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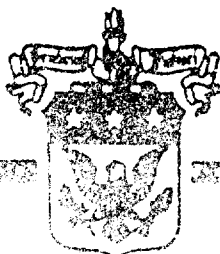
U.S. STRATEGIC SEALIFT CAPABILITY STUDY

BY

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USAWC CLASS OF 1991



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REPORT DOCUMENTATION PAGE				Form Approved OMB No. 0704-0188	
1a. REPORT SECURITY CLASSIFICATION Unclassified			1b. RESTRICTIVE MARKINGS		
2a. SECURITY CLASSIFICATION AUTHORITY			3. DISTRIBUTION/AVAILABILITY OF REPORT Approved for Public Release. Distribution is unlimited.		
2b. DECLASSIFICATION/DOWNGRADING SCHEDULE			4. PERFORMING ORGANIZATION REPORT NUMBER(S)		
5. MONITORING ORGANIZATION REPORT NUMBER(S)			6a. NAME OF PERFORMING ORGANIZATION U.S. Army War College		
6b. OFFICE SYMBOL (If applicable)			7a. NAME OF MONITORING ORGANIZATION		
6c. ADDRESS (City, State, and ZIP Code) Carlisle Barracks, PA 17013			7b. ADDRESS (City, State, and ZIP Code)		
8a. NAME OF FUNDING/SPONSORING ORGANIZATION			8b. OFFICE SYMBOL (If applicable)		
8c. ADDRESS (City, State, and ZIP Code)			9. PROCUREMENT INSTRUMENT IDENTIFICATION NUMBER		
10. SOURCE OF FUNDING NUMBERS			11. TITLE (Include Security Classification) Unclassified U.S. Strategic Sealift Capability Study		
PROGRAM ELEMENT NO.			PROJECT NO.		
TASK NO.			WORK UNIT ACCESSION NO.		
12. PERSONAL AUTHOR(S) LTC Elmo V. Bessent			13a. TYPE OF REPORT Study Project		
13b. TIME COVERED FROM _____ TO _____			14. DATE OF REPORT (Year, Month, Day) 91/04/29		
15. PAGE COUNT 33			16. SUPPLEMENTARY NOTATION		
17. COSATI CODES			18. SUBJECT TERMS (Continue on reverse if necessary and identify by block number)		
FIELD			GROUP		
SUB-GROUP					
19. ABSTRACT (Continue on reverse if necessary and identify by block number) The United States, as a world leader politically, economically and militarily, has the frequent responsibility and requirement to project military forces worldwide. Ninety-five percent of the equipment and sustainment moved in support of these projections is done by sealift. It is obvious that strategic mobility is absolutely vital if the United States is to realize its National Security Objectives. This study reviews, in a macro sense, the capabilities of the United States to accomplish this crucial mission. The study takes a look at the United States Transportation Command, its charter and the Military Sealift Command which is the Naval component responsible for strategic sealift operations. The study then transitions from force structure to requirements and capabilities. The approximate gross requirements for movement of a five division corps and its sustainment are identified. The requirement is then compared to the movement capability possessed by USTRANSCOM which reveals that a shortage of lift exists. In conclusion, it is determined					
20. DISTRIBUTION/AVAILABILITY OF ABSTRACT ☒ UNCLASSIFIED/UNLIMITED ☐ SAME AS RPT. ☐ DTIC USERS			21. ABSTRACT SECURITY CLASSIFICATION Unclassified		
22a. NAME OF RESPONSIBLE INDIVIDUAL Dennis L. Seiler			22b. TELEPHONE (Include Area Code) (717) 245-3423		
			22c. OFFICE SYMBOL AWCAE		

Block 19. ABSTRACT.

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USAWC MILITARY STUDIES PROGRAM PAPER

U.S. STRATEGIC SEALIFT CAPABILITY STUDY

AN INDIVIDUAL STUDY PROJECT

by

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UNCLASSIFIED

Abstract

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TITLE: U.S. STRATEGIC SEALIFT CAPABILITY STUDY

FORMAT: Individual Study Project

DATE: 5 April 1991 Pages: 33 Classification: Unclassified

The United States, as a world leader politically, economically and militarily, has the frequent responsibility and requirement to project military forces worldwide. Ninety-five percent of the equipment and sustainment moved in support of these projections is done by sealift. It is obvious that strategic mobility is absolutely vital if the United States is to realize its National Security Objectives. This study reviews, in a macro sense, the capabilities of the United States to accomplish this crucial mission. The study takes a look at the United States Transportation Command, its charter and the Military Sealift Command which is the Naval component responsible for strategic sealift operations. The study then transitions from force structure to requirements and capabilities. The approximate gross requirements for movement of a five division corps and its sustainment are identified. The requirement is then compared to the movement capability possessed by USTRANSCOM which reveals that a shortage of lift exists. In conclusion it is determined that some timely enhancements such as pre-positioning of equipment, securing additional roll on roll off ships, increasing containerization, generating a trained and responsive Merchant Marine Manning System and providing subsidies to our shipbuilding industry are necessary if responsive Strategic Sealift is to be provided to supported CINCs.

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INTRODUCTION

Due to tremendous changes taking place in the world the national military strategy of the United States is likely to change somewhat in the foreseeable future. It will, however, still encompass the requirement to project forces and equipment worldwide. We have therefore built and maintained forces to deter potential enemies worldwide from resorting to war against our interests; and fight and win should deterrence fail. Since the interests of the nation are worldwide it is self-evident that our military capability must be employable worldwide to support a military strategy designed to protect those interests. With the Soviet Union struggling with its national strategy, the possibility of a global war seems to be diminishing. It is prudent to assume that the size, composition, and disposition of U.S. forces available for worldwide employment will change. What will not change will be the need for Strategic Sealift to support this strategy, a requirement that will become even greater when forces deployed overseas are withdrawn to the United States.¹

In 1944, General Dwight D. Eisenhower said,

When final victory is ours, there is no organization that will share its credit more deservedly than the American Merchant Marine. America's industrial prosperity and military security both demand that we maintain a privately operated merchant marine adequate in size and modern design to ensure that our lines of supply for either peace or war will be safe. I consider the Merchant Marine to be our fourth arm of defense and vital to the stability and expansion of our foreign trade.²

This perception was shared by General Eisenhower's military colleagues and by governmental officials during the Second World War and through the early years of the "Cold War." Today America is no longer the preeminent maritime power it once was. The once all-encompassing and efficient fleet of privately owned and operated ships has generally disappeared from the seas.

- Forty years ago we had more than 1,400 civilian seagoing merchant ships. Today, there are 430, and our National Defense Reserve Fleet has declined from 1,800 ships to 240.

- Forty years ago this country's ships carried more than 35 percent of our ocean-borne foreign commerce. Today they carry less than four percent.

- Forty years ago we had more than 60,000 personnel engaged in the maritime industry. Today, there is less than 14,500.³

In the past 35-40 years our fleet has declined from first in the world to tenth. Concurrently, the Soviet commercial fleet has surged to second in the world. At the same time, however, the addition of larger ships, particularly large tankers and container ships has resulted in the carrying capacity (in dead-weight tonnage) of the fleet increasing from 15.8 to 21.2 million tons. Unfortunately, the capability of many of these vessels to meet military requirements has declined significantly.⁴

"Shipping," said Prime Minister Winston Churchill during World War II, "was at once the stranglehold and sole foundation of our war strategy." England and the rest of the allies pressed anything that could float into service because they knew a critical shortage of shipping would mean an end to all offensive

operations and essential civilian services.⁵ Recent historical events such as Korea, Vietnam, the Falklands, Grenada, and the crisis in Kuwait prove that no significant change has taken place. A strong Merchant Marine is integral and absolutely necessary to the concept of a strong Navy and our forward presence strategy. It is essential that the merchant fleet provide efficient, economical, and profitable commercial services in peacetime and also be prepared to transport material and supplies in times of emergency as well as provide critical support to our economy.⁶

It appears that the British and the Soviets are successful in this endeavor. However, it is likely that the U.S. would experience difficulty mustering the required Merchant Marine support to adequately provide equipment and sustainability abroad. Vice Admiral Kent Carroll, former Commander, Military Sealift Command, stated, "Our nation and our maritime industry have pursued sealift with relentless apathy!"⁷ This study project will attempt to review this problem, not in its totality, but in part to determine if strategic sealift is inadequate to support timely global requirements. Should the study reveal that the resources available to deploy U.S. forces and sustainment are found to be inadequate, recommendations will be made in an attempt to remedy the situation.

THE SYSTEM

U.S. TRANSPORTATION COMMAND

In order to thoroughly understand strategic sealift, it is imperative that a precise understanding of the command and control apparatus, its structure and the supporting cast available to accomplish this mission exist. Historically, the United States deployed its forces utilizing Army, Navy, and Air Force assets unilaterally with no real central command, control and communications in existence. This approach generated massive control and coordination problems. Because of this awkward approach to projecting forces strategically, United States Transportation Command (USTRANSCOM) was activated.

USTRANSCOM, established, in 1987, is the nation's newest unified command. In order to accomplish the arduous task of moving people, equipment and sustainment, USTRANSCOM has three component commands: the Air Force's Military Airlift Command (MAC), the Army's Military Traffic Management Command (MTMC), and the Navy's Military Sealift Command (MSC). Also, upon activation, USTRANSCOM absorbed as its Directorate of Deployment the Joint Deployment Agency.

The Command's mission is to provide global common user airlift, sealift, terminal services, and U.S. commercial air and land transportation to deploy, employ and sustain U.S. forces. The command is responsible for all transportation aspects of

worldwide mobility planning, including refinement, administration, and operation of the Joint Deployment System. It also trains and advises the joint deployment community. For deliberate planning, the command develops and refines joint procedures and directives, establishes and maintains the deployment data base, sponsors the Joint Deployment System Users Group and, with the supported Commanders in Chief (CINCs), refines the time-phased force deployment data. During execution planning, USTRANSCOM provides deployment data to the National Command Authorities, Joint Chiefs of Staff, and the supported and supporting CINCs; evaluates courses of action; and aids in transportation allocation decisions. Additionally, USTRANSCOM is charged with integrating transportation mobility and deployment automatic data processing systems into a single deployment system. Finally, in peacetime USTRANSCOM collects and analyzes unit movement requirements, and tasks component commands to satisfy user needs.⁸

Mission-Military Sealift Command

The primary mission of the Military Sealift Command (MSC) is to provide sealift for strategic mobility in support of national security objectives. This mission, known as Strategic Sealift, demands the capability to deploy and sustain military forces when and where needed, and as long as operational requirements dictate.⁹

This mission is fulfilled through the employment of Strategic Sealift forces. These forces come from two principal sources: U.S. Government-owned ships and the U.S. Merchant Marine. U.S. Government-owned ships are those operated by MSC or

held in the custody of the Maritime Administration. They are the National Defense Reserve Fleet and the Ready Reserve Force. The U.S. Maritime industry provides a source of sealift assets from the regularly operating U.S. flag fleet, which may be chartered or requisitioned for military use in time of war or national emergency.

Additional sources of sealift are acquired through laws, treaties, and international agreements. Examples of these are Effective U.S. Controlled Fleet (EUSC) and European NATO flag shipping. Combined, all of these readiness sources provide Strategic Sealift in time of war or national emergency, depending on the nature of the threat and area of conflict.

MSC also has the mission of managing the Command's Naval Fleet Auxiliary Force, which is composed of dedicated sealift assets of the MSC force that provide direct support to the deployed Navy fleet worldwide. Examples are oilers, supply ships and ocean surveillance ships.

MSC's third mission is the operation of a Special Mission Support Force, which provides support for specialized scientific and technical missions. Examples are oceanographic research, hydrographic survey and missile telemetry ships.¹⁰

Organization and Strength

The composition of MSC is approximately 8,000 personnel (civil service, military employees and contract mariners). The majority of Government owned, and some chartered ships operated by MSC are manned by civil service mariners employed by the Navy. The total strength of command's seagoing civilian force is approximately 3,700 people. The civilian shore-based workforce includes over 1,500 employees. Approximately 350 Navy personnel are assigned ashore and about 500 Navy personnel serve on board MSC Navy Fleet Auxiliary Force or Special Mission Support Ships. Contract mariner manning within MSC during peacetime totals approximately 2,000.¹¹

Headquartered in Washington, D.C., MSC has area commands in London, England; Yokohama, Japan; Bayonne, N.J.; and Oakland, Cal. Sub-area commands are maintained in Naples, Italy, and Subic Bay, Republic of the Philippines. Offices can be quickly established elsewhere if MSC identifies a need.

Strategic Mobility Planning

It is imperative that MSC plan for, during peacetime, its responsibility to move U.S. material and unit equipment where and when U.S. forces may require under various potential wartime scenarios. This is generally accomplished through computerized sealift feasibility analysis of requirements generated by CINCs for trans-ocean movement of unit equipment and sustaining supplies. MSC provides the sealift planning, coordination,

direction, manning of ships, etc., needed to support operational plans of the supported commanders. The results of these efforts are found in various OPLANs.¹²

Sealift Resources

In order to orchestrate its plans, wartime and peacetime, MSC maintains a number of operational ships with varying characteristics. Currently, the MSC Force controls approximately 214 ships: 22 Special Mission Support Ships, 38 Naval Fleet Auxiliary Force ships, 68 Strategic Sealift ships and 86 ships in the Ready Reserve Force. The commercial component of the force includes 56 ships. This fleet consists of 10 dry cargo ships, 21 tankers and 25 afloat prepositioning ships.¹³

Due to a renewed concern in Strategic Sealift in the 1980s, an upsurge of interest in military sealift surfaced. Previously, military planners thought of sealift simply as long-term reinforcement and ignored the need for versatility. Two new and key concepts--fast sealift and maritime prepositioning--have signaled a change in this past thinking.

Fast Sealift

In the late 1980s the Navy purchased eight large container ships from private industry that were the fastest ships in the U.S. Merchant Marine. They were converted to roll-on/roll-off Fast Sealift Ships (FSS) which were then ideal for lifting ground force unit equipment. This has resulted in a tremendous

enhancement of sealift capability. Additionally, the eight FSS enable MSC to load or offload its cargo of tanks, artillery, wheeled vehicles, etc. (one heavy Army Division equivalent) in one to two days. FSS sailing time can be as little as four days to Europe or two weeks to the Persian Gulf.

Prepositioning

In the late '70s the Secretary of Defense moved to increase the responsiveness of Marine Corps forces requiring expeditious deployment through a Maritime Prepositioning Ship (MPS) program. Between 1980 and 1986 MSC created the Near-Term Prepositioning Force which was stationed at Diego Garcia to fill intermediate needs (1985) and a permanent 13-ship MPS Program (1986). By 1987 a prepositioning force consisting of three squadrons was deployed. Four ships are in MPS Squadron One, stationed in Eastern Atlantic. Squadron Two consists of five MPS vessels at Diego Garcia plus 12 other prepositioned cargo ships and tankers loaded with Army and Air Force equipment, POL and supplies. Squadron Three consisting of four ships is deployed in the vicinity of Guam/Tinian in the Western Pacific.

These MPS vessels are loaded with Marine Corps cargo which can support up to three U.S. Marine Corps Expeditionary Brigades of approximately 16,500 men each. Each prepositioned ship is contract-manned and under charter and control of MSC.¹⁴

Naval Reservists

In order to meet requirements during time of crisis, MSC serves as the training command and technical manager for MSC Naval Reserve Units. Approximately 2,300 Naval Reservists routinely participate in command post and other exercises. For MSC to function responsively and efficiently in time of need, reserve force augmentation is a must. Active duty personnel assigned to MSC headquarters and offices worldwide constitute less than 15 percent of those required in the event of full mobilization; the remaining 85 percent must come from Naval Reserve components.¹⁵

This chapter covered the missions, structure and subordinate commands that enable the United States to project forces, equipment and sustainment worldwide. More specifically, it examined the U.S. Navy's Military Sealift Command, its resources and projected methods of ensuring that adequate shipping (including mariners) will be available on a timely basis to meet National Military Objectives.

USTRANSCOM has planned for the use of all available assets, both domestic and foreign, to prosecute their goals. The question is, however, are today's available resources sufficient for this arduous task? The challenges confronting USTRANSCOM and MSC will now be examined.

THE CHALLENGE

The U.S. Maritime Industries

Officials at the highest levels of government, including the President and the leadership in the House and Senate, state that the United States Merchant Marine has a vital role in the nation's economy and defense. Nonetheless, the Merchant Marine and its related shipbuilding, ship repair, and supplies industries are in extremis.¹⁶

The nation's military strategy requires the use of merchant shipping assets in a national emergency, thus availability during wartime depends on resources (ships, seamen, repair facilities, etc.) that exist during peacetime.

Current programs designed to maintain a viable merchant fleet have been inadequate, providing only enough support to slow the seemingly inexorable decline in the number of United States Flag merchant ships.¹⁷

American owners are not economically competitive with foreign operators in a world with too many ships for the available commerce and in an environment in which they must pay more acquisition and operating costs which are required by United States laws, regulations and standards of living.¹⁸

Additionally, policies implemented by DOD which encourage obtaining goods and services at the lowest price have placed a burden on the U.S. Maritime Industries. Presently, the DOD is the industry's largest single customer and is practically the only source of shipbuilding work. Contractual arrangements with DOD have become increasingly important to the maritime industry.

Concurrently, however, competitive bidding for business has tended to generate disastrous cargo rates and underpriced procurements.¹⁹

As the workforce of skilled mariners and shipbuilders declines, the ability to expand the strategic sealift fleet will become more difficult even if sufficient ships exist. Simultaneously, shipyards and suppliers are becoming fewer due to economics. The shipbuilding industry is currently being sustained by naval construction. If trends continue and dollars are reduced for naval expenditures, the industry will decline further.

This situation could have grave consequences on our national security and our defense policy forcing the United States to rely solely on foreign flag carriers in the relatively near future.

National Security Requirements

The maritime industries will provide, as part of the defense requirements, ships of the U.S. Flag merchant marine in number and capability sufficient to provide the major part of our strategic sealift. This includes qualified personnel to man those ships, as well as the ships in our Ready Reserve Force (RRF), the National Defense Reserve Fleet (NDRF) and the Effective United States Controlled (EUSC) ships. Also included as part of the total requirement is a building and repair

industry capable of supporting strategic sealift and the needs of combatant naval forces (repair and new construction).²⁰

With all of these variables, determining the exact defense requirement for the maritime industry is a difficult and complex process. Numerous studies have attempted to outline the requirements starting as early as 1930. The analysis, along with the latest studies conducted in the 1980s by the DOD and other agencies, have verified that the long-standing problems of the United States flag shipping, shipbuilding and repair industries have adversely affected the national security capabilities of the United States.

The latest studies performed preliminary analysis to determine the defense requirements in 1987 and 2000 for strategic sealift, to include crews, shipbuilding, repairs and suppliers.

The initial results from the Denton Commission indicates that to meet strategic sealift requirements for a single theater (Southwest Asia) conflict, 300 standard dry cargo ships and 155 Handy Sized Tanker Equivalents (HSTE) would be needed. An additional requirement exists for 25 United States flag dry cargo ships and 193 tankers for economic support shipping to meet the nation's domestic trade requirements.

Three hundred seventy ships would also be required for international trade (economic support), but the studies assumed that those ships would be provided entirely by foreign sources.

Obviously, should foreign flag ships not be available in the required numbers, the demand for United States flag ships, American personnel, and shipbuilding industry would be increased substantially.

During the surge phase of a single theater conflict, approximately 19,000 trained seamen would be required. An additional 7,100 personnel would be required to man the ships necessary to support domestic trade.

An unidentified number of personnel would also be needed to man the National Defense Reserve Fleet and Effective U.S. Controlled ships, or if required to augment peacetime crew sizes to meet wartime requirements.

The mobilization requirements placed on the ship builders and repair industry in both the 1987 and 2000 scenarios would include reactivation of the Ready Reserve Fleet, the National Defense Reserve Fleet, other Inactive Ships in Navy Custody; the installation of Sealift Enhancement Features on some merchant ships; repair of battle damage to Navy and merchant ships; ongoing maintenance and repair; and during a prolonged conflict, the construction of 240 Navy and 250 merchant ships.²¹

Capabilities of the United States Maritime Industries

Indications from literally all sources indicates that the capabilities of the United States maritime industries has diminished substantially since 1980 and will continue to deteriorate unless significant steps are taken to reverse the trend. Specific available data indicates the following:

- The number of major United States flag line companies operating in foreign trade have dropped from 18 in 1970 to four today.

- The size of the privately owned United States flag merchant fleet, both active and idle, has dropped from 905 ships in 1970 to around 400 today.

- Projections indicate that the size and capability of the merchant marine will continue its downward spiral through the year 2000.

- The availability of merchant mariners continues to decline, as seagoing jobs are lost with the diminishing size of the merchant fleet, while at the same time the aging of the seagoing workforce equates to the coming loss of traditional skills that would be needed in time of crisis.

- As the requirement for skilled seamen goes down, the requirements for schools and training are reduced, resulting in training facilities being closed and their unique capabilities being lost.

- The collapse of the commercial ship construction industry in the United States has resulted in the closing of many shipyards, the forcing of a large number of others into bankruptcy proceedings, and the loss of critical shipbuilding and plant facilities. The downturn has also affected the way that other firms are maintaining their plant facilities. Only a few marginal firms have the capital to do the required plant maintenance.

- Between the years 1982 and 1986, the closing and scaling back of shipyards eliminated 52,500 production worker jobs.²²

The capabilities of the United States maritime industries have, without a doubt, fallen on hard times. All aspects of the maritime industries have been reduced significantly over the past 10 years. This trend has produced a shortfall across-the-board and the prognosis is for the problem to become even more acute in the future.

THE SHORTFALL

It is now time to compare the sealift requirements for national security purposes with the available sealift assets - ships, seamen and shipyards - to determine whether the United States maritime industries are capable of supporting the national military strategy.

The dry cargo and tanker analysis is derived, for the most part, from the results of the Denton (Sen. Jeremiah A. Denton) Commission on Merchant Marine and Defense. My analysis is based on a single theater conflict (generic) in Southwest Asia.

Because of the methodological difficulties in converting requirements to specific numbers and types of ships, and remain at the unclassified level, the analysis is presented as approximations of the quantity of sealift resources required rather than in specific numbers. The requirements will also be

presented in gross forms. The analysis and projections are based on the Department of Defense MIDAS (Model for Intra Theater Deployment by Air and Sea) computer model, which considers cargo, required delivery dates, type ships, ship availabilities, and other transportation parameters.

Sealift (Dry Cargo)

Currently, a shortfall exists in dry cargo assets available to meet sealift requirements for the cited Southwest Asia scenario. The assets were defined as those United States flag merchant ships immediately available, the MSC ships, the Ready Reserve Force, and the Effective U.S. Controlled (EUSC) dry cargo ships.²³

STRATEGIC SEALIFT REQUIREMENTS VS CAPABILITIES - 1987

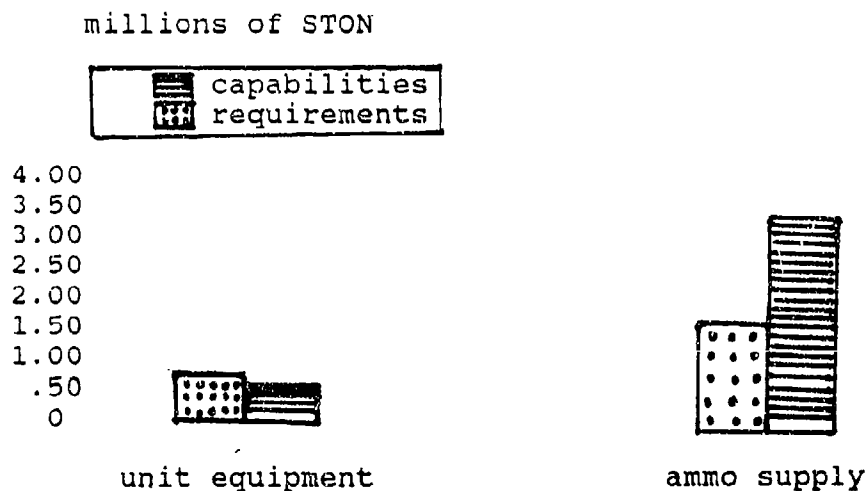


Figure 1

According to Figure 1 above, the dry cargo capability necessary to lift unit equipment is insufficient to meet requirements, but the ammunition and resupply capability would be adequate.²⁴

This data, however, does not take into consideration required delivery dates, ship type and availability, and other specific details, and also does not include ships withheld for economic purposes and attrition losses. It simply shows the total cargo requirement and the total dry cargo lift capability which exist when needed. It should be noted that if a global war existed the requirement for additional sealift would be generated since some airlift assumed to be available would be diverted to other theaters.

Additionally, the capability to move the required unit equipment would require the use in the surge phase of all United States flag, unit equipment capable, dry cargo ships, including all the Effective U.S. Controlled dry cargo ships. Since there is excess capability, in the form of container ships, for ammunition and resupply, the requirements for the sustaining phase would not require the use of as high a portion of the total dry cargo fleet as for the surge phase.²⁵ The use of flat racks and sea sheds during this phase could help somewhat with the transportation of noncontainerizable equipment.

The MIDAS model reflects the "best case" assumptions when depicting the capabilities to deliver equipment and supplies. It also assumes that our allies will meet all the sealift requirements in their respective theaters of operations, and that no ships would be lost to attrition.²⁶

During full mobilization, the requirement for the use of nearly three-quarters of the total U.S. flag dry cargo fleet to meet military needs would be met by Effective U.S. Controlled and other foreign flag ships. It is expected that U.S. flag ships would still meet some economic support requirements.²⁷

The Maritime Administration Economic Support Shipping Study indicated that approximately 25 dry cargo ships would be needed to meet domestic requirements. Seven of those would be RO/RO ships which could be diverted temporarily to meet military surge requirements but subsequently returned for economic support necessities.²⁸

The study concludes that the total ship capability available to move unit equipment composed of all usable ships in the United States flag fleet (assumed to be readily available), is slightly insufficient even under the "best case" scenario. Hence, Strategic Sealift is insufficient to allow military planners to conclude with confidence that the projection of forces and sustainment (5+ Division Equivalents) can be projected to Southwest Asia in a timely manner (D + 30-40), even in the gross terms depicted in this study.²⁹

The Commission decided that an additional 40-45 unit equipment capable ships would be needed to satisfy the projected requirement by year 2000. A total of approximately 250 unit

equipment capable ships will be needed to meet current sealift requirements.

Of the container fleet available, 45 would be required to meet the ammunition and resupply demand. The Jones Act requirement coupled with the need for economic support demands, providing military sustainment to other parts of the world, and attrition losses, result in the need for a total container fleet of at least 100 ships. As the conflict progresses, it should be noted that ships from the National Defense Reserve Fleet could be available for resupply and economic support and to replace attrition losses.³⁰

To meet the current requirements in this scenario for lift capability and ship type, with satisfactory confidence, a fleet of approximately 350 ships will be required. Additionally, to satisfy both surge and sustainment requirements in accordance with the supported CINCs plans, these ships must be immediately accessible.

Sealift (Tankers)

The Department of Defense Sealift Tanker Study estimates that approximately 120 Handy Size Tanker Equivalents for coated tankers and another 35 uncoated tankers would be needed. The economic support tankers and those vessels necessary to support military forces in other theaters were taken into consideration

and sufficient lift exists to satisfy petroleum, oil and lubricant requirements.

Manpower (Merchant Mariners)

The commission identified a shortfall of some 1,400 merchant seamen in 1987 (Southwest Asia scenario). Particularly lacking were unlicensed deck and engineering personnel that are needed to man strategic sealift ships. The study further identified a shortfall of some 12,000 trained seamen by the year 2000. This deficit is so critical, both in skills and in total number, that strategic plans (CJNC OPLANS) could not be supported, even if sufficient ships existed.³¹ The chart below, extracted from the Denton Report, depicts the shortfall/surplus of seamen required for a single theater scenario in 1987.

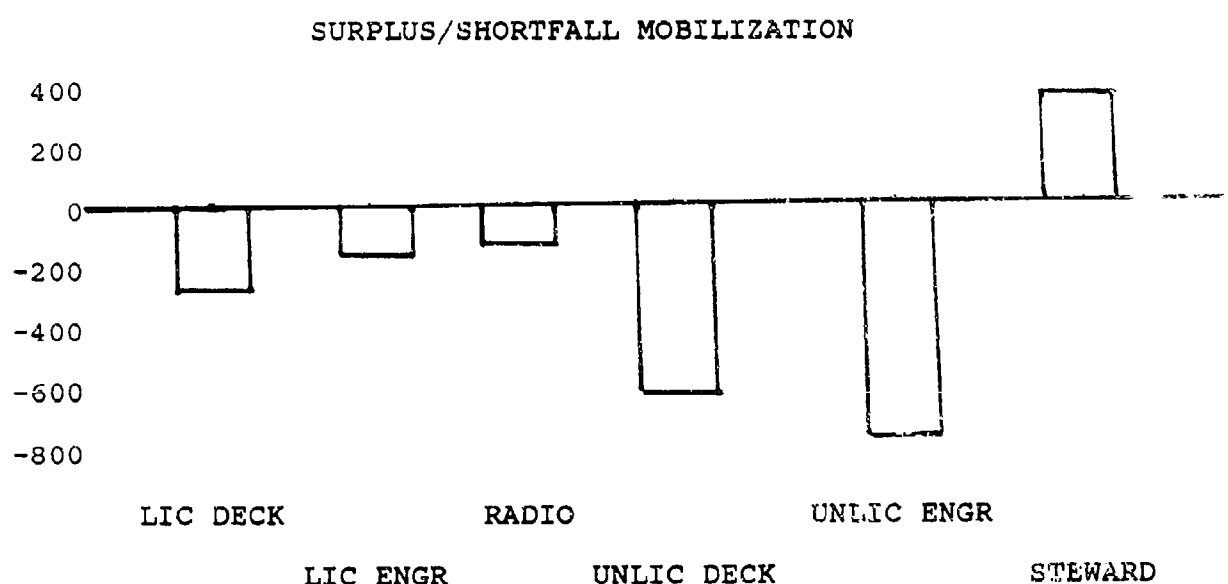


Figure 2

Note: LIC = Licensed

UNLIC = Unlicensed

Shipbuilding and Repair Industry

The Denton Commission cited two studies that concluded that the shipbuilding and repair industry (U.S.) cannot support all mobilization requirements in a timely manner beyond the surge phase (commission defined surge phase as D + 90 to D + 48 mo). During this phase the requirements to activate the Ready Reserve Force, commence repair of battle damaged ships, standard maintenance, and new construction will be greater than capabilities. The studies determined that there is a numerical shortage of shipyards, inadequate shipbuilding positions (for ships over 400 feet long), too few shipyard workers and an unreliable supply of major ship components and systems necessary to meet new construction requirements.

The precise number of shipyards, shipyard workers, and suppliers that is essential to support overall U.S. Maritime Industries is difficult to ascertain. But, taking into consideration current trends within the industry - the closing of shipyards, reduction in the work force, lessening demand for supplies, etc. - it is easy to visualize why the industry in the United States will have a difficult time supporting post-surge demands.

THE FUTURE

At present \$1,275 billion has been identified by Congress to reduce the Strategic Sealift shortfall. Currently, there is a DOD study ongoing to determine which assets (type ships, speed,

number, size, etc.) would provide the greatest overall utility. The study is also revisiting the requirement versus capability issue. I believe that the commission will find that Roll On/Roll Off ships which proceed at between 20-30 knots will be the desired "fix."

Surface Effect ships capable of carrying sufficient cargo to warrant a research and development effort have received a cursory look but cost and time to develop (17-24 years) have rendered them unacceptable. Blimps possessing adequate specifications have also received some attention, but for the same reasons the idea has been dropped.

Other options being given consideration that could enhance the strategic projection capability are prepositioning equipment and sustainment either on land or afloat, upgrading the Ready Reserve Force, buying domestic or foreign flag ships and refitting them accordingly, expanding the Effective U.S. Controlled Fleet, increasing the use of flat racks and sea sheds and a general conversion program for the ships that currently exist under absolute U.S. control. Also, increased containerization of unit equipment is encouraged for all services since more than adequate numbers of container ships exist.

"Fixing" the number and type ship problem can be solved if Congress is willing to allocate the funds necessary but accommodating the personnel shortfall is more challenging.

The Denton Commission found that the Executive Branch is wrestling with two possible options to meet the merchant marines shortfall. They are:

- Train and man Ready Reserve Force ships with active or reserve sailors.

- Create a civilian merchant marine reserve force capable of sailing the Ready Reserve Force.

Both of these options appear to be expensive and time-consuming. No decision has been made yet, but the results of the ongoing studies (type ships needed and manning proposal) are expected to be released by mid 1991.³²

The shipyard and repair industry shortfall problem will only be corrected when the demand is such that warrants expansion. Expansion is possible but quality workmanship done in a timely manner will be slow coming. Only on-the-job experience which equates to a new robust industry will solve this problem.

CONCLUSIONS

After analyzing the results of the Denton Commission's findings, reading articles from a myriad of sources and observing several key presentations which discussed Strategic Sealift, I have concluded that the ability of the United States to provide adequate and timely Strategic Sealift for both the surge and sustainment phases of either a mid or high intensity campaign is marginally insufficient even for a single theater scenario. If

our capabilities were compared to the requirements highlighted in a global scenario, the shortfall would be overwhelming.

In the most general terms, the requirement articulated by several key authorities indicate that the Contingency Corps of the future will consist of up to five divisions. To meet the required delivery dates set forth by supported CINCS, forces must be at their destination by approximately C + 30 to 40. The Corps will require movement of at least three division equivalents (Mechanized, Armored, Airmobile) by sea. Currently, the capability exists to move only one plus division equivalent by the required delivery date.

In gross terms, the requirement to provide supplies during the sustainment phase is also greater than the capability. Additionally, manning of the requisite number of ships will be difficult at best and the U.S. shipbuilding industry to include maintenance facilities and the resupply industry maintenance facilities and the resupply industry are experiencing economically disastrous times.

RECOMMENDATIONS

An easy or quick solution to these problems does not exist. However, I feel that several options are available that will eradicate this dilemma and provide DOD with a feasible answer to the Strategic Sealift shortfall. A balanced and realistic program is suggested consisting of additional RO/RO ships, afloat

prepositioning, maximizing containerization, generating a Merchant Marine Reserve, and initiation of a subsidy program for the ship building industries. These enhancements should be undertaken simultaneously.

- Obtain/refurbish roll on roll off (RO/RO) ships. One of the noticeable shortfalls surrounding the Strategic Sealift question is the inability to transport unit equipment--tanks, trucks, fighting vehicles, etc.--in a timely fashion (surge phase) to the theater. This is obviously due in great part to the shortage of RO/RO ships available early in the deployment sequence. The eight SL-7s which are available are splendid ships but are numerically insufficient for the task. In order to meet supported CINC needs, an additional 30 to 40 RO/RO ships are needed. These ships can be secured in several ways. Due to fiscal constraints, building new RO/RO ships appears to be out of the question. Renovation of existing RRF ships which possess appropriate characteristics (speed, size, etc.) is one alternative and should be pursued. However, this program alone will not totally solve the problem since the RRF does not contain enough ships with the necessary characteristics to totally alleviate the problem. Additional ships must be secured for use during time of crisis. These additional ships are available on the open market and could be contracted for in advance and subsequently become additional ships in the Effective United States Controlled Ships (EUSC) program. Some ship characteristics changes would be required but the costs would be far less than building new ships or refurbishing additional RO/RO

ships. A combination of these two programs will help eradicate the shortfall in our strategic sealift capability and do so at a palatable cost. The cost associated with refurbishing RO/RO ships has averaged \$25 million each. Additionally, the maintenance cost for ships in the RRF is approximately \$2 million annually. The initial costs linked to incorporating a RO/RO ship from the commercial sector into the EUSC will range from \$2-\$10 million depending on the amount of military modification required. The annual contractual costs would be approximately \$2 million.³³

- Afloat prepositioning. The above program alone will not totally solve the problem of strategic mobility and projection of forces. The cost, availability of ships on short notice, lack of manpower, etc. may prevent timely movement. Afloat prepositioning for one mechanized/armored division equivalent's equipment and associated sustainment (15 to 18 ships) will greatly enhance the capability to meet CINC requirements. Afloat prepositioning offers splendid flexibility and expedites response time significantly. This program, which is currently in effect, simply needs to be expanded. There are definite problems associated with this program (maintenance of equipment, cost of leasing, refitting RRF ships, etc.) but with the monetary constraints that currently exist, it is absolutely essential if the United States is to continue to be responsive to worldwide requirements. The cost of this program will be approximately \$14 million per ship annually.³⁴ This program will eliminate, if implemented, approximately 15 RO/RO ships during the surge phase alone.

- Maximize containerization of unit equipment. Most ships available today to carry military equipment abroad are either container or break-bulk ships. With a concerted effort on the part of all services to containerize more units equipment, a greater number of readily available ships can be used and help reduce the requirement for RO/RO ships. More than adequate containers are available worldwide and the cost to engage in this process will be minimal. The estimated cost in savings of RO/RO ships is unknown, however, even reducing the requirement for several RO/ROs will be significant.

- Civilian Merchant Marine Reserve - Having adequate shipping is only part of the equation. If the U.S. is to continue to provide Strategic Mobility, the ever-growing shortage of trained merchant mariners must be rectified. Providing for manpower adequacy in both numbers and training will be the most demanding challenge associated with rectifying the Strategic Mobility problem. A program for doing so will require much study and thought. This study did not seek the solution to the manning problem but found that a severe shortage of trained personnel exists and shortly the situation will be such that ships simply will not sail because of a shortage of manpower. A civilian merchant marine reserve force would be more efficient than other conceivable options since the ships they would man are part of the RRF. The orchestration of such a program must be undertaken by the U.S. Government (possibly the Department of Transportation) with much dispatch. This program will neither be quick or cheap but is absolutely essential.

- Government subsidies to the Shipbuilding Industry - The final portion of the sealift problem is the lack of U.S. shipbuilding and maintenance industries. Over the years the U.S. shipbuilding industries have declined significantly. The reason for this loss of robustness is largely due to economics. In order to make it competitive worldwide, some type of economic assistance must be found. This assistance, for a number of reasons, must also come from the government. This program will require much study and consideration and will surely not be cheap, but it is the only conceivable way to energize a severely slumping industry. It goes without saying that the ability to maintain our ships is the key to successfully providing Strategic Mobility.

In summary, it is clear that the U.S. requires a responsive sealift capability that can transport all types of unit equipment and sustainment in a timely manner if it is to exercise its military role worldwide. It is also clear that this will be done with fewer forward deployed troops, smaller forces and a reduced budget. Strategic Mobility will, therefore, become even more key in the future since timeliness will be imperative.

Rectifying the shortfall identified in this study will not be easy, quick, or cheap, but if the recommendations above are adopted collectively, progress toward a responsive, timely and reasonably cost-effective Strategic Mobility capability will exist.

ENDNOTES

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3. Ibid.
4. Ibid.
5. Ibid.
6. Ibid.
7. Ibid.
8. United States, Transportation Command, An Annotated Bibliography - Command, Organization, Mission and Functions, 1989.
9. United States Department of the Navy, Military Sealift Command, Backgrounder, p. 1.
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11. United States Department of the Navy, Backgrounder, p. 3.
12. Ibid.
13. United States Department of the Navy, 1987 Annual Report, p. 9.
14. United States Department of the Navy, Backgrounder, p. 4.
15. United States Department of the Navy, 1987 Annual Report, p. 27.
16. Jeremiah A. Denton, Findings of Fact and Conclusions, Commissions on Merchant Marine and Defense, 30 September 1987, p. 14.
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18. Ibid.
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22. Ibid., p.42.
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