits attention. What factors led to the decision to utilize a systems approach? This paper seeks to answer this question by evaluating internal Coast Guard political dynamics as well as the Coast Guard's relations with other organizations. Other factors that are considered included previous fleet modernization/replacement experiences within the Coast Guard, as well as personal experiences of key decision-makers. It is important to note here that this is not a paper about the pros, cons, benefits, and/or dangers of utilizing systems integrators for large scale projects; rather, the focus here is upon the political dynamics that led to the decision to use a systems approach. A thorough evaluation of systems thinking—while definitely worthy of investigation—is beyond the scope of this paper.

In particular, this paper argues that the Deepwater program was structured through a systems approach because of parallel dynamics taking place externally vis-à-vis other organizations as well as internally between internal Coast Guard groups. It further argues that the powerful forces prevalent at both of these levels led to the systems approach chosen by the Coast Guard. Internally, the Coast Guard's highest status group (its "core group"), the deepwater community, wanted to structure the modernization problem in a manner that implied a solution best representing its interests. In addition to providing new assets and interconnected systems, the Deepwater Program solidifies internal hierarchical relationships by transforming the Coast Guard mission mix in favor of deepwater missions and strengthening ties to the US Navy. From an external dynamics perspective, approaching the modernization project through a systems approach allowed the Coast Guard to escalate its status vis-à-vis other organizations. It created the opportunity to work with Tier I defense contractors, thereby befriending those organizations highly capable of reducing funding obstacles.

The argument is presented in four parts, beginning with an overview of Coast Guard missions and doctrine. The following section presents an overview of the Deepwater program, and the third section provides a brief summary of theoretical considerations (systems thinking, core group theory, and the dynamics of push/pull approaches to funding). The final section makes the argument that both internal and external status dynamics motivated the systems approach by facilitating internal core group goals while simultaneously bettering the Coast Guard vis-à-vis external organizations.

Coast Guard Missions
and Doctrine

WMEC 38, USCGC Storis
A Medium Endurance Cutter to be replaced with an Offshore Patrol Cutter
(Constructed 1942; Home Port: Kodiak, AK)

Coast Guard Missions and Doctrine

The Coast Guard has three main mission areas—inland, coastal, and deepwater—and categorizes each mission into one of five main buckets: maritime safety, maritime security, maritime mobility, environmental protection, and national defense.   The table below characterizes Coast Guard missions by their respective mission area.

TABLE 1: Coast Guard Missions by Mission Area

	Inland	Coastal	Deepwater
Aids to Navigation	■	■	
Search & Rescue	■	■	■
International Ice Patrol		■	■
Polar Ice Operations		■	■
Domestic Ice Operations	■	■	
Waterways Management	■	■	
Commercial Vessel Safety	■	■	■
Bridge Administration	■	■	
Recreational Boating Safety	■	■	
Port Safety and Security	■		
Enforcement of Laws/Treaties	■	■	■
Maritime Environmental Response	■	■	■
Foreign Vessel Inspection		■	■
Coastal Sea Control		■	■
Living Marine Enforcement			■
Drug Interdiction		■	■
Alien Migrant Interdiction			■
Homeland Security	■	■	■
General Defense Operations			■
Port Operations Security & Defense	■	■	
Peacetime Military Engagement			■
Maritime Intercept Operations			■
Military Environmental Defense			■

Source: Stubbs, Bruce, and Scott C. Truver. 2000. America's Coast Guard: Safeguarding US Maritime Safety and Security in the 21st Century. Washington, DC: US Coast Guard and The Anteon Corporation.

As visible in the table above, inland operations include maintaining maritime safety (search and rescue, boating and vessel safety, bridge administration), maintaining maritime security (general enforcement of laws), assuring maritime mobility (ice operations, waterways

management, aids to navigation), and a small portion of environmental protection and national defense. Inland missions have two primary foci—recreational boating and inland-waterway-based commercial shipping. The primary inland operation centers on the Great Lakes, where there are more than 4 million registered US boats (Flynn 2001), but Coast Guard operations exist on all major waterways and lakes.

Coastal operations include maintaining maritime safety (search and rescue, boating and vessel safety, bridge administration), maritime security (general enforcement of laws and treaties), maritime mobility (aids to navigation, ice operations, waterways management), and low-level involvement in national defense (maintaining port security, assuring coastal sea control, and homeland security). Coastal operations also have two primary foci – recreational boating and seaborne commercial shipping. Coastal efforts occasionally overlap with deepwater operations, most notably in the realm of maritime environment response.

Deepwater missions, the focus of this section of the paper, are characterized by an extended on-scene presence, long distances between operating areas, and/or forward deployment of forces. As visible from the table above, deepwater missions primarily focus upon maritime security and national defense. The Coast Guard has 14 deepwater missions (Stillman 2000).

TABLE 2: Deepwater Missions

Mission Area	Specific Coast Guard Roles
Maritime Safety	Search & Rescue, International Ice Patrol
Maritime Security	Drug Interdiction, General Enforcement of Laws and Treaties, Alien Migrant Interdiction
Protection of Natural Resources	Marine Pollution Enforcement and Response, Living Marine Resource Enforcement
Maritime Mobility	Lightering Zone Enforcement, Foreign Vessel Inspection
National Defense	Homeland Security, General Defense Operations, Maritime Interception Operations, Port Operations Security and Defense, Peacetime Military Engagement, Coastal Sea Control

Source: Stillman, Patrick, *Deepwater 101*

Maritime safety missions in the deepwater arena focus on large scale search and rescue—primarily dealing with cruise ship safety.[2] Deepwater maritime security efforts center on law enforcement – primarily illegal alien and drug interdiction. Alien migration interdiction efforts, which have traditionally focused upon the Caribbean, are increasingly focused upon human trafficking from China.[3] Deepwater living marine enforcement activities protect fisheries.[4] Maritime mobility efforts focus on preventing inhibitors to commercial trade. Finally, most national defense missions are deepwater missions.

Coast Guard Doctrine

At the strategic level, the Coast Guard thinks of itself as maritime, multi-mission, and military. Operationally, Coast Guard engagements are conducted by adherence to seven main principles of operations: clear objective, effective presence, unity of effort, on-scene initiative, flexibility, managed risk, and restraint (Loy 2002). While the self-description as a "maritime organization" requires little explanation, the other two self-descriptors do merit discussion.

The multi-mission nature of the Coast Guard is a direct result of organizational evolution, the pursuit of resources, and a history of mergers. By creating a portfolio of missions, the Coast Guard has ensured its place as a valued federal organization that always has relevant missions. Specifically, the organization's willingness to take on the mission *du jour*[5] has earned it respect

---

[2] A prime example of deepwater search and rescue efforts include the rescue of 524 individuals from the cruise ship *Prinsendam* (1980) when it caught fire in the Pacific. The rescue of *Ecstasy* (2000) is another good example.

[3] With one large boatload of PRC aliens worth more than $6 million to smugglers (each passenger pays upwards of $45,000), the incentive to reach US soil is high. See Stubbs, Bruce, and Scott C. Truver. 2000. America's Coast Guard: Safeguarding US Maritime Safety and Security in the 21st Century. Washington, DC: US Coast Guard and The Anteon Corporation.

[4] Global demand for edible seafood is expected to rise from 80 million tons in 1980 to more than 115 million tons by 2015 (44% increase) While demand continues to rise, supply has begun to drop off: northwest Atlantic fishing peaked at an annual production of 2.5 million tons with a 2000 harvest of 1 million tons. See Stillman, Patrick M. 2003. *Deepwater 101* [Powerpoint Briefing]. US Coast Guard, 2000 [cited April 12, 2003]. Available from http://www.uscg.mil/deepwater/powerpoint/dw101-notes.pdf.

[5] An excellent example is the International Ice Patrol, an effort begun by the Coast Guard following the sinking of the Titanic in the early 20th century.

---

and an interesting mix of specialized capabilities. For example, in addition to serving its many other missions, the Coast Guard also has law enforcement abilities that allow the organization to be involved in the prosecution of US citizens within Coast Guard jurisdiction.

The *Posse Comitatus* doctrine prevents US military forces from playing a domestic law enforcement role. Actual laws constrain the Army and Air Force (18 U.S. Code § 1385) and self-imposed policies restrict the Navy and Marines. Thus, the Coast Guard has a monopoly on waterborne law enforcement, making it the only armed service with law enforcement capabilities and authority at sea. This fact, combined with the inherent nature of patrol-based missions, makes the Coast Guard's multi-mission outlook inevitable. Why not stop illegal fishing while patrolling for drug smugglers?

The Coast Guard's buoy tender fleet presents an excellent example of the multi-mission nature of the organization. In addition to setting buoys for the safe navigation of mariners, these cutters deploy oil containment booms to protect the environment, break ice to allow for maritime mobility, conduct naval warfare duties, and perform search and rescue and law enforcement missions (Loy 2002).

The historical roots of the "military" character of the Coast Guard are quite clear. *The Federalist Papers*, No. 12, dated November 27, 1787 contains the earliest recorded reference to what would become the US Coast Guard. Alexander Hamilton, the first Secretary of the Treasury, stated that "A few armed vessels, judiciously stationed at the entrances of our ports, might at small expense be made useful sentinels of the laws" ((Madison, Hamilton, and Jay 1987)) The Coast Guard prides itself on being an armed service, a fact evidenced by the simple use of military titles within the entire organization as well as the Coast Guard's ".mil" website address. Several notable facts in Coast Guard history demonstrate the depth of these roots:

- ✓ The Coast Guard has participated in every major war that the United States has conducted as a naval augmentation force.[6]
- ✓ The reaction of Coast Guard leaders at the conclusion of WWI (reluctant acquiescence to removal from Navy control) indicates the organization's deep military ethos.[7]
- ✓ Coast Guard leadership responses to limited involvement in the Korean War were directed towards retention/protection of the organization's military status.[8]
- ✓ Whenever questioned about potential redundancy with the Navy, the Coast Guard is quick to point out that it provides specialized, brown water capabilities that provide US leaders flexible responses not resident within the Navy.

This last point merits further attention. Following the conclusion of the Cold War, political decision makers again began questioning the Coast Guard's military role. In an attempt to assure

---

[6] The first involvement of Revenue Cutter Service (predecessor to the Coast Guard) vessels in armed conflict was during the Quasi War with France in 1797, with RCS cutters serving alongside Navy ships in the Caribbean. RCS cutters again helped the Navy during the War of 1812 and against pirates in the southern Atlantic and Gulf of Mexico in 1819. RCS vessels were active on both sides of the Civil War as well as during the 1898 Spanish American War. Two years after the official formation of the Coast Guard, Coast Guard deepwater assets were deployed in 1917 to the European theater to support naval efforts during WWI. The Coast Guard's next military engagement came during WWII, once again under Navy control, with Coast Guardsmen playing a key role in deterring the Germans from reaching Greenland. Coast Guard involvement was fairly limited during the Korean War, but the Vietnam conflict saw the Service once again working alongside Navy vessels. Coast Guard vessels were involved in both Gulf War I and more recent operations during Operation Iraqi Freedom. For an excellent history of the Coast Guard, see Loy, James M. 2002. Coast Guard Publication 1; US Coast Guard: America's Maritime Guardian. Washington, DC: US Coast Guard. An additional source worthy of attention is Scheina, Robert. 2003. *U.S. Coast Guard: A Historical Overview* [website]. US Coast Guard, April 2003 [cited May 3 2003]. Available from www.uscg.mil/hq/g-cp/history/h_USCGhistory.html.

[7] At war's end, the Coast Guard did not immediately pass back from the Navy to the Treasury department. Rather, "A new political storm brewed as proponents from the Navy (including Navy Secretary Josephus Daniels), Congress, and even Coast Guard officers from the old Revenue Cutter Service, struggled to keep the Service permanently under Navy Department. The Navy was determined to retain control of all government vessels, and most Coast Guard officers did not wish to relinquish the more generous pay, promotion, and social benefits that accrued to Navy officers (Loy, James M. 2002. Coast Guard Publication 1; US Coast Guard: America's Maritime Guardian. Washington, DC: US Coast Guard.). Not surprisingly, those who would have lost the most from this outcome protested. Captain Commandant Bertholf and Treasury Secretary Carter Glass were particularly vocal, and by 1919, the Service was returned to the Treasury Department.

[8] Coast Guard involvement in the Korean War was extremely limited, focused principally on improving communications and meteorological services as well as port security and ammunition handling. As the nation entered the Vietnam War, this limited role (relative to capabilities) alarmed Coast Guard Commandant Admiral Edwin Roland, who "feared that if the Coast Guard did not play a greater role [in Vietnam] than it had during the Korean War, the Service might lose its status as an armed service" (Ibid.). He successfully injected Coast Guard forces into the Vietnam War in a major role in Operation Market Time, a joint US Navy / Coast Guard / South Vietnamese Navy effort to disrupt North Vietnamese supply lines.

---

itself of a seat at the military table, the Coast Guard signed a "Memorandum of Agreement between the Department of Defense and the Department of Transportation on the Use of Coast Guard Capabilities and Resources in Support of the National Military Strategy" in October 1995.[9] The Agreement provides the Coast Guard with five specific military missions: maritime interception operations, military environmental response operations, port security and defense, international peacetime military engagement, and coastal sea control operations. Despite the seeming success of this agreement, Admiral Loy noted three years later that he still has "to educate the CINCs and US ambassadors around the world about the value of using the Coast Guard for national security purposes"(Hessman and Burgess 1998). By 2003, Admiral Loy's efforts gained some traction: Commandant Collins described in April 2003 to Congress how he has been responding to "direct requests from the combatant commanders for the United States Coast Guard in the areas we have special competencies: port security, vessel escort, boardings, marine intercept operations and the like, aids to navigation and environmental defense" (2003 Congressional Testimony).[10]

A final point worth discussing before addressing the Deepwater Program is USCG – Navy relations. From its earliest days, the Coast Guard has served as naval augmentation force. Clearly reacting to criticism suggesting that the Coast Guard is redundant with the Navy, *Coast Guard Publication 1* states that "far from being redundant, the Coast Guard and Navy instead provide resources that complement each other's roles and missions in order to meet the entire

---

[9] http://cgweb.comdt.uscg.mil/gopd/NAVGARD/navgard1.htm   Several sources has indicated that this memorandum was likely the result of Coast Guard initiative.

[10] Nevertheless, an article in *The Washington Post* recently claimed that current US Secretary of Defense Donald Rumsfeld "has all but decided to remove the US Coast Guard from participation in all future wars" (Mintz, John, and Vernon Loeb. 2003. Coast Guard Fights to Retain War Role: "Slack-Jawed" Over Criticism From Rumsfeld, Service Cites Its Battle Capabilities. *The Washington Post*, August 31, 2003, A7.). The Coast Guard dismissed the thought, citing its most recent involvement in Operation Iraqi Freedom in which it deployed 11 cutters and 1250 personnel and suggesting "Rumsfeld is dissatisfied with the fact that the Coast Guard is not accountable to the Defense Department"(Kime, Patricia. 2003. Adm. Keating Says Coast Guard was "Pivotal" Force. *Sea Power*, October 2003, 6-8.).

spectrum of America's maritime needs." Specific differences cited by the Coast Guard include

(a) law enforcement capabilities, (b) coastal, brown water abilities, (c) a less threatening

presence than the Navy, (d) a humanitarian reputation, and (e) specialized boarding and port

security capabilities. Further, the Coast Guard describes its military missions in terms that are

wholly unappealing to the Navy:

> *The Navy is ill-equipped and ill-experienced to sort maritime commerce.*
> ***Standoff weapons are of little value in that threat environment****, and even if the*
> *Navy learned to conduct this sorting effort, it would have to risk scarce and*
> *highly valuable assets. After the attack on the USS Cole, the Navy likely would*
> *not relish having to come alongside potential terrorists. In addition, militarizing*
> *transnational threats would give terrorists and drug traffickers a degree of*
> *legitimacy that would run counter to national policy. It is best to continue to use*
> *police and the law enforcement efforts of the Coast Guard against these threats.*
> *In addition, it would not make strategic sense to risk a high-end Aegis platform in*
> *the low-tech mission of contact sorting and boarding, and **the Navy's disdain for***
> ***smaller platforms makes it unlikely it would ever have the organizational***
> ***commitment to acquire, develop, and effectively deploy them*** *(emphasis added)*
> *(Sanial 2001).*

Thus, although the Coast Guard is potentially competitive with the Navy, it stresses its

complementary nature. The nature of the Navy – Coast Guard relationship was most clearly

articulated in the joint National Fleet Policy Statement issued on September 21, 1998 by both the

Navy and Coast Guard (Johnson and Loy 1998). The Statement summarizes the need for an

interoperable fleet and highlights several joint operations.[11] It also references Coast Guard

inadequacies with respect to communications, intelligence, surveillance, and detection

capabilities—capabilities that the Navy is able to provide. Lastly the concept of the National

Fleet centers around two main principles:

---

[11] Highlighted operations included Haiti-Cuba in 1993-1994, TWA Flight 800, UN embargo operations in the
Arabian Gulf, and clean up following the Exxon Valdez oil spill.

> First, the fleet is comprised of surface combatants and major cutters that are affordable, adaptable, interoperable, and with complementary capabilities. Second, whenever appropriate, the fleet is designed around common equipment and systems, and includes coordinated operational planning, training and logistics. The Navy's contribution will be highly capable multi-mission Navy surface combatants designed for the full spectrum of naval operations…The Coast Guard's contribution will be maritime security cutters, designed for peacetime and crisis-response Coast Guard missions and filling the requirement for relatively small, general purpose, shallow draft warships (Johnson and Loy 1998).

It is further noteworthy that the only comparable "peer groups" for the US Coast Guard, when compared on size and breadth, are other *naval* forces. The US Coast Guard currently operates 234 ships that are greater than sixty-five feet long, 149 of which are greater than one hundred feet long, 87 of which are greater than one hundred and fifty feet long, and 57 of which are greater than two hundred feet long. Further, the US Coast Guard currently has 15 vessels which are greater than three-hundred feet long. The size (and number) of these vessels indicates that the US Coast Guard is comparable to most international navies. The table below provides broader evidence that the US Coast Guard is best thought of as a naval force.

TABLE 3: Number of Surface Vessels by Length; US Coast Guard vs. Selected Navies

Organization	100' – 199'	200' – 299'	>300'	Total >100'
US Coast Guard	92	42	15	149
Turkish Navy	108	7	28	143
Indian Navy	31	30	25	86
Indonesian Navy	36	31	14	81
Egyptian Navy	43	5	10	58
Canadian Navy	12	0	15	27
Bangladesh Navy	21	0	5	26
Venezuelan Navy	6	3	11	20
South African Navy	15	0	0	15
Israeli Navy	3	10	1	14

Source: World Navies Today online database; accessed on November 24, 2003 via http://www.hazegray.org/worldnav/.
NOTE: Data excludes Auxiliary vessels.

Overview of the Deepwater Program

WPB 1331, USCG Rush
An Island Class Patrol Boat to be supplemented with a Fast Response Cutter
(Constructed 1989; Home Port: Honolulu, HI)

Overview of the Deepwater Program

The Coast Guard is faced with the stark reality that seven of the nine classes of deepwater ships will reach the end of their useful life in the next ten years. This impending retirement of most deepwater vessels garnered significant attention in the late 1990's. Before procurement of new assets began, however, the problems of the aging fleet were analyzed with the intention of devising a plan to rapidly modernize and update the Coast Guard.

The Capabilities, Technology, and Logistics Gaps

Coast Guard analysis of the aging fleet problem segmented current difficulties into three major gaps: a capabilities gap that puts Coast Guard assets at a disadvantage versus their targets, a technologies gap resulting in decreased automation of vessels and higher operating costs with lower efficiency, and a logistics gap that strains the Coast Guard maintenance system as it strives to support severely outdated systems and components. All three of these gaps also impose a very heavy burden on the Coast Guard's human resources, particularly through the continuing degradations in the quality of life and workplace (Anderson and Winterstine 2003).

The capabilities gap results in deepwater assets significantly underperforming when measured against their objectives. Most cutters do not have the sensors or speed necessary to detect, deter, or intercept drug smugglers in smaller, faster vessels. Most helicopters are too large to safely deploy on all but a few cutters. Finally, most deployed cutters and aircraft are unable to share real-time information or access key operational databases (Anderson et al. 1999).

Second, the age and resulting condition of many vessels have led to a technological gap. In addition to exacerbating the already problematic capabilities deficiencies, antiquated technology ultimately increases operating and maintenance costs. The lack of shipboard

automation magnifies the problem further: personnel costs account for approximately two-thirds

of the operating costs of a major deepwater cutter (Anderson et al. 1999). High personnel costs

are more surprising when contrasted with knowledge that many foreign navies operate vessels of

comparable size with half or less of the crew (Anderson et al. 1999)—a gap that causes serious

manpower allocation inefficiency. Instead of prosecuting missions, crew members spend time

physically looking (with binoculars) to detect and identify targets of interest.

Third, the aging of the deepwater fleet has placed a tremendous burden on the logistics

infrastructure, resulting in a major gap between fleet needs, actual capabilities, and mission

requirements. Many manufacturers of currently employed systems or components have canceled

production and support for their products, forcing the Coast Guard maintenance organization to

pillage junkyards, etc.:

> *For example, the main engines on the 210' class of cutters are only used by the Coast Guard and a South African railroad—the manufacturer has long since ceased production and support. Similarly, the gas turbine engines on the 378' cutter class are no longer in production and support is dwindling. As a result of maintenance challenges like these, the overall logistics effort demands more labor hours and increased maintenance costs, while cutter and aircraft operational availability decrease* (Anderson et al. 1999).

Budgetary Realism and Project Timing

As the Coast Guard considered its path to asset revitalization, the reality of budget

constraints was omnipresent. With Coast Guard acquisition budgets historically in the range of

$400 million to $700 million per year (for all three Coast Guard mission areas)[12], the Deepwater

Program's hefty price tag—approximately $300 million in year one followed by $500 million in

---

[12] While it is not meaningful to equate these numbers into an average number of boats delivered per year due to the multi-year nature of the acquisition project, it is nevertheless noteworthy that during the 1990's, approximately 2-3 surface vessels were delivered to the Coast Guard each year. It safe to assume that much of the yearly capital budget is spent on maintenance and upgrades of existing vessels.

each of the next nineteen years—called for an implementation plan that did not consume the entire acquisition budget in any one year—yet modernized the deepwater system as rapidly as possible (Gilbert and McGuffin 2002). This "budgetary realism" dictated that the project take place over a period approximately 20 years in length.

The Deepwater Program: a "System of Systems" Solution

Formally established in 1996, the Deepwater Program began as a project to organize a timely replacement of the assets needed to accomplish the Coast Guard's missions. The objective is to renovate, modernize, or replace the entire portfolio of deepwater assets with an integrated system of surface, air, C4ISR and logistics systems. The program's goal is to provide the Coast Guard with a deepwater asset system that yields maximum operational effectiveness at the lowest total cost of ownership. Through an emphasis on the interoperability of systems, the Deepwater Program is transforming the Coast Guard from a platform-centric to a network-centric service that obtains maximum leverage from its technology and assets.

The Coast Guard chose to pursue a "system of systems" approach in selecting a contractor to fulfill the mission needs. By emphasizing performance of the overall system, rather than that of any individual asset, Coast Guard leaders opted to identify mission performance specifications instead of specifying asset capability requirements. A single vendor was hired to develop a complete deepwater-mission-capable system. The Coast Guard is breaking tradition with regards to previous contracting mechanisms by seeking a complete, interoperable *system* (ships, aircraft, communications, logistics management systems, and all the links that connect them into a single functioning unit) rather than the piecemeal replacement of *assets* (individual ships or aircraft).

Before evaluating the ramifications of this difference, it is useful to summarize the history of the Deepwater effort from its inception through the present.[13]   The mid 1990's focused on an analysis of system needs. Documents such as the Mission Analysis Report and Mission Needs Statement were produced. The Deepwater program has two phases; Phase I focused on conceptual and functional design and Phase II focuses on implementation.

Three industry teams—led by Lockheed, Avondale, and SAIC—participated in Phase I. The RFP very clearly described the criteria by which the Phase II contractor would be selected: "The Government will award [the Phase II contract] to the Offeror whose proposal offers the best value in terms of Operational Effectiveness, Total Ownership Cost, Management Capability, and Technical Feasibility…" The Coast Guard also provided specifications in terms of "200 system-level capabilities, and [stated that] performance would be evaluated in terms of 66 Measures of Effectiveness across the Deepwater missions" (Gilbert and McGuffin 2002). Other information provided to the contractor teams included notional funding profiles ($300 million in year one followed by $500 million in years two through twenty; operational expense set under $1 billion per year).

On June 25, 2002, the Coast Guard awarded a joint Lockheed Martin – Northrop Grumman team called "Integrated Coast Guard Systems" (ICGS) the Phase II contract for implementation of their proposed system. The Coast Guard selected ICGS because "the team offered a superior solution, a strong management approach, a low-risk implementation strategy and an Open Business Model"[14] Particularly noteworthy was the last point regarding the "open business model," a term used by ICGS to describe the fact that they will manage over 100

---

[13] Unless otherwise noted, facts regarding the Deepwater Program were obtained from the Coast Guard's website (www.uscg.mil), the Deepwater Program website (www.uscg.mil/deepwater), and the Integrated Coast Guard Systems website (www.icgsdeepwater.com).
[14] See press release dated June 25, 2002, available via www.icgsdeepwater.com.

companies from 32 states, as well as four foreign nations—an approach ICGS claims will maximize competition and ensure the best value for the Coast Guard and US taxpayers throughout the life of the program.[15]

Legacy Upgrades, C4ISR Systems, New Assets, and Integrated Services

The actual solution which the ICGS team developed consisted of four main sections: legacy upgrades, C4ISR systems, new assets, and integrated services. The legacy upgrades are a means of bridging the timing gap between delivery of new assets and the obsolescence of existing assets; while the biggest element of the upgrade is a 15 service-life extension to the 49 existing 110' patrol boats (lengthening the boat to 123' with a stern ramp, new pilothouse, etc.), other upgrades include modifications to cutters, and technology additions to HH-65 helicopters and HC-130 aircraft (Gilbert and McGuffin 2002).

The C4ISR solution centers on interoperability, reliability, improved connectivity, and state-of-the-market detection, with an asset-independent modularity which should allow rapid and efficient technology upgrades over time. In addition, the C4ISR system will allow for equipment commonality across platforms to reduce maintenance and training requirements.

New surface assets will include the acquisition of 91 cutters (8 National Security Cutters, 25 Offshore Patrol Cutters, and 58 Fast Response Cutters), 42 Long Range Interceptors, and 82 Short Range Prosecutors. New aviation assets will include the acquisition of 35 Maritime Patrol Aircraft, 69 Vertical Take-off and landing UAVs, 34 Vertical Recovery and Surveillance Aircraft, 93 Multi-mission Cutter Helicopter, and 7 Global Hawk High Altitude Endurance UAV (Gilbert and McGuffin 2002). The table below summarizes the key characteristics of each of the

---

[15] www.icgsdeepwater.com

new cutter classes. Particularly noteworthy qualities include the length, the range, endurance, and weaponry of the vessels (this topic will be revisited later in the paper).

TABLE 4: The 91 New Cutters

Vessel	Length	Range	Endurance	Weaponry	Complements
National Security Cutter	425 feet	12,000 NM	60 Days	SeaRAM 57 MM .50 Caliber	– Long Range Interceptor – Short Range Prosecutor – VUAV / Helo Deployment
Offshore Patrol Cutter	341 feet	9,000 NM	45 Days *	Stabilized 30mm .50 Caliber	– Long Range Interceptor – Short Range Prosecutor – VUAV / Helo Deployment
Fast Response Cutter	130 feet	5,000 NM	7 Days	Stabilized 30mm .50 Caliber	– Short Range Prosecutor

* While the endurance of the Offshore Patrol Cutter is not publicly available yet, it is assumed that endurance will be slightly less than the National Security Cutter.

The integrated services component of the ICGS solution is intended to help the Coast Guard integrate deepwater and non-deepwater operations into a common operational management system. Key features are to include a Logistics Information Management System (LIMS) to integrate all logistics data (maintenance, training, personnel, supplies, etc.) regarding the Deepwater system with data from legacy systems, a Mission Capability Assessment System (MCAS) to provide operational readiness assessments of the forces to all commanders, and a training system based upon technology-enabled distance learning (Gilbert and McGuffin 2002).

Before turning to the subject of why the Coast Guard chose to pursue a systems approach with the Deepwater Program, the paper takes a brief detour to explore several theoretical considerations. The next section summarizes the differences between push vs. pull approaches to securing acquisition funding, Core Group theory, and the basics of systems theory. It describes the relevance of these three theoretical lenses to the Deepwater Program. The conclusion that a systems approach may not yield an objective optimized solution to a problem, but may very well may be optimal for the core group, leads the paper into its final section.

Theoretical Considerations:
A Brief Primer on the "Pull" Approach to Securing Funding, Core Group Theory, and Systems Thinking

WMEC 913, USCGC Mohawk
A Bear ("Famous") Class Medium Endurance Cutter to be replaced with an Offshore Patrol Cutter
(Constructed 1991; Home Port: Key West, FL)

Theoretical Considerations: A Brief Primer on the "Pull" Approach to Securing Funding, Core Group Theory, and Systems Thinking

This section of the paper provides a brief primer on some theoretical concepts that will be utilized in the argument. Specifically, it discusses three primary theoretical lenses through which to evaluate the decision to pursue a systems approach. With respect to external relations, this paper argues that the driving force behind decision making vis-à-vis the Deepwater Program was the "pull" approach to securing funding. Internally, the overriding dynamic affecting decision-making within the Coast Guard is the power of a high-status sub-community. Core Group Theory provides a valuable lens through which to decipher internal processes and the decisions resulting from them. Finally, the paper argues that both internal and external processes, jointly and in parallel, led to the systems approach. This section of the paper argues that the supposed objectivity of systems thinking is merely a costume covering an inherently social and political process. Thus, control of the "inputs" in any systems approach is effectively power to mandate the project's direction, albeit anointed with the legitimacy of systems objectivity.

<u>"Pull" vs. "Push" Approaches to Securing Funding</u>

There are two primary approaches that a government agency or department can use to secure funding for an acquisition project. Pull[16] funding, the first approach, involves the use of a third party to represent the agency/department's interests on Capitol Hill. A relatively recent article in *International Security* provided several interesting examples in which the politics of defense contracting influenced contractor incentives; for instance, "Bath [Ironworks], the biggest

---

[16] While it may seem backwards to refer to the organization's own efforts as "push" funding (after all, who's pushing the organization?), I nevertheless retain the logic of pushing as an organization's self promotion in an effort to be consistent with the organization's own descriptions of the phenomena.

employer in Maine, is essentially guaranteed at least one destroyer contract each year in perpetuity, providing an assured income stream to General Dynamics" (Gholz and Sapolsky 2000). While Gholz and Sapolsky were focused upon the impact of such politicking on defense industry efficiency, the logical conclusion of their argument is that the real beneficiary of the process is the Navy, which is, to use their language, "essentially guaranteed" at least one new destroyer each year.

By allowing the contractor to "pull" Navy needs through the appropriations process, the organization is saving valuable political capital for use on more pressing or urgent requests. Pull funding is the effective outsourcing of appropriations requests. It focuses upon the supply side of the acquisition process, allowing interested suppliers to lobby for and justify the needs of the organization in political terms. Pull funding allows the organization to align its interests with those of a sophisticated supplier who is motivated to achieve an outcome which is in the best interests of the organization. Thus, pull funding promotes the use of suppliers to fight the organization's funding and acquisition battles.

In contrast, push funding is an approach taken by government agencies or departments in which the organization attempts to secure appropriations through demand or need justifications. Because of the size and scale needed to attract the interests of large, sophisticated suppliers, push funding is an approach often undertaken by relatively small or weak organizations.[17] These organizations generally lack a "prize" that is attractive enough for a supplier to justify the expenditure of political capital to assure the appropriations. Push funding therefore puts the burden of justification squarely upon the organization's shoulders. This burden is particularly easy to overcome during times of increased or heightened threats but is almost insurmountable

---

[17] In the case of the Coast Guard, this would mean "relative to the Navy." Not only is the Coast Guard significantly smaller than the US Navy, it is also significantly weaker in terms of ability to garner resources, etc.

during a non-threatening period. Demand must be justified solely in terms of organization

needs—a process that often leads to debates about the organization's actual missions and the

connection between those missions and the claimed needs. The requesting organization is left on

the defensive, struggling to justify its existence and needs as watchdog organizations such as the

General Accounting Office question the organization's purpose and needs-development process.

Thus, it should not be shocking that pull funding tends to be more effective than push

funding as a means of securing appropriations for acquisition procurement. "Needs" are justified

with reference to a larger base of constituents than through push funding. In the case of Bath and

General Dynamics, politicians think of constituent jobs, the health of the defense industrial base,

forthcoming political contributions, and possibly even the strength of the US Navy.

This paper argues that inherent political uncertainty and objections from the Office of

Management and Budget (OMB) as well as the General Accounting Office (GAO) were external

factors that nudged the Coast Guard in the direction of pull funding. Further, the paper will

highlight the Coast Guard's previous struggles with push funding—specifically with relation to

the modernization and replacement of the Coastal Buoy Tender Fleet—and describe how senior

Coast Guard leaders oriented the acquisition process towards a pull model by using a systems

approach. The systems approach defined the problem in terms that allowed for a contract size

that was a "prize" of sufficient appeal to entice the interest of sophisticated, "Tier I" suppliers.

Core Group Theory and the Dynamics of Internal Status

A recent book entitled *Who Really Matters* (Kleiner 2003) provides a powerful

framework for evaluating how organizations operate. Kleiner, who has spent significant time

working with systems theorist Peter Senge, argues that every organization is best interpreted as

the sum of its decisions. Rather than interpret what organizations should be doing, "suppose instead that all organizations are doing precisely what they're supposed to be doing" (Kleiner 2003). Further, Kleiner goes on to describe how every organization has a

> *Core Group of key people—the 'people who really matter.' Every organization is continually acting to fulfill the perceived needs and priorities of its Core Group. It's sometime hard to see this, because the nature and makeup of that Core Group varies…and so do the mission statements and espoused purposes that get voiced to the rest of the world. But everything the organization might do…comes second... [Core Group members] are the central proprietors of [the organization's] interests. They usually include most, but not all, people at the top of the organization chart. Plus others. The Core Group members are the center of the organization's direction…The Core Group won't be named in any formal organization chart, contract, or constitution. It exists in people's hearts and minds. Its power is derived not from authority, but from legitimacy. Its influence is not always conscious, or even visibly apparent, but it is always present in the implementation of actual decisions.* (Kleiner 2003)

The Core Group is the internal community with highest status. It sets the organization's direction and establishes its agenda. Core Groups have what Kleiner calls an "integrated learning base,"[18] a base of knowledge specifically related to problem-solving techniques suited to the organization's environment. Thus, Core Groups dominate problem-solving by influencing the framing of the problem and the approaches used to solve the problem.

This paper will make the argument in the following section that the Coast Guard's Core Group is the deepwater community. Two pieces of evidence are provided: (a) officer concentration ratios, which serve as a proxy of the upwardly mobile sections of the organization, and (b) top leadership backgrounds. If the hypothesis that the Coast Guard's Core Group is the deepwater community is correct, and the evidence seems to suggest it is, then understanding the

---

[18] Kleiner is himself borrowing from Alfred Chandler in his use of the term "integrated learning base." In describing the concept, Kleiner also makes reference to Hamel and Prahalad's "core competence" and to Drucker's "comparative advantage" derived from making knowledge workers more productive.

choice of the systems approach is enhanced by understanding how the Deepwater community

benefits from such a decision.

Unmasking the Supposed Objectivity of Systems Thinking

The systems approach is characterized by an all-encompassing method that factors in the

effect of any one change upon all other elements of the system. Simon Ramo, the "R" in defense

contractor TRW and a proponent of systems thinking, summarized the systems approach in his

1969 book *Cure for Chaos: Fresh Solutions to Social Problems through the Systems Approach*:

> *In the systems approach, concentration is on the analysis and design of the whole,
> as distinct from the analysis and design of the components or the parts. It is an
> approach that insists upon looking at a problem in its entirety, taking into account
> all the facets, all the intertwined parameters. It is a process for understanding how
> they interact with one another and how these factors can be brought into proper
> relationship for the optimum solution to the problem…As the end result, the
> approach seeks to work out a detailed description of a specified combination of
> men and machines—with such concomitant assignment of function, designated use
> of materiel, and pattern of information flow that the whole system represents a
> compatible, optimum, interconnected ensemble for achieving the performance
> desired* (Ramo 1969).

While Ramo documents the supposedly-analytic rigor that accompanies the systems approach,

others have criticized this thinking, noting inherent limitations Economists have argued that a

systems approach allows for efficient, objective tradeoffs between time, cost and quality: "A

formal criterion for optimal tradeoff decisions is that the quality increasing features should be

employed up to but not beyond the point where the cost of the last quality increment equals the

additional expected military value afforded by the instrument" (Peck and Scherer 1962). These

same scholars have also noted that this seemingly easy task is in reality quite difficult to

implement: "Of course, this rule is difficult to apply in practice" (Peck and Scherer 1962).

Both Stephen Rosen and Harvey Sapolsky note several potential pitfalls resulting from a "system of systems" approach to weapons acquisition; Rosen focuses upon tactical implementation limitations that lead to suboptimal decisions, and Sapolsky believes the end-goal of the approach is unachievable. Rosen's belief in inherent implementation limitations derives from a posited inability to quantify all elements of the system, thus inhibiting the objectivity of tradeoff decisions made through a systems approach. Further, Rosen argues that this false sense of objectivity through quantification results in an overweighting of characteristics that can be quantified, at the expense of those that cannot. "This potential error, which is acknowledged by systems analysts, is built into the system…" (Rosen 1984).

Sapolsky's concerns are broader. While Rosen might believe that a systems approach could work if good metrics and quantifiable scales were developed for all elements of the system, Sapolsky does not believe that one can even know all elements of the system. A true understanding of entire systems can never be achieved, and the inevitably partial view of the system is often justification for more intense systems thinking (Sapolsky 2004 (forthcoming)), resulting in an ever encroaching and ultimately futile attempt to include every element of the elusive "system." The stated objective of the systems approach is simply unobtainable due to this inherent inability to include all elements.

The relevance of the systems approach and of criticisms to the Deepwater program is straightforward. A systems view allows the Deepwater program to include more than mere assets in its domain of applicability—the system includes people, training processes, equipment, maintenance procedures, legacy systems (for interoperability), and upgrade capabilities. Sapolsky's point is clear: defining the borders of a system is a tricky process. Should the Deepwater system include the naval assets of current alliance partners with whom the Coast

Guard may be working in the future?[19] The answer to the question of where to set the system

boundaries is not determined objectively; rather, hierarchical status and political processes are at

the center of the effort to set borders.

Quantification of the relevant tradeoffs is particularly difficult to accomplish accurately.

The Coast Guard's attempt to do so yielded the above mentioned set of 200 operational metrics

and 60 performance measurements; implicit in any analysis of tradeoffs is that these metrics have

particular weightings—weightings set through a social process. Once again, the seemingly

objective approach is likely driven by political and hierarchical considerations.

Thus, the systems approach ultimately yields an inequitable balancing of tradeoffs vis-à-

vis overall objectives. Either one makes comparisons among non-comparable metrics or one

fails to include all metrics. An objective optimum does not exist. The inability to quantify social

and political considerations yields subjective solutions that, although not optimal in a global

sense, may be optimal in a local sense. Perhaps the architects of the system's boundaries have

objectives that benefit from a framing of the problem in systems terms. They determine the

metrics and control the system's boundaries. In the end, the systems approach is merely a

political process clothed in objective metrics that allegedly ensure an "analytically" derived

"optimal" solution.

The rest of the paper applies the three theoretical lenses discussed above to the

Deepwater Program. The ultimate aim remains the same: namely, to answer why the Coast

Guard chose to pursue the deepwater asset replacement program utilizing a systems approach.

First, the push vs. pull approach to securing funding is utilized as a lens through which to

analyze the Coast Guard's relations with other entities (external relations). Next, the core group

---

[19] While this point is raised primarily for illustrative purposes to demonstrate the incessant tendency for broader definition of the system, the paper will later address the issue of foreign alliance vessels directly.

theory is applied both within the Coast Guard (internal relations) as well as across the Coast Guard's universe of competitor and peer organizations (external relations). Finally, the systems thinking lens is utilized to evaluate the outcome as well as how it interacts with both internal and external dynamics. The table below summarizes how each "lens" will be applied at a different level in the following section of the paper.

TABLE 5: Summary of Theoretical Lenses and Area of Application

Theoretical Lens	Locus of Application	Notes / Considerations
Push vs. Pull Approaches to Securing Funding	**EXTERNAL DYNAMICS** (Coast Guard interactions with other organizations)	– Push funding as likely among smaller organizations – Pull funding as more effective politically – Coast Guard emphasis on migrating to pull funding
Core Group Theory	**INTERNAL DYNAMICS** (interactions between various Coast Guard groups)	– Core Group as dominant, highest status group – Core Group approach to problem-solving – Coast Guard Core Group = Deepwater Community
Core Group Theory	**EXTERNAL DYNAMICS** (Coast Guard interactions with other government agencies)	– Core Group as dominant, highest status group – Core Group approach to problem-solving – Coast Guard as NOT the core group
Systems Thinking	**OUTPUT / OUTCOME** (the result of internal and external dynamics)	– Systems Thinking as inherently limited – Supposed objectivity is actually political process – Systems approach as logical output of politics

The Deepwater Program: Mission Based ~~Contracting~~ Transformation

WHEC 723, USCGC Rush
A Hamilton Class High Endurance Cutter to be replaced with a National Security Cutter
(Constructed 1969; Home Port: Honolulu, HI)

The Deepwater Program: Mission Based ~~Contracting~~ Transformation

If a systems approach to contracting is actually a political process shrouded in supposed objectivity, what social and political factors explain the adoption of the Deepwater program as a systems integration project? This section attempts to answer this question by evaluating parallel developments in the Coast Guard's external relationships as well as within the Coast Guard. It then goes on to evaluate how these status dynamics led to the adoption of the systems approach for the Deepwater Program.

From an external perspective, the Coast Guard suffered from not being a core group within the Department of Transportation (DOT) and as such, found itself constantly struggling against other DOT objectives. Coast Guard experiences with securing funding were primarily push approaches, and were plagued by OMB and GAO criticisms. In particular, the relatively recent replacement of the Coast Guard's buoy tender fleet left an indelible mark on senior Coast Guard leaders, a mark that greatly influenced decisions related to the deepwater asset recapitalization plan. Specifically, the buoy tender experience led the Coast Guard to adopt a pull funding approach. This pull funding approach was supported—albeit incidentally and unintentionally—by watchdog objections and political uncertainty. Further, these factors combined into a powerful motivation for adoption of a systems approach.

External status pressures that led the Coast Guard to pursue a pull funding approach with a Tier I supplier pointed the Deepwater Program towards a systems approach—which further strengthened the pull approach. This sequence of events was then reinforced by the unintentional growth of the program's scope in response to OMB and GAO concerns, creating a self-perpetuating political process that rapidly and inevitably marched towards the current Deepwater Program.

Treating the Coast Guard solely as a unitary actor obscures dynamics underlying the Deepwater Program; as such, the second portion of this section evaluates internal hierarchical relationships within the Coast Guard. It finds—through analysis of officer concentration ratios, leadership backgrounds, and the relative "downside" of missions—that the deepwater community is most likely the organization's core group. Further, Coast Guard doctrine (as described above) retained a heavy emphasis upon the organization's military character, both because of and in support of the deepwater group's dominance. This heavily military character of the organization led to the increased importance of interoperability (National Fleet) with the US Navy—thereby necessitating and further suggesting a systems approach. Thus, core group dynamics internal to the Coast Guard led to framing the deepwater asset modernization problem in terms most beneficial to the deepwater community.

Internal status hierarchies allowed the deepwater community—the embodiment of the Coast Guard's military character—to develop stronger ties with the Navy, thereby further solidifying its presence at the top of the internal Coast Guard hierarchy. Through a strong affiliation with the Navy, Deepwater Coast Guardsmen were able to justify—despite being leaders of the entire Coast Guard organization—the disproportionate focus on deepwater and military activities. This necessarily involved creating an interoperable communications system, a task facilitated through the systems approach. Further, achievement of the deepwater asset recapitalization program reasserted, strengthened, and solidified the deepwater community's internal status. Thus, insofar as the recapitalization effort needed the systems approach to accomplish its goal, the deepwater community promoted the systems approach. After all, anything that increased the status of the Coast Guard or of the deepwater community was ultimately in their best interests.
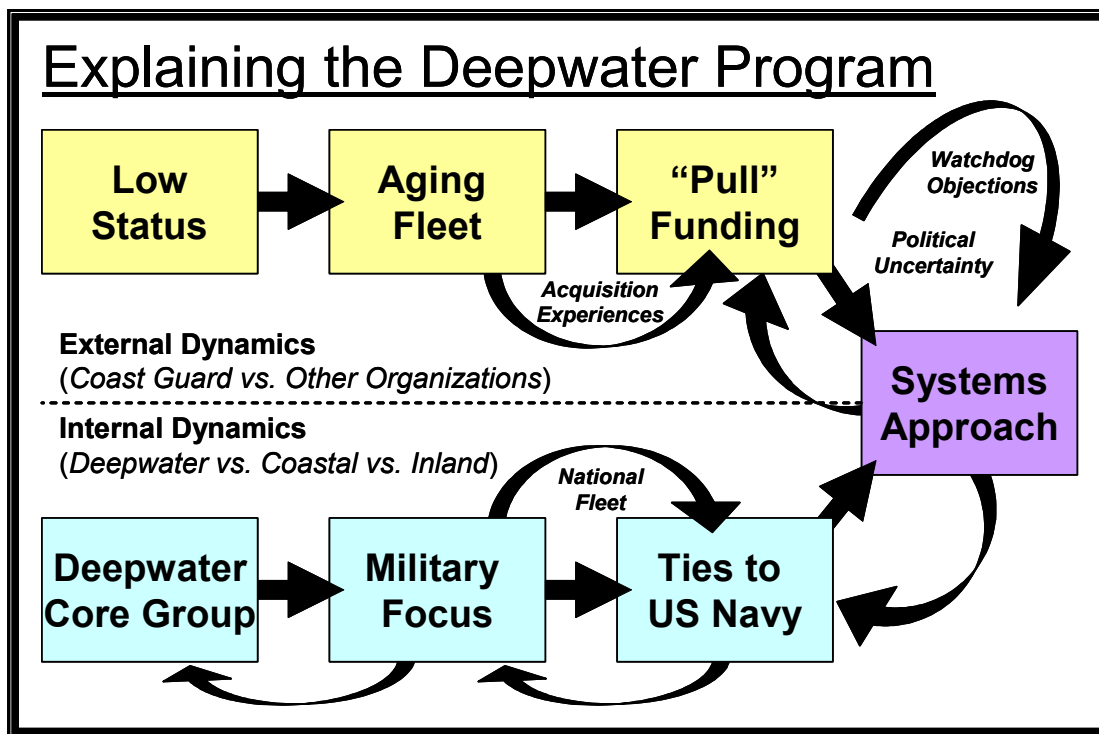
Given the inherent limitations of a systems approach discussed above, a key determinant—and later measure—of effective procurement through a systems design is the framing of the problem. How the problem is described, what objectives are set, and which metrics are chosen for performance evaluation are all essentially political processes and often imply particular solutions. As discussed earlier, an objective optimum simply does not exist. If problem descriptions imply solutions, and solutions favor some goals at the expense of others, then the group articulating the project goals sets those requirements to achieve its own priorities. Such is the case with the deepwater community's involvement in describing Deepwater Program requirements.

Thus, the framing of Deepwater Program requirements merits attention. This subsection focuses on four key project requirements/problem descriptions that illustrate deepwater community efforts to intentionally frame the problem—and imply a solution—that meets the community's own status increasing goals. First, the emphasis on a National Fleet articulates the need for deepwater assets more like those of the Navy. It allows for disproportionate resource allocation in favor of core group objectives. Second, framing the modernization requirements with a need for interoperability with other organizations directly favors Coast Guard objectives versus other organizations; for instance, by becoming an important communications and relationship link between US military command and control and foreign navies, the Coast Guard could assure a role for itself in future multilateral missions. Describing the budgetary and economic problems in terms of potential foreign markets for deepwater assets furthers interoperability objectives. Third, the articulation of a need to "push out the borders" in maritime homeland security missions helps the deepwater community to garner resources and alter its mission mix. Finally, problem-framing has helped the Coast Guard with regards to its

human resource objectives, thereby helping it compete against other organizations for scarce human resources.

In short, this section seeks to explain why the Coast Guard made such a big leap by utilizing a systems integrator for legacy, current and future assets and interoperability systems. It explores the dramatic effect of problem framing upon implied solutions, with specific and separate evaluations from both internal and external perspectives. The figure below summarizes the paper's key findings.

FIGURE 1: Status Dynamics Driving the Systems Approach

External Dynamics: "Pulling" towards a Systems Approach

The Coast Guard has one primary objective when interacting with external organizations: to achieve autonomy and freedom from constraints (budgetary or otherwise) imposed by others. The desire for autonomy is not unique to the Coast Guard. James Q. Wilson has noted the importance of "turf" in most bureaucracies, and has described how organizations would rather

have fewer resources that they control than lots of resources that another party controls. Control

and autonomy are constant bureaucratic goals (Wilson 1989).

Given its mix of law enforcement and military missions, many see the Coast Guard as

less pure than any of the military services. The Coast Guard suffers due to this perception and its

multi-mission character often results in the organization "falling between the cracks" from a

management attention perspective. Prior to September 11th, no one mission that the Coast Guard

regularly conducted captured consistent attention from leadership within the Department of

Transportation. Competitor organizations such as the Federal Highway Administration, Federal

Aviation Administration, and even the Federal Railway Administration provided services that

had a more direct, attributable, and noticeable impact upon constituents.

Within the Department of Transportation, the Coast Guard is not a core group. With few

exceptions, Coast Guard services go unnoticed (unless they fail) and the value of these services

is not readily obvious to those not directly affected (i.e. fisherman, etc.). The multi-mission

character of the Coast Guard complicates its status, leaving it no obvious organizational home,

and leaving it clearly outside of the core group in its parent organization.[20] The core group status

---

[20] It is curious to note that the Coast Guard was founded during a failed attempt to dismantle it. This lack of direct connection to any one organization dates back to 1915, when Frederick Cleveland was appointed by President William Taft to lead a commission ("The Cleveland Commission") to recommend ways to improve the efficiency of government. Among the Cleveland Commision's findings were a recommendation to disband the Revenue Cutter Service by "apportioning the duties and assets of the multifunctional RCS among other government agencies and departments," (Loy, James M. 2002. Coast Guard Publication 1; US Coast Guard: America's Maritime Guardian. Washington, DC: US Coast Guard.), and transferring all military capable cutters to the US Navy. Secretary of Commerce and Labor Charles Nagel spoke out against these recommendations and was adamant that the new service not reside within the Navy. While the Navy appeared willing to accept the RCS cutters (to supplement its small fleet of shallow-water vessels), it did not want to absorb RCS personnel. Secretary of the Navy George Meyer wrote: "It is true that the chief functions of the Revenue Cutter Service can be performed by the Navy, but this cannot be done as stated in the Cleveland Report…All duties that interfere with the training of personnel for war are irregular and…detrimental to the efficiency of the fleet" (Johnson, Robert Erwin. 1987. *Guardians of the Sea*. Annapolis, MD: US Naval Institute Press.). This sentiment was echoed by Treasury Secretary Franklin McVeigh, who noted that the Navy "could never give the kind and degree of attention that is required of the Revenue Cutter Service and its officers and men…The work is alien to the work of the Navy, alien to the spirit of the Navy, and alien, I think, to its professional capabilities and instincts, alien certainly to its training and tastes" (King, Irving. 1996. *The Coast Guard Expands 1865-1915: New Roles, New Frontiers*. Annapolis, MD: US Naval Institute Press.). Ultimately, President Wilson formed the Coast Guard by combining the RCS with the Life Saving Service.

---

dynamics are a direct reflection of the political pressures felt by Congressmen and Senators via their constituents. Spending DOT budgetary allocations on new and improved roads allows Congressmen and Senators to provide demonstrable proof of efficacy in "bringing home the bacon," while allocating DOT dollars for Coast Guard purposes only makes a small number of constituents happy.[21]

Being a non-core group armed service competing with the core group for limited resources is not an ideal situation. It has led to many problems, most notably with respect to funding personnel entitlements and management attention. For example, the National Defense Authorization Act passed by Congress in 2000 authorized an increase in pay and medical benefits for all armed forces personnel. Although these authorizations applied to Coast Guard personnel, Congress only appropriated funds to the Department of Defense. The Department of Transportation, in turn, did not authorize funds to fulfill this Coast Guard obligation, and Coast Guard leaders struggled to "make ends meet." The result: readiness dropped by 20% as funds were reallocated away from maintenance and shore facilities to fund human resource obligations.

In a prescient commentary in the *US Naval Institute Proceedings*[22] in July 2001, Vice Admiral Howard Thorsen[23] noted the problematic nature of the Coast Guard's position within the Transportation department and suggested that the Coast Guard be moved to a new department. He noted that the Department of Transportation is primarily focused on the

---

[21] There are inevitably constituents that would be made extremely happy by increasing Coast Guard budgets; namely, communities with large populations of fishermen, or recurring or large waterborne alien migration problems, etc. Thus, it is fairly clear and transparent that Alaska and Florida may in fact have constituents that would find utility in increased Coast Guard expenditures. It is noteworthy, however, that these same communities would also benefit and derive increased happiness from new and improved roads.

[22] The *US Naval Institute Proceeding* is believed by many to be a venue through which the Coast Guard communicates its thinking to leaders of the Navy and Congress.

[23] Thorsen, a retired naval aviator who was commander of the Atlantic area, is currently a Senior Fellow at the Center for Naval Analysis.

"resolution of thorny air, rail, and highway transportation problems."[24] Coast Guard work is

taken for granted, and apart from bolstering employee totals, the organization is basically

unrepresented within Transportation. Thorsen was explicitly attempting to alter the Coast

Guard's core group status by changing its immediate home to one in which it would either be the

core group or be closely aligned with the core group. Thorsen's commentary suggested that only

a large catastrophe would "prove" the long-standing inadequacy of Coast Guard budgets. In a

tone of resigned dejection, Thorsen concluded that "for a host of political reasons, such a

sweeping organizational change[25] is unlikely to occur…for now we can only hope for

improvement of the Coast Guard's lot in Transportation" (Thorsen 2001b).

September 11th, despite the tragedy inflicted on the nation, dramatically helped the Coast

Guard in its quest for autonomy and self-control. The formation of the Department of Homeland

Security (DHS) provided the Service with a new home in which the Coast Guard was no longer a

"fringe" player—it is arguably *the* core group within the DHS. (Note that the move to a newly

created DHS is likely to be better than a Coast Guard move to the Department of Defense.

Moving the Coast Guard to the DOD would not improve its core group status in any way, but the

move to DHS provides the possibility of core group status improvement.) Further, the Coast

Guard managed to surround itself with lower status organizations such as the Customs Service

and Border Patrol and placed itself as the leader of the maritime homeland security effort.

Reasons cited by the Coast Guard as to why it should lead this effort included the fact that "the

Coast Guard has the national command-and-control capability, experience and support

infrastructure to assimilate and coordinate the resources and people of other organizations"

---

[24] Regardless of how these "thorny problems" are resolved, the solution inevitably involves sending money back to the home states of the Congressmen and Senators involved with the appropriation/allocation process.
[25] He is referencing the formation of a National Homeland Security Agency as recommended by the Hart-Rudman Commission.

(Mizell and DiRenzo 2003), as well as strong links to the Navy. Thus, we can see how solidifying ties to the Navy and developing modern C4ISR capabilities (a key part of the system of system approach) has helped increase the Coast Guard's status vis-à-vis other organizations. Two other issues merit attention with respect to the Coast Guard's external status: (a) its experience with the buoy tender replacement project, and (b) the nature of its interactions with the Office of Management and Budget (OMB) and the General Accounting Office (GAO).

According to retired USCG Captain Timothy Terriberry, "the single most influential event that affected the outlook and mindset of senior Coast Guard personnel at the time the Deepwater Project began was the then-recent replacement of the buoy tender fleet" (Terriberry 2003). Retired USCG Captain Jack McDaniel echoed the same sentiment, stating that "Kramek, Loy, Collins, and Allen were all tasting the bitterness of the buoy tender replacement experience…" (McDaniel 2003).[26] That experience demonstrated to the senior leadership the problems with push approaches to funding. According to then-Commandant of the Coast Guard Paul Yost's testimony at a Congressional hearing, most of the buoy tenders had been in operation for over 50 years, well beyond their useful lives;[27] replacement was expected to cost around $1 billion (DiBennedetto 1990). Nevertheless, despite the seemingly obvious need to replace the 26 buoy tenders, the Coast Guard met fierce resistance from the General Accounting Office,[28] and by 1992, the replacement project had been pared back to a $200 million project to replace 11 coastal buoy tenders (DiBennedetto 1992). Further, the General Accounting Office issued a May

---

[26] Kramek and Loy are former Commandants of the Coast Guard; Collins is current Commandant of the Coast Guard, and Vice Admiral Thad Allen is current Coast Guard Chief of Staff.

[27] The obvious need to replace the assets was highlighted by the 1990 grounding and total loss of the buoy tender Mesquite. The Mesquite was marking a reef on Lake Superior, an area normally covered by another vessel which was then out for maintenance reasons. The lack of familiarity with the operating environment and the constant juggling of coverage assignments resulted in decreased operational effectiveness as a direct result of asset aging, increased maintenance requirements, and the inability of the Coast Guard to secure replacement funding.

[28] The reader should note that the General Accounting Office is itself a weak organization that usually has little influence on political processes. However, although they may be unable to affect decisions regarding strong organizations, they did manage to have an effect upon the Coast Guard (another weak organization).

1992 report entitled "Coast Guard Coastal Buoy Tender Project Did Not Follow Federal Guidelines" (Mead 1992), citing that the Coast Guard did not "fully consider" all options. This experience left many senior leaders acutely aware of their organization's status with respect to other organizations. It generated sensitivity to the push approach to acquisition funding, and instilled a sense of urgency for pull funding. The impact upon the structuring of the Deepwater Program will be explicitly discussed later in this section.

According to interviews with several senior Coast Guard personnel (Allen 2003; McDaniel 2003; Stillman 2003a; Terriberry 2003), the deepwater project was constructed with the lessons of the buoy tender experience in mind. In particular, the organization's pull approach to securing funding and the systems approach were in large part due to buoy tender experience. The Coast Guard identified, through its buoy tender experience, the need to get pulled through the system—one way to do that was to increase the contract size by utilizing a systems approach:

> *We saw how the GAO took away [the mandate for] funding for the buoy tender fleet and were greatly concerned about a similar event with the deepwater assets. So, all of us in Acquisitions and the senior leaders took a look around to see who dealt with procurement uncertainty most effectively. The DOD "pull" model immediately struck us as the one to mimic. By "pull" I mean that instead of trying to push through a request for new boats and the funding to get them, instead go out and get powerful contractors to pull you through the system. We at the Coast Guard had traditionally dealt with Tier II suppliers, the Bollingers of the world. Although these firms were highly astute and very capable political entities with excellent products, their influence on the Hill was limited. So we went about figuring out a way to get a large enough contract so that we could get pulled through the system. We began with replacement parts, went to replacement assets, and ended up with a replacement system. There's nothing like a world class systems integrator to help you get funding.*[29]

The other event that remains noteworthy is the Coast Guard's interaction with both the OMB and GAO with respect to the Deepwater Program. According to Vice Admiral Thad

---

[29] The source of this information was a senior Coast Guard official who asked to remain anonymous. He is specifically not mentioned within this paper; for further clarification, please consult the author of this paper.

Allen, thought by many to be the main architect of the Deepwater Program, the OMB was "up in arms" about the prospect of giving up control of future budgetary decisions to a multi-year funding to the Coast Guard; "in fact, it led them to question whether we even needed a Coast Guard at all" (Allen 2003). Eventually, OMB authorized in 1997 the initial Phase I funding amount (~$30 million) contingent upon an Interagency Task Force report on Coast Guard Roles and Missions evaluating the Coast Guard's purpose. The report endorsed the Coast Guard as necessary and needed, thereby allowing funding for Phase I to proceed as promised.

While the report was being written, however, the GAO issued a report entitled "Deepwater's Project Justification and Affordability Need to Be Addressed More Thoroughly" (Anderson 1998) that concluded "expenditures for the project would take virtually all of the Coast Guard's projected spending for all capital projects…" In direct reaction to this issue, notes Allen, the decision was made to include legacy and current assets in the project (Allen 2003). Then, due to budgetary pressures, the Coast Guard was informed that all of the money would not be available right away but would rather flow in over 20 years or so. Given this extended timeline, "we just included everything and asked for that funding." Thus, there is sufficient evidence to note that the Coast Guard's relatively low status with respect to other organizations was cause for concern vis-à-vis funding. Watchdog organizations habitually objected, securing funding was always a battle, and the political uncertainty was incessant. Amidst this acquisition environment, the Coast Guard's migration to a pull funding approach to acquisition finance is completely understandable.

The manner in which senior Coast Guard leaders framed the deepwater asset modernization problem is also reflective of external status dynamics and implies a solution that is in the best interests of the Coast Guard vis-à-vis other organizations. In particular, two

framing approaches achieve this objective: (a) describing the problem in terms of Coast Guard interoperability with the US Navy as well as with other nations, and (b) improving onboard habitability as a means to ease recruiting challenges and assist in the search for young talent.

Interoperability: A Means to Escape Organizational Oblivion

The framing of Deepwater (even prior to September 11th) focused on giving the Coast Guard leverage in working with agencies outside of the Transportation department. The constant stress on "interoperability" provides the strongest evidence of this objective. The Service was acutely aware of the fact that its existence in the Transportation department "did not impose a need for interoperability with, between, and among the stovepipe responsibilities of the other [Transportation] agencies" (Gaughan 2003). In addition, the specifications for the program included a requirement of "interoperability of future Coast Guard assets with the assets of the nation's other armed services [to] allow the synergistic sharing of information and the more efficient coordination of effective responses" (Stillman 2002a). Such a requirement does more to connect the Coast Guard with agencies in other departments than it does to connect the Coast Guard with the federal highway, aviation, or railroad agencies.

The holy grail of interoperability for the Coast Guard, however, is its relationship with the US Navy. By strengthening its ties to the US Navy, the Coast Guard is more likely to be called into service to assist the US Navy. A primary means through which the Coast Guard has attempted to connect itself with the US Navy is the "National Fleet" concept. The National Fleet is discussed in greater depth below (see page 53).

Another element of Deepwater problem-framing that demonstrates the desire to transform its mission mix through greater interoperability is foreign military sales of deepwater assets. Couched in a language of "strengthening critical US industries", "reducing the federal trade

deficit", and "driving down unit costs," foreign sales for the Deepwater system of systems are seen as beneficial. While such logic was likely a part of the Coast Guard effort to lobby/market the Deepwater Program, phrasing foreign military sales in economic terms captured some attention, particularly in the pre-September 11th time period. Countries that have expressed interest include Argentina, Australia, Belgium, Brazil, Canada, Chile, Egypt, Finland, Greece, Israel, Italy, Japan, Kuwait, Norway, Philippines, Saudi Arabia, South Africa, Thailand, Turkey, the United Arab Emirates, and the United Kingdom (Giddens 2001). Trade shows have been held in South Africa, France and Chile to develop further interest (Kennedy 2002). The real winner of foreign Deepwater asset sales, however, is the Coast Guard deepwater community as such sales lead to "a new level of interoperability between the Coast Guard and the foreign navies and coast guards around the world" (Giddens 2001).

Habitability Improvement for Human Resource Success

Coast Guard difficulties with recruiting stem from "competition with each of the military services as well as private industry" (Thorsen 1997) and had escalated by 1999 to the point that Commandant Loy declared that his number one priority was to restore workforce morale, capabilities, and performance before the end of 2000 (Thorsen 2001a). While it is true that the Coast Guard was competing with the technology boom (and the accompanying stock option grants) of the late 1990's for scarce human resources, the impact of economic conditions must not be overstated. The technology "bust" that immediately followed the boom did not help Coast Guard recruiting efforts. As recently as 2002, with national unemployment on the rise and jobs tough to come by, Commandant Collins declared human resources as "my top priority and perhaps our greatest challenge" (Collins 2002).

In addition to framing the Deepwater problem to facilitate Coast Guard interests with respect to competing organizations, the problem articulation greatly assisted the human resource effort. The Deepwater Program has helped recruiting in several direct ways. First, it creates a more military oriented organization, thereby addressing its primary recruiting competitor with a similar offering. Second, the high-tech C4ISR systems in the Deepwater Program allow the recruiting effort to "sell" skills that are employable in realms beyond the Coast Guard. Third, the improvement in vessel habitability[30] may increase retention, thereby reducing pressure on the recruiting staff to replace departed Guardsmen. Fourth, by achieving interoperability and interconnected experiences for Coast Guardsmen, the Deepwater Program helps provide a more fulfilling and exciting mission to both current and future employees. Finally, the infusion of funds resulting from September 11th, as well as the additional resources made available to the Coast Guard from its entry into DHS, allows the Coast Guard to fulfill personnel entitlements without decreasing operational readiness.

Internal Dynamics: Solidifying Internal Status through External Interoperability

Internal hierarchical and status relationships are particularly difficult for outsiders to gauge, but officer concentration and leadership background evaluations provide useful proxies for gauging status. Given that future leaders of the Coast Guard do not generally emerge from its enlisted ranks, officer concentration is a metric that captures internal status and reflects "upwardly mobile" groups within the organization. Groups with high officer concentrations are probably thought of as more important and likely have greater status and higher internal ranking than those with lower officer concentrations.

---

[30] "The Integrated Deepwater System approach allows us to address personnel issues from the deckplates up, improving and protecting the quality of life of our men and women…" For more information on Deepwater and human factors engineering efforts, see Stillman, Patrick M. 2002c. Human Factors Play Major Role in Deepwater Design. *Deepwater News*, February 2002.

Another means by which to measure status is through an evaluation of leadership

biographies. By evaluating the backgrounds (with special attention to educational and

professional experiences), one is able to detect the rise and fall of particular groups within the

organization as their success is manifested in leadership positions.[31] Although leadership

backgrounds provide limited insight into hierarchical relationships in that under-representation of

a group among the leaders of an organization may not represent low status, a group with over-

representation in the leadership is a relatively accurate proxy for high status.

The officer concentration in the Life Saving Service ("LSS"), a predominantly coastal

and inland operation focused on search and rescue, is an excellent example demonstrating the

hierarchical relationships within the Coast Guard. An article in the *US Naval Institute*

Proceedings begins with the stark reality that the LSS has been neglected as a group within the

Coast Guard for the past 85+ years (Goward 1999). After then providing a litany of reasons

(national priorities shifting to more economically sensitive areas such as fishing, concern over

drug flows, and controlling illegal migrant flows) that may explain why the LSS has been losing

ground, the article ultimately concedes that internal status is the likely cause: "the progressive

deterioration…has nothing to do with national trends or values. This core function [LSS]…has

suffered because it is, essentially, an enlisted operation competing for resources, management,

and senior leadership attention in an officer-dominated organization" (Goward 1999). The LSS

is a non-core, low-status (relative to the deepwater group) community within the Coast Guard

The officer concentration difference between the Coast Guard as a whole and the LSS, a

typical non-deepwater community, demonstrates the stark status difference. Despite often

serving as the public face of the Coast Guard, LSS groups and stations (primarily at coastal or

---

[31] For a good example of such methods, see Worden, Michael. 2002. *The Rise of the Fighter Generals: The Problem of Air Force Leadership 1945-1982*. Honolulu, HI: University Press of the Pacific.

inland waterways) receive limited management attention, a fact made explicitly clear by the officer concentration ratio (enlisted to officer) of 3.8%, implying one officer for every 25 enlisted men/women. This metric compares with an overall Coast Guard officer concentration ratio of 20%, one officer for every 4 enlisted men/women (Goward 1999).

This difference is real and very serious; officers generally train on cutters and most enlisted men stay on land (or near the coast). Those who begin their Coast Guard careers working in coastal operations have a very small chance of reaching the top. Further, those with the capability to excel and reach the top do not enter coastal operations—the lack of a career path prevents those who enter the LSS from developing into Coast Guard leaders. This is a structural relationship, imbued with status relationships. It is not surprising that Goward also notes that "the situation has existed, persisted, and in many ways, worsened" for the past 85 years.

The difference in status is made even more profound when one considers the relative "upside" and "downside" from conducting various missions. 1997 provides an excellent example. Coast Guard statistics for the year were quite impressive: on an "average day," the Service conducted 142 search and rescue missions, saved 12 lives, seized drugs with a street value of approximately $8.4 million, interdicted 22 illegal immigrants, and responded to dozens of oil or hazardous chemical spills. All of these accomplishments are forgotten when a single search and rescue watchman fails in his duty: "In the early hours of December 29, 1997…the 34-foot sailboat Morning Dew struck a submerged jetty and began to sink in less than 20 feet of water…the lone Coast Guard watchman on duty that night, a 23 year old, never heard their mayday call and…only heard 'US Coast Guard'…all four aboard Morning Dew drowned" (Halliman 2001). Success in the search and rescue effort generally goes unnoticed; failures earn

front page headlines. It is easy to see why the Coast Guard views such missions that are "downside" heavy as less desirable.

An evaluation of leadership background confirms this fact and provides evidence that those with deepwater experience tend to dominate Coast Guard leadership. To begin, every single commandant since 1949 has been a graduate of the Coast Guard Academy. Every single one of them also began their operations experience aboard a big ship, usually a deepwater cutter. Most commandants also have had careers that have either included or been dominated by military operations. Almost all have had substantial experience alongside Navy vessels, usually in deepwater settings such as military patrols, sanctions enforcement, or during actual military conflict operations. The table below summarizes the backgrounds of every commandant of the Coast Guard from 1911 to the present:

TABLE 6: Commandant Backgrounds

Commandant	Dates	Education	Early Operational Experience
Adm. Thomas Collins	2002 -	CG Academy	Deepwater cutter VIGILANT
Adm. James Loy	1998-2002	CG Academy	Deepwater cutter VALIANT
Adm. Robert Kramek	1994-1998	CG Academy	Deepwater cutter MIDGETT
Adm. William Kime	1990-1994	CG Academy	Deepwater cutter CASCO
Adm. Paul Yost	1986-1990	CG Academy	Deepwater cutter RESOLUTE
Adm. James Gracey	1982-1986	CG Academy	Deepwater cutter BARATARIA
Adm. John Hayes	1978-1982	CG Academy	Deepwater cutter ARIADNE
Adm. Owen Siler	1974-1978	CG Academy	Deepwater troop transport LIGETT
Adm. Chester Bender	1970-1974	CG Academy	Deepwater cutter MENDODA
Adm. Willard Smith	1966-1970	CG Academy	Deepwater cutter SARANAC
Adm. John Roland	1962-1968	CG Academy	Deepwater destroyer/cutter SHAW
Adm. Al Richmond	1954-1962	CG Academy	Deepwater cutter MOJAVE

Vice Adm. Merlin O'Neil	1949-1954	CG Academy	Deepwater cutter GRESHAM
Adm. Joseph Farley	1946-1949	RCS School*	Deepwater cutter MOHAWK
Adm. Russell Waesche	1936-1946	RCS School*	Deepwater cutter ARCATA
Rear Adm. Harry Hamlet	1932-1936	M.I.T.	Deepwater cutter BEAR
Rear Adm. Fred Billard	1924-1932	Not Available	Deepwater cutter CHASE
Rear Adm. Bill Reynolds	1919-1924	Not Available	Deepwater cutter CORWIN
Capt/Cmdt Ellsworth Bertholf	1911-1919	Not Available	Not Available

Source: US Coast Guard website, http://www.uscg.mil/hq/g-cp/history/FAQS/comm.html, * Predecessor to the Coast Guard Academy.

The evidence is overwhelming that the Coast Guard has been a deepwater focused organization. Status tends to accompany size of ship, and those who use 10 foot motorboats on small inland lakes to save drunken boaters are no match for the officers aboard a 300+ feet boat that travels across oceans and around the world. Thus, internal analysis of Coast Guard hierarchies points toward a status approximated by boat size: the larger the boat, the more important the mission. Further, it is clear that the deepwater community runs the Coast Guard.

The deepwater community's approach to framing the asset modernization problem in systems terms was absolutely done in a manner that implied a solution promoting deepwater community interests. In particular, two main framing mechanisms led to the systems approach and focus on working with Tier I suppliers: (a) the need for close ties and interoperability with the Navy, to remain "compliant" with the National Fleet Statement, and (b) the articulation of the homeland security issue as one of "pushing borders out" versus one of port security.

The National Fleet: Fulfilling Coast Guard "Requirements"

The concept of a "National Fleet" represents a very effective framing mechanism for the Coast Guard. In addition to the timing of the Statement—in the middle of the requirement

determination process and prior to the dissemination of Phase I mission requirements—several points from the Statement are worth highlighting:

- ✓ "[The Coast Guard and Navy should] synchronize planning, training and procurement to provide the highest level of maritime capabilities for the nation's investment."
- ✓ "The Navy and Coast Guard together must deploy forces…"
- ✓ "A combined and interoperable force will be needed…"
- ✓ "The Navy brings essential communications, intelligence, surveillance and detection capabilities."
- ✓ "Because of incompatible equipment, mutual logistics support has been difficult, as has the ability to exchange near real-time intelligence and information."
- ✓ "Our approach should stress commonality wherever appropriate, from shipboard propulsion systems to aircraft components to training standards."
- ✓ "All ships and aircraft of the National Fleet will be interoperable to provide depth for peacetime missions, crisis response, and MTW tasks."
- ✓ "The Navy and Coast Guard will work together to build a National Fleet,…to acquire and maintain future ships that support and complement each service's roles..."

To even an unknowledgeable reader, the above quotes point to a dominant Navy allowing a small Coast Guard to play along if it wants. Given the massive difference in size, status and resources between the Navy and the Coast Guard, every hint at working together to build interoperable capabilities can be read as "The Coast Guard wants to work with us…and we don't object, as long as we do not have to do anything differently than we might have done without their involvement."[32] To suggest that the Navy would adapt to accommodate the Coast Guard is laughable.

---

[32] Coast Guard actions immediately following September 11, 2001 are particularly noteworthy as they demonstrate the strength of Coast Guard – Navy relations. The first call that Coast Guard Commandant Admiral James Loy received on September 11th was from Admiral Vernon Clark, Chief of Naval Operations. Clark's offer for assistance was unconditional: "Just let us know what you need when you need it" (Halliman, Joseph T. 2001. Can

By issuing the National Fleet statement, the Coast Guard deepwater community effectively had its plans "blessed" by a larger, more successful, higher status organization—thereby lending credibility and validity to its agenda. With this blessing in hand, the deepwater community went on to describe its status-increasing desire in terms of *requirements* for the Deepwater program: a briefing document on the Coast Guard website describes the Integrated Deepwater System Program as "fulfilling the Coast Guard's commitment to the National Fleet" (Stillman 2001). The National Fleet concept was thus used to escalate urgency for deepwater community objectives.

Further credibility is gained by hiring Lockheed Martin and Northrop Grumman—contractors familiar with Navy command, control, communications, computer, intelligence, surveillance, and reconnaissance technologies and capabilities—rather than working with existing vendors. The fact that Lockheed Martin is currently working on the conceptual design phase of the Navy's Littoral Combat Ship (LCS)[33] further increases the value of the Coast Guard – Lockheed partnership (Preston 2003). Lockheed's Navy relationships did not go unnoticed: in effectively answering the questions of "Why Lockheed?" Commander Michael Anderson (head of the C4ISR Coast Guard team) notes "Lockheed Martin's Naval Electronics and Surveillance Systems offers decades of experience developing C4ISR systems for the US Navy…" (Anderson

---

the Coast Guard Live Up to its Name in Era of Terrorism? The Military's 'Orphan' Gets New Duties, Few Resources. *The Wall Street Journal*, November 23, 2001, page A1.). It is also worth highlighting that in response to the heightened terrorist threat to US coastline, ports, and waterways in the months following 9/11, six US Navy Cyclone-class patrol coastal warships were assigned to Operation Noble Freedom. This was the first time that US Navy ships were employed under Coast Guard command (Scheina, Robert. 2003. *U.S. Coast Guard: A Historical Overview* [website]. US Coast Guard, April 2003 [cited May 3 2003]. Available from www.uscg.mil/hq/g-cp/history/h_USCGhistory.html.)

[33] The Coast Guard and Navy signed a Memorandum of Understanding in April 2002 "to establish a working group to identify the specific common technologies, systems, and processes critical to both the Navy's future LCS and the Coast Guard's National Security Cutter, Medium Endurance Cutter, and patrol boat developments" For more information, see Anderson, Michael, and Bruce Winterstine. 2003. Gaps, Deficiencies, and the C4ISR Solution: An Integrated Coast Guard for the 21st Century. *Sea Power*, February 2003, 39-43.

and Winterstine 2003). Relationships with previous vendors are maintained through a

subcontracting arrangement via ICGS.

A look at the weaponry on board the National Security Cutter is also instructive as it

provides a glimpse of the types of missions that the Coast Guard foresees for itself. While the 57

MM and .50 Caliber guns are not particularly alarming (similar weaponry has been found on

previous Coast Guard vessels), the addition of the SeaRAM attracts more attention. As a

combination Close-In-Warning-System and Rolling Airframe Missile, the SeaRAM is a self-

defense mechanism against Anti-Ship Missiles. Although previous deepwater cutters had Close-

In-Warning-Systems to protect against incoming missiles, the SeaRAM is a next generation

weapon that is more advanced than weaponry currently employed on US Navy frigates (Toppan

2003). Surely the Coast Guard does not need such capabilities against illegal fisherman.

Pushing Borders Out: Helping Achieve ~~Homeland Security~~ Deepwater Objectives

During the increased national threat levels following September 11th, national attention

remained on airspace security. Coast Guard descriptions of the threat environment, however,

were framed in maritime terms:

> *A terrorist might use a Pakistani exporter with an established record of trade in the United States. The container could have a GPS device so it could be tracked as it moved through Singapore or Hong Kong to mingle with the more than half a million containers handled by each of these ports every month. It could arrive in the United States via Long Beach or Los Angeles and be loaded directly on a railcar for the transcontinental trip. Current regulations do not require an importer to file a cargo manifest with the US Customs Service until the cargo reaches its "entry" port—in this case, Newark, 2800 miles of US territory away from where it first entered the country—and the importer is permitted 30 days' transit time to make the trip to the East Coast. When the container reaches the rail yard outside of Chicago—which is one of the most important rail hubs in the United States—the weapon would be set off, long before its contents were even identified as having entered the country (Flynn 2001).*

More than 8,000 foreign flag ships, carrying more than 7 million containers, arrive at US ports each year, and less than 3% of these ships are inspected when they arrive at a US port (Collins 2002). Given heavy US economic dependence upon maritime trade, to inspect every ship or every container arriving from foreign ports is not an option. It would halt trade, with devastating effects upon the US economy.

The Coast Guard solution to this problem is to "push out the borders" into the deepwater operating environment, dealing with potential threats before they reach American coasts. Doing so, however, requires a robust deepwater ability to interdict foreign vessels on the high seas. Once again, the framing of the problem implies more than merely a Coast Guard solution—such as increased port security operations and increased technology spending on coastal capabilities—it implies a deepwater solution, reflecting the highest status deepwater community's interests.

Conclusion

WHEC 715, USCGC Hamilton
A Hamilton Class High Endurance Cutter to be replaced with a National Security Cutter
(Constructed 1967; Home Port: San Diego, CA)

Conclusion

The importance of Coast Guard culture and doctrine in understanding the Deepwater Program cannot be overstated. As Commandant of the US Coast Guard Thomas Collins has stated, transformation will be pursued without changing the organization's ethos: "In our third century of operations, we must transform in select, key areas while holding fast to our core characteristics as a maritime, multi-mission, military service and continuing to embrace our core values of honor, respect, and devotion to duty" (Collins 2002). It is also important to note that the Coast Guard is run by the deepwater community.

Changes in the national security environment at the end of the Cold War led to an increase in peacetime military engagement and non-war military operations. Recognizing these new military roles as areas of core expertise, the Coast Guard has sought to capitalize upon this new environment by transforming its mix of missions. Deepwater is key to this transformation. Given the risks of placing an organization's future in the hands of another organization (namely, a systems integrator contractor), one wonders why the Deepwater program was pursued in a non-traditional manner that emphasized a systems approach and mission performance. Several potential arguments exist.[34]

Perhaps the Coast Guard's limited success in retaining talented individuals had developed a gap in internal project management capabilities. Perhaps the Coast Guard merely wanted to go "faster" than its own capabilities would allow, and an external systems integrator could serve as surge capacity.[35] Perhaps cost management was the primary objective, and the use of a single contractor streamlined the acquisition process and allowed for consistency in staffing and

---

[34] For an overview of the Coast Guard's official party line as to why a systems approach was chosen, see Stillman, Patrick M. 2002b. Deepwater Takes Partnership to a New Level. *Deepwater News*, May 2002, 1-2.

[35] This surge capacity is similar in concept to the wartime use of contractors to supplement national armories. See Sapolsky, Harvey M. 2004 (forthcoming). Inventing Systems Integration. In *Systems Integration*, edited by A. Prencipe. Oxford, England: Oxford University Press.

contract administration. Perhaps the Coast Guard wanted to shift the risk[36] of system

development to an external party, an organization to carry the blame if and when the

modernization process failed in any way. Perhaps the Coast Guard was expending some of the

political capital it had developed with Congress to experiment with innovative contracting.[37]

While all of these explanations are possible, the most compelling story is presented by

examining status imbalances and organizational competition at two levels: among internal Coast

Guard communities and across the Coast Guard's competitor organizations. External status

dynamics led to a Coast Guard focused on securing the services of a Tier I contractor, one

capable of pulling their funding needs through the system. For as noted by Deepwater Program

Executive Officer Rear Admiral Patrick Stillman,

> *A partnership with a Tier I supplier affords one the opportunity to leverage their network, influence, and political savvy in terms of funding obtainment and sustainment as well as program acceleration….selection of a Tier I contractor was a very important consideration in a program of this scope and scale…you just can't get that kind of leverage from a Tier II supplier. Vance Coffman[38] doesn't have a problem getting on Tom Ridge's calendar, and that helps in a way that no Tier II supplier can ever help* (Stillman 2003b).

This objective initially proved elusive. Simply replacing boats in the manner of previous

acquisitions was not attractive enough to generate interest from Tier I suppliers. Further,

---

[36] Sapolsky also discusses the nature of contract arrangements and how they affect risk allocation in the development of new programs, etc.

[37] The Coast's Guard's status as an efficient organization was highlighted by the Federal Performance Project at the George Washington University School of Public Administration. Of the hundreds of government organizations evaluated, the Coast Guard was one of only three agencies in the late 1990's to earn an overall "A." Additionally, "the GAO has given the Coast Guard high marks for its management…" (Glassman, James K. 2003. *High-Seas, Low-Tech* [website]. National Journal Online (via The American Enterprise Institute), June 6 2001 [cited April 23 2003]. Available from www.aei.org/news/newsID.12894,filter./news_detail.asp.). The value delivered by the Coast Guard to the nation (in terms of drugs seized, property saved, etc.) is approximately four times the cost (Coast Guard appropriations), "and for that reason alone our Coast Guard has exceptional credibility with Congress" (Kennedy, Jack. 1998. The Decade of the Coast Guard. *Sea Power*, August 1998, 5.). As we have seen, however, marketing and positioning tactics like the framing of "value delivered" have been ineffective against the immediate impact of new and improved roads. Further, one should take notice of the fact that the Coast Guard no longer markets or describes its effectiveness in terms of its ability to "create value." Rather, post 9/11 framing has been on threat neutralization.

[38] Chairman and CEO of Lockheed Martin.

---

budgetary pressure from watchdog organizations like OMB and GAO led to a conflict over capital expenditures on legacy assets and new systems. In direct reaction to these pressures, the Coast Guard adopted a systems approach specifically to simplify budgeting (everything is included) as well as increase the size of the contract. Vice Admiral Allen, current Coast Guard Chief of Staff, in direct reaction to a question about why the systems approach was used to increase the scope of the Deepwater Program, stated that "it was the price of admission to the game" (Allen 2003) and provided the scale needed to attract Tier I contractors.

From an internal perspective, the deepwater community's status as the organization's core group afforded it the authority and legitimacy to dictate a solution to the asset modernization problem in terms most beneficial to its interests. To name the Coast Guard's main modernization project "Deepwater" is telling in and of itself. The term implies operations far from the coast, operations requiring big boats, and operations needing advanced technical capabilities. Describing the solution to the problem with such language is inherently advantageous to the deepwater community. Indeed, the deepwater community is the organization's core group and sets organizational objectives and approaches to problem solving.

The argument presented in this paper suggests that the modernization problem was conscientiously framed in terms that focused on both the deepwater community's goals—increasing internal power—as well as the Coast Guard's objective of gaining status versus other organizations. Although several tactics were employed, internal efforts focused upon changing the mix of Coast Guard missions to achieve more dependence upon deepwater roles, and external efforts centered on achieving interoperability with other organizations. It allowed the Coast Guard to emphasize its military character—a character that is deeply ingrained in its history, culture, and doctrine. Further, by describing the problem through a systems approach, the

Deepwater program suddenly had pertinence to the entire organization—after all, everything in a system is interconnected. Finally, the unfortunate events of September 11, 2001 were a boon for the Coast Guard. It led to an increased focus on many of the organization's unique military skills, and eventually led to a reorganization of the federal government in which Coast Guard status rose dramatically. While too early to tell, the Coast Guard appears to be much closer to—and indeed may be—the core group in the Department of Homeland Security, a far better position than its assuredly non-core group status in the Department of Transportation (or for that matter within the Department of Defense).

Perhaps the greatest coup of the Coast Guard deepwater community, however, was in getting the pre-September 11th President's Interagency Task Force on United States Coast Guard Roles & Missions—in direct response to an OMB hypothesis that the Coast Guard was an unnecessary organization—to declare "the recapitalization of the Coast Guard's Deepwater capability is a near-term national priority"(Downey 2001) and bestow upon it the greatest compliment an organization can receive, "if the Coast Guard did not exist, it would be in the best interest of the country to invent it, quickly" (Downey 2001).

The interaction between internal and external status dynamics and an organization's propensity to use a systems approach is a subject worthy of further study. While this paper has attempted to demonstrate—through an in-depth case study of a situation in which a relatively weak organization (i.e. not a core group from a resource acquisition perspective) utilized a lead systems integrator to assist it in fighting off watchdog organizations and political pressures—that the use of a systems approach can result from the struggle of low-status organizations seeking to accomplish traditionally high-status goals, the findings have limited generalizability without further investigation. Nevertheless, it is noteworthy that the organizations which have chosen to

utilize lead systems integrators in a systems approach to acquisition sourcing have included the National Aeronautics and Space Administration (NASA), the Coast Guard, and the US Army.

Not one of these organizations is a core group relative to its competitor and peer organizations. NASA has suffered from two shuttle disasters and is seeking resources from Congress that do not necessarily "bring home the bacon" to any local constituency in a demonstrable or noticeable manner. While NASA had previously been able to efficiently overcome this obstacle through an often-articulated "space race" with the Soviet Union, the end of the Cold War removed this assistance. Regular manned missions to space generally do not provide direct satisfaction to constituents. Further, the missions suffer from the same "downside-heavy" characteristic that plagues the Coast Guard's life saving service. Successes do not make headlines; disasters and organizational ineffectiveness, however, do garner significant attention.

Likewise, the US Army is a relatively weak organization vis-à-vis its peers within the Department of Defense. Perhaps due to the increasing US aversion to manpower intensive conflict, the US congress finds it more appealing to fund distant, stand-off weaponry acquisition plans proposed by the US Air Force or the US Navy rather than advanced tactical combat apparatus that puts more humans in harm's way. In an effort to mitigate the impact of its low status upon its organizational acquisition objectives, the US Army hired Boeing as a lead systems integrator for the development of its future combat vehicle, thereby hiring a contractor that had not traditionally worked for the US Army and had traditionally worked for the core group organizations. Thus, the US Army's Future Combat Vehicle program is a nice parallel to the Coast Guard's Deepwater Program in that both organizations were facing similar issues (low status vs. peer organizations, congressional and watchdog organization resistance) and chose to

face the challenge by hiring a lead systems integrator. Further, in both cases the lead systems integrator which was hired was the traditional contractor of a core group that did not face the challenges confronted by the weak organization. Finally, in both cases the organization utilized the systems approach and a pull approach to securing funding in order to achieve its objectives.

The costs of the systems approach need to be investigated in greater detail. While it appears that the overall impact of organizational dynamics that leads to the use of lead system integrators is negative, further research is needed to determine the true impact of utilizing the systems approach. From a policy perspective, it seems clear that the use of a lead systems integrator is plagued by conflicts of interest. Often times the contractor will retain the most lucrative portions of the contract for its own in-house subcontractors while outsourcing the lower-margin subsystems to subcontractors. Further, traditional suppliers will be displaced, leading to political friction and a potential "fattening of the goose" so as to quiet/assuage all interested parties. Thus, it is conceivable that the bureaucratic politics surrounding weak organizations and their decisions to pursue systems and pull approaches is not in the best interests of taxpaying citizens.

Despite these problems, the question remains of whether a more efficient process exists for the disenfranchised, non-core group, weak organization to achieve its objectives.   Power-dependence theorists (Emerson 1962; Salancik and Pfeffer 1977) have suggested that one way to mitigate "balancing operations"[39] (such as the use of systems integrators to compete with higher status organizations) is to strengthen the weak and/or weaken the strong in an effort to create a more balanced, stable relationship in which extreme efforts are not undertaken to mitigate

---

[39] Emerson describes four possible actions—referred to as balancing operations—taken by an entity or person who is in a weak or highly dependent situation. These four actions include: (a) withdrawal, (b) formation of new relationships outside of the existing network of entities, (c) coalition formation within the network of entities, or (d) the allocation of status in a manner that promotes greater equality of power within coalitions/networks.

unbalanced hierarchical situations. Might it make sense actively to provide resources to those organizations not able to obtain funding through traditional channels? Or perhaps political forces should remain supreme, allowing the emergent paths to be pursued? In either case, the subject is of sufficient importance that it deserves further attention. Finally, efforts to understand the political motives and the behavior of weak organizations may in fact benefit from cross-fertilization with psychology. For instance, current Coast Guard Chief of Staff Admiral Thad Allen indicated in personal conversations that he spent much of the early 1990s car pooling with a senior Navy officer responsible for asset replacement and shipbuilding: "During these commutes, we constantly brainstormed about how the Coast Guard could get its act together vis-à-vis a vision for asset replacement" (Allen 2003). Admiral Allen went on to describe how he learned about asset replacement vision from the Navy and how he tried to make the Coast Guard more "Navy-like," providing strong evidence that the Navy continues to serve as a role model for the Coast Guard. Thus, understanding the social dynamics surrounding role models may in fact help explain the Coast Guard's relationship with the US Navy, both on an organization-to-organization level as well as on an individual leader to individual leader basis.

In the final analysis, however, it is clear that weak organizations have numerous coping mechanisms at their disposal to secure assets. How and why they choose the adoption of lead systems integrator services is the subject of much debate. In the present case, the use of a systems approach with a systems integrator allowed a weak organization to redefine its position relative to outsiders, while simultaneously allowing the internally dominant community to solidify and reassert its "core" position within the organization.

References

WMEC 621, USCGC Valiant
A Reliance Class Medium Endurance Cutter to be replaced with an Offshore Patrol Cutter
(Constructed 1967; Home Port: Miami Beach, FL)

References

2003 Congressional Testimony. Fiscal Year 2004 Budget Request of the United States Coast Guard. In *Homeland Security Subcommittee of the House Appropriations Committee*. Washington, DC: Federal News Service.

Allen, Thad. 2003. Interview of Vice Admiral Thad Allen (USCG Chief of Staff) by Vikram Mansharamani at USCG Headquarters on October 8, 2003. Washington, DC.

Anderson, John H. 1998. *Coast Guard's Acquisition Management: Deepwater Project's Justification and Affordability Need to Be Addressed More Thoroughly*. Washington, DC: General Accounting Office.

Anderson, Michael. 2000. Semper Paratus: The Rest of the Story. *US Naval Institute Proceedings*, December 2000, 40-43.

Anderson, Michael, Diane Burton, M. Steven Palmquist, and J. Michael Watson. 1999. The Deepwater Project - A Sea of Change for the US Coast Guard. *Naval Engineers Journal*.

Anderson, Michael, and Bruce Winterstine. 2003. Gaps, Deficiencies, and the C4ISR Solution: An Integrated Coast Guard for the 21st Century. *Sea Power*, February 2003, 39-43.

Bertalanffy, Ludwig Von. 1976. *General System Theory: Foundations, Development, Applications*. New York, NY: George Braziller Publishing.

Collins, Thomas H. 2002. Constancy Amid Great Change. *US Naval Institute Proceedings*, August 2002.

DiBennedetto, William. 1990. House Panel Hears Need to Replace Coast Guard Navigation Aid Fleet. *Journal of Commerce*:Maritime Section, p. 1B.

DiBennedetto, William. 1992. Coast Guard Fails to Justify Plan to Replace Buoy Tenders, GAO Says. *Journal of Commerce*:p. 5.

Downey, Mortimer L. 2001. The US Coast Guard of the 21st Century. Washington, DC: The President's Interagency Task Force on US Coast Guard Roles and Missions.

Emerson, Richard M. 1962. Power-Dependence Relations. *American Sociological Review* 27:31-41.

Flynn, Stephen E. 2001. Homeland Security Is a Coast Guard Mission. *US Naval Institute Proceedings*, October 2001.

Forrester, Jay W. 1999. *Principles of Systems*. New York, NY: Productivity Press.

Gaughan, John A. 2003. Still Maritime...Still Military...Still Multimission... *Almanac of Seapower*, 17-21.

Gholz, Eugene. 2004 (forthcoming). Systems Integration in the US Defense Industry: Who Does It and Why Is It Important? In *The Business of Systems Integration*, edited by A. Prencipe, A. Davies and M. Hobday. New York, NY: Oxford University Press.

Gholz, Eugene, and Harvey M. Sapolsky. 2000. Restructuring the U.S. Defense Industry. *International Security* 4 (3):5-51.

Giddens, Gregory L. 2001. The United States Coast Guard's Integrated Deepwater System: Creating Opportunities for Enhanced Interoperability with America's Friends and Allies. *The DISAM Journal*:1-10.

Gilbert, M. Edward, and Gary R. McGuffin. 2002. The "Deepwater" Challenge: Integrated Coast Guard System's Approach. *The Bulletin*, Fall 2002, 2-20.

Glassman, James K. 2003. *High-Seas, Low-Tech* [website]. National Journal Online (via The American Enterprise Institute), June 6 2001 [cited April 23 2003]. Available from www.aei.org/news/newsID.12894,filter./news_detail.asp.

Goward, D. A. 1999. Life-saving Service Left in the Cold. *US Naval Institute Proceedings*, December 1999, 52-56.

Halliman, Joseph T. 2001. Can the Coast Guard Live Up to its Name in Era of Terrorism? The Military's 'Orphan' Gets New Duties, Few Resources. *The Wall Street Journal*, November 23, 2001, page A1.

Hessman, James D., and Richard R. Burgess. 1998. Doing Good Things for America: Interview with Coast Guard Commandant Admiral James M. Loy. *Sea Power*, August 1998, 9-14.

Johnson, Jay, and James M. Loy. 1998. "National Fleet": A Joint Navy/Coast Guard Policy Statement. Washington, DC: Department of Navy and Department of Transportation.

Johnson, Robert Erwin. 1987. *Guardians of the Sea*. Annapolis, MD: US Naval Institute Press.

Kennedy, Harold. 2002. Coast Guard's Deepwater to be Marketed Worldwide. *National Defense*, September 2002, 39-40.

Kennedy, Jack. 1998. The Decade of the Coast Guard. *Sea Power*, August 1998, 5.

Kime, Patricia. 2003. Adm. Keating Says Coast Guard was "Pivotal" Force. *Sea Power*, October 2003, 6-8.

King, Irving. 1996. *The Coast Guard Expands 1865-1915: New Roles, New Frontiers*. Annapolis, MD: US Naval Institute Press.

Kleiner, Art. 2003. *Who Really Matters: The Core Group Theory of Power, Privilege, and Success*. New York, NY: Currency Doubleday.

Laszlo, Ervin. 1996. *The Systems View of the World: A Holistic Vision for Our Time*. New York, NY: Hampton Press.

Loy, James M. 2002. Coast Guard Publication 1; US Coast Guard: America's Maritime Guardian. Washington, DC: US Coast Guard.

Madison, James, Alexander Hamilton, and John Jay. 1987. *The Federalist Papers*. Edited by I. Kramnick. London, England: Penguin Group.

McDaniel, Jack. 2003. Interview of USCG Captain Jack McDaniel (Retired) by Vikram Mansharamani at USCG Headquarters on October 8, 2003. Washington, DC.

Mead, Kenneth M. 1992. *Coastal Buoy Tender Acquisition Project Did Not Follow Guidelines*. Vol. GAO/RCED-92-156. Washington, DC: General Accounting Office.

Mintz, John, and Vernon Loeb. 2003. Coast Guard Fights to Retain War Role: "Slack-Jawed" Over Criticism From Rumsfeld, Service Cites Its Battle Capabilities. *The Washington Post*, August 31, 2003, A7.

Mizell, Larry, and Joe DiRenzo. 2003. Coast Guard Leads Maritime Homeland Security Team. *US Naval Institute Proceedings*, March 2003.

Peck, Merton J., and Federic M. Scherer. 1962. *The Weapons Acquisition Process: An Economic Analysis*. Cambridge, MA: Harvard University Press.

Preston, Anthony. 2003. BAE Systems Prime Contractor for UK CVF Carrier Program. *Sea Power*, February 2003, 26.

Ramo, Simon. 1969. *Cure for Chaos: Fresh Solutions to Social Problems Through the Systems Approach*. New York, NY: David McKay Company, Inc.

Rosen, Stephen P. 1984. Systems Analysis and the Quest for Rational Defense. *The Public Interest* 76 (Summer 1984):3-17.

Salancik, Gerald R. , and Jeffrey Pfeffer. 1977. Who Gets Power - And How They Hold On To It: A Strategic Contingency Model of Power. *Organizational Dynamics* (Winter 1977):3-21.

Sanial, Gregory J. 2001. National Security Depends on Deepwater. *US Naval Institute Proceedings*, November 2001.

Sapolsky, Harvey M. 2004 (forthcoming). Inventing Systems Integration. In *Systems Integration*, edited by A. Prencipe. Oxford, England: Oxford University Press.

Scheina, Robert. 2003. *U.S. Coast Guard: A Historical Overview* [website]. US Coast Guard, April 2003 [cited May 3 2003]. Available from www.uscg.mil/hq/g-cp/history/h_USCGhistory.html.

Stillman, Patrick M. 2003. *Deepwater 101* [Powerpoint Briefing]. US Coast Guard, 2000 [cited April 12, 2003]. Available from http://www.uscg.mil/deepwater/powerpoint/dw101-notes.pdf.

Stillman, Patrick M. 2003. *Integrated Deepwater System Program: Fulfilling the Coast Guard's Commitment to the National Fleet* [Summary Document]. US Coast Guard, 2001 [cited May 7, 2003]. Available from http://www.uscg.mil/deepwater/word/commitment.doc.

Stillman, Patrick M. 2002a. Deepwater and Homeland Security. *Sea Power*, April 2002.

Stillman, Patrick M. 2002b. Deepwater Takes Partnership to a New Level. *Deepwater News*, May 2002, 1-2.

Stillman, Patrick M. 2002c. Human Factors Play Major Role in Deepwater Design. *Deepwater News*, February 2002.

Stillman, Patrick M. 2003a. Interview of Rear Admiral Patrick Stillman (Deepwater Program Executive Officer) by Vikram Mansharamani at USCG Headquarters on October 8, 2003. Washington, DC.

Stillman, Patrick M. 2003b. Telephone Interview of Rear Admira Patrick Stillman (Deepwater Program Executive Officer) by Vikram Mansharamani on October 24, 2003.

Stubbs, Bruce, and Scott C. Truver. 2000. America's Coast Guard: Safeguarding US Maritime Safety and Security in the 21st Century. Washington, DC: US Coast Guard and The Anteon Corporation.

Terriberry, Timothy. 2003. Interview of USCG Captain Timothy Terriberry (Retired) by Vikram Mansharamani at USCG Headquarters on October 8, 2003. Washington, DC.

Thorsen, Howard B. 1997. The US Coast Guard in Review. *US Naval Institute Proceedings*, May 1997, 103-109.

Thorsen, Howard B. 2001a. The Coast Guard in Review. *US Naval Institute Proceedings*, May 2001, 92-98.

Thorsen, Howard B. 2001b. Toss the Coast Guard a Life Ring. *US Naval Institute Proceedings*, July 2001.

Toppan, Andrew. 2003. *World Navies Today: US Coast Guard* [website]. March 10, 2003 [cited May 7, 2003]. Available from http://www.hazegray.org/worldnav/usa/guard.htm.

Wilson, James Q. 1989. *Bureaucracy: What Government Agencies Do and Why They Do It*. New York, NY: Basic Books.

Winnick, Seth. 2003. Telephone Interview of Seth Winnick (Deepwater Communications Specialist) by Vikram Mansharamani on April 30, 2003.

Worden, Michael. 2002. *The Rise of the Fighter Generals: The Problem of Air Force Leadership 1945-1982*. Honolulu, HI: University Press of the Pacific.